

PUBLIC

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SAP S/4HANA 1610

Feature Scope Description

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Document History

> ⚠ Caution
>
> Make sure you have the latest version of this document. You can find the latest version at the following location: https://help.sap.com/s4hana_op_1610

The following table provides an overview of the most important document changes.

Version	Date	Description
1.0	2016-10-31	Initial Version for SAP S/4HANA 1610
1.1	2016-11-10	Corrections in LoB Products in area R&D / Engeneering
1.2	2016-12-08	Misleading text in introduction: company-internal collaboration is supported by SAP S/4HANA, not private social networks
1.3	2016-12-12	Revised placement of some features in Manufacturing due to an error in the editorial process
1.4	2017-01-23	Correction of wrong page numbers in table of content; corrections in Asset Management
1.5	2017-02-08	Minor corrections
1.6	2017-02-16	Corrections in Compatibility Packs in area Oil & Gas
2.0	2017-02-22	Version for SAP S/4HANA 1610 Feature Package Stack 01
2.1	2017-02-24	Corrections in Enterprise Management in area Human Resources
2.2	2017-03-28	Corrections in Enterprise Management and LOB Products in area Finance
2.3	2017-04-05	Replenishment Integration in area Retail for Merchandise Management added
3.0	2017-05-10	Version for SAP S/4HANA 1610 Feature Package Stack 02
3.1	2017-06-23	Corrections in LoB Products in area Sales
4.0	2017-10-25	Version for SAP S/4HANA 1610 Support Package Stack 03
4.1	2017-10-26	Corrections in Compatibility Packs and Enterprise Management in area Service
4.2	2017-11-23	Added Analysis Path Framework to Analytics Technology in Enterprise Management
4.3	2017-12-19	Minor corrections

Version	Date	Description
4.4	2018-02-05	Minor corrections
4.5	2018-08-10	• Corrections in Enterprise Management in area R&D / Engineering • Change of document layout
4.6	2019-10-14	Revised feature description for Saudi Arabia due to an error in the editorial process
4.7	2019-11-20	Minor corrections
5.0	2020-04-08	Version for SAP S/4HANA 1610 Support Package Stack 08
5.1	2020-06-24	Minor corrections
5.2	2020-07-27	Minor corrections
5.3	2020-09-30	Minor corrections
6.0	2020-10-14	Version for SAP S/4HANA 1610 Support Package Stack 09
6.1	2021-04-01	Minor corrections and information added regarding SAP S/4HANA Cloud, private edition
7.0	2021-04-07	Version for SAP S/4HANA 1610 Support Package Stack 10
7.1	2021-06-01	Titles of chapter 3 and 4 adjusted to 3 SAP S/4HANA Enhanced LoB Functions and 4 SAP S/4HANA Industry-Specific LoB Functions, and minor corrections
8.0	2021-10-06	Version for SAP S/4HANA 1610 Support Package Stack 11
8.1	2021-10-14	Information added regarding SAP S/4HANA Cloud, private edition

1 SAP S/4HANA - Feature Scope Description

With SAP S/4HANA (SAP Business Suite 4 SAP HANA), SAP is providing a new product and a next generation of business applications – simple enterprise software for big data and designed to help you run simple in the digital economy.

The SAP S/4HANA family is fully built on the in-memory platform SAP HANA. Using the advanced potential of SAP HANA, SAP S/4HANA is designed for your digital business and provides an instant insight by using a single source of truth, real-time processes, dynamic planning and analysis. With SAP Fiori user experience and less complex data model it is designed to run simple, and in parallel reduces the data footprint of your company. SAP S/4HANA is also already connected to business networks and company-internal collaboration networks (for example, SAP Jam Collaboration) and prepared for the Internet of things. With all these aspects, SAP is protecting your investments by facilitating next generation business applications.

SAP S/4HANA is composed of:

- SAP S/4HANA Enterprise Management
  SAP S/4HANA Enterprise Management is designed for enterprises across industries that need a deep and broad level of functionality combined with a high degree of flexibility in customization.
- SAP S/4HANA LoB Products
  SAP S/4HANA LoB Products enhance core functions of SAP S/4HANA Enterprise Management to provide additional business benefit for your line of business (LoB). Please note that you might need a separate license.
- SAP S/4HANA LoB Products for specific industries
  SAP S/4HANA LoB Products for specific industries enhance core functions of SAP S/4HANA Enterprise Management to provide industry specific business benefit for your line of business (LoB). Please note that you might need a separate license.
- SAP S/4HANA Compatibility Packs
  Please note that the specific usage rights for SAP S/4HANA Compatibility Packs are set forth in the Software Use Rights Document.

Alternatively, this offering is available as

- SAP S/4HANA, private option
- SAP S/4HANA Cloud, private edition. Please note, that the usage of some features mentioned in this document might be unavailable, restricted and/or might require a separate license in SAP S/4HANA Cloud, private edition. Features that are not available or are restricted in SAP S/4HANA Cloud, private edition are marked accordingly in this document. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

About this document

This feature scope description shows you which features are provided with SAP S/4HANA. In addition, this feature scope description also defines the product documentation for SAP S/4HANA.

Product documentation

The following product documentation is available for SAP S/4HANA:

- This feature scope description
- Information on installation
  You can find the relevant information on how to install SAP S/4HANA at http://help.sap.com/s4hana_op_1610.
- Information on conversion
  You can find the relevant information on how to convert from an existing SAP Business Suite product to SAP S/4HANA at http://help.sap.com/s4hana_op_1610
- Information on User-Interface (UI) technology
  You can find the relevant information on the User-Interface (UI) technology for SAP S/4HANA at http://help.sap.com/s4hana_op_1610
- Information on security
  You can find the relevant security information for SAP S/4HANA at http://help.sap.com/s4hana_op_1610
- Information on operation
  You can find the relevant information on how to operate SAP S/4HANA at http://help.sap.com/s4hana_op_1610

2 SAP S/4HANA Enterprise Management

SAP S/4HANA Enterprise Management is designed for enterprises across industries that need a deep and broad level of functionality combined with a high degree of flexibility in customization. The following features are provided as part of SAP S/4HANA Enterprise Management. Features that are not part of SAP S/4HANA Enterprise Management might require a separate license. For further information, please contact your SAP Account Executive.

2.1 Functions for Implementing SAP S/4HANA Solutions

Business Background

SAP S/4HANA offers you an assisted way to implement the features that you want to use in your SAP S/4HANA system.

Key Features

Key Feature	Use
Explore the solution scope	Users can display the selected business processes that are supported by the solution and display information about the functional scope of each business process.
Configure and activate the solution scope	Key users can activate a pre-configured solution and adjust the business configuration for this pre-configured solution by viewing and adjusting basic configuration settings using configuration activities. They can also add customer-specific business processes and activities.
Data Migration	Key users can start and execute data migration using pre-defined migration objects and can get overviews and statuses for their migration projects.

2.2 Data Protection

Business Background

Data protection is associated with numerous legal requirements and privacy concerns. In addition to compliance with general data protection acts, it is necessary to consider compliance with industry-specific

legislation in different countries/regions. SAP provides specific features and functions to support compliance with the relevant legal requirements and data protection, for example, functions are available for various applications that simplify the blocking and deletion of personal data by using SAP Information Lifecycle Management (ILM).

> **i** Note
>
> In the majority of cases, compliance with data protection laws is not a product feature.
>
> SAP software supports data protection by providing security features and specific data protection-relevant functions such as functions for the simplified blocking and deletion of personal data. SAP does not provide legal advice in any form. The definitions and other terms used in this document are not taken from any given legal source.

Key Features

The following table explains the key features available:

Key Feature	Use
Deletion and blocking: End of purpose check	Determines whether data is still relevant for business activities based on the residence period defined for the data.
Deletion and blocking: Blocking of data	Prevents the business users of SAP applications from displaying and using data that may include personal data and is no longer relevant for business activities. Only users with special authorization can display blocked data; they are not authorized, however, to create, change, or copy business objects with blocked data, or perform follow-on activities with these business objects.
Sample read access logging configurations	Sample read access logging (RAL) configurations are delivered for various applications. You can use RAL to monitor and log access to personal data. The information provided may include, for example, which business users accessed business partner personal data, and in which time frame. You can display and configure which read access information to log and under which conditions.

2.3 Industry coverage in SAP S/4HANA Enterprise Management

Industry coverage

The following generic industries with generic capabilities are part of SAP S/4HANA Enterprise Management

Industry Cluster	Industry
Consumer	• Consumer Products • Wholesale • Life Science
Discrete	• Aerospace & Defense • High Tech • Industrial Machinery and Components • Automotive
Energy & Resources	• Chemicals • Mining • Mill Products • Utilities
Financial Services	• Banking • Insurance
Public Services	• PS & Postal
Services	• Engineering, Construction, and Operations • Professional Services • Telecommunications
Sports & Entertainment	• Sports & Entertainment
Transportation & Logistics	• Transportation & Logistics

2.4 Asset Management

2.4.1 Maintenance Operations

2.4.1.1 Plant Maintenance Master Data

Business Background

By mapping your operational structures to technical objects, you can efficiently manage and evaluate your technical assets and maintenance objects and monitor the costs involved. Structuring the existing technical systems on the basis of technical objects reduces the time required for managing the technical objects and allows a faster evaluation of maintenance data.

A functional location represents an area within a system or plant where an object can be installed. Functional locations are created in hierarchical structures and thus allow a spatial, functional, or process-oriented structuring of your systems. Individual maintenance objects are represented by pieces of equipment that are

installed in functional locations. The usage times of a piece of equipment at a functional location are documented over the course of time.

Key Features

The following features support you with this process:

Key Feature	Use
Structuring Technical Objects Hierarchically and Horizontally	The functional location is an organizational unit that structures the maintenance objects of a company according to functional or process-related criteria. When creating a functional location and defining its place in the hierarchical structure you define where a piece of equipment can be installed. Pieces of equipment can be installed in different functional locations or in other pieces of equipment. As functional locations represent your company's operational structures, they are usually part of a hierarchical structure and you can summarize costs or other maintenance data for individual hierarchy levels. Based on the structure indicator, functional locations are automatically arranged in the structure when you create them. You can also create hierarchical equipment structures if you want to divide large pieces of equipment into smaller units. If you want to structure your technical systems horizontally, you can create object networks. Object networks are represented by links between various pieces of equipment or functional locations.

Key Feature	Use
Creating Master Records for Functional Locations and Pieces of Equipment	Once the structure of the asset is defined, you can create a master record for each functional location and piece of equipment and specify general data, location data, organizational data, and structure data as well as edit classification data and characteristic values, and assign documents. • You can assign a bill of material (BOM) to the master record of a functional location or piece of equipment. • After having created characteristics and classes, you can assign this classification information to the master records of equipment and functional locations. If you have to manage a large number of objects, the classification enables you to easily locate your objects and group them together for evaluations. • You can serialize a piece of equipment by assigning a material number and serial number to it. This makes inventory management possible for the equipment. • A piece of equipment that is installed in a technical object can store the history of its installation location. The system records a usage period for each installation location, enabling you to track the complete installation history. • You can maintain fleet information, such as data pertaining to the engine and fuel, in the equipment master record. You can represent objects that are not repaired but rather exchanged in case of a breakdown by creating master records for materials and assemblies. Although this does not enable you to document a maintenance history, a material or assembly can also serve as a reference object for a maintenance notification or order.
Creating Maintenance Bills of Materials (BOMs)	A maintenance bill of material (BOM) is a complete, formally structured list of the components making up a technical object or an assembly. Maintenance BOMs support you when locating malfunctions by providing you with an overview of all components that make up a technical object. From this overview you can easily select the object for which you want to create a malfunction report. Furthermore, maintenance BOMs provide you with an overview of all spare parts used for the maintenance of a specific technical object, so they make spares planning considerably easier. A maintenance BOM contains the object numbers of the individual components together with their quantity and unit of measure, and can be assigned to the master record of a technical object or material.

Key Feature	Use
Reading Measuring Points and Counters and Creating Measurement Documents	Measuring points and counters are located on technical objects. They help you document the condition of a technical object at a particular point in time and support you in performing counter-based or condition-based maintenance. Documenting the condition of a particular object is of great importance in cases where detailed records regarding the correct condition have to be kept for legal reasons. This could involve critical values recorded for environmental protection purposes, as well as measurements of emissions and pollution for objects of all types. If you perform counter-based maintenance, maintenance activities are always performed when the counter of the technical object has reached a particular counter reading. In the case of condition-based maintenance, the activities are triggered when the measuring point of a technical object has reached a particular state. After a measurement has been taken at a measuring point or a counter, the data is stored in a measurement document. Based on that document the system calculates the next planned maintenance date and the call date on which a maintenance order is created. Each time you create a new measurement document, the system recalculates the planned date for the next maintenance work.
Accessing Context-Sensitive Information	In functional locations and pieces of equipment quickviews appear as separate popups when you hover over an object, and provide relevant information about the superior technical object or the installed piece of equipment. In technical objects you can open preconfigured side panels in a separate screen area and display context-sensitive charts and data. You can enhance the side panels to meet your requirements, thereby specifying which information you want to have displayed in the side panel.
Processing Master Data in the Information Center	You can use the *Information Center* to search for functional locations and pieces of equipment, and to call up technical objects from a personal worklist (POWL). Your personal worklist contains your favorites and objects that you have recently accessed or changed, and provides you with direct access to the Asset Viewer. You can personalize your worklist to your needs, sort table columns, and set filters.
Visualization of Technical Objects in the Master Data	With the SAP 3D Visual Enterprise Viewer, you can display graphics of technical objects right in the master data. You can display the graphic of the technical object as a thumbnail, as a 2D image or a 3D scene. In the 3D scenes, you can use various display functions, for example, you can pull the visualized model apart or rotate it, display a detailed view or a cross-section, as well as display associated parts lists.
Viewing Technical Objects in the Asset Viewer	The Asset Viewer is a display tool that enables simple navigation through complex object relations and flexible navigation within and between objects. You can also view and navigate the hierarchical structure of the technical object.

2.4.1.2 Maintenance Planning and Scheduling

Business Background

Maintenance Planning and Scheduling helps you optimize the scope of work and effort required for inspection, maintenance, and planned repairs. Based on legal requirements, manufacturer recommendations, and cost analyses, you determine which preventive maintenance tasks are required, which work centers are needed, and how frequently preventive maintenance tasks have to be processed to avoid breakdown time. Maintenance plans support you in specifying maintenance cycles, scheduling maintenance calls, and determining the expected costs for a specific time period. In maintenance task lists you can describe a sequence of individual maintenance activities which must be performed repeatedly within your company. In addition, you can use 2D and 3D model views to visualize technical objects, spare parts, and instructions as well as to find the spare parts you need for carrying out maintenance tasks quicker and easier.

Key Features

The following features support you with this process:

Key Feature	Use
Planning Complex Maintenance Cycles with Strategies	Maintenance strategies help you plan complex maintenance cycles. Based on legal requirements, manufacturer recommendations, and cost analyses, you use maintenance strategies to determine the sequence of planned maintenance and inspection tasks. Maintenance strategies contain maintenance packages with general scheduling information and can therefore be assigned to different maintenance plans. This reduces the time required for creating maintenance plans and allows you to update maintenance scheduling information easily.

Key Feature	Use
Processing Maintenance Plans	To plan recurrent maintenance work, you can create time-based and performance-based maintenance plans, strategy plans, and multiple-counter plans. In time-based maintenance planning, maintenance is performed in specific cycles, for example, every two months or every six months. With performance-based maintenance plans, you can plan regular maintenance based on counter readings maintained for measuring points of pieces of equipment and at functional locations. • You can create and assign maintenance items that describe which preventive maintenance tasks should take place regularly for a technical object or a group of technical objects. You can assign a task list to the maintenance item to specify the individual work steps that must be executed, the spare parts and tools required for the job, as well as the required completion time. • You can determine the maintenance cycles as planning data. If the maintenance plan is a strategy plan, the assigned maintenance strategy determines the maintenance cycles. If the maintenance plan is performance-based, you can assign counters. Furthermore, you can specify other scheduling information, such as shift factors. • You can view the scheduled maintenance calls for the maintenance plan. • You can determine the expected costs for a specific period. The system calculates the costs based on existing calls and uses maintenance packages and cycles as well as assigned task lists as sources for estimating costs. When you schedule the maintenance plan and generate maintenance calls, the system generates maintenance call objects (for example, maintenance orders or maintenance notifications) for the due date, and copies the relevant planning data into the call object. You can display the scheduled calls using the call history.

Key Feature	Use
Planning Recurrent Maintenance Work with Task Lists	Maintenance task lists describe a sequence of individual maintenance activities which must be performed repeatedly within a company. They contain important information about the spare parts and tools required for the work steps, the work centers involved, and the time required to perform the work. As a maintenance planner, you can use task lists to standardize these recurring work sequences and to plan inspections, maintenance, and repairs more effectively. Furthermore, task lists enable you to react quickly to changing environmental protection or occupational safety regulations that may affect continuous maintenance. You can create a general task list or a task list for a specific piece of equipment or functional location: • You can provide general information, such as the responsible work center and plant, the status, and the maintenance strategy. You can also specify a validity date that can be today's date or a date in the past or future. • You can specify the required spare parts by assigning material components from the bill of material or adding materials that are not in the BOM of the maintenance object. • You can determine which production resources or tools are required to perform the maintenance tasks, such as measuring and inspection instruments or cranes. • You can describe the chronological interdependence between the maintenance tasks and create relationships between operations. • You can create, display, and assign documents. • You can perform cost analyses that allow you to see which of the operations described have created which costs in a maintenance task list. This enables you to control your costs without creating an order. You can use task lists to detail out the individual work steps which must be executed as well as the spare parts and tools required for the job and the required completion time. When you then assign a task list to a maintenance item, maintenance notification, or an order, the system copies this maintenance data from the task list into the respective maintenance document.
Performing Inspection Rounds	You can plan and perform inspection rounds on different technical objects on a regular basis. The work activities in a round are similar and require the same tools, replacement parts, and qualifications while the number of technical objects may vary, depending on the sequence and the time required. An inspection round can involve functional locations, pieces of equipment, and measuring points or counters. You can assign an inspection round to a work center or a person. In an inspection round, you enter technical objects at the operation level of task lists or maintenance orders.

Key Feature	Use
Accessing Context-Sensitive Information	In maintenance plan and task lists you can open quickviews and side panels to gather further information. Quickviews appear as separate popups when you hover over an object, and provide relevant information about the technical objects or the long text. You can open preconfigured side panels in a separate screen area and display context-sensitive charts and data. You can enhance the side panels to meet your requirements, thereby specifying which information you want to have displayed in the side panel.
Processing Maintenance Plans and Items from a Personal Object Worklist	The *Maintenance Plan and Maintenance Item List* is an individually configurable worklist (POWL) that allows you to display and process all maintenance plans and items that match the selection criteria in the query you have defined. The POWL provides the most important information about maintenance plans and items, enables you to carry out mass data changes and to navigate to the assigned technical objects. You can configure the list layout, sort table columns, and create filters.
Selecting Spare Parts and Viewing Visual Instructions in Task Lists	With the SAP 3D Visual Enterprise Viewer, you can use functions to visualize technical objects, spare parts and instructions. 2D and 3D model views as well as animated scenes make critical maintenance processes such as finding the spare parts you need and carrying out maintenance tasks quicker and easier. Users can only display the 2D images and 3D scenes that have been published within their company. While working in a task list you can select spare parts from a 2D or 3D model view and copy them to the spare parts list. You can also watch visual instructions on how to carry out your maintenance tasks. Visual instructions can be animated 3D scenes that visualize each and every maintenance step at operation level, for example.
Viewing Relationships between Maintenance Objects in the Asset Viewer	The Asset Viewer is a display tool that enables simple navigation through complex object relationships and flexible navigation within and between objects. You can also view and navigate through the hierarchical structure of technical objects.

2.4.1.3 Maintenance Execution

Business Background

Maintenance Execution allows you to perform planned and unplanned maintenance tasks. Maintenance planners can carry out preliminary costing, work scheduling, material provisioning, and resource planning. They provide maintenance workers with job lists so that they have easy access to all maintenance-related information. This leads to increased efficiency and productivity. Maintenance workers can review the jobs assigned to them and carry out the required maintenance work based on the tasks and operations in the order. While confirming that they have finished the job, they can enter measurement readings, which the system records in measurement documents.

Key Features

The following features support you with this process:

Key Feature	Use
Reporting a Malfunction Using Notifications	As a maintenance planner or worker you can report a malfunction or a problem at a technical system by creating a notification in which you specify the technical object, describe the malfunction, and enter the activities to be performed. Hierarchical structure lists support you in specifying the technical object and provide you with information about assigned materials and components. You can enter breakdown information, describe the damages and causes, and enter tasks and activities. By choosing the appropriate codes for describing the damages and malfunctions as well as what caused the damage, you ensure that issues can be entered in a standardized way and therefore be evaluated automatically. Having completed your work, you can confirm the time spent on each activity. To add further information, you can upload and attach documents to the notification. You can print out the shop paper of the notification physically or virtually on the job card and by doing so, transfer the notification to the job list.
Planning and Executing Maintenance Work Using Maintenance Orders	When a malfunction is detected, the maintenance planner can use a maintenance order to detail out the maintenance tasks that are to be performed on the technical object. As a planner, you can create a maintenance order for a specific notification or create the maintenance order directly with or without reference to an existing order. When creating or changing a maintenance order, you can either assign existing task lists and notifications or create new ones for the order. In the maintenance order, you provide all the information needed to plan and execute the maintenance work. That includes start and finish dates, location information, planned materials and production resources/tools. The system supports you in finding the relevant technical object, choosing the required materials and checking their availability, scheduling the job, and determining the costs: • You can specify the technical objects using a hierarchical list. • You can choose the required materials using a catalog. When you plan materials for executing order operations, you can display whether the materials planned for the operation are available on time and in sufficient quantity. • After you have planned an order with all its operations and components, you can use the scheduling function to determine the actual execution dates, the capacity requirement needed to execute the order, and the date on which a particular material should be available. • You can determine costs and run cost simulations. For inspection rounds, you can enter technical objects and assemblies at operation level and assign measuring points as production resources/tools to the technical objects. To add further information, you can upload and attach documents to the order. You can print out the shop paper of the maintenance order physically or virtually on the job card and by doing so, transfer the order to the job list.

Key Feature	Use
Processing and Confirming Maintenance Jobs	Job lists and confirmation lists support maintenance workers in processing and confirming maintenance jobs. • Job lists provide a list of maintenance jobs to be carried out, as well as crucial information for each job at a glance, such as the urgency, start and end dates, and assigned work center. You can configure job lists so that they reflect how work is organized in your particular organization and therefore only contain the jobs that are relevant to you. • Confirmation lists contain all the planned maintenance jobs that can be confirmed. As a maintenance worker, you can check the planned job data and confirm or adjust it. That includes the time you spent on the job and the materials you consumed as well as the activities you performed and the measurement readings. Depending on how confirmation is done in your company, you can configure different confirmation lists. As a maintenance worker, if you fix a problem at a technical system, you can also confirm this unplanned job and enter all the required data after having finished your work. You then can enter the time spent and the required materials, write a long text and, if necessary, create an activity report. The system automatically creates an order and - if an activity report exists - a notification, sets the order and notification to *technically completed*, stores the time confirmation, and posts a goods issue for the order. You can also confirm unplanned jobs while working in the Asset Viewer.
Accessing Context-Sensitive Information	In maintenance notifications and orders you can open quickviews and side panels to gather further information. Quickviews appear as separate popups when you hover over an object, and provide relevant information about the assigned notification or order, technical objects, materials, activities, statuses, and long texts. You can open preconfigured side panels in a separate screen area and display context-sensitive charts and data, such as context-sensitive master data or information about vendors and customers. You can enhance the side panels to meet your requirements, thereby specifying which information you want to have displayed in the side panel.
Processing Maintenance Documents in the Order and Notification Information Center	The *Order and Notification Information Center* is a central point of access to several worklists that you can use for processing all your notifications and orders. You can access worklists for notifications, orders, and order operations, or use the combined *Order and Notification List*. The worklists allow you to display and process all maintenance notifications and orders that match the selection criteria in the query you have defined. You can configure the list layout, sort table columns, and create filters. In addition, you have the option of displaying table columns for monitoring critical dates and costs, whose colors help you detect issues. Furthermore, the lists enable you to change the status of orders and notifications and provide a mass data change function. In the combined *Order and Notification List*, you can also display the assignments of notifications to orders.

Key Feature	Use
Selecting Spare Parts and Viewing Visual Instructions in Maintenance Orders	With the SAP 3D Visual Enterprise Viewer, you can use functions to visualize technical objects, spare parts, and instructions. 2D and 3D model views as well as animated scenes make critical maintenance processes such as finding the spare parts you need and carrying out maintenance tasks quicker and easier. Users can only display the 2D images and 3D scenes that have been published within their company. While working in a maintenance order you can select spare parts from a 2D or 3D model view and copy them to the spare parts list. You can also watch visual instructions on how to carry out your maintenance tasks. Visual instructions can be animated 3D scenes that visualize each and every maintenance step at operation level, for example. If you have set up the conversion accordingly, you can even convert the visual instructions assigned to a maintenance order to PDF format, use them on job cards, and print them out.
Viewing Relationships between Maintenance Objects in the Asset Viewer	The Asset Viewer is a display tool that enables simple navigation through complex object relationships and flexible navigation within and between objects. You can also view and navigate through the hierarchical structure of technical objects.

2.5 Finance

2.5.1 Financial Planning and Analysis

2.5.1.1 Cost Management and Profitability Analysis

2.5.1.1.1 Overhead Cost Accounting

Business Background

This business area covers transaction-based actual postings that are normally used in Overhead Cost Accounting. It also offers a transparent view across cost center accounts, enables journal entries to be processed for various purposes, and periodic as well as end-year activities to be prepared.

Key Features

Key Feature	Use
Master data in cost accounting	Manage various types of master data, such as • Cost centers • Cost center groups • Activity types
Activity prices	Maintain activity prices for any combination of cost center and activity type. The activity price is needed for allocating an internal activity.
Statistical key figures	Maintain statistical key figures, which serve as a basis for internal allocations.
Overhead allocation between cost centers	Allocate posted costs from support cost centers to primary cost centers.
Actual data reporting	Report on actual data for selected periods for the following objects: • Cost centers • Projects • Market segments • Profit centers • Income statement

2.5.1.1.2 Product Cost Management

Business Background

This business area allows you to determine the costs incurred by your products and services in order to successfully manage your product portfolio. These cost can be broken down into each step of the value chain leveraging the superior capabilities of an integrated S/4HANA system, while mapping the quantity flow from the logistical area with the values of Finance. Product Cost Management is key for your company's inventory valuation.

The approach to Product Cost Accounting is determined by the type of manufacturing process. In an engineer-to-order or make-to-order environment, the focus is on the costs for individual sales orders. In a make-to-stock environment, the focus is on the costs for the individual production orders or process orders. In a repetitive manufacturing environment, a period-based cost controlling may replace the individual order.

Key Features

Key Feature	Use
Product costing	Assign costs to individual units of products and services.
Product costs by sales order	Determine costs for sales orders in engineer-to-order or make-to-order environments.
Product cost by manufacturing order	Determine costs for production orders and process orders in make-to-stock environments.
Period costs	Determine period-based costs in repetitive manufacturing environments using product cost collectors as the cost object.
Material inventory values	Report on quantities and values of the material inventory. You can also report on rounding differences between the current stock postings of the actual stock and the calculated stock.

2.5.1.1.3 Profitability and Cost Analysis

Business Background

This business area enables you to evaluate market segments, classified according to products, customers, orders, or any combination of these, or according to strategic business units, such as sales organizations or profitability segments, with respect to your company's profit or contribution margin. As part of period-end closing, you can also carry out activities such as results analysis, settlements, and overhead allocations.

Key Features

Key Feature	Use
Settlement	Compare the ratio of planned and actual costs on a project with the ratio of planned and actual revenue to determine whether the project costs can be capitalized as work in process Settle projects to capitalize the balance from the results analysis and obtain detailed data in the results analysis for enterprise controlling

Key Feature	Use
Revenue and cost of sales	Provide information on revenue and cost of sales to support internal accounting and decision-making.
Overhead allocation (profitability analysis)	Perform overhead allocation for profitability analysis

2.5.2 Accounting and Financial Close

2.5.2.1 Accounting

2.5.2.1.1 General Ledger

Business Background

You use the general ledger to perform the necessary tasks of financial accounting.

Key Features

As a general ledger accountant, you can use the following functions:

Key Feature	Use
Master Data	You can manage master data for profit centers, profit center groups and G/L accounts. If you specify profit centers in postings, you can create a profit and loss statement (P&L) for profit centers and a financial statement for internal purposes. G/L account master data defines how business transactions are posted on G/L accounts and how the posting data is processed. The directory of all G/L accounts is the chart of accounts.

Key Feature	Use
Postings and Documents	You use documents to enter business transactions. You can manage open items by reversing or clearing open items for example. You can also reset a clearing. You can create recurring entries for postings that are repeated regularly. For external and internal accounting there is the universal journal entry. A posting is made for every business transaction carried out in General Ledger Accounting, in Asset Accounting, in Controlling (with the exception of costing-based profitability analysis) and in the material ledger. External and internal accounting are constantly reconciled, which means separate reconciliations between Financial Accounting and Controlling, as well as between General Ledger Accounting and Asset Accounting, are not necessary.
Closing Operations and Reporting	For closing operations at period-end closing, you can use the programs available for analyzing, valuating, and reclassifying the posting data. With accruals/deferrals, you can split expenditures, revenues, receivables and losses period-based and cause-related. With these closing operations, you create a financial statement and a profit and loss statement (P&L). All accounting data is available simultaneously in each report that is based on the universal journal entry. Cost and revenue information is always up to date and is continuously reconciled with the profit and loss statement. There are different programs available for sales/purchases tax declarations and tax payable postings.
Parallel Accounting	You can manage General Ledger Accounting in accordance with several accounting principles simultaneously, for example with a local accounting principle and the accounting principle of a corporate group.

2.5.2.1.2 Asset Accounting

Business Background

You use Asset Accounting to manage and monitor tangible fixed assets. It provides detailed information about the transactions relating to tangible fixed assets.

Prerequisites

To be able to use Asset Accounting, you have to also use General Ledger Accounting.

For more information, see General Ledger [page 25].

Key Features

As an asset accountant, you can use the following functions:

Key Feature	Use
Master Data	You can use the asset master record to create, edit, and manage the master data of Asset Accounting.
Asset Acquisitions and Asset Retirements	You can post asset acquisitions integrated with accounts payable accounting or not integrated. Similarly, you can post asset retirements integrated with accounts receivable accounting or not integrated. In addition to this, there are more functions available for asset acquisitions and retirements.
Depreciation	With depreciation you map impairments incurred or impairments that are due to tax law requirements.
More Transactions, Reversal	More transactions, for example post-capitalizations are available. You can reverse documents that are posted in Asset Accounting.
Postings and Documents	Asset Accounting is based on the universal journal entry. General Ledger Accounting and Asset Accounting are therefore reconciled per se; this means that reconciliation postings are not necessary as part of closing operations.
Closing Operations and Reporting	You post the depreciation amounts periodically, directly in General Ledger Accounting. Create an asset history sheet to represent the development of the fixed asset from the opening balance through to the closing balance. More tools for the reporting and analysis of asset portfolios, asset transactions, and depreciation (including depreciation forecast and simulation) are also available.
Parallel Accounting	You can manage Asset Accounting in accordance with several accounting principles simultaneously, for example with a local accounting principle and the accounting principle of a corporate group. This happens in the same way as in General Ledger Accounting. Separate documents are posted for each accounting principle.

2.5.2.1.3 Inventory Accounting

Business Background

You use Inventory Accounting to value and monitor your material and work-in-process inventories according to legal regulations and management accounting requirements. All goods movements are valued in the Material Ledger which supports parallel, real-time valuation of inventories in multiple currencies. A special focus lies on high throughput of logistics data that allows for managing massive data volumes.

You can choose to value your material inventories at standard cost or moving average automatically. In addition, you may make manual adjustments to material costs and inventory values. You may also use periodic valuation of material inventories according to statutory requirements (such as Lowest Value, LIFO, or FIFO) or product cost management requirements (such as actual costing or standard costing).

Key Features

Key Feature	Use
Automatic Valuation of Material Inventories	Valuation of material inventories in multiple currencies in parallel
Optional Price Controls for Materials	Perpetual valuation of material inventories and movements at standard cost or moving average
High Throughput of Logistics Data	Manage high logistics data volume
Manual Adjustments to Material Costs and Inventory Values	Adjust material costs and inventory values manually
Periodic Valuation of Material Inventories	Valuation of material inventories according to statutory or product cost management requirements
Analyze Inventory Values	Real-time line item reports aggregated to inventory positions on the fly, with drill-down capabilities

2.5.2.1.4 Accounts Payable

Business Background

Invoices are created in purchasing and submitted to accounts payable. As an accounts payable accountant, when you receive an invoice, you can view key performance indicators (KPIs) for the invoice and process the invoice.

Key Features

The following features support you with this process:

Key Feature	Use
Analysis of payments to suppliers	You use this feature to view information about payments to suppliers. You can check the overdue payable amount and the future payable amount. If you identify negative trends in the payable amount, you can notify the responsible persons to take action.
Management of cash discounts	You use this feature to forecast the available cash discounts and to monitor the cash discount utilization in your responsible area. You can find out where you need to make better use of cash discounts in order to avoid cash discount loss in the future.
Reviewing of cleared overdue invoices	You use this feature to get details and statistical facts about cleared overdue invoices.
Evaluation of days payable outstanding	You use this feature to identify suppliers with the highest or the lowest days payable outstanding.
Management of payments	You use this feature to create, post, and, if necessary, reverse payments.
Management of payment blocks	You use this feature to set and remove payment blocks on invoices or supplier accounts. You can identify irregularities or potential fraud in invoices through integration with SAP Fraud Management for SAP S/4HANA*.
Management of payment proposals	You use this feature to revise and release payment proposals. Journal entries are then generated in the finance system.
Management of payment media	You use this feature to transfer the data required for electronic payment transactions to banks via a data medium. A payment medium is created with each successful payment run.

*SAP Fraud Management for SAP S/4HANA is co-deployed with SAP S/4HANA. SAP Fraud Management for SAP S/4HANA is not part of SAP S/4HANA Enterprise Management, but part of the add-on SAP Assurance and Compliance Software for SAP S/4HANA, for which you need a separate license.

2.5.2.1.5 Accounts Receivable

Business Background

Accounts Receivable allows you to record and manage accounts receivable data of all customers. All postings to accounts receivable are triggered in response to operative transactions in sales and logistics. Simultaneously, postings are recorded in the general ledger. Different general ledger accounts are updated depending on the transaction involved, such as receivables, down payments or bills of exchange. Customer line items are cleared when incoming payments are received.

You can monitor open items by using, for example account analyses, due date lists and a flexible dunning function. You can adjust the correspondence forms to your requirements, as well as payment notices, balance confirmations, account statements, and interest calculations. You can assign incoming payments to receivables due. The payment function automatically executes direct debiting and down payments. A range of tools allows you to document transactions in accounts receivable, such as balance lists, journals, balance audit trails and other standard reports.

Prerequisites

To use accounts receivable, you have to also use general ledger.

For more information, see General Ledger [page 25].

Key Features

The following table explains the key features available:

Key Feature	Use
Master Data	You can manage and store your customer data as business partner data. You can create and change customer data using the business partner, so that you do changes, for example, in address data, only once.
Monitoring of Receivables	You can display overdue receivables and customer balances. In addition, you can process individual customer items.
Posting Business Transactions	You can post accounting data for customers in accounts receivables and the data entered is transferred to the general ledger. General ledger accounts are updated according to the transaction concerned (receivable, down payment, bill of exchange, and so on).
Clearing of Open Invoices	You can post incoming payments and either manually clear open items or have them cleared automatically by the system.

Key Feature	Use
Correspondence	You can send correspondence to your customers, such as payment notices, open item lists, balance confirmation or account statements. You can adjust the forms for the correspondence according to your requirements.
Periodic Activities and Closing Operations	You can prepare and carry out periodic activities, such as automatic payment or dunning, or activities that arise for day-end closing, month-end closing or year-end closing.
Analytics	You can carry out evaluations and analyses for your customers, such as payment history, currency risk or Days Sales Outstanding (DSO) analysis.

2.5.2.2 Financial Close

2.5.2.2.1 Entity Close

Business Background

You can perform local close for one or several companies of your corporate group monthly, quarterly, yearly, or at other intervals with a freely definable range of closing operations. Local accounting principles and/or principles applied by the group can be taken into account.

Key Features

Closing operations include the following tasks:

- Maintain exchange rates
- Execute recurring entries
- Clear open items
- Perform inventory and post inventory differences
- Reclassify clearing account for goods receipt/invoice receipt
- Valuate materials
- Perform closing operations in the subsidiary ledgers
- Perform foreign currency valuation
- Reclassify receivables and payables
- Use functions for tax on sales/purchases
- Perform reconciliation between affiliated companies; these intercompany reconciliations are used in preparation for consolidation.
- Close posting period and open new posting period
- Display financial statements
- Execute balance carryforward

- Evaluate financial statements

2.5.2.2.2 Corporate Close - Consolidation Foundation

[Background]

You use consolidation foundation to create and monitor your financial data collection for corporate close, either for legal purposes or for the purposes of consolidated management reporting. This process offers a high degree of flexibility regarding the data collection process as well as the configuration of different accounting principles. You can highly integrate with the accounting solution to automate the consolidation data collection process.

[Key Features]

The following features are available to you as a consolidation expert:

[Key Feature]	[Use]

Master data	• Versioning helps you run different consolidations in parallel using different criteria, for example:
	  ○ For actual, plan and target data
	  ○ For parallel financial accounting (for example, U.S. GAAP, IFRS)
	  ○ For simulations
	• The smallest element of the corporate structure in consolidation is the entity. An entity can represent a company, a profit center, a business area, or a plant.
	• You use group G/L accounts which are mapped to operational G/L accounts to get financial values from the group view.

Data collection	You can collect individual financial statement data from SAP systems as well as non-SAP systems. Various procedures are available for doing this.
Modeling	A model is used to bundle all of the characters and key figures definitions, customizations, and consolidated results into a separate consolidation context. You use the modeling process to decide which fields are needed for consolidation dimensions, and to join with global settings to form the data basis for consolidation.

2.5.2.3 Compliance Reporting

You can use features of compliance reporting for processing reports according to your critical compliance reporting requirements.

Key Features

Key Feature	Use
The following key features are available:	You can monitor the compliance status and due dates for your legal reports. You can generate legal reports. You can create forms for your business partners and initiate correspondence. You can download the generated reports for manual submission to the government authorities. You can verify the content of the legal report electronically before submission. You can submit the reports electronically to a government gateway (if this function is available in your country/region). You can generate correction runs.

2.5.3 Treasury and Financial Risk Management

2.5.3.1 Cash and Liquidity Management

Business Background

To preside over the cash assets of a company, cash managers need to closely monitor cash positions, centrally manage banks and bank accounts, and regularly forecast the liquidity trends of the organization.

Key Features

Key Feature	Use
Cash Positions	You can use this feature to check the actual and forecasted cash positions to assist cash allocation decision-making.
Banks and House Banks	You can use this feature to display, create, and change data about the banks that your company, your customers, and your suppliers use to transact business.
Bank Account Master Data	You can use this feature to centrally manage the master data of all your bank accounts and house bank accounts.
Liquidity Forecast	You can use this feature to forecast the future liquidity trend.
Memo Record	You can use this feature to create memo records manually and edit memo records in a list.

2.5.4 Financial Operations

2.5.4.1 Invoice and Payables Management

2.5.4.1.1 Accounts Payable

Business Background

Invoices are created in purchasing and submitted to accounts payable. As an accounts payable accountant, when you receive an invoice, you can view key performance indicators (KPIs) for the invoice and process the invoice.

Key Features

The following features support you with this process:

Key Feature	Use
Analysis of payments to suppliers	You use this feature to view information about payments to suppliers. You can check the overdue payable amount and the future payable amount. If you identify negative trends in the payable amount, you can notify the responsible persons to take action.
Management of cash discounts	You use this feature to forecast the available cash discounts and to monitor the cash discount utilization in your responsible area. You can find out where you need to make better use of cash discounts in order to avoid cash discount loss in the future.
Reviewing of cleared overdue invoices	You use this feature to get details and statistical facts about cleared overdue invoices.
Evaluation of days payable outstanding	You use this feature to identify suppliers with the highest or the lowest days payable outstanding.
Management of payments	You use this feature to create, post, and, if necessary, reverse payments.
Management of payment blocks	You use this feature to set and remove payment blocks on invoices or supplier accounts. You can identify irregularities or potential fraud in invoices through integration with SAP Fraud Management for SAP S/4HANA*.
Management of payment proposals	You use this feature to revise and release payment proposals. Journal entries are then generated in the finance system.
Management of payment media	You use this feature to transfer the data required for electronic payment transactions to banks via a data medium. A payment medium is created with each successful payment run.

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2.5.4.1.2 Dynamic Discounting (Ariba Network Integration)

Business Background

If you have enabled discount management for suppliers on the Ariba Network, you can manage cash discounts from initial offer through to agreement. This optimization of cash discounts can increase your company's profits, and gives your suppliers the opportunity to receive their payments earlier.

Key Features

Key Feature	Use
Open payables	Send information about open payables to the Ariba Network.
Updates to open payables	Send updates to information already sent to the Ariba Network about open payables if there are changes that impact the negotiations about early payment.
Adjustments to open payables	Receive information from the Ariba Network about adjusted cash discounts and due dates of open payables.
Monitoring	Monitor, troubleshoot, resend, and cancel outbound cXML messages.

2.5.4.1.3 Payment Advice Collaboration (Ariba Network Integration)

Business Background

You are able to collaborate with your suppliers by sending them payment advices via the Ariba Network. These payment advices are based on the results of a payment run and explain the payments made to your suppliers.

Key Features

Key Feature	Use
Payment advices	Send payment advices to suppliers via the Ariba Network.

Key Feature	Use
Monitoring	Monitor, troubleshoot, resend, and cancel outbound cXML messages.

2.5.4.2 Receivables Management

2.5.4.2.1 Accounts Receivable

Business Background

Accounts Receivable allows you to record and manage accounts receivable data of all customers. All postings to accounts receivable are triggered in response to operative transactions in sales and logistics. Simultaneously, postings are recorded in the general ledger. Different general ledger accounts are updated depending on the transaction involved, such as receivables, down payments or bills of exchange. Customer line items are cleared when incoming payments are received.

You can monitor open items by using, for example account analyses, due date lists and a flexible dunning function. You can adjust the correspondence forms to your requirements, as well as payment notices, balance confirmations, account statements, and interest calculations. You can assign incoming payments to receivables due. The payment function automatically executes direct debiting and down payments. A range of tools allows you to document transactions in accounts receivable, such as balance lists, journals, balance audit trails and other standard reports.

Prerequisites

To use accounts receivable, you have to also use general ledger.

For more information, see General Ledger [page 25].

Key Features

The following table explains the key features available:

Key Feature	Use
Master Data	You can manage and store your customer data as business partner data. You can create and change customer data using the business partner, so that you do changes, for example, in address data, only once.

Key Feature	Use
Monitoring of Receivables	You can display overdue receivables and customer balances. In addition, you can process individual customer items.
Posting Business Transactions	You can post accounting data for customers in accounts receivables and the data entered is transferred to the general ledger. General ledger accounts are updated according to the transaction concerned (receivable, down payment, bill of exchange, and so on).
Clearing of Open Invoices	You can post incoming payments and either manually clear open items or have them cleared automatically by the system.
Correspondence	You can send correspondence to your customers, such as payment notices, open item lists, balance confirmation or account statements. You can adjust the forms for the correspondence according to your requirements.
Periodic Activities and Closing Operations	You can prepare and carry out periodic activities, such as automatic payment or dunning, or activities that arise for day-end closing, month-end closing or year-end closing.
Analytics	You can carry out evaluations and analyses for your customers, such as payment history, currency risk or Days Sales Outstanding (DSO) analysis.

2.5.4.3 Settlement Management

Business Background

Settlement management involves all types of settlement processes, including core business processes that need to be fully integrated in the order-to-cash cycle or within in a procure-to-pay scenario, such as rebate settlement, as well as standalone processes, whereby special financial settlement services are provided for business partners.

Financial settlement processes are typically required for handling settlement transactions between third parties such as brokers and payment agencies. Benefits or services can be offered to the parties involved, such as del credere guarantees or simplified payment transactions, and settlement accounting for commissions can be performed.

In pooled payment, for example, an agency negotiates purchase price conditions and payment processing between the supplier and customer. The agency takes a commission from the customer and/or the supplier for services rendered. Transactions relating to the actual merchandise, for example, purchase orders and deliveries, can be carried out completely independently of the agency. For the purpose of payment processing and commission calculation, the agency can enter incoming invoices.

Key Features

The following table explains the key features available:

Key Feature	Use
Entry of remuneration settlements without reference to preceding transactions	• Handling of all ad-hoc remunerations made to a supplier or charges made to a customer In del credere business, this allows del credere payables to be separated from those resulting from purchases.
Entry of incoming invoices without reference to preceding transactions and creation of follow-on documents	• Entry of incoming invoices from a supplier to a customer • Grouping of documents in lists for multiple business partners for posting on specific dates • Entry of incoming invoices as a settlement document with direct posting to accounting or settlement using supplier settlement/supplier settlement list and a customer settlement/customer settlement list • Entry of incoming invoice lists as supplier settlement lists using a customer settlement/customer settlement list for the settlement on the customer side • Creation of follow-on documents to perform settlement accounting for payments and commission
Automatic determination of accounting-related data, such as terms of payment and cash discounts	• Price determination Calculation of del credere commissions, discounts, conditions, and other transactions involving prices using purchasing or sales pricing • Purchasing and sales account determination
Determination of document processing by document type	Use of different processing methods for different document types, such as invoices, credit memos, debit memos, pro forma invoices, and cancellation documents, for example, regarding the entry of default data, account and price determination, the creation of follow-on documents, and posting rules
Integration with other solution capabilities	• Posting of documents as profitability analysis documents and thereby transfer incomes, rebates, and other documents to profitability accounting. • Transfer of documents to cash management to ensure that cash flow is planned in good time. • Use of credit management to define individual credit checks for the customers involved.
Forwarding of documents to accounting	• Posting of documents to accounting on saving a document or later by mass release A check can be implemented to ensure that only authorized persons can release documents for posting.
Mass processing of documents	Processing of documents and document lists individually or in batches (release, reverse, complete, reopen)

Key Feature	Use
Monitoring of document flow and status	Tracking of documents from invoice entry through to posting to accounting
Message creation	Creation of messages for documents that support communication with business partners
Clearing	• Reconciliation of external documents, such as invoices or credit memos, with internal documents, such as transaction data • Invoice verification and clearing scenarios for settlement management processes • Clearing for both parties, either supplier or customer • Handling of differences as invoice reduction, accrual, accepted difference (internal adjustment), or other difference • Definition of tolerances for accepted differences
Complaints processing	Entry of complaints for a settlement document and recording and tracking of complaints
Intrastat processing	Creation and processing of documents that contain information relevant for the creation of Intrastat declarations
Condition contract management	• Storage of agreements between business partners in the form of a condition contract A condition contract contains information, such as prices, conditions, and the validity of the agreement. It forms the basis for settling claims or rebates on suppliers or payables to customers. • Handling of pricing conditions only for a specific order-to-cash or procure-to-pay process based on a condition contract
Archiving	Archiving of documents to remove volumes of data from the database that are no longer required in the system, but still need to be kept for analysis purposes

2.5.5 Governance, Risk, and Compliance for Finance

2.5.5.1 International Trade

Business Background

International Trade supports you in the following areas:

- Classification of products with commodity codes
- Classification of products with Intrastat service codes
- Creation of Intrastat declarations

2.5.5.1.1 Classification

Business Background

You use classification to manage commodity codes and Intrastat service codes and their assignment to products. The Intrastat service codes are only relevant for Italy.

Key Features

The following table explains the key features available:

Key Feature	
Manage commodity codes	You can manage the commodity codes that you require for your Intrastat declarations.
Classify products with commodity codes	You can find products to which no commodity code has yet been assigned, and assign a commodity code for a specific period to these products.
Reclassify products with commodity codes	You can find products to which a commodity code has been assigned, and assign a new commodity code for a specific period to these products.
Manage Intrastat service codes	You can manage Intrastat service codes that you require for your Intrastat declarations.
Classify products with Intrastat service codes	You can find products to which no Intrastat service code has yet been assigned, and assign an Intrastat service code for a specific period to these products.
Reclassify products with Intrastat service codes	You can find products to which an Intrastat service code has been assigned, and assign a new Intrastat service code for a specific period to these products.

2.5.5.1.2 Intrastat Declarations

Business Background

You use Intrastat declarations to record goods movements that cross national borders between member states of the European Union. In Italy, services must be declared in addition.

Key Features

The following table explains the key features available:

Key Feature	Use
Manage providers of information	The statistics authority of your country requires that you, as a company, provide Intrastat-relevant data to the authority in the form of Intrastat declarations. You need to record the provider-of-information data of your company. In addition to general address data, the data for the provider of information includes data to identify the company for the authorities.
Manage Intrastat declarations	You can record the necessary statistics data for a month in Intrastat declarations for the following types of shipments: • Receipts to your company from other member states of the European Union • Dispatches from your company to other member states of the European Union
Select dispatches and customer returns - Intrastat declaration	You can use this app to select dispatches and customer returns based on billing documents to create data for Intrastat declarations.
Select receipts and returns to supplier - Intrastat declaration	You can use this app to select receipts and returns to supplier based on purchase orders and intercompany billing documents to create data for Intrastat declarations.

You can create Intrastat declarations for the following countries:	**Countries**

- Austria
- Belgium
- Bulgaria
- Croatia
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Netherlands
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Sweden
- United Kingdom

2.5.5.1.3 Integration with SAP Global Trade Services

SAP S/4HANA supports the integration with SAP Global Trade Services to offer additional processes for your international supply chain.

2.6 Human Resources

2.6.1 Core HR and Payroll

2.6.1.1 Organizational Management

Business Background

Organizational Management allows you to build, maintain, and reorganize organizational structures and requirements for qualifications of the workforce.

Key Features

The following table explains the key features available:

Key Feature	Use
Integration of Business Partner	You can use this function to do the business partner assignments.
Organizational Plan Mode	The Organizational Management component includes various user group- specific modes and views with which to edit organizational plans: • The Organization and Staffing view provides an intuitive interface for creating and editing organizational plans • The General Structures view allows you to edit organizational plans with any structure including object types which, you have defined yourself (teams, for example). • The Matrix view is for creating and editing matrix structures.
Expert Mode	• Expert mode allows you to edit the characteristics of various objects and their relationships via infotypes • Expert mode allows you to edit the characteristics of various objects and their relationships via infotypes
Working with Screen Areas	You use this user interface in the Organization and Staffing or Organization and Staffing (Workflow) view to create, display, and edit organizational plans.
Editing the Organizational Structure	You can create, display, or change the organizational structure using the Organization and Staffing and the Organization and Staffing (Workflow) views. You can also assign characteristics to the organizational units.
General structures	You can use this function to create, edit, and display structures.

2.6.2 Time and Attendance Management (S/4HANA)

2.6.2.1 Timesheet (S/4HANA)

Business Background

Timesheet enables you to record and manage time data effectively. It allows you to enter employee working time and absences. You can also use the timesheet to approve or reject time entries.

Key Features

The following table explains the key features available:

Key Feature	Use
Create and update time entries	You can log in time spent on different tasks (projects or non-project related) using this feature.
Time Management for Concurrent Employment	You can use this feature to record time for a chosen personnel assignment even if you are concurrently employed.
Approve, Review or Reject Time entries	You as a manager can approve, review or reject time entries of your employees.

2.6.3 Employee Central Connectivity

Business Background

Employee Central Connectivity enables you to replicate employee, organizational, and cost center data from SAP SuccessFactors Employee Central to SAP S/4HANA system.

Key Features

The following table explains the key features available:

Key Feature	Use
Replicating Employee Master Data from Employee Central to SAP S/4HANA	You can replicate employee master data from the SAP SuccessFactors Employee Central to SAP S/4HANA system.

Key Feature	Use
Replicating Organizational Data from Employee Central to SAP S/4HANA	You can replicate organizational data from the SAP SuccessFactors Employee Central to SAP S/4HANA system.
Replicating Cost Centers from SAP S/4HANA to Employee Central	You can replicate cost center data from the SAP S/4HANA system to SAP SuccessFactors Employee Central.
Contingent Worker Data Integration	You can integrate contingent worker data like basic data and contact details from SAP SuccessFactors Employee Central to SAP S/4HANA system.
Availability	You can now view the work schedule of an employee thus enabling you to access the up-to-date time information like your target hours, absences, holidays, and so on for time recording.

2.7 Manufacturing

2.7.1 Manufacturing Engineering and Process Planning

2.7.1.1 Production BOM Management

Business Background

During the product engineering phase, you design and develop products. You design new products or product lines to take advantage of current process technology and to improve quality and reliability. Or, you have to change an existing product due to changing market or customer requirements. The result of this product phase is drawings and a list of all the parts required to produce the product. This list is the bill of material.

Key Features

The following features are available:

Key Feature	Use
Manage bills of material	You can create a complete, formally structured list of the components that make up a product or assembly. A bill of material contains essential master data for integrated materials management and production control. In the design department, a new product is designed so that it is suitable for production and for its intended purpose. The result of this product phase is drawings and a list of all the parts required to produce the product. This list is the bill of material which is the basis for the production process (in discrete manufacturing, repetitive manufacturing, and in the process industry).
Assign BOMs to plants	You can extend the area of validity of a BOM that you defined when you first created it. This means, for example, that you can assign the same BOM to a material in different plants - avoiding data redundancy and multiple data entry.
Monitor multilevel BOM assignment	You can use a reporting function that determines all components (assemblies and individual parts) in a product and displays them per low-level code.
Find BOM for component	You can use a reporting function that determines where an object (for example, material) is used and the quantity that is required. This is necessary, for example, if objects are used in more than one context. You can use this information to: • Determine requirements for a specific material. • Select all products that are affected by a change to an individual part. • Find assemblies that will be delayed if there is a delay in the delivery of a raw material, for example. • Calculate the effect on the cost of a product if the price of a raw material is increased.

2.7.1.2 Master Recipe/Routing Management

Business Background

During the process engineering phase, you design and continuously improve manufacturing equipment and production facilities. This process enables you to model the capabilities of the manufacturing equipment and to monitor its performance.

Key Features

The following features are available:

Key Features	Use
Manage the objects and persons involved in the production process • Discrete manufacturing: Model work centers • Process industry: Model resources	You use work centers/resources to represent machines, production lines, employees, or groups of employees, for example. Together with the bills of material and routings/master recipes, work centers/resources belong to the most important master data in the production planning and control system and are used for scheduling, costing, capacity planning, and for simplifying operation maintenance.
Monitor bills of material	You can display and monitor the following: • Bills of material created by the product engineers • Assignment of bills of material to plants • Multilevel BOM explosion • Where an object is used and the quantity that is required (Find BOM for component) You use this information as a reference when determining the process steps for production in the routing/master recipe.
Model the production process • Discrete manufacturing: Model routings • Process industry: Model master recipes	A routing/master recipe is a description of the operations/process steps that have to be carried out and the order in which they have to be carried out to produce a material. In addition, a routing/master recipe contains details about the work centers/resources at which the operations/process steps are carried out and the BOM components that are required. In discrete manufacturing, the routing is used as the basis for creating production orders and in the process industry, the master recipe is used as the basis for creating process orders.
Model production versions	The production version determines the production techniques according to which a material is to be manufactured. A material may have several bills of material (BOMs) that determine the components used in its production. The production process can also be described in various routings/master recipes. You define which BOM and which routing/master recipe is to be used for production in the production version that you assign to a material.
Model the exchange of data relevant to production	You have to provide the shop floor with up-to-date information to keep your production process running as smoothly and efficiently as possible. To this end, you can define in detail how the production process is to be executed and the data you want to collect during production. You can compare this data with existing data and continually make improvements to the process.

2.7.2 Production Planning

2.7.2.1 Material Requirements Planning

Business Background

Material requirements planning enables you to ensure the availability of materials and perform basic production planning. It is typically performed by the MRP controller who monitors the material shortage situation and solves any issues on time. Another main task is to ensure that sufficient supplies have been planned to cover requirements — whether from sales orders, stock transfer orders, or from production, for example. The goal is to ensure that both customer and production demand are available on time and to avoid any disruptions due to missing parts.

Key Features

The following features are available:

Key Feature	Use
Manage planned independent requirements	You can create and change planned independent requirements.
Perform material requirements planning	You can automate the planning of the procurement process. You can schedule your MRP runs to be executed automatically on a regular basis. The main aim of the planning run is to guarantee material availability to avoid delays in order fulfillment. To do this, the system checks the availability of each material in the planning run and creates purchase requisitions or planned orders if it detects shortages.
Monitor and manage supply and demand	You can monitor and adjust the current supply and demand situation using a selection of tools. You have system support in detecting material shortages, uncovered requirements as well as any issues regarding process orders or production orders. You are provided with further automated support for solving issues to avoid delays or disruptions due to missing items. Tools are also available for communicating with your supplier if solving the issues requires changing a purchase order or stock transport order. The stock/requirements list displays all supply and demand elements for all materials with a net requirement segment or individual segments in the form of a table and enables you to gain a quick overview of the stock/requirements situation for the material. You can also branch into the editing function for the MRP elements for this material. Planned orders are created automatically during a planning run. However, you can also create new planned orders or change existing ones manually to optimize the replenishment situation.

Key Feature	Use

Convert planned orders	You can convert planned orders into production orders or process orders. You can convert the planned orders manually or you can create a job to automate the conversion process.
	
	Planned orders are internal planning elements that are only used for planning purposes and do not trigger any procurement (with the exception of repetitive manufacturing). The system only triggers procurement once the planned orders are converted into fixed receipt elements:
	
	• Discrete Manufacturing
	  ○ You can convert planned orders for materials that are to be produced in-house to production orders. You can convert your planned orders manually or automatically using an order conversion run. The material components required for production are contained as items in the planned order and are copied to the production order. The dependent requirements for the components are converted into reservations. With the conversion to production orders, the responsibility is passed on from the MRP controller to the production supervisor.
	• Process Industry
	  ○ In this case, you convert planned orders into process orders. Again, you can convert your planned orders manually or automatically using an order conversion run. The material to be produced, the order quantity, and the order dates are copied from the planned order to the process order and the dependent requirements for the components are converted into reservations. With the conversion to process orders, the responsibility is passed on from the MRP controller to the production supervisor.
	• Repetitive Manufacturing
	  ○ In repetitive manufacturing, planned orders can be used to trigger production. In this case, the planned orders do not have to be converted into production or process orders.
	
	You convert planned orders for materials that are to be purchased externally into purchase requisitions. In this case, the responsibility for the orders is passed on to the purchasing department. If you are a production planner responsible for external procurement and if you work with Production Planning and Detailed Scheduling (PP/DS), you can optimize the shipment of the materials to best utilize the capacity of your means of transport (such as a truck).

2.7.3 Manufacturing Execution for Discrete Industries

2.7.3.1 Production Control

Business Background

This process enables you to manage and regulate the manufacturing process. It is typically performed by the production supervisor who is responsible for dispatching production operations to individual machines if a

work center/resource has several alternative machines and for assigning shop floor specialists to operations or machines. The production supervisor also decides on measures to mitigate machine breakdowns or missing components, for example.

Key Features

The following features are available:

Key Feature	Use
Monitoring and adjusting the production worklist	You can change production orders or process orders, perform scheduling, and check component availability.
Releasing production orders/process orders	You have to release the production/process order before it can be processed. You can use the time period between creating and releasing an order, for example, to carry out company checks and preparations. You can instruct the system to perform a component availability check at order release. You can release the production/process order at header level releasing all operations. Or, you can release single operations. You can also perform a mass release. Furthermore, you can schedule an order release run that instructs the system to release all your production/process orders periodically. Once the orders are released, you can execute confirmations, print shop floor papers, and execute goods movements, for example.
Monitoring production execution	You have various options for monitoring production progress. • Order Progress Report. This report shows you which documents, MRP elements, stocks, and deliveries exist for products and their components that have been ordered by a customer. The order progress report gives you a quick overview of the status of production and procurement, statements about the adherence to delivery dates or delays and this information can be displayed for more than one sales order or a WBS element. From the report, you can navigate to the individual procurement elements, the stock/requirements list, or the stock overview, for example. • Order Information System This report provides you with reporting functions for production orders, planned orders, and process orders. You can view all the orders in the system, including the orders with deletion flags or deletion indicators. For production and process orders, you can display the order headers, items, documented goods movements, operations, components, the production list, and confirmations, for example. From the report, you also have various navigation options.

Key Feature	Use
Executing production completion	To complete the production process, you can set the status of the production/process order to technically complete and you can complete the order settlement. When an order is settled, the actual costs incurred for the order are settled to one or more receiver cost-objects (for example, to the account for the material produced or to a sales order). Technical completion means ending a production order from a logistical viewpoint. The following actions are executed for orders with this status: • The order is no longer relevant for MRP • Reservations are deleted • Capacity requirements are deleted • Purchase requisitions for external operations or non-stock materials are deleted • The order and its operations are set to *Technically Completed* An order with this status can no longer be changed. You can, however, still make postings for the order such as a material withdrawal or a confirmation. After closing the order, no further updates are possible.
Model the exchange of data relevant to production	You have to provide the shop floor with up-to-date information to keep your production process running as smoothly and efficiently as possible. To this end, you can define in detail how the production process is to be executed and the data you want to collect during production. You can compare this data with existing data and continually make improvements to the process.

2.7.3.2 Production Execution

Business Background

This capability enables you to make all the necessary preparations required for production, to coordinate the exchange of data relevant to production, and to document production progress. It is typically performed by the production operator and includes the following tasks:

- Material staging before production starts.
- Reporting goods withdrawals.
- Processing time tickets for a production order or a process order.
- Entering the goods receipt information for the order on completion of the product.
- Executing planned manual production steps.
- Documenting and logging production information.

Key Features

The following features are available:

Key Feature	Use
Monitoring released production orders/ process orders	You can display the released production/process orders. This means that you have access to all the information required to produce the product including dates, times, and quantities, for example.
Picking	You can use the picking function to determine which components have not yet been issued from stock for an order and then you can perform the goods issue.
Confirming production	You can confirm the production progress for production and process orders. A confirmation documents the processing status of orders and triggers the following business operations, for example: • Updates order data (quantities, activities, dates, status, for example) • Backflushes material components • Posts goods receipts • Updates costs You can cancel or partially cancel confirmations. You can reprocess goods movements.
Exchange of data relevant to production	Depending on the production process, various manual steps have to be processed during production. You can display manual production steps and execute them. Such production steps include: • Instructions on how to carry out production steps or guidelines, such as rules for handling hazardous materials or substances • Recording of actual process data • Reporting of entered and calculated values • Performing calculations • Creating comments
Recording and logging of production information	You can document or log production information which requires a form that excludes manipulation. This is particularly relevant for regulated industries.

2.7.3.3 Repetitive Manufacturing

Business Background

You can use Repetitive Manufacturing for planning and controlling your production in repetitive manufacturing and flow manufacturing environments.

In repetitive manufacturing, you can plan and monitor the material flow in a much higher level of detail than that at which you collect and analyze costs. You use planned orders to model, plan, and trigger material flow and product cost collectors to collect the costs. Planned orders are simple and easy to manage with low overhead which you can use to model small increments of the production quantity. The product cost collectors collect the costs of the complete quantity produced during an accounting period. All deviations are aggregated.

On the other hand, in discrete manufacturing, you plan and manage both the material flow and costs on the same level of detail in the production order, for example. Therefore, if you want to collect scrap and other deviations in detail, you are recommended to use discrete manufacturing.

You can use repetitive manufacturing in the following scenarios:

- Make-to-stock production
  Production is controlled without a direct reference to the sales order. Run schedule quantities determine the dates and quantities. Run schedule quantities are planned orders of the type PE that do not have to be released and that you do not have to convert into production or process orders to be able to carry out production. The requirements are generated by demand management, for example. Sales order quantities are delivered from stock and consume the planned independent requirement quantities in demand management, according to the planning strategy you select. A product cost collector is used to collect actual data and to settle costs.
- Make-to-order production
  The system creates one or several planned orders which directly reference the sales order item. The material is then manufactured on the basis of these planned orders. That is, production is triggered by the receipt of the sales orders. For component materials that are relevant to repetitive manufacturing, you use the product cost collector of the component to collect costs. On finished item level, you either use valuated or non-valuated material: Costs are collected by the sales order if you use non-valuated material and by the product cost collector if the material is valuated.

The business process includes analysis, material requirements planning, and the evaluation of the planning results. You can carry out extensive planning steps such as the MRP run in the background or manually.

Key Features

The following features are available:

Key Features	Use
Planning table	Your main planning tool in repetitive manufacturing is the planning table. It is an operative planning tool that you can use to plan the production quantities. In the planning run, the system assigns the run schedule quantities to the correct line as defined in the production version. In the planning table, you can change the assignment of run schedule quantities to production lines/versions manually. In this type of manufacturing, you plan and control your production using the planning table based on periods and quantities. You can check production quantities, monitor the available capacity of the production lines and check up on the availability situation of the products produced on each line. In the planning table, you can enter and change production quantities and you can assign and reassign quantities to alternative production lines. The planning table allows you to schedule planned orders to the corresponding production lines as follows: • You can change the planned orders/run schedule quantities created in MRP manually (such as quantity/date changes), or you can create additional orders. • You can assign unassigned production quantities to the production lines or reassign production quantities to different production lines. • You have the option of using production or process orders to perform planning tasks. A prerequisite for this is that you have created a valid production version for the material. • Because planning is often carried out on the basis of shifts, the planning table also has functions for distributing production quantities across shifts.
Staging materials using the pull list	You can use the pull list to control the in-house flow of material for supplying production with materials. A prerequisite for this is that the components required for production are already available (either produced in-house or procured externally) and must only be brought from their current storage location to the production storage location. The pull list checks the stock situation at the production storage location and calculates the quantities of missing parts. You can create replenishment elements for these missing parts. You can stage the components by direct stock transfer or stock transfer reservation. You can also trigger replenishment by setting a kanban to empty or by creating transfer requirements in Warehouse Management.

Key Features	Use
Confirming production for repetitive manufacturing	Separate tools are available for recording work progress in a repetitive manufacturing environment. In accordance with the requirements of this type of production, the confirmation process is very lean. For example, you have the option of deferring the entry of all actual data from production until the receipt of the finished part is recorded by a goods receipt confirmation. In the case of make-to-stock repetitive manufacturing, you also have the option of posting a reporting point confirmation at defined operations to record the stock of semifinished products in production, for example. You can couple the following processes in a goods receipt confirmation: • Posting of goods receipts for finished products • Posting of goods issues for the components (backflushing) • Reduction of planned orders • Posting of production costs to the product cost collector • Updating of statistics for analytical purposes You can also cancel incorrect confirmations and reprocess goods movements.
Analyze the product cost collector	You can analyze the costs per period. This means that you collect costs in a cost object over a long period of time and can analyze the credits and debits for certain periods.
Perform evaluations/reporting	You can create the following evaluations: • Reporting point overview You are provided with a statistical overview of all the reporting points of a production version. • Backflushing documents Documents are saved in the system for all backflushes. You can list and print these documents according to various selection criteria. • Updating planned quantities • Call cost reports in Cost Object Controlling

2.7.3.4 Kanban

Business Background

Kanban is a procedure for controlling production and material flow based on physical material stock in production. Material that is required on a regular basis is kept available in small quantities in production. With kanban, the replenishment or production of a material is only triggered when a certain quantity of the material has been consumed. This replenishment is triggered directly by production using previously maintained master data. Entries in the system are reduced to a minimum; to the input of a bar code, for example. All other actions are carried out automatically in the background.

With kanban, the production process is designed to control itself and the manual posting effort is kept to a minimum. Thus, you can achieve shorter lead times and reductions in stock levels.

With kanban, for example, the signal for material replenishment is triggered by the work center that requires the material (the consumer or the demand source). This signal can simply be a card that the demand sources

sends to the work center that produces the material (producer or supply source). This card describes the required material, quantity, and information on where it is to be delivered. It is these cards, which are known as kanbans in Japanese, that have given this type of production its name. On receipt of the material, the demand source can post the goods receipt simply by entering or scanning a bar code.

Compared to the basic kanban process that only uses boxes and cards to trigger material replenishment, this automated solution offers the following advantages:

- Goods movements are posted automatically meaning that inventory information is always up to date.
- Your supply sources are informed faster about the requirements situation at the demand source.
- The system collects data about the kanban cycle times that you can use to improve the process.

Key Features

The following features are available:

Key Feature	Use
Control cycle maintenance	You define the relationship between the demand source (such as a production line in production) and the supply source (such as an external supplier or warehouse) in the control cycle. The control cycle contains the following control data for kanban production: • Kanban circulation, that is, the number of kanbans that circulate between the supply source and demand source and the material quantity per kanban. • Basic data required for the automatic kanban calculation in the control cycle, if necessary. • Replenishment strategy such as in-house production, external source, or stock transfer. • Printing kanbans, if necessary. • Delivery address, if necessary. • Process control (such as the indicator for separate goods receipt, status sequence key, indicator for the logic to trigger the replenishment for one-card kanban, packing instructions, and production call profiles).

Key Feature	Use
Kanban status change (Confirmation)	You can control the production process by setting your kanbans to the appropriate status. You mainly use the statuses empty and full which are mandatory statuses. When a material in a kanban has been used up, you set the kanban status to empty which automatically triggers the replenishment process. The source of supply (producer, supplier) receives the signal to fill up the kanban. When you receive the full kanban back at the demand source (consumer), you set the kanban status to full which triggers the goods receipt posting for the material. You can work in a kanban environment quite efficiently using these two statuses. You can perform the status changes using bar codes and bar code scanners. When you scan the bar code, the required data is sent from the demand source to the supply source. If you require additional information for special cases, the following (optional) statuses are available: • Waiting: Indicates that although the material has been consumed, the supply source is not yet to replenish it. You also use this status if a new kanban has been created. • In process: Indicates that the requested material is currently being produced by the supply source. • In transit: Indicates that the material is currently on its way from the supply source to the demand source. • In use: Indicates that the material is currently being withdrawn by the demand source. • Error: Assigned by the system. Indicates that a desired status could not be set successfully. You only use the first four additional statuses if you work with the kanban board. Here, you can use them to record work progress.
Monitoring with the kanban board	You can use the kanban board to monitor production progress. Irrespective of whether you are the supply source or the demand source, the kanban board provides you with a detailed overview of the kanbans in circulation. You can also use the kanban board to change the status of the kanbans. The following additional information is available, for example: • You can display the control cycle, material, plant, actual quantity, status, date of the last status change and so on by double-clicking the individual kanbans. • You can display the control cycle data by double-clicking the appropriate row on the kanban board. • You can navigate to the stock/requirements list, the stock overview, or the material master for a control cycle. • You can trigger the kanban correction facility for a control cycle.

Key Feature	Use
Cost accounting for Kanban	You have various options for controlling cost accounting for kanban with in-house production depending on which replenishment elements are used. If you use: • Run schedule quantities: The costs are collected in a product cost collector and can be settled periodically in product costing. • Manual kanban: The costs are also collected in a product cost collector. • Production orders or process orders: The costs are either collected in a product cost collector if you want to analyze the costs by periods rather than by lot, or they are settled to the individual production orders/process orders. Updates to the actual costs at the product cost collector can be triggered by logistical transactions (such as goods issues or confirmations) for production/process orders and run schedule headers. For example, goods issues for a production order or reporting point backflushes in repetitive manufacturing debit the product cost collector with actual costs. Goods receipts credit the product cost collector. Alternatively, the actual costs at the product cost collector can be updated directly through G/L account postings in Financial Accounting (FI), for example. You can access reports and view the actual costs for the product cost collector. During the period-end closing, you can: • Charge the product cost collector by means of template allocation. • Revaluate the activities at actual prices. • Calculate overhead for the product cost collector. • Calculate the value of your unfinished products (work in process) for the period. • Calculate the variances of the period. • Settle the work in process and variances to other application components.

2.7.3.5 JIT Outbound Processing

Business Background

Just in Time (JIT) Outbound Processing enables you to replenish direct materials required for manufacturing in the exact quantity and at exactly the time required. You can determine that the required materials are provided internally from a different location, for example. Or, you can specify that the required materials are provided by an external supplier. If you opt for material provision from an external supplier, you can use scheduling agreements with delivery schedules for procurement and production planning processes. JIT calls are used as a replenishment request and the fulfillment is done with reference to them.

Key Features

The following features are available:

Key Feature	Use
Summarized JIT call processing	You can use this feature for processing JIT calls that request a specific material, in a specific quantity, to be delivered at a specific time, to a specific location within your plant. The source of replenishment could either be another internal location resulting in a stock transfer, or an external supplier from whom you purchase the material. In the case of an external replenishment, you use purchasing scheduling agreements to support the supply planning and procurement processes involved. You use control cycles that enable and define the replenishment process. You start the process by creating the JIT call with reference to a control cycle. Depending on the source of replenishment and how you have configured the process, a set of sequenced actions is executed until the fulfilment is completed. When requesting the material from an external supplier, a delivery is expected as the basis for the goods receipt and the supplier invoice, or the credit memo processing. In the case of an internal replenishment, fulfilment is completed when you post the goods receipt which results in a stock transfer. You can monitor the status of the JIT call to track the progress.
Supply-to-production planning	You can use this feature for planning, triggering, and monitoring replenishment using summarized JIT calls. For each control cycle used for supply-to-production planning, the system calculates replenishment requirements taking account of: • Open JIT calls • Available stock at the production location • A defined minimum stock level • Component requirements from production planning
Forwarded sequenced JIT call processing	You can use this feature to forward a group of components of an inbound sequenced JIT call received from your customer to an external supplier who will assemble and deliver the component group. You use control cycles to enable and define the replenishment process. You can send a delivery confirmation to your supplier which is used for the invoicing process.

2.7.3.6 JIT Inbound Processing

Business Background

You can use this component if you, as a supplier, receive and process just-in-time (JIT) calls. Just-in-Time Inbound Processing enables you to produce and deliver materials in the exact quantity, for the exact time, and

even in the sequence defined by your customer. You use scheduling agreements with delivery schedules for sales and production planning processes.

The JIT inbound process starts with the receipt of JIT calls from your customer. Depending on your business scenario and material, the fulfillment of this request can trigger various different activities. You can monitor the fulfillment progress to ensure successful completion.

In sequenced JIT processing, your customer also specifies the sequence in which you are to deliver the products as well as production-related information. Your customer may send an initial call with subsequent updates later according to planning and production execution progress. You can use the initial call for planning or even production purposes. The last call update from your customer provides the final sequence and expected date and time for grouping, packing, and delivery. Your customer sends this information as soon as the production sequence is frozen or production has started meaning that no further changes are expected. This is particularly important when the material requested is different for each production lot depending on variant configuration.

In the case of more complex products with a high number of variants, the sequenced JIT call contains multiple call components instead of a single material. This information is also reflected in the delivery and is used as the basis for the billing or self-billing process. You have to take account of the sequence information in the JIT call when grouping, packing, and loading the requested materials for shipping.

Key Features

The following features are available:

Key Feature	Use
Summarized JIT call processing	You can process JIT calls from customers that request a specific material in a specific quantity to be delivered at a specific time to a specific location. The process starts with the receipt of the JIT call. Depending on how you have configured your process, you execute a set of sequenced actions until the customer requirement has been fulfilled. You can use the repetitive manufacturing solution to produce the JIT call material. You create a delivery document with reference to the JIT call for shipping the goods. This document is used as the basis for the goods issue posting and the billing process. You can monitor the status of the JIT call to track progress.

Key Feature	Use
Sequenced JIT call processing	You can process JIT calls from customers that request a specific material in a specific quantity to be delivered at a specific time to a specific location in a defined sequence. The process starts with the receipt of the JIT call. You can still receive further status updates for the JIT call from your customer providing additional or final data. The initial, external status of the JIT call may allow a pre-assembly whereas further external status updates allow for final assembly and shipping. Depending on how you have configured your process and the external status of the JIT call, you execute a set of sequenced actions until the customer requirement has been fulfilled. You can use the repetitive manufacturing solution to produce the JIT call material. You create a delivery document with reference to the JIT call for shipping the goods. This document is used as the basis for the goods issue posting and the billing process. Alternatively, the billing process can also be based on a delivery confirmation sent by the customer. You can monitor the status of the JIT call to track progress.

2.7.4 Manufacturing Execution for Process Industries

2.7.4.1 Production Control

Business Background

This process enables you to manage and regulate the manufacturing process. It is typically performed by the production supervisor who is responsible for dispatching production operations to individual machines if a work center/resource has several alternative machines and for assigning shop floor specialists to operations or machines. The production supervisor also decides on measures to mitigate machine breakdowns or missing components, for example.

Key Features

The following features are available:

Key Feature	Use
Monitoring and adjusting the production worklist	You can change production orders or process orders, perform scheduling, and check component availability.

Key Feature	Use
Releasing production orders/process orders	You have to release the production/process order before it can be processed. You can use the time period between creating and releasing an order, for example, to carry out company checks and preparations. You can instruct the system to perform a component availability check at order release. You can release the production/process order at header level releasing all operations. Or, you can release single operations. You can also perform a mass release. Furthermore, you can schedule an order release run that instructs the system to release all your production/process orders periodically. Once the orders are released, you can execute confirmations, print shop floor papers, and execute goods movements, for example.
Monitoring production execution	You have various options for monitoring production progress. • Order Progress Report. This report shows you which documents, MRP elements, stocks, and deliveries exist for products and their components that have been ordered by a customer. The order progress report gives you a quick overview of the status of production and procurement, statements about the adherence to delivery dates or delays and this information can be displayed for more than one sales order or a WBS element. From the report, you can navigate to the individual procurement elements, the stock/requirements list, or the stock overview, for example. • Order Information System This report provides you with reporting functions for production orders, planned orders, and process orders. You can view all the orders in the system, including the orders with deletion flags or deletion indicators. For production and process orders, you can display the order headers, items, documented goods movements, operations, components, the production list, and confirmations, for example. From the report, you also have various navigation options.

Key Feature	Use
Executing production completion	To complete the production process, you can set the status of the production/process order to technically complete and you can complete the order settlement. When an order is settled, the actual costs incurred for the order are settled to one or more receiver cost-objects (for example, to the account for the material produced or to a sales order). Technical completion means ending a production order from a logistical viewpoint. The following actions are executed for orders with this status: • The order is no longer relevant for MRP • Reservations are deleted • Capacity requirements are deleted • Purchase requisitions for external operations or non-stock materials are deleted • The order and its operations are set to *Technically Completed* An order with this status can no longer be changed. You can, however, still make postings for the order such as a material withdrawal or a confirmation. After closing the order, no further updates are possible.
Model the exchange of data relevant to production	You have to provide the shop floor with up-to-date information to keep your production process running as smoothly and efficiently as possible. To this end, you can define in detail how the production process is to be executed and the data you want to collect during production. You can compare this data with existing data and continually make improvements to the process.

2.7.4.2 Production Execution

Business Background

This capability enables you to make all the necessary preparations required for production, to coordinate the exchange of data relevant to production, and to document production progress. It is typically performed by the production operator and includes the following tasks:

- Material staging before production starts.
- Reporting goods withdrawals.
- Processing time tickets for a production order or a process order.
- Entering the goods receipt information for the order on completion of the product.
- Executing planned manual production steps.
- Documenting and logging production information.

Key Features

The following features are available:

Key Feature	Use
Monitoring released production orders/ process orders	You can display the released production/process orders. This means that you have access to all the information required to produce the product including dates, times, and quantities, for example.
Picking	You can use the picking function to determine which components have not yet been issued from stock for an order and then you can perform the goods issue.
Confirming production	You can confirm the production progress for production and process orders. A confirmation documents the processing status of orders and triggers the following business operations, for example: • Updates order data (quantities, activities, dates, status, for example) • Backflushes material components • Posts goods receipts • Updates costs You can cancel or partially cancel confirmations. You can reprocess goods movements.
Exchange of data relevant to production	Depending on the production process, various manual steps have to be processed during production. You can display manual production steps and execute them. Such production steps include: • Instructions on how to carry out production steps or guidelines, such as rules for handling hazardous materials or substances • Recording of actual process data • Reporting of entered and calculated values • Performing calculations • Creating comments
Recording and logging of production information	You can document or log production information which requires a form that excludes manipulation. This is particularly relevant for regulated industries.

2.7.5 Outsourced Manufacturing

2.7.5.1 Basic Subcontracting

Business Background

Basic subcontracting provides you with the means to instruct a supplier or subcontractor to process a material for which you provide the components. When procuring materials externally, you use subcontracting purchase

orders or schedule lines to alleviate capacity bottlenecks. Subcontracting purchase orders/schedule lines instruct your subcontractor to make a certain finished material using the components that you provide and potentially using additional components provided by the subcontractor.

Key Features

The following features are available for the external procurement of materials:

Key Feature	Use
Planning materials to be made by a subcontractor	This features enables you to plan your materials that are produced by a subcontractor. In the planning run, the system creates subcontracting purchase requisitions or schedule lines for the material which is made by the subcontractor, explodes the BOM of these materials, and creates subcontracting requirements. You may have more than one subcontractor that supplies one material and they may require different components to be provided while they procure the other components themselves. In this case, you have to create several production versions that cover the needs of your different subcontractors. The purchasing info record of the subcontractor references the appropriate production version.
Planning materials to be provided to subcontractor	This features enables you to plan the parts to be provided to your subcontractor. You can create an MRP area for each subcontractor which simplifies the planning process if you have several subcontractors. When planning the component materials with subcontracting MRP areas, the system checks whether the subcontracting requirements can be covered by existing inventory at your subcontractor's or whether you have already sent the parts to be provided to your subcontractor. If current inventory at your subcontractor does not cover the subcontracting requirements, the system creates a stock transfer reservation to transfer the demand from the subcontractor company to your company. You can then produce or procure the material and send it on to your subcontractor.

Key Feature	Use
Triggering the provisioning of the materials to be provided to subcontractor (subcontracting cockpit)	This feature provides you with a comprehensive overview of all relevant information about your subcontracting process. It provides a single entry point for all documents related to your subcontracting process providing direct access to the following features: • You can choose whether you want to send your components to the subcontractor using the one-step procedure, or the two-step procedure. You can check directly whether your components are already at the subcontractor's site, or still on the way there. • You can check which components are currently in the subcontracting stock. • When you create a subcontracting order, you can change the shipping point for the outbound delivery, or change the batch number. • For each purchase order item, you can display additional information such as the production order, the number of the external operation, or the operation text. For each purchase order item, you can create an outbound delivery that is displayed in the purchase order history for the corresponding item. You can also process the following documents centrally in the Subcontracting Cockpit: • Purchase orders • Purchase requisitions • Outbound deliveries with open goods issues • Reservations • External deliveries (subcontracting components that are prepared by a third party) Key data such as the supplier, material, or plant is displayed for each of these documents.
Goods receipt for parts made at subcontractor	The goods receipt of the subcontracting purchase order/schedule line triggers updates to inventory, purchasing statistics and so on. In addition, the system backflushes the components that were provided to the subcontractor.

2.7.5.2 Basic External Processing

Business Background

Basic external processing provides you with the means to instruct a supplier or subcontractor to process individual production steps such as operations or sub-operations. The external processing of production order operations is frequently used for standardized process steps such as galvanizing which you cannot perform in your own factory. In the case of galvanizing, you may have environmental reasons for outsourcing this step to your subcontractor. In this case, it does not matter to the subcontractor which material IDs are produced. The subcontractor is only responsible for processing (galvanizing) a certain quantity of (metal) pieces.

Key Features

The following features are available for basic external processing:

Key Feature	Use
Planning externally processed operations	When you convert a planned order into a production order, the system checks to see whether there are any routing/work center operations that require external processing. You can use external processing if you have individual production steps that are operations or sub-operations which are performed outside of your company by a supplier. This provides you with an alternative to in-house production if capacity bottlenecks occur. You can use an outline agreement to specify that a certain operation of the production order is executed by an external subcontractor on a regular basis.
Scheduling externally processed operations	When you perform scheduling, the system takes account of any external operations. The duration of an external operation is calculated either by using the planned delivery time or using the standard values. The system automatically creates a purchase requisition for the operation or sub-operation that requires external processing. This requisition is automatically updated with any quantity changes made to the production order. You should not convert the purchase requisition into a purchase order until the external processing is actually required. The reason for this is that any quantity changes made in the production order will automatically update the requisition. Once you have created the purchase order, it is printed and sent to the supplier.

Key Feature	Use
Triggering the provisioning of the materials to be provided to subcontractor (subcontracting cockpit)	This feature provides you with a comprehensive overview of all relevant information about your subcontracting process. It provides a single entry point for all documents related to your subcontracting process providing direct access to the following features: • You can choose whether you want to send your components to the subcontractor using the one-step procedure, or the two-step procedure. You can check directly whether your components are already at the subcontractor's site, or still on the way there. • You can check which components are currently in the subcontracting stock. • When you create a subcontracting order, you can change the shipping point for the outbound delivery, or change the batch number. • For each purchase order item, you can display additional information such as the production order, the number of the external operation, or the operation text. For each purchase order item, you can create an outbound delivery that is displayed in the purchase order history for the corresponding item. You can also process the following documents centrally in the Subcontracting Cockpit: • Purchase orders • Purchase requisitions • Outbound deliveries with open goods issues • Reservations • External deliveries (subcontracting components that are prepared by a third party) Key data such as the supplier, material, or plant is displayed for each of these documents.
Valuating externally processed operations	When data is maintained for an external activity, a cost element is specified. The cost element determines how the external activity is to be valuated. A decision needs to be made whether an operation or suboperation is processed externally via its control key. The control key determines whether externally processed operations are scheduled on the basis of their standard values or the planned delivery time. This information is needed to settle externally processed operations and suboperations that have been marked as relevant for costing in their control keys.
Goods receipt	When the supplier has completed the external processing, the material is shipped back. You receive the externally processed goods back into the warehouse. The supplier service is reflected in the production order by means of an operation confirmation. The purchase order and the production order both show the quantity received and the system updates the status of the operation accordingly.

2.7.6 Quality Management

2.7.6.1 Quality Engineering

Business Background

Quality engineering helps you to ensure the quality of your products, processes, and services right from the start. During the early stages of product design and development, it is important to have the correct quality tools and to implement appropriate quality-planning strategies in your processes.

Key Features

The following features are available:

Key Feature	Use
Failure Mode and Effects Analyses (FMEA)	You can use this feature when planning new products and processes. It enables you to prevent and avoid defects. You can perform a risk analysis and derive quality-specific actions that ensure high levels of quality.
Control plans	You use this feature in combination with the Failure Mode and Effects Analysis to perform an integrated inspection planning for goods receipt inspections and inspections during production. The control plan describes how products and processes are monitored. It contains tasks that are executed for each phase of the process.
Quality-related master data	For quality planning purposes, you define specifications and processes on a long-term basis as master records. You can define quality-related data for generic master data records, for example, material or supplier.
Inspection planning	You use the inspection planning functions to define inspection criteria (for example, material to be inspected, how the inspection is to take place, characteristics to be inspected, required test equipment, work center, and inspection specifications).

2.7.6.2 Quality Inspection

Business Background

You can prepare, execute, and monitor different types of quality inspections, for example, in purchasing, production, or sales scenarios.

Key Features

The following features are available:

Key Feature	Use
Inspection lot creation	An inspection lot represents the request to perform a quality inspection.
Inspection execution	This feature allows you to record the results of an inspection, for example, for an inspection lot.
Inspection completion	Once the inspection results have been recorded, the inspection lot is completed with the usage decision.
Dynamic modification of the inspection scope	You can define rules so that the system automatically determines the scope of the next inspection dependent on the latest inspection results. You can vary the sample size of the next inspection lot in stages between a predefined inspection scope and a skip.
Defects recording	You can record individual defect items.
Sample management	You use this feature for processing and managing samples. Sample management allows you to: • Flexibly plan the drawing of samples • Identify samples • Record inspection results for samples • Manage the sample data
Calibration inspections	You can plan and perform calibration inspections of test equipment. Based on the inspection results, you can verify the accuracy and suitability of test equipment for an inspection.
Stability studies	You use this feature to track and examine how different environmental conditions (for example, temperature, brightness, moisture) affect a compound, a material, or a batch over a specified period of time.
Quality certificates	You can manage quality certificates in inbound and outbound processes.

2.7.6.3 Quality Improvement

Business Background

Quality improvement provides tools that are the basis for improving your processes and products. You can gain better insights into your quality-related data and thereby reach your corporate quality goals.

Key Features

The following features are available:

Key Feature	Use
Quality notifications and root cause analysis	This feature allows you to record and process quality problems and complaints and to execute the problem-solving process including root cause analysis.
Corrective and preventive actions	You can trigger actions in order to solve a problem and to prevent the problem from re-curring.
Quality analytics	An integrated set of quality data allows you to quickly identify systematic errors, analyze problems, eliminate root causes, and respond faster to unforeseen events and deviations. You can perform quality evaluations based on inspection results or based on issue data.
Audit management	An audit is a systematic examination for determining, evaluating, and documenting the extent to which an object fulfills predefined criteria. Audit management supports you in all phases of auditing.

2.7.7 Maintenance, Repair, and Overhaul

2.7.7.1 Maintenance, Repair, and Overhaul (MRO)

Business Background

Maintenance, Repair, and Overhaul (MRO) supports processes for hardware maintenance, component repair, and line maintenance for aftermarket services, post-delivery returns, and any form of repairs during the product life cycle.

Key Features

The following table explains the key features available:

Key Feature	Use
Inventory management	The MRO extension of inventory management is capable of procuring and then stocking a part using its original manufacturer's part number in the parts planning and consumption. The parts interchangeability feature allows the stocking of different manufacturers' parts that meet Form-Fit-Function rules, allowing MRP to calculate part demand and view stock across manufacturers' part numbers for part availability. It also has the capability to stock and repair customer-owned parts that are segregated by customer numbers.
Provisioning, Procurement, and Sales	This special procurement extension is primarily used by the airline industry, which uses the ATA Spec 2000 exchange to procure spare parts. Other industries would use the standard procurement solution. The Initial Provisioning component supports you in the selection and initial procurement of spares for a new fleet of aircraft, vehicles, equipment or other end products before you have established regular operational and maintenance processes. This solution also generates a detailed attachment for a resource-related debit memo request (DMR) or invoice. This attachment contains structured details of the resources you are billing to the customer, with the required level of detail for those industries that require such information; for example, the airline industry and the aerospace and defense contracting industry.

Key Feature	Use

Maintenance Planning	This includes:
	• Spare Parts Stock Calculation: This application determines an initial stock level for the part type required to supply a serviceable part, with probability of a specific percentage if the part in question fails. The probability is represented by the service level.
	• Work Packaging and Sequencing (WPS): This application summarizes processes and activities for planning and performing large maintenance tasks.
	• Mass Maintenance of Maintenance Plans: This function allows you to change several maintenance plans in the same way at the same time.
	• Maintenance Program Definition: This component provides a workbench that you can use to transform complex maintenance requirements into maintenance plans within the maintenance execution system.
	• Maintenance and Service Planning (MSP): You use MSP to carry out the following:
	  ○ Strategic planning over a long-term horizon, such as 5-10 years, allowing you to determine the resources necessary to meet future maintenance demands
	  ○ Tactical planning over a mid-term horizon, such as 1-18 months, to ensure that your maintenance objects remain serviceable, optimize utilization of your maintenance objects, and balance the resource load in your service areas

Key Feature	Use
Maintenance and Service Processing (MSP)	In maintenance and service processing, the primary objective is to ensure the hardware availability of technical objects. The process includes activities for tracking individual components during their entire life cycle, whether installed in the hardware, stored in a warehouse, or serviced in a workshop. Components are exchanged if they cannot be repaired in time, have reached their life limits, or are listed in service bulletin directives for replacement. In the case of rotables, an unserviceable component is placed in a warehouse and replaced by a new or serviceable component. In urgent cases (for example, if a component cannot be transferred to a line station in time), a component is taken from other equipment that is currently not in operation. Sometimes it is possible to swap identical components within an equipment number, instead of repairing the defective component. MSP features include: • Component Maintenance Cockpit (CMC) • Subcontracting for MRO Processes • Plant Maintenance and Customer Services (PM/CS) Orders in the MRO Process • Assignment of PM/CS Orders to Projects • Sharing of Spare Parts • Configuration Control • Logbook • Integration of Service Processing with Warranty Claims

2.7.8 Maintenance Operations

2.7.8.1 Plant Maintenance Master Data

Business Background

By mapping your operational structures to technical objects, you can efficiently manage and evaluate your technical assets and maintenance objects and monitor the costs involved. Structuring the existing technical systems on the basis of technical objects reduces the time required for managing the technical objects and allows a faster evaluation of maintenance data.

A functional location represents an area within a system or plant where an object can be installed. Functional locations are created in hierarchical structures and thus allow a spatial, functional, or process-oriented structuring of your systems. Individual maintenance objects are represented by pieces of equipment that are installed in functional locations. The usage times of a piece of equipment at a functional location are documented over the course of time.

Key Features

The following features support you with this process:

Key Feature	Use
Structuring Technical Objects Hierarchically and Horizontally	The functional location is an organizational unit that structures the maintenance objects of a company according to functional or process-related criteria. When creating a functional location and defining its place in the hierarchical structure you define where a piece of equipment can be installed. Pieces of equipment can be installed in different functional locations or in other pieces of equipment. As functional locations represent your company's operational structures, they are usually part of a hierarchical structure and you can summarize costs or other maintenance data for individual hierarchy levels. Based on the structure indicator, functional locations are automatically arranged in the structure when you create them. You can also create hierarchical equipment structures if you want to divide large pieces of equipment into smaller units. If you want to structure your technical systems horizontally, you can create object networks. Object networks are represented by links between various pieces of equipment or functional locations.
Creating Master Records for Functional Locations and Pieces of Equipment	Once the structure of the asset is defined, you can create a master record for each functional location and piece of equipment and specify general data, location data, organizational data, and structure data as well as edit classification data and characteristic values, and assign documents. • You can assign a bill of material (BOM) to the master record of a functional location or piece of equipment. • After having created characteristics and classes, you can assign this classification information to the master records of equipment and functional locations. If you have to manage a large number of objects, the classification enables you to easily locate your objects and group them together for evaluations. • You can serialize a piece of equipment by assigning a material number and serial number to it. This makes inventory management possible for the equipment. • A piece of equipment that is installed in a technical object can store the history of its installation location. The system records a usage period for each installation location, enabling you to track the complete installation history. • You can maintain fleet information, such as data pertaining to the engine and fuel, in the equipment master record. You can represent objects that are not repaired but rather exchanged in case of a breakdown by creating master records for materials and assemblies. Although this does not enable you to document a maintenance history, a material or assembly can also serve as a reference object for a maintenance notification or order.

Key Feature	Use
Creating Maintenance Bills of Materials (BOMs)	A maintenance bill of material (BOM) is a complete, formally structured list of the components making up a technical object or an assembly. Maintenance BOMs support you when locating malfunctions by providing you with an overview of all components that make up a technical object. From this overview you can easily select the object for which you want to create a malfunction report. Furthermore, maintenance BOMs provide you with an overview of all spare parts used for the maintenance of a specific technical object, so they make spares planning considerably easier. A maintenance BOM contains the object numbers of the individual components together with their quantity and unit of measure, and can be assigned to the master record of a technical object or material.
Reading Measuring Points and Counters and Creating Measurement Documents	Measuring points and counters are located on technical objects. They help you document the condition of a technical object at a particular point in time and support you in performing counter-based or condition-based maintenance. Documenting the condition of a particular object is of great importance in cases where detailed records regarding the correct condition have to be kept for legal reasons. This could involve critical values recorded for environmental protection purposes, as well as measurements of emissions and pollution for objects of all types. If you perform counter-based maintenance, maintenance activities are always performed when the counter of the technical object has reached a particular counter reading. In the case of condition-based maintenance, the activities are triggered when the measuring point of a technical object has reached a particular state. After a measurement has been taken at a measuring point or a counter, the data is stored in a measurement document. Based on that document the system calculates the next planned maintenance date and the call date on which a maintenance order is created. Each time you create a new measurement document, the system recalculates the planned date for the next maintenance work.
Accessing Context-Sensitive Information	In functional locations and pieces of equipment quickviews appear as separate popups when you hover over an object, and provide relevant information about the superior technical object or the installed piece of equipment. In technical objects you can open preconfigured side panels in a separate screen area and display context-sensitive charts and data. You can enhance the side panels to meet your requirements, thereby specifying which information you want to have displayed in the side panel.
Processing Master Data in the Information Center	You can use the *Information Center* to search for functional locations and pieces of equipment, and to call up technical objects from a personal worklist (POWL). Your personal worklist contains your favorites and objects that you have recently accessed or changed, and provides you with direct access to the Asset Viewer. You can personalize your worklist to your needs, sort table columns, and set filters.

Key Feature	Use
Visualization of Technical Objects in the Master Data	With the SAP 3D Visual Enterprise Viewer, you can display graphics of technical objects right in the master data. You can display the graphic of the technical object as a thumbnail, as a 2D image or a 3D scene. In the 3D scenes, you can use various display functions, for example, you can pull the visualized model apart or rotate it, display a detailed view or a cross-section, as well as display associated parts lists.
Viewing Technical Objects in the Asset Viewer	The Asset Viewer is a display tool that enables simple navigation through complex object relations and flexible navigation within and between objects. You can also view and navigate the hierarchical structure of the technical object.

2.7.8.2 Maintenance Planning and Scheduling

Business Background

Maintenance Planning and Scheduling helps you optimize the scope of work and effort required for inspection, maintenance, and planned repairs. Based on legal requirements, manufacturer recommendations, and cost analyses, you determine which preventive maintenance tasks are required, which work centers are needed, and how frequently preventive maintenance tasks have to be processed to avoid breakdown time. Maintenance plans support you in specifying maintenance cycles, scheduling maintenance calls, and determining the expected costs for a specific time period. In maintenance task lists you can describe a sequence of individual maintenance activities which must be performed repeatedly within your company. In addition, you can use 2D and 3D model views to visualize technical objects, spare parts, and instructions as well as to find the spare parts you need for carrying out maintenance tasks quicker and easier.

Key Features

The following features support you with this process:

Key Feature	Use
Planning Complex Maintenance Cycles with Strategies	Maintenance strategies help you plan complex maintenance cycles. Based on legal requirements, manufacturer recommendations, and cost analyses, you use maintenance strategies to determine the sequence of planned maintenance and inspection tasks. Maintenance strategies contain maintenance packages with general scheduling information and can therefore be assigned to different maintenance plans. This reduces the time required for creating maintenance plans and allows you to update maintenance scheduling information easily.

Key Feature	Use
Processing Maintenance Plans	To plan recurrent maintenance work, you can create time-based and performance-based maintenance plans, strategy plans, and multiple-counter plans. In time-based maintenance planning, maintenance is performed in specific cycles, for example, every two months or every six months. With performance-based maintenance plans, you can plan regular maintenance based on counter readings maintained for measuring points of pieces of equipment and at functional locations. • You can create and assign maintenance items that describe which preventive maintenance tasks should take place regularly for a technical object or a group of technical objects. You can assign a task list to the maintenance item to specify the individual work steps that must be executed, the spare parts and tools required for the job, as well as the required completion time. • You can determine the maintenance cycles as planning data. If the maintenance plan is a strategy plan, the assigned maintenance strategy determines the maintenance cycles. If the maintenance plan is performance-based, you can assign counters. Furthermore, you can specify other scheduling information, such as shift factors. • You can view the scheduled maintenance calls for the maintenance plan. • You can determine the expected costs for a specific period. The system calculates the costs based on existing calls and uses maintenance packages and cycles as well as assigned task lists as sources for estimating costs. When you schedule the maintenance plan and generate maintenance calls, the system generates maintenance call objects (for example, maintenance orders or maintenance notifications) for the due date, and copies the relevant planning data into the call object. You can display the scheduled calls using the call history.

Key Feature	Use
Planning Recurrent Maintenance Work with Task Lists	Maintenance task lists describe a sequence of individual maintenance activities which must be performed repeatedly within a company. They contain important information about the spare parts and tools required for the work steps, the work centers involved, and the time required to perform the work. As a maintenance planner, you can use task lists to standardize these recurring work sequences and to plan inspections, maintenance, and repairs more effectively. Furthermore, task lists enable you to react quickly to changing environmental protection or occupational safety regulations that may affect continuous maintenance. You can create a general task list or a task list for a specific piece of equipment or functional location: • You can provide general information, such as the responsible work center and plant, the status, and the maintenance strategy. You can also specify a validity date that can be today's date or a date in the past or future. • You can specify the required spare parts by assigning material components from the bill of material or adding materials that are not in the BOM of the maintenance object. • You can determine which production resources or tools are required to perform the maintenance tasks, such as measuring and inspection instruments or cranes. • You can describe the chronological interdependence between the maintenance tasks and create relationships between operations. • You can create, display, and assign documents. • You can perform cost analyses that allow you to see which of the operations described have created which costs in a maintenance task list. This enables you to control your costs without creating an order. You can use task lists to detail out the individual work steps which must be executed as well as the spare parts and tools required for the job and the required completion time. When you then assign a task list to a maintenance item, maintenance notification, or an order, the system copies this maintenance data from the task list into the respective maintenance document.
Performing Inspection Rounds	You can plan and perform inspection rounds on different technical objects on a regular basis. The work activities in a round are similar and require the same tools, replacement parts, and qualifications while the number of technical objects may vary, depending on the sequence and the time required. An inspection round can involve functional locations, pieces of equipment, and measuring points or counters. You can assign an inspection round to a work center or a person. In an inspection round, you enter technical objects at the operation level of task lists or maintenance orders.

Key Feature	Use
Accessing Context-Sensitive Information	In maintenance plan and task lists you can open quickviews and side panels to gather further information. Quickviews appear as separate popups when you hover over an object, and provide relevant information about the technical objects or the long text. You can open preconfigured side panels in a separate screen area and display context-sensitive charts and data. You can enhance the side panels to meet your requirements, thereby specifying which information you want to have displayed in the side panel.
Processing Maintenance Plans and Items from a Personal Object Worklist	The *Maintenance Plan and Maintenance Item List* is an individually configurable worklist (POWL) that allows you to display and process all maintenance plans and items that match the selection criteria in the query you have defined. The POWL provides the most important information about maintenance plans and items, enables you to carry out mass data changes and to navigate to the assigned technical objects. You can configure the list layout, sort table columns, and create filters.
Selecting Spare Parts and Viewing Visual Instructions in Task Lists	With the SAP 3D Visual Enterprise Viewer, you can use functions to visualize technical objects, spare parts and instructions. 2D and 3D model views as well as animated scenes make critical maintenance processes such as finding the spare parts you need and carrying out maintenance tasks quicker and easier. Users can only display the 2D images and 3D scenes that have been published within their company. While working in a task list you can select spare parts from a 2D or 3D model view and copy them to the spare parts list. You can also watch visual instructions on how to carry out your maintenance tasks. Visual instructions can be animated 3D scenes that visualize each and every maintenance step at operation level, for example.
Viewing Relationships between Maintenance Objects in the Asset Viewer	The Asset Viewer is a display tool that enables simple navigation through complex object relationships and flexible navigation within and between objects. You can also view and navigate through the hierarchical structure of technical objects.

2.7.8.3 Maintenance Execution

Business Background

Maintenance Execution allows you to perform planned and unplanned maintenance tasks. Maintenance planners can carry out preliminary costing, work scheduling, material provisioning, and resource planning. They provide maintenance workers with job lists so that they have easy access to all maintenance-related information. This leads to increased efficiency and productivity. Maintenance workers can review the jobs assigned to them and carry out the required maintenance work based on the tasks and operations in the order. While confirming that they have finished the job, they can enter measurement readings, which the system records in measurement documents.

Key Features

The following features support you with this process:

Key Feature	Use
Reporting a Malfunction Using Notifications	As a maintenance planner or worker you can report a malfunction or a problem at a technical system by creating a notification in which you specify the technical object, describe the malfunction, and enter the activities to be performed. Hierarchical structure lists support you in specifying the technical object and provide you with information about assigned materials and components. You can enter breakdown information, describe the damages and causes, and enter tasks and activities. By choosing the appropriate codes for describing the damages and malfunctions as well as what caused the damage, you ensure that issues can be entered in a standardized way and therefore be evaluated automatically. Having completed your work, you can confirm the time spent on each activity. To add further information, you can upload and attach documents to the notification. You can print out the shop paper of the notification physically or virtually on the job card and by doing so, transfer the notification to the job list.
Planning and Executing Maintenance Work Using Maintenance Orders	When a malfunction is detected, the maintenance planner can use a maintenance order to detail out the maintenance tasks that are to be performed on the technical object. As a planner, you can create a maintenance order for a specific notification or create the maintenance order directly with or without reference to an existing order. When creating or changing a maintenance order, you can either assign existing task lists and notifications or create new ones for the order. In the maintenance order, you provide all the information needed to plan and execute the maintenance work. That includes start and finish dates, location information, planned materials and production resources/tools. The system supports you in finding the relevant technical object, choosing the required materials and checking their availability, scheduling the job, and determining the costs: • You can specify the technical objects using a hierarchical list. • You can choose the required materials using a catalog. When you plan materials for executing order operations, you can display whether the materials planned for the operation are available on time and in sufficient quantity. • After you have planned an order with all its operations and components, you can use the scheduling function to determine the actual execution dates, the capacity requirement needed to execute the order, and the date on which a particular material should be available. • You can determine costs and run cost simulations. For inspection rounds, you can enter technical objects and assemblies at operation level and assign measuring points as production resources/tools to the technical objects. To add further information, you can upload and attach documents to the order. You can print out the shop paper of the maintenance order physically or virtually on the job card and by doing so, transfer the order to the job list.

Key Feature	Use
Processing and Confirming Maintenance Jobs	Job lists and confirmation lists support maintenance workers in processing and confirming maintenance jobs. • Job lists provide a list of maintenance jobs to be carried out, as well as crucial information for each job at a glance, such as the urgency, start and end dates, and assigned work center. You can configure job lists so that they reflect how work is organized in your particular organization and therefore only contain the jobs that are relevant to you. • Confirmation lists contain all the planned maintenance jobs that can be confirmed. As a maintenance worker, you can check the planned job data and confirm or adjust it. That includes the time you spent on the job and the materials you consumed as well as the activities you performed and the measurement readings. Depending on how confirmation is done in your company, you can configure different confirmation lists. As a maintenance worker, if you fix a problem at a technical system, you can also confirm this unplanned job and enter all the required data after having finished your work. You then can enter the time spent and the required materials, write a long text and, if necessary, create an activity report. The system automatically creates an order and - if an activity report exists - a notification, sets the order and notification to *technically completed*, stores the time confirmation, and posts a goods issue for the order. You can also confirm unplanned jobs while working in the Asset Viewer.
Accessing Context-Sensitive Information	In maintenance notifications and orders you can open quickviews and side panels to gather further information. Quickviews appear as separate popups when you hover over an object, and provide relevant information about the assigned notification or order, technical objects, materials, activities, statuses, and long texts. You can open preconfigured side panels in a separate screen area and display context-sensitive charts and data, such as context-sensitive master data or information about vendors and customers. You can enhance the side panels to meet your requirements, thereby specifying which information you want to have displayed in the side panel.
Processing Maintenance Documents in the Order and Notification Information Center	The *Order and Notification Information Center* is a central point of access to several worklists that you can use for processing all your notifications and orders. You can access worklists for notifications, orders, and order operations, or use the combined *Order and Notification List*. The worklists allow you to display and process all maintenance notifications and orders that match the selection criteria in the query you have defined. You can configure the list layout, sort table columns, and create filters. In addition, you have the option of displaying table columns for monitoring critical dates and costs, whose colors help you detect issues. Furthermore, the lists enable you to change the status of orders and notifications and provide a mass data change function. In the combined *Order and Notification List*, you can also display the assignments of notifications to orders.

Key Feature	Use
Selecting Spare Parts and Viewing Visual Instructions in Maintenance Orders	With the SAP 3D Visual Enterprise Viewer, you can use functions to visualize technical objects, spare parts, and instructions. 2D and 3D model views as well as animated scenes make critical maintenance processes such as finding the spare parts you need and carrying out maintenance tasks quicker and easier. Users can only display the 2D images and 3D scenes that have been published within their company. While working in a maintenance order you can select spare parts from a 2D or 3D model view and copy them to the spare parts list. You can also watch visual instructions on how to carry out your maintenance tasks. Visual instructions can be animated 3D scenes that visualize each and every maintenance step at operation level, for example. If you have set up the conversion accordingly, you can even convert the visual instructions assigned to a maintenance order to PDF format, use them on job cards, and print them out.
Viewing Relationships between Maintenance Objects in the Asset Viewer	The Asset Viewer is a display tool that enables simple navigation through complex object relationships and flexible navigation within and between objects. You can also view and navigate through the hierarchical structure of technical objects.

2.8 R&D / Engineering

2.8.1 Enterprise Portfolio and Project Management

2.8.1.1 Project Financial Control

Business Background

This capability enables you to define work breakdown structures as a basis for hierarchical project accounting. You can plan costs and budgets and track actual costs that are tightly integrated with core business processes. This provides you with better insight into the project progress and your project financial performance and enables you to avoid cost overruns in time.

Key Features

The following table explains the key features available:

Key Feature	Use
Maintenance of standard WBS	You use this feature to maintain the standard structures for your project. • A standard WBS is a neutral work breakdown structure that serves as a template for creating operative work breakdown structures. • A WBS contains the individual elements (WBS elements) that structure the standard project as well as general organizational data. When you create a standard WBS a standard project definition is automatically created.
Maintenance of standard milestones	Standard milestones are used exclusively in the Project System as a source for creating milestones and other standard milestones. You can combine different standard milestones in a milestone group.
Maintenance of operative WBS	You can create projects, or change and display existing projects and project parts. A project comprises of a project definition, which serves as binding framework for all organizational element created within a project, and WBS elements, which describe either a certain task or a partial task that can be subdivided further. You can also use networks within projects to represent the flow of a project or of a task within a project. The structure tree displays the project object that you have selected in its hierarchical context. You can manually change the dependencies and assignments of individual project objects in the structure tree. You have access to both the worklist and templates. Templates are available during processing to create new objects or structures in the current project by adding new project objects, copying existing project structures or copying from standard project structures. For quicker access, you can store frequently used project data (project definitions, and WBS elements) in the worklist.

Key Feature	Use
Maintenance of Group WBS	Based on the grouping strategy for projects, you can choose one of the following options to organize grouping WBS elements: • Create a grouping WBS element and include it in the operative WBS structure for a specific project. You use this if you want tighter cost and part control and reporting for a specific project. • Create a grouping WBS element and include it in the group WBS structure within its own project. You use this if you share common parts across projects and want to optimize the various collective processes involving these common parts. You can maintain a grouping WBS element in the same way as an operative WBS element. However, a grouping WBS element must not have any components or network activities attached to it. A grouping WBS element has an associated grouping identifier. Data maintenance of a grouping WBS element includes listing of all the operative WBS elements that can participate in the collective processes controlled by it. Besides the project WBS structure, grouping WBS elements can also have a hierarchical structure similar to the Bill of Material (BOM) structure. In such a structure, all common parts across projects are organized at the lowest grouping WBS element levels and the project-specific parts are organized at the higher level. You can use grouping WBS elements to move cost to breakpoints such as other WBS elements and network activities. This helps to segregate costs of key parts and assemblies from the MRP-driving operative WBS elements and enables the system to automatically provide this data. The costs associated with excess stock, scrap, and loss tied to the MRP-driving operative WBS elements can be directed to other project WBS elements; this helps to report such costs separately.
Mass changes to change projects and networks	If you work with complex and long-running projects, it is often necessary to make large scale changes to master data or assignments. You can use the mass changes function to change projects and networks. You can also view a log containing all the objects that were changed as a result of this process.
Project Versions	A project version shows the state of the project at a certain point in time or at a certain status. You can create as many project versions as required. Some features include: • Document (as a history) the state of the project in the past • Can be used for comparison purposes

Key Feature	Use
Progress Analysis	Progress analysis helps you to obtain information on the state of your project and how it is developing. This enables you to take corrective action if the project is varying from its plan. • You can determine planned and actual project progress values, and to compare the two sets of data. You can determine the relevant values at any time or as part of the period-end closing work that you plan.
Line Item Reports	Business transactions can be documented as line items and stored in line item files. Actual Line Items for Cost and Revenues • You can use the actual line item report for projects to obtain flexible analyses of individual actual cost and revenue postings per various criteria. • You can change the format of the line item display. • A number of functions support you in analyzing line items using the line item report display. These include sorting, filters, totaling, and search. Plan Line Items for Cost and Revenue • In project cost planning, plan line items are only created for certain business transactions for which some prerequisites are fulfilled. • You can change the format of the plan line item display.
Resource related billing document	You use this to bill customers for work done, materials used, and other costs incurred in customer projects. The basis for creating a billing document is the billing request. During resource-related billing, the system creates dynamic items from the expenditure information (for example, costs for material, utilities, personnel, trips) which serve as basis to create a billing request. You can edit the items in resource-related billing using the following features: • You can determine whether the system bills the costs summarized for dynamic items in full, later, or does not include them in the billing request at all. • You can view the hierarchy sorted and combined per SD items. The prices for the items are calculated using SD pricing. You can edit individual or header items from resource-related billing, with the help of SD conditions.
Resource related intercompany billing	This enables the distribution of project revenue accrued in one company code between other company codes. The distribution of the revenue is dependent on the work performed by employees belonging to those company codes. Through internal billing, the revenue is distributed between the company codes based on cost unit rates or sales prices.
Project period-end closing	Period-end closing is the framework for carrying out period-related commercial transactions. You use it to ensure that all the data belonging to a period is determined and that data is available for enterprise controlling purposes. These transactions are performed at the end of the period after the primary cost postings for the period have been made.

Key Feature	Use
Structure Overview	You can use the structure overview to flexibly evaluate the structure of your project according to different criteria. The system displays the basic structure of the project in the overview.

2.8.1.2 Project Logistics Control

Business Background

This capability enables you define project structures consisting of work breakdown structures and network structure, plan and schedule project activities, control all procurement processes integrated with the core business process, and provide an insight into all logistic related execution aspects of a project.

For features related to work breakdown structures, refer to *Project Financial Control*.

Key Features

The following table explains the key features available:

Key Feature	Use
Maintaining standard networks	• You use this feature to maintain the standard network structures for your project. The project-neutral network structure can be used as a template when creating other standard networks or operative networks. • You can link standard networks with standard work breakdown structures in order to create project templates.
Maintaining operative networks	• You can copy from a standard network or an operative network to create a new operative network. If you have assigned a standard network to a standard WBS, you can create an operative WBS at the same time that you create an operative network. • Relationships determine the chronological sequence of activities in a network or a standard network. Cross-network relationships enable you to spread the tasks to be performed over several individual and smaller networks thereby creating an overall network. • You can create milestones in networks, standard networks, work breakdown structures (WBS) and standard work breakdown structures (standard WBS).

Key Feature	Use
Network Scheduling	Scheduling determines the earliest and latest start and finish dates for carrying out activities in the network and calculates the required capacity requirements. A network is always scheduled forwards and backwards. • Forward scheduling calculates the earliest start and finish dates of activities (earliest dates) and the scheduled finish date of the network. • Backward scheduling calculates the latest start and finish dates of activities (latest dates) and the scheduled start date of the network. In a complex project, the dependencies in a project can make the activities in one network dependent on the completion of activities in another network. You can use the function for the overall network scheduling where the networks are linked through certain relationships.
Materials in Project	• This helps you to plan and monitor project material requirements and costs, and to regulate and schedule the flow of materials. • If you only need a few material components in a project, you can assign these components to the network activities manually. • The bill of material (BOM) transfer component makes it easier for you to assign material components to network activities and keep this information up-to-date.
Requirement Grouping	Requirements grouping is a planning procedure for projects within material requirements planning (MRP) . Material for a project can be managed in general plant stock or in individual stock. With individual stock you can follow materials that are required for a project with regards to stock levels and MRP separately. If you use valuated or non-valuated project stock, the material components are kept, from an MRP view, in individual stock segments for individual WBS elements. In material requirements grouping, the system groups several stock owners (WBS elements) together in one grouping WBS element. MRP creates procurement elements (planned orders or purchase requisitions) for the requirements from the grouped WBS elements. You can group requirements from WBS elements belonging to one project or from WBS elements belonging to several projects for the purpose of MRP. This includes: • Automatic grouping of all WBS elements in a project • Manually assigning WBS elements to several grouping WBS elements • Assigning materials to different grouping WBS elements according to the MRP group
Delivery from Project	You can use this to create deliveries in the Project System and consequently deliver material components that are assigned to a project. This contains information that is required for a delivery, for example the sold-to-party or delivery date. Since you can create deliveries in a project independently of a sales order, this data is saved in delivery information in the Project System.

Key Feature	Use
Confirmations	• Confirmations document the state of processing for activities and activity elements in a network, and can be used to forecast progress in the future. • Precise confirmations are very important for realistic and accurate project planning.

2.8.2 Product Development for Discrete Industries

2.8.2.1 Bill of Materials

Business Background

A bill of material (BOM) is a formally structured list of the components that make up a product. The list contains the object number of each component, together with the quantity and unit of measure. The components are known as BOM items. BOMs are used in various situations where a finished product is assembled from several component parts or materials. They contain important basic data for numerous areas of a company.

Key Features

The following table explains the key features available:

Key Feature	Use
Manage bills of material	You can create a complete, formally structured list of the components that make up a product.
Assign BOMs to plants	You can extend the area of validity of a BOM that you defined when you first created it. This means, for example, that you can assign the same BOM to a material in different plants - avoiding data redundancy and multiple data entry.
Monitor multilevel BOM assignment	You can use a reporting function that determines all components in a product and displays them per low-level code.

Key Feature	Use
Find BOM for component	You can use a reporting function that determines where an object (for example, material) is used and the quantity that is required. This is necessary, for example, if objects are used in more than one context. You can use this information to: • Select products that are affected by a change to an individual part • Calculate the effect on the cost of a product if the price of a raw material rises

2.8.2.2 Product Structure Management

Business Background

A product structure is an enhanced engineering bill of material (BOM). It consists of a set of hierarchically ordered objects with the purpose of documenting one product or a set of similar products. This is effective for high-volume, repetitive manufacturing, for example, in the automotive industry, as well as for complex machinery and equipment.

If you work with products that have many variants and a large number of components, you can use product structure management to optimize process support from early engineering, to hand-over to manufacturing.

Product visualization tools allow you to manage geometric data and view digital mockups in your product structures via viewable files.

Product structures provide the following benefits:

- Possible to create and maintain a product structure without assigning materials
- A redundancy-free description of products or product families with many variants
- Variant configuration and variant management capabilities
- The option of working with both configurable and configured materials
- Continuous modeling from an early stage to the manufacturing handover
- Modeling of functional structures (with no requirement for material number references)
- Template structures for the creation of product structures and the standardization of product descriptions
- A consistent data basis for different views of the product and for all enterprise areas

Key Features

The following table explains the key features available:

Key Feature	Use
Modeling product structures	You can use product structures to model a multilevel product hierarchy. When modeling your product structure, you have the flexibility to develop the structure and the variants without having to create master data. You can model a configurable product with multiple combinations and possible scenarios.
Simulating the product configuration	You can check the product configuration by simulating the explosion of a product structure for a specific set of configuration parameters. You can save, edit, and activate these simulations.
Managing geometric data	You can assign geometric data to support the transition of transformation matrices into product structures. Together with viewable files, the geometric data enables dynamic viewing based on simulations offered by the product structure.
Viewing digital mockups	Digital mockups, which are triggered at various stages of new product design, enable design engineers, product engineers, and manufacturing engineers to study the content developed before it is handed over to the next department. You can view a digital mockup in the product structure.

2.8.2.3 Embedded Systems Development

2.8.2.3.1 Embedded Software Management

Business Background

Embedded software is computer software that is embedded in one or multiple products. It provides functions together with various hardware and systems. For example, embedded software can be used to control or optimize the functions of the mechanical part or the electrical part of a product.

If you work with products that have one or multiple embedded software, you can use embedded software management to view and manage your software.

Key Features

The following table explains the key features available:

Key Feature	Use
Managing Software	You can manage embedded software and its versions in a product structure.

2.8.2.4 Engineering Change Management

Business Background

Engineering change management can be used to change various aspects of production basic data (for example, bills of material, materials, and routings) with a history (with date effectivity). The engineering change process is an important process in product development.

Key Features

The following table explains the key features available:

Key Feature	Use
Change master record handling	You can define change master records. Change master records contain descriptive data, such as the reason for the change, and data with control functions, such as valid-from date and indicators for object types. In addition to this data, which you can maintain directly, there is data that the system updates automatically, such as administrative data.
Revision level assignment	You can identify material changes that are made with reference to a change number by using revision levels. A revision level can be assigned on a valid-from date when an object is changed with reference to a change number.

2.8.2.5 Classification

Business Background

The classification system allows you to use characteristics to describe various types of objects, and to group similar objects in classes – to classify objects, in other words, so that you can find them more easily later. You then use the classes to help you to find objects, using the characteristics defined in them as search criteria. This ensures that you can find objects with similar or identical characteristics as quickly as possible.

Classes allow you to group objects together according to criteria that you define:

- You create classes for certain object types such as, for example, material or material BOM.
- You use the class type to determine which object types can be classified in a class.
- You can assign characteristics to your class. These describe the objects that you classify in your class. When you assign a characteristic to a class, you can adapt (overwrite) the characteristic.

Key Features

The following table explains the key features available:

Key Feature	Use
Classification handling	You can define classes and their characteristics including characteristic values.
Finding objects	Once you have set up a classification system in your company, you can search for the objects you have classified. You can also identify where a specific characteristic and characteristic value is used.

2.8.2.6 Document Management

Business Background

Document management allows you to store, manage, and use documents when creating and maintaining digital product information company-wide and throughout the life cycle of a product. The following examples show some of the uses of document management in different areas of a company:

- In the design office, document management can be used to manage drawings. All design drawings can be linked to material masters.
- Companies that process complex documents can use document structures to organize these documents. All documents and texts that are logically connected can be grouped together in one document structure.
- A routing contains the sequence of operations for manufacturing a product. Documents can be allocated to the operations in a routing. These documents may be used, for example, to describe the specifications of a product, or to store inspection requirements.
- Documents can be linked to projects. You can use the document hierarchy to represent individual product folders that are given to the product administrators responsible.

Key Features

The following table explains the key features available:

Key Feature	Use
Document handling	To store and manage a document, you create a document info record that contains all of the data required to process and manage a document including the original document itself.
Find Document: Selection Criteria	To find documents that are maintained in document management using any of the search criteria. You can use known data for the document search function that is either directly related to the document info record or comes from the environment of the document. This data is known as selection criteria. To find a document, you can use document data, classification, object links, and texts as the search criteria.
Integration with SAP Mobile Documents	This solution provides a quick and safe data exchange platform for managing documents from mobile and other devices considering the Document Management System (DMS) authorization. You can access public and private folders from DMS and organize files or document info records (DIR) within these folders. You can also query for documents based on DIR attributes by using the *Search* function. Documents and folders can also be synchronized with the client and modified offline. The changes can be synchronized with DMS when the user is online. The DIR files can also be shared with colleagues and business partners using the *Share* function. Currently this integration only exists for On-Premise delivery.

2.8.2.6.1 Maintain Documents

Use

With this app, you can manage document info record and any original application files that belong to it by entering the document number and document type. You can create, change, search, and display document info records with the role `SAP_BR_DESIGN_ENGINEER`. You can upload, download, check-in, or check-out original application files. You can also attach URLs to the document info records.

2.8.2.7 Attachment Service

Business Background

Attachment Service is a reusable user interface component which can be consumed by any FIORI application to attach documents (referred as attachments). The attachments are stored in the following storage repositories:

- SAP Cloud Platform-Document Service (in S/4 HANA Cloud solution)
- SAP Content Server Configuration (in S/4 HANA On-Premise solution)

This re-usable component is based on the `UploadCollection` control from the SAP UI5 foundation. Attachments are linked to business objects based on Document Management or via Generic Object Services (GOS).

Key Features

The following table explains the key features available:

Key Feature	Use
Manage attachments	You can upload, download, delete, and rename an attachment. You can also cancel the changes made to the attachments.
Attribute and Action Handling	This function allows the consuming applications to control the visibility of attributes and actions of the attachments on the User interface. By default all attributes and actions are visible on the user interface for the user. You can restrict the user from viewing attributes and actions by setting values as false in the `JSON` structure declared in the attachment service `controller.js` file.
Checking for Attachment Content State	This function allows the consuming applications to check the state of the attachment content. If you have made any changes to the content of the attachment and not saved, then the attachments content is dirty. Even if you have just refreshed the browser without saving or cancelling the changes, these changes are recorded and the application state is dirty. If the application state is dirty, you have to explicitly save the attachment.
Counting Attachments for a Consuming Application	This function allows the consuming applications to get a count of attachments associated to an object without having to see the attachment view. You can check the count of confirmed, unconfirmed, and total attachments.

2.8.2.8 Variant Configuration

Business Background

Variant configuration is for manufacturing complex products. Manufacturers often have to offer new variants of their products, and new variants can be created by modifying existing product designs as they process the order. The important thing is to react quickly to customers' requirements.

The customer determines the features of the product. A customer buying a car, for example, can choose the features of the car and combine these features as required. The product configurator improves information exchange between sales, engineering, and production. Variant configuration helps the customer or salesperson to put together specifications for the product and ensure that the product can be produced from these specifications.

Key features

The following features are available:

Key feature	Use
Manage configuration model	You can use a configurable material to cover all variants of a product in your company. • A class is used to hold the characteristics that describe a configurable material. By linking the class to the configurable material, you allow the material to be configured using the characteristics of the class. • You can create a super BOM and a super routing for a configurable material, containing all the components and operations for producing all variants of the product. • Often not all combinations of features are possible for either technical or marketing reasons. You can use dependencies and constraints to control which combinations are allowed • In configuration profiles for configurable objects you define central settings for configuring the object. • You can use variant conditions to influence the price of a configurable material depending on the characteristic values assigned.
Manage material variants	You can create a material variant, which is a material that can be kept in stock and that arises from an individual configuration of a configurable product.

Key feature	Use
Interactive configuration	During configuration, e.g. in Sales Order, the user assigns values to characteristics. Dependencies and constraints coming from the configuration model are considered.
Configuration simulation	You can use the configuration simulation to check your configuration model. In the configuration simulation, you can test whether you have created the objects correctly and whether your dependencies work.
Low Level Configuration	Low-level configuration refers to "background" explosions of configurable objects, like bills of material (BOMs) or routings. E.g. it's used in material requirements planning (MRP). Here characteristic values from the sales order are automatically used to determine the BOM components and operations or activities.

Related features

Classification [page 93]

2.8.3 Product Safety and Stewardship

2.8.3.1 Product Compliance for Discrete Industries

2.8.3.1.1 Recycling Administration

Business Background

In many countries/regions, environmental law obliges companies to provide certification to account for the packaging materials produced and the number of finished products manufactured and brought to the market, and to collect and dispose of these materials and products at the end of the product life cycle. These kinds of regulations, along with an increased public awareness of environmental issues, provides companies today with new challenges. In addition to the standard manufacture and sale of products, companies are often now responsible for the correct disposal and recycling of their waste products. Most companies absolve themselves of the duty to perform these tasks themselves by collaborating with recycling partners such as the German *Duales System Deutschland* (DSD), who provide a general collection system in return for a license fee. Other examples include *Eco Emballages* (France), *Conai* (Italia), *Elektro Recycling Austria* (ERA, Austria), *Stiftung Elektro-Altgeräte Register* (EAR, Germany), and *GRS Batterien* (Germany). The recycling partners organize the collection, sorting, processing, and recycling of the waste packaging.

The focus of the recycling administration features is the item-based or weight-based fee calculation for specific materials, as well as end-to-end transparency and implementation of the legal reporting requirements to environmental authorities.

Key Features

The following features are available:

Key Feature	Use
Determination of the most price-effective recycling partner	This feature provides functions to analyze the data material (for example, condition and price analyses), which you can use to compare the performance of different recycling partners.
Automatic generation of forms for the selected recycling partner	This feature allows you to issue the data to be declared either electronically in the form of data medium exchange (DME) or on paper as a form. For the declaration, the system first generates a document that is posted in the declaration system. You can then generate the required documents from this document in accordance with the requirements of the recycling partners.
Certified verification	This feature fulfills country/region-specific reporting requirements. In your periodical declaration, you state the information and totals for all declared articles as a quantity flow in the period under consideration. This feature enables a certified verification at the level of individual documents and items.
Use of existing material information	This feature allows you to access existing material master data and to enhance it. This allows for optimal integration with other features. Using individually configurable interfaces, you can import data from third-party systems and process it further with declaration and analysis functions.
Automatic determination of quantity flow	For generating declarations, recycling administration features automatically obtain important information from the sales and materials management areas.
Cost control and controlling with sales, finance, and controlling features	Recycling administration features are fully integrated with the following features: In the finance area, you enter a recycling partner as a supplier. In the controlling area, a budget is generated for settlement with recycling partners on the basis of the data processed with recycling administration features. Using sales features, you can evaluate the corresponding billing documents.

2.8.3.2 Product and Chemical Compliance for Process Industries

2.8.3.2.1 Recycling Administration

Business Background

In many countries/regions, environmental law obliges companies to provide certification to account for the packaging materials produced and the number of finished products manufactured and brought to the market, and to collect and dispose of these materials and products at the end of the product life cycle. These kinds of regulations, along with an increased public awareness of environmental issues, provides companies today with new challenges. In addition to the standard manufacture and sale of products, companies are often now responsible for the correct disposal and recycling of their waste products. Most companies absolve themselves of the duty to perform these tasks themselves by collaborating with recycling partners such as the German *Duales System Deutschland* (DSD), who provide a general collection system in return for a license fee. Other examples include *Eco Emballages* (France), *Conai* (Italia), *Elektro Recycling Austria* (ERA, Austria), *Stiftung Elektro-Altgeräte Register* (EAR, Germany), and *GRS Batterien* (Germany). The recycling partners organize the collection, sorting, processing, and recycling of the waste packaging.

The focus of the recycling administration features is the item-based or weight-based fee calculation for specific materials, as well as end-to-end transparency and implementation of the legal reporting requirements to environmental authorities.

Key Features

The following features are available:

Key Feature	Use
Determination of the most price-effective recycling partner	This feature provides functions to analyze the data material (for example, condition and price analyses), which you can use to compare the performance of different recycling partners.
Automatic generation of forms for the selected recycling partner	This feature allows you to issue the data to be declared either electronically in the form of data medium exchange (DME) or on paper as a form. For the declaration, the system first generates a document that is posted in the declaration system. You can then generate the required documents from this document in accordance with the requirements of the recycling partners.
Certified verification	This feature fulfills country/region-specific reporting requirements. In your periodical declaration, you state the information and totals for all declared articles as a quantity flow in the period under consideration. This feature enables a certified verification at the level of individual documents and items.

Key Feature	Use
Use of existing material information	This feature allows you to access existing material master data and to enhance it. This allows for optimal integration with other features. Using individually configurable interfaces, you can import data from third-party systems and process it further with declaration and analysis functions.
Automatic determination of quantity flow	For generating declarations, recycling administration features automatically obtain important information from the sales and materials management areas.
Cost control and controlling with sales, finance, and controlling features	Recycling administration features are fully integrated with the following features: In the finance area, you enter a recycling partner as a supplier. In the controlling area, a budget is generated for settlement with recycling partners on the basis of the data processed with recycling administration features. Using sales features, you can evaluate the corresponding billing documents.

2.9 Sales

2.9.1 Order and Contract Management

2.9.1.1 Sales Master Data Management

Business Background

Master data represents the business data your company requires about individuals, organizations, materials, services, and prices.

Key Features

The following table explains the key features available:

Key Feature	Use
Listing and exclusion	You use this feature to control the sale of specific materials to a customer. Your customer can only buy materials included in the material listing assigned to them. The system does not allow you to enter materials that are not included in the material listing in a sales document for a customer.
Customer material info record	You use this feature when your customer manages a material with a number that differs from the one that your company uses.

Related Information

Central Master Data [page 142]

2.9.1.2 Sales Contract Management

Business Background

A sales contract is an outline sales agreement that contains special conditions negotiated between the vendor and a customer, for example, price, target value or target quantity. A sales contract is valid for a specified period. A customer submits a sales order to release products from the amount agreed in the contract. Types of sales contract include value contracts and quantity contracts.

Key Features

The following table explains the key features available:

Key Feature	Use
Contract Processing	You use this feature to create, change, display, and list contracts. You can list incomplete contracts, completed contracts, expiring contracts, and expired contracts.
Contract Release Order Processing	You use this feature to enable your customer to request part of the total quantity or value of goods or services agreed in a contract. The release order contains information on quantities and delivery dates.
Contract Fulfillment Rate Tracking	You can analyze how the sales contracts that you are responsible for are being fulfilled. You can focus on contracts with the highest target value. You can drill down to sales contract fulfillment rates by selected criteria.
Customer Scheduling Agreement	You use this feature to schedule an outline agreement with the customer containing delivery quantities and dates. These are entered as schedule lines in a delivery schedule. You fulfill a scheduling agreement by creating the deliveries in the schedule as they become due.
Global Trade Management	For information about the key features of Global Trade Management, please see Global Trade Management [page 103].

2.9.1.2.1 Global Trade Management

Business Background

In trade, it is necessary to control and organize the flow of materials and services from suppliers to customers. Sales and purchasing processes are carried out simultaneously by the same trading department.

A trade transaction begins when a commercial customer approaches a trading company with a specific request, that is, a customer sends a sales order. If the trading company accepts the mandate, it organizes fulfillment individually for that specific request (sales order). Fulfillment is characterized by a high degree of complexity and includes, but is not limited to:

- Searching for the most suitable suppliers
- Organizing logistics from supplier to customer (shipping, transportation, customs clearance for the goods)
- Risk protection
- Financial management of the core business
- Handling of any associated expenses

The supplier then delivers the goods directly to the customer. The trading company receives an invoice from the supplier and bills the customer. Finally, the trader receives a payment from the customer and makes a payment to the supplier. Also typical is that a trading company's profitability analysis is based on individual commercial deals.

Key Features

The following table explains the key features available:

Key Feature	Use

Single point of entry for contracts between customers and suppliers	• Creation of trading contracts that contain sales-side data for the requirements of individual customers and, at the same time, the purchasing-side data used to order from suppliers to fulfill the requirements of the customer
	• Settlement of trade expenses by using settlement documents
	• Trade use cases:
	  ○ Import/Export
	  ○ Domestic
	  ○ Offshore

Creation of follow-on documents	Generation of sales orders and purchase orders automatically or manually based on the trading contract status
Monitoring of document flow and processing status of all subsequent transactions associated	• Complete overview of the contract lifecycle • Easy navigation to follow-on documents

Key Feature	Use
Portfolio management	• Definition of portfolios as predefined selection groups • Automatic or manual classification of contract items by portfolio to optimize the use of sales-side and purchasing-side quantities • Monitoring of contract positions • Reporting on similar materials • Control of important materials, countries/regions, customers or suppliers in view of risk consideration
Association management	• Monitoring and processing of document items to reduce inventory risk and lost sales for an assigned portfolio • Open quantity information • Long-short analysis on either the purchasing side or the sales side • Overview of all current items that have not yet been completely processed
Trade expense management	• Handling of various kinds of costs, including freight, loading charges, storage costs, insurance, customs duty, and commissions • Planning of trading expenses on contract creation • Settlement of planned and unplanned expenses on contract level of trade transactions that incur costs • Posting of sales and purchasing expenses to specific G/L accounts • Posting of expenses to accounts payable and accounts receivable
Archiving	Archiving of trading contracts and other relevant documents, such as settlement management documents to remove volumes of data from the database that are no longer required in the system, but still need to be kept for analysis purposes

2.9.1.3 Sales Order Management and Processing

Business Background

Sales order management and processing allows you to execute business transactions based on sales documents, such as inquiry, quotation, and sales order, defined in the system. Within sales order management and processing, you enter a sales document based on customer requirements. When you create or changes sales documents, the system confirms dates and quantities. You can display and change the sales documents to respond to customer questions.

There are different ways you can process sales documents in the system, depending on your specific needs. In the simplest case, you can enter a sales document with several items in a single screen. The system automatically proposes data from the relevant master records:

- From the customer master record of the sold-to party, the system proposes sales, shipping, pricing, and billing data. In addition, the system copies customer-specific master data about texts, partners, and contact people at the customer site.

- For each material in the sales document, the system automatically proposes data from the relevant material master records, such as data for pricing, delivery scheduling, availability check, tax determination, and weight and volume determination.

The data proposed by the system can be used as a basis for your sales document. If processing requires it, you can modify this data manually or add new data. For example, your pricing policy may allow you to manually change the value of certain discounts within a permitted range. In addition, you can branch in the sales document to a number of different screens where you can display and modify data, such as terms of payment and delivery data.

It is also easy to create a new sales document with reference to an existing document. For example, if a customer accepts a quotation you sent, the system can copy all the relevant master data from the quotation when you create the sales order. When you process a sales document, the system can automatically carry out basic functions, such as the following:

- Pricing
- Availability check (if this function is defined in the material master record)
- Transferring requirements to materials planning (MRP)
- Delivery scheduling
- Shipping point and route determination (for the sales order)
- Credit limit check

Key Features

The following table explains the key features available:

Key Feature	Use
Sales Order Processing	You use this feature to create, change, and display sales orders. In addition, you can list sales orders, duplicate sales orders, and incomplete sales orders. You can release sales orders for billing.
Inquiry Processing	You can use this feature to enable your customer to request a quotation or sales information without obligation. An inquiry can relate to materials or services, conditions, and if necessary, delivery dates. The sales area that accepts the inquiry becomes responsible for providing a quote. In addition, you can list inquiries and incomplete inquiries.
Quotation Processing	You use this feature to create, change, or display a quotation for your customers. The process starts when a request for quotation (RFQ) is received from your customer. In response to the customer's RFQ, a quotation is created. The customer can then either accept the quotation or reject it. This step enables you to assure your business partners that you will deliver a product quantity at a specified time and price. If accepted, the quotation is transferred into a sales order. In addition, you can list all quotations, expiring quotations, expired quotations, completed quotations, and incomplete quotations

Key Feature	Use
Credit Management	You use this feature to check the credit limit when you create or change sales documents. If you change quantities or values in a document, the check is repeated. The system totals the receivables, the open items, and the credit value of the sales order for every item of a sales document. The system displays information about what caused blocks. When your credit department manually reviews the customer's current credit situation and when the sales order is approved, the system removes the block from the sales order.
Product Availability Check	You use this feature to determine on which date and in which quantity a requirement (for example, a sales order item) can be fulfilled. The result of a product availability check is a confirmation.
Product Allocation	You use this feature to allocate material quantities for a specific time period and to a combination of sales order characteristic values, against which product availability checks can be run.
Backorder Processing	You use this feature to re-prioritize sales orders to ensure that a limited supply of material is distributed in accordance with a dedicated strategy.
Sales Order Processing with Customer Down Payment	You use this feature when customers are required to pay some amount in advance before delivery of goods (for example, in make-to-order production). You can create requests for down payment, record the receipt of the down payment, and create a final invoice after the deduction of the down payment received. You can also create a receipt of the final amount due on the invoice.
Sales Order Processing with Consignment Stock	You use this feature if you want to deliver materials from consignment stock (owned by an external supplier).
Sales Document Processing for Make-to-Order Scenario	You use this feature for production in which products are made upon receipt of an order from a customer.
Sales Order Processing for Free-of-Charge Delivery	You use this feature to provide goods to a customer at no charge. A sales order type is created that is not billing relevant. The order is confirmed based on the availability of goods. A delivery is then created and the goods are subsequently picked, confirmed, and delivered to your customer.
Sales Order Processing for Third-Party Direct Ship	You use this feature when another company, rather than your company, delivers the items requested by your customer. You can either create your invoice based on the invoice from your third-party supplier or you can book the delivered amount directly as a statistical goods receipt.
Sales Order Processing with Returnable Packaging	You use this feature to capture information within the sales order that reusable packaging should be returned back into inventory (for example, standard pallets belonging to the manufacturer).

2.9.1.4 Billing and Invoicing

Business Background

Billing allows you to create and manage billing documents and to post them to accounting.

Key Features

The following table explains the key features available:

Key Feature	Use
Debit memo processing	You use this feature to apply a debit to a customer account, either by creating a debit memo request, or directly by creating a debit memo with reference to a billing document. A debit memo request (that is, an invoice increase request) is then created with the amount to be debited. The debit memo is sent to the customer and posted to accounting.
Credit memo processing	You can use this feature to apply a credit to a customer account, either by creating a credit memo request, or directly by creating a credit memo with reference to a billing document. The credit memo is sent to the customer and posted to accounting.
Billing document processing	You can create billing documents (for example, invoices for customers) from items in the billing due list (for example, debit memo requests and outbound deliveries). When you post billing documents, the system forwards billing documents to accounts receivable and triggers output (for example, an invoice by e-mail). You can change or cancel billing documents as needed. You can also create billing documents for retroactive billing. You can setup billing batch execution by scheduling billing creation and scheduling billing output. You can also schedule billing documents for release to accounting. You can manage documents blocked for billing.
Invoice list processing	You use this feature to create, at specified time intervals or on specific dates, a list of billing documents (invoices, credit and debit memos) to send to a particular payer (usually the head office of a corporate group). The billing documents in the invoice list can be single or collective documents (collective invoices combine items from more than one delivery). There are two types of invoice lists, one for invoices and debit memos and one for credit memos. If you wish, you can process invoices, debit memos, and credit memos at the same time. The system automatically creates a separate invoice list for credit memos.

Key Feature	Use
Invoice correction processing	You use this feature to create an invoice correction request if the wrong quantities or prices have been calculated for the customer. The invoice correction request can be automatically blocked by the system until it has been checked. The system calculates the difference between the amount that was originally calculated and the corrected amount for each item. Once it has been approved, you can remove the block. The system creates a credit or debit memo with reference to the invoice correction request. The credit or debit memo is sent to the customer and posted to accounting.

2.9.1.5 Claims, Returns, and Refund Management

Business Background

Claims, returns, and refund management enables you to streamline complaints and returns management. You can improve tracking, help your service organizations process requests faster, and reduce your operational costs. You can improve the capture and handling of all complaints and returns and trigger logistical follow-up actions such as inspection of returned material, resolution of issues, and claims and refunds management.

Key Features

The following table explains the key features available:

Key Feature	Use
Product and warranty registration	You can create warranties and assign technical objects to those warranties.
Warranty claim processing	Enables manufacturers, importers, or vendors of complex products and their suppliers to better deal with a large number of warranty claims. Only those claims that produce negative results in the automatic checks are included in manual processing.

Key Feature	Use
Returns management processing	You use this feature for processing customer returns. The process starts a returns order with reference to the original sales order or invoice for the goods. A return material authorization (RMA) document is forwarded to the customer to be attached to the incoming goods. The goods are shipped back, a returns delivery is created with reference to the returns order, and the material is received into returns stock. The returns stock location is set as non-MRP relevant. The goods are inspected and either selected for return to stock, for scrapping, or for other logistical processing (for example, for forwarding to the supplier). A credit memo is created from the billing run and posted to the customer's account or a replacement delivery is triggered to compensate the customer.

2.9.1.6 Sales Monitoring and Analytics

Business Background

You can efficiently check the status of your sales orders.

Key Features

The following features are available:

Key Feature	Use
Monitoring sales order fulfillment	You can monitor and resolve issues that stop sales orders from being fulfilled. For example, when billing issues are resolved, the system transfers billing documents to the accounts receivable accountant.
Analyzing quotation conversion rates	• You can analyze how the quotations that you are responsible for are being referenced. You can focus on quotations with the highest net values and quotations with the lowest conversion rates. You can drill down to quotation conversion rates by selected criteria.

Key Feature	Use
Analyzing incoming sales orders	• You can view the monthly rolling trend for sales as a graphic or a table. • You can analyze the net amounts of aggregated sales order items with the display currency. • You can drill down to view detailed information for selected sales organizations, materials, material groups, sold-to parties, sales document types and so on. • You can filter the items according to various criteria, such as year, month, sales organization, material group, and sold-to party.
Analyzing sales volume	• You can view the monthly sales volume as a graphic or a table. • You can analyze aggregated billing document item net amounts with the display currency. • You can drill down to view detailed information for selected sales organizations, sold-to parties, bill-to parties, and so on. • You can filter the items according to various criteria, such as year/month, sales organization, sold-to party, and bill-to party.
Checking sales volume and open sales	• You can check your sales volume and open sales, that is, open orders, and open deliveries, in order to identify and resolve issues to increase your sales volume for the current month. • You can navigate to analyze and resolve issues directly.
Checking sales volume and profit margin or credit memos	• You can check the relationship between sales volume, profit margin, and credit memos, to help you to increase your sales volume.
Order-to-cash performance	• You can check key figures to get an overview of the order-to-cash performance in your company. For example, you can track delivery blocks or billing blocks, detect changes made to critical fields of sales orders, and monitor lead times like order to delivery or goods issue to billing.

2.10 Service

2.10.1 Service Agreement Management

2.10.1.1 Warranty Management

Business Background

Warranties define the scope of the services and parts usage that a company performs in the event of damage or problems. This process enables you to process service deliveries with automatic checks for warranty agreements.

Key Features

The following table explains the key features available:

Key Feature	Use
Define Service Scope	You can define the scope of services and usages that your company provides.
Carry Out Automatic Checks	You can automatically check the warranty when processing a customer message, a service or maintenance order, or a billing request. You use a warranty check to determine whether the warranty still exists, and if certain prerequisites have been met.
Product and Warranty Registration	You can create warranties and assign technical objects to those warranties.
Warranty Claim Processing	You can deal with a large number of warranty claims.
Returns Management Processing	You can process customer returns. The process starts with a returns order with reference to the original sales order or invoice for the goods. A return material authorization (RMA) document is forwarded to the customer to be attached to the incoming goods. The goods are shipped back. A returns delivery is created with reference to the returns order, and the material is received into returns stock. The returns stock location is set as non-MRP relevant. The goods are inspected and either selected for return to stock, for scrapping, or for other logistical processing. A credit memo is created from the billing run and posted to the customer's account. Alternatively, a replacement delivery is triggered to compensate the customer.

2.11 Sourcing and Procurement

2.11.1 Spend Analysis

2.11.1.1 Real-Time Reporting and Monitoring

Business Background

The procurement overview provides you with a set of actionable cards that you can easily rearrange as required. You no longer need to start different transactions and reports separately: both operational and analytical cards are visible on one single page. You immediately see your most relevant tasks and can navigate to KPI drilldowns, worklists, or specific object pages to get more detailed information and take immediate action.

In addition, the monitoring of purchasing document items enables you to immediately assess and resolve critical situations for your company.

Key Features

The following table explains the key features available:

Key Feature	Use
Operational cards	Examples of operational cards are the monitoring of contracts, so that you see which contracts are about to expire and require your attention, as well as purchase requisitions, showing you where a source of supply is missing and needs to be assigned.
Analytical cards	Examples of analytical cards are the purchasing spend by supplier and material group, and the monitoring of the supplier performance.
Filtering	You can filter the content of cards by various criteria, such as by suppliers, purchasing categories, material groups, and purchasing groups. This enables you to make informed decisions and take immediate action.
Monitoring	With the monitoring apps, you can identify the following, for example: • overdue purchase order items • missing supplier confirmations • request for quotation items for which no bids were submitted in time for the deadline From the monitoring apps, you can also navigate to related apps to trigger follow-on actions.

2.11.1.2 Spend Visibility

Business Background

The data that simplifies your daily work can be visualized in various chart types and by criteria such as supplier, purchasing group, purchasing category, or material group. The key performance indicators allow you to directly navigate into other apps, where you can immediately solve business issues.

Key Features

The following table explains the key features available:

Key Feature	Use
Purchase requisitions	Procurement organizations are measured according to their efficiency. Specifically in the area of managing purchase requisitions, you can notably increase the efficiency and automation of procurement processes. Key Performance Indicators (KPIs) help measure this efficiency and provide real-time insight into areas of improvement, such as the average approval time of a purchase requisition, or changes made to a purchase requisition item.
Purchasing and invoicing spend	To identify cost-saving opportunities, it is essential that you see the purchasing and invoice spend under management. The available KPIs provide insight into purchase order value over time, invoices without purchase order reference, and invoice price changes over time. You can, for example, retrieve the order value for all purchase orders over time, and determine all current values of all purchase orders in the system.
Contract management	Purchasers can manage contracts efficiently and make sure that the right contracts are in place at the right time when needed. They are able to do so by identifying maverick spend and contracts that are not used, contracts that will expire soon, and contracts that are almost consumed by comparing target values with released values.
Supplier evaluation	You can determine the overall score of a supplier in an organization based on the weighted average of the single scores for quantity variance, price variance, time variance, and quality. Supplier evaluation scorecards that result from questionnaires enrich these operational supplier evaluation scores. A combined real-time view across operational and questionnaire-based scores provides a holistic view of your supplier's performance.

2.11.2 Supplier and Category Management

2.11.2.1 Classification and Segmentation

Business Background

Supplier classification and segmentation is an ongoing process in which you assess and classify your suppliers at regular intervals and allocate your suppliers to segments of different importance. You can then focus especially on those suppliers that are strategically important and critical to your business, thus enabling you to develop and manage your business relationships.

Key Features

The following table explains the key features available:

Key Feature	Use
Purchasing Category	Purchasing categories allow you to manage your suppliers according to specific categories of goods and services, for example, hardware and software, or installation and maintenance. They enable you to monitor your pool of suppliers and optimize the purchasing process. Purchasing categories are also an important structuring element in the supplier evaluation process. They enable you to compare the evaluations of all suppliers in the same purchasing category.
Procurement-Related Activities	To drive and organize procurement-related activities, your buyers can use the procurement activity management process.
Supplier Data	You have a central overview of the master data of each supplier, such as address details, contact person, bank and tax data.
Classification Details	The classification details enable you to assign important characteristics to your suppliers, such as the strategic importance (*ABC classification*) and the relationship you have with a supplier (for example *preferred supplier*). A scorecard for each supplier enables you to monitor the supplier's corporate social responsibility compliance.
Support of Integration of D&B Data	If your company has a contract with D&B, you can display the D&B data of the supplier.

2.11.2.2 Supplier Evaluation

Business Background

You can evaluate your company's suppliers to obtain a basis for your business relationship with them and for optimizing your supply base. Based on the feedback you gather through questionnaires, you obtain a scorecard for each supplier evaluated. The scorecard helps you to assess a supplier's strengths and shortcomings and to initiate measures for improvement. Evaluation scorecards also enable you to easily compare suppliers within a peer group.

Key Features

The following table explains the key features available:

Key Feature	Use
Evaluation Questionnaire	You can create questionnaires that you then send out to internal stakeholders within your company to collect information about your suppliers. The questionnaires can contain different types of questions, depending on your requirements. If required, you can translate the questionnaires into further languages.
Supplier Evaluation Template	You can use evaluation templates to repeatedly generate evaluation requests that share the same properties. As an example, requests generated from the same template use the same questionnaires. In the evaluation process, evaluation templates are set up for peer groups of suppliers within particular purchasing categories. They include questionnaires that enable you to identify the strengths and shortcomings of the suppliers.
Supplier Evaluation Request	The purchaser responsible for a purchasing category starts the evaluation process by sending out an evaluation request to appraisers.
Supplier Evaluation Response	An evaluation response includes the answers given by an appraiser. If the questionnaires have been scored, the scores are shown in a score overview.
Evaluation Scorecard	Evaluation scorecards show the overall result of a questionnaire-based supplier evaluation for one supplier, aggregating the evaluation results from all appraisers. If you evaluate a supplier in yearly intervals, you have an evaluation scorecard for this supplier reflecting the scores for the entire year.

2.11.3 Sourcing

2.11.3.1 Source Assignment

Business Background

You use the source assignment solution to identify potential sources of supply based on past purchase orders and existing long-term purchasing agreements. Sourcing enables you to find the most qualified and reliable suppliers, negotiate with them, and create both scheduling agreements and purchase contracts.

Key Features

The following table explains the key features available:

Key Feature	Use
Purchasing info record	A purchasing info record is a source of supply. The info record contains data about a specific material and its supplier. You can use an info record to define the prices and conditions at which you purchase a material from a specific supplier, for example. You can check how conditions in info records have developed over time, and flag an info record so that it is taken into consideration when a purchase requisition is created automatically during an MRP run. You can store information about a supplier and a material as master data at purchasing organization or plant level. You can create purchasing info records for different procurement types (standard, subcontracting, pipeline, and consignment).
Source list	You can define which sources of supply are valid for usage in an MRP run through the source list. Depending on the material or plant, you can use the source list to automatically assign an info record, a scheduling agreement item, or a purchase contract item to be used as the source of supply.
Quota arrangement	You can use quota arrangements to split up a specific material requirement for a plant to several sources of supply, that is, to several suppliers. This allows you to minimize the risk of delivery failures for important materials.

Key Feature	Use
Requests for quotations	If you do not have a valid source of supply, you can use the requests for quotations process to find one. A request for quotation is a request from a purchasing organization to suppliers to submit a quotation for the supply of materials. You can create a request for quotation and maintain general information and attributes such as the purchasing organization, delivery terms, and deadlines. You can publish the request for quotation and send it to Ariba Sourcing, where strategic buyers invite your suppliers to place their bids. You can check whether the request for quotation has been successfully sent to Ariba Sourcing via the Ariba Network. After the suppliers have placed their bids, strategic buyers can send awarded quotations to SAP S/4HANA, where you can check the detailed information of the received quotations.
Supplier quotations	A supplier quotation is an offer from a supplier to a purchasing organization to supply materials. Supplier quotations can be generated from awards from Ariba Sourcing that are transferred as cXML messages to SAP S/4HANA via the Ariba Network. You can display awarded quotations and all relevant detailed information. Purchase orders that are based on awarded quotations are automatically created in the background, and can then be processed further.

2.11.4 Contract Management

2.11.4.1 Operational Contract Management

Business Background

You use the operational contract management solution when you wish to enter into long-term purchasing arrangements with suppliers regarding the supply of materials or the performance of services.

Key Features

The following table explains the key features available:

Key Feature	Use
Outline purchase agreement	An outline purchase agreement is a longer-term arrangement between a purchasing organization and a supplier for the supply of materials or provision of services over a certain period based on predefined terms and conditions. There are two types of outline purchase agreement: • Contracts • Scheduling agreements
Contracts	The contract consists of items defining the individual materials, material groups, or services with prices and in many cases quantities.
Scheduling agreements	A scheduling agreement consists of a number of items, for each of which a procurement type is defined. Delivery of the total quantity of a material, as specified in a scheduling agreement item, is spread over a certain period in a delivery schedule, consisting of lines indicating the individual quantities with their corresponding planned delivery dates.

2.11.5 Operational Procurement

2.11.5.1 Self-Service Requisitioning

Business Background

Self-service requisitioning allows you to create, manage, and track your orders efficiently. You can create items from external catalogs, free-text items and an integrated cross-content search based on SAP HANA, from which you can select the materials and services you require. After ordering these products, an approval process is triggered. Once your purchase requisition has been approved, a purchase order is created.

Key Features

The following table explains the key features available:

Key Feature	Use
Product selection	You can order products by selecting them from catalogs, by entering a free-text item, or by selecting a product ID from the product master.
Status overview	You can monitor the status of all your requisitions to see who is responsible for the next approval step.
Purchase requisition approval	Approvers can get an overview of all requisitions they are responsible for. When they approve or reject a requisition, they can also add comments, if required.
Purchase order processing	Once the requisition has been approved, a follow-on document is created and submitted to the supplier.
Confirmation processing	After you have received the requested the products you have requested, you confirm the delivery.
Return delivery processing	If you need to return products after you have confirmed the delivery, for example because they are damaged or due to poor quality, the return delivery process is available.

2.11.5.2 Requirements Processing

Business Background

You can create a purchase requisition either manually, or it can be based on sources outside the procurement area, for example, on an MRP run. A purchase requisition may be subject to a release strategy. A source of supply is either assigned automatically, or you can do the assignment manually.

Key Features

The following table explains the key features available:

Key Feature	Use
Overview of unassigned purchase requisitions	You can get an overview of all purchase requisitions that have not been converted into a purchase order yet. In the overview, you can see possible sources of supply that can be assigned. Once you have assigned a source of supply to a purchase requisition, you can bundle purchase requisitions into purchase orders and submit the purchase orders. Alternatively, if no suitable source of supply exists, you can create a request for quotation and send it to Ariba Sourcing.
Automatic creation of purchase orders	Purchase requisitions that can be assigned to a single fixed source of supply can also be automatically converted into a purchase order.

2.11.5.3 Purchase Order Processing

Business Background

A purchase order is a request or instruction to an external supplier to deliver materials or to perform services at a certain point in time.

Purchase orders can be based on purchase requisitions, but you can also create them manually from scratch. In addition, you can use an existing purchase order, an info record, or a contract as a reference. A release strategy may also be in place for purchase orders. You can change purchase order data depending on the existence of follow-on documents, such as a goods receipt, or an invoice.

Key Features

The following table explains the key features available:

Key Feature	Use
Overview of existing purchase orders	In the overview of all purchase orders, you can use diverse filter criteria to find the relevant purchase orders you are interested in. You can do so, for example, based on the status of a purchase order, the materials that were ordered, or suppliers to which a purchase order was sent. You can also copy an existing purchase order or create a new purchase order from scratch. Furthermore, you can navigate into an existing purchase order, and, depending on its status, make changes.

Key Feature	Use
Creation of purchase order based on template	You can create a purchase order based on info records, contract items, or purchase order items. All data that can be derived from the selected template is automatically transferred into the purchase order to be created.
Automatic adaptation of dependent values	Whenever you enter information into a field for which dependencies exist, the according dependent values are automatically considered. If, for example, you select a specific supplier, only those currencies and companies that are defined for the supplier can be selected.
Visibility of approval status	You can immediately see the approval status of a purchase order, together with the responsible approver, and a rejection comment, if provided.

2.11.5.4 Purchase Order Collaboration (Ariba Network Integration)

Business Background

In this process you can collaborate with your suppliers via the Ariba Network. You do this by exchanging purchase-order-related cXML messages between SAP S/4HANA and the Ariba Network.

Key Features

The following table explains the key features available:

Key Feature	Use
Sending purchase orders	You can send purchase orders as well as changes to purchase orders or cancellations from SAP S/4HANA to the Ariba Network. The following item types are supported: • Standard items • Limit items • Third-party items • Service items Purchase orders can be transferred including attachments they have at header level.
Receiving confirmations	You can receive purchase order confirmations from your suppliers via the Ariba Network.

Key Feature	Use
Receiving service entry sheets (for services)	You can receive service entry sheets from your suppliers on the Ariba Network . In SAP S/4HANA, you can approve or reject them. The status is transferred to the Ariba Network. Once a service entry sheet has been approved, suppliers can create an invoice for the services.
Receiving advanced shipping notifications	You can receive advanced shipping notifications from your suppliers via the Ariba Network, which creates inbound deliveries in SAP S/4HANA.
Sending goods receipts (for materials)	You can send goods receipts to your suppliers on the Ariba Network to inform them that you have received material items. On the Ariba Network, suppliers see whether a part of the delivery or the full delivery has been received.
Monitoring	You can monitor and troubleshoot the outbound cXML messages using SAP S/4HANA Output Management. You can resend or cancel such messages, and you can display the Application Log.

2.11.5.5 Service Purchasing and Entry

Business Background

In addition to their own workforce, many companies employ external service providers. You can use service purchasing for a wide range of services, such as planned and unplanned maintenance and construction, or translation services. When you request services from your suppliers, you can specify all the services that may be procured in detail. It is possible to do the cost assignment at a later point in time.

Key Features

The following table explains the key features available:

Key Feature	Use
Determination and recording of requirements	Based on either a purchase requisition or a purchase order, you can request services from your suppliers. You can enter a set of detailed service specifications, but it is also possible to enter only a rough provision for unplanned services by setting value limits.
Determination of possible sources of supply	You can base your request for a service on reference purchase orders and existing long-term purchasing agreements. If you request services for which there is no prior requirement, you can also enter the source manually.

Key Feature	Use
Monitoring of purchase orders	During the phase of the service performance, you can continually update the services that are actually performed, enabling you to monitor the progress.
Entry of services actually performed	You enter services that have actually been performed by means of service entry sheets. In doing so, you can reference the purchase order. Each individual service is recorded together with quantities and values. If a value limit for unplanned services has been set in the purchase order, you can maintain specifications for such services at the time you record their actual performance. The services are recorded with their precise value, and the system checks that the limit has not been exceeded.
Acceptance of services performed	After you have recorded the services that have been performed in the service entry sheet, the persons responsible can check that the work is satisfactory and formally accept the services.
Verification of invoices for services	In the final step, you ensure that the service provider's invoices are correct.

2.11.6 Invoice Management

2.11.6.1 Invoice Processing

Business Background

The invoice processing follows the processes of purchase order and goods receipt.

A supplier invoice is a document from a supplier for materials that were delivered or services that were performed. You can create a supplier invoice manually. The invoice verification checks the supplier invoice for accuracy with regard to content, price, and accounting.

You can search for supplier invoices depending on the status, and you can release blocked invoice items. When you post the invoice, the data from the supplier invoice is saved in the system and both an invoice document and an accounting document are generated.

Key Features

The following table explains the key features available:

Key Feature	Use
Supplier invoice verification	You create a supplier invoice after receiving the invoice from the supplier. You can create the supplier invoice with reference to a purchase order or without any reference. The invoice verification checks the supplier invoice for correctness, Before posting the document, you can simulate the supplier invoice in order to display the account movements. When the invoice reduction functionality is used during the creation of an invoice, output management is triggered to inform the supplier. You can schedule the output as a regular job.
Supplier invoice approval	You can search for supplier invoices and use the search result as a supplier invoice worklist that allows you to display the detail data. For example, you can display a list of blocked supplier invoices and release or reverse them. The invoice can also be released automatically. In this case, the system checks each blocking reason to see whether it is still valid. You can display supplier invoices that are assigned to you by workflow. The workflow allows you to display posted supplier invoices that are automatically blocked for payment.. You can approve or reject the corresponding work item. If necessary, you can forward a work item to a different employee for further processing.
Working with goods receipt and invoice receipt clearing accounts	You can maintain goods receipt and invoice receipt clearing accounts, and cancel the created documents if required.
Consignment and pipeline settlement	For goods withdrawals from consignment stocks or from a pipeline, you do not expect an invoice from the supplier. Instead you settle posted withdrawals and return deliveries yourself and send the supplier a statement of the settlement.
Supplier invoice jobs	You can schedule and monitor recurring, supplier invoice related activities as a background job. For example, you can choose the job template *Evaluated Receipt Settlement*.

2.11.6.2 Invoice Collaboration (Ariba Network Integration)

Business Background

In this process you can collaborate with your suppliers via the Ariba Network. You do this by exchanging invoice-related cXML messages between SAP S/4HANA and the Ariba Network.

Key Features

The following table explains the key features available:

Key Feature	Use
Receiving invoices	You can receive invoices from your suppliers via the Ariba Network. The cXML message always transfers a PDF version of the invoice. The transfer of additional attachments is also supported. For invoices created on the Ariba Network, you can perform invoice verification in SAP S/4HANA. Alternatively, you can use SAP Ariba Invoice Management for invoice verification. In this case, the invoices are sent to SAP S/4HANA via the Ariba Network after verification is performed. Note that service-related invoices are not supported if you integrate SAP Ariba Invoice Management for invoice verification. Error-free invoices can be posted automatically in SAP S/4HANA. Invoices with errors can be saved with errors and can later be processed manually.
Sending CC invoices	You can transfer supplier invoices created in SAP S/4HANA as CC invoices (carbon-copy invoices) to your suppliers via the Ariba Network. Such invoices are sent for status tracking and follow-on processes.
Sending status updates for invoices	Status updates for the received invoices or for CC invoices are sent to your suppliers via the Ariba Network. For example, when an invoice is posted, paid, reversed, or when a blocked invoice is released, a status update is sent.
Monitoring	You can monitor and troubleshoot the cXML messages using the SAP Application Interface Framework (AIF), that includes information from the standard application log. For example, you can restart or cancel cXML messages.

2.11.6.3 Invoice Collaboration (SAP Fieldglass)

Business Background

SAP Fieldglass provides a cloud-based solution for managing contingent workforce and service procurement. SAP S/4HANA currently supports an integration scenario for invoice handling with SAP Fieldglass that is enabled by the exchange of cXML messages.

Key Features

The following table explains the key features available:

Key Feature	Use
Receiving invoices	Invoices created in SAP Fieldglass are automatically posted in SAP S/4HANA.
Sending status updates for invoices	Once an invoice in SAP S/4HANA is paid, the status is automatically transferred to SAP Fieldglass.

2.12 Supply Chain

2.12.1 Efficient Logistics and Order Fulfillment

2.12.1.1 Basic Warehouse Management

2.12.1.1.1 Inventory Management

Business Background

Basic warehouse management covers the following inventory management tasks:

- Performance of physical inventory (stocktaking) and stock adjustments both for a company's own stock and for special stocks on periodical basis
- Evaluating and displaying of documents (for example, material documents) and stock information
- Check reports and analysis reports
- Creating and managing of reservations at plant level, storage location level, or batch level to ensure the availability of materials for planned goods movements

Inventory management is mainly performed by employees managing the company's stocks at plant and storage location level.

For posting goods movements, see *Goods Issue* and *Goods Receipt*.

Key Features

The following features are available:

Key Feature	Use
CWM	This feature allows you to create CW materials. Goods movements and stocks of CW materials are processed in two quantities with a variable proportion. The base quantity of CW materials is used to operate the logistics of a process, while the parallel quantity is used to valuate the goods movements and stocks. This allows you to define logistic quantities and inventory values based on different properties of a material. This feature enables you to work with a CW material that has two units of measure for warehouse stock as well as for material movements: the base unit of measure and the parallel unit of measure for valuation determination. The purpose of a separate valuation unit of measure is to ensure that a material can be managed with one quantity influencing the valuated stock and another quantity having no impact on the valuated stock. For example, a CW material uses pieces and kilograms. The quantity in kilograms determines the valuated stock, but this is independent of the number of pieces involved. This feature supports requirements of specific industry sectors, such as the food processing industry, that need a separate valuation unit of measure.
Physical inventory / inventory count and adjustment	This feature allows you to perform the periodic process of making necessary adjustments to stock on hand after a physical count. The benefits are: • Transparent view on the stocks currently available • Efficient processing of inventory adjustments The process begins with the generation of the required inventory count sheets. Materials can be blocked here for posting during the physical inventory. Once the inventory sheets are printed out, the actual physical inventory count is realized for the given materials. Afterwards, the count result is entered in the system and then any discrepancies against the system quantities are reviewed. The inventory may be recounted until final counts are accepted and inventory differences are posted. In addition, this feature enables you to perform the following physical inventory procedures: • Sample-based physical inventory The sample to be inventoried is determined on a mathematical-statistical basis. A physical inventory count and an inventory adjustment posting are performed for the items in the sample. Based on the inventory adjustment posting, an extrapolation provides an estimated value for the entire stock. If the extrapolation is successful, it is assumed that the book inventory is correct. Note that the sample-based physical inventory is not available for EWM-managed storage locations. • Cycle Counting The materials to be inventoried are counted at regular intervals during a fiscal year. You can use the cycle counting approach, for example, to ensure that stocks of fast-moving items are checked more frequently than slow-moving items.

Key Feature	Use
Reporting	The reporting feature includes a range of functions and reports that provide extensive information on all materials and their stock data: Reports to evaluate and display, for example, the following documents: • Material documents • Material documents for which at least one reason for movement has been specified • Accounting documents available for a selected material • Sales documents that contain a specific batch of a material Reports to evaluate and display, for example, the following stock information: • Total stocks of given materials at plant and storage location level • Stock in transit • Stock situation of a given material in selected plants including consumption statistics and current stock/requirements list • Vendor consignment stocks • Consignment and returnable packaging stocks at customer's site • Stock in a particular time period • Remaining shelf life of batches • Valuated sales order stock and valuated project stock • Stock that is made available to the vendor (subcontractor) and stored on the vendor's premises but remains the property of your enterprise • Total stock quantity and the total stock value for a material at plant and storage location level Check reports and analysis reports, for example: • Comparison of goods receipt quantities and values relating to a purchase order with invoice quantities and values for the same purchase order • Analysis of rounding differences that resulted from conversion between units of entry and base units • Displaying and deleting data that you have held for further processing but not yet posted
Reservations	This feature enables you to make a request to the warehouse to keep materials ready for withdrawal at a later date and for a certain purpose. The purpose of a reservation is to ensure that a material will be available when it is needed. This simplifies and accelerates the goods movements process. A reservation for goods issue can be requested by various departments for various account assignment objects (such as cost center, order, asset, etc.). A reservation can be taken into account by material requirements planning, which means that required materials are procured in time if they are out of stock.
Period closing	Goods movements are managed by period. For goods movements to be posted to the correct period, you set the correct period whenever a new period starts.
Displaying price change documents	This feature allows you to display price change documents that specify the valuation price of materials.

Key Feature	Use
Output processing	A physical goods movement generally requires a document in printed form, for example, to serve as a transfer document (goods receipt slip, goods issue slip) for the warehouse or as a label for identification of the material (pallet slip). This feature enables you to generate corresponding documents and to specify that the output is printed or that it is produced and sent by other means, for example by e-mail.

2.12.1.2 Goods Issue

2.12.1.2.1 Logistics Execution

Business Background

The goods issue process for outbound deliveries is the final activity you complete before you send goods to a customer. An effective and efficient outbound delivery process enables you to plan accordingly for the picking, packing, and shipping of your outbound deliveries. Outbound deliveries are created when the following processes occur:

- Sell from stock: a customer orders goods from your company
- Returns: you return goods to your supplier
- Stock transfer: you transfer goods from one plant to another plant

Key Features

The following table explains the key features available:

Key Feature	Use
Outbound delivery processing	You use this feature to record shipping-planning information, monitor the status of shipping activities, and document data gathered during the outbound delivery process. When you create an outbound delivery, shipping activities such as picking or delivery scheduling commence. Data that is generated during the outbound shipping process is included in the delivery. The outbound delivery supports all shipping activities. An outbound delivery can be created as follows: • With reference to a sales order • With reference to a stock transport order • Without any reference

Key Feature	Use
Picking	This feature enables you to move outbound goods from their storage location to a staging area. Once the goods are in the staging area you can prepare them for shipping.
Packing	With this feature, you can select outbound goods for packing and assign them to handling units (HUs).
Goods issue	This feature enables you to post a goods issue. Once you post a goods issue, you initiate the movement of goods from your company to your customer. Your stock is updated to reflect this reduction in goods.

2.12.1.2.2 Inventory Management

Business Background

Even in a computer-supported inventory management system, the accepted accounting principle of no posting without a document applies. According to the document principle, a document must be generated and stored in the system for every transaction/event that causes a change in stock.

The *Goods Issue* features enable you to post goods movements that lead to a reduction in warehouse stock.

Goods issue postings are mainly performed by employees managing the company's stocks at plant and storage location level.

For further inventory management features, see *Basic Warehouse Management*.

Key Features

The following features are available:

Key Feature	Use
Posting goods issues	This feature allows you to post, for example, the following goods movements by generating corresponding material documents: • Goods issues A goods movement with which a material withdrawal or material issue, a material consumption, or a shipment of goods to a customer is posted. A goods issue leads to a reduction in warehouse stock. • Scrapping A posting in the inventory management system made if a material can no longer be used. • Return delivery A delivery returning goods to the vendor for some reason (for example, due to poor quality or because they are damaged), even if the goods receipt has already been posted. If the vendor sends a substitute delivery, the return delivery can be referenced to the goods receipt.
Transfer posting and stock transfer	This feature enables you to perform stock transfers from one storage location to another storage location as well as changes in stock type or stock category of a material. It is irrelevant whether the posting occurs in conjunction with a physical movement or not. Stock transfers can occur either within the same plant or between two plants.

2.12.1.3 Goods Receipt

2.12.1.3.1 Logistics Execution

Business Background

The goods receipt process for inbound deliveries is the final activity you complete before you receive goods into your company. The significant advantage of depicting the goods receipt process through the inbound delivery function is that you can execute many processes in advance, even before the actual goods receipt posting takes place. You have all the necessary information beforehand because the supplier notifies you of the inbound delivery ahead of time. An effective and efficient inbound delivery process enables you to plan for the putaway, packing, and storing of goods that arrive into your company. Inbound deliveries can be derived from a purchase order document or they can be part of a two-step stock transfer process.

Key Features

The following table explains the key features available:

Key Feature	Use
Inbound delivery processing	You use this feature to record planning information, monitor the status of different activities, and document data gathered during the inbound delivery process. When you create an inbound delivery, activities such as putaway commence. Data that is generated during the inbound delivery process is included in the delivery. The inbound delivery supports all goods receipt activities. An inbound delivery can be created as follows: • With reference to a purchase order • With reference to a stock transport order, as the second step for the receiving plant
Packing	With this feature, you can select inbound goods for packing and assign them to handling units (HUs).
Putaway	You can use this feature to put goods away in storage bins in your warehouse.
Goods receipt	This feature enables you to acknowledge that you have received the goods from your supplier. Your stock is updated to reflect this increase in goods.

2.12.1.3.2 Inventory Management

Business Background

Even in a computer-supported inventory management system, the accepted accounting principle of no posting without a document applies. According to the document principle, a document must be generated and stored in the system for every transaction/event that causes a change in stock.

The *Goods Receipt* features enable you to post goods movements that lead to an increase in warehouse stock.

Goods receipt postings are mainly performed by employees managing the company's stocks at plant and storage location level.

For further inventory management features, see *Basic Warehouse Management*.

Key Features

The following features are available:

Key Feature	Use
Posting goods receipts	This feature allows you to post, for example, the following goods movements by generating corresponding material documents: • Initial entry of stock balances An operation performed once at the start of the productive life of the system in which physical stocks on hand or book inventory balances from a legacy system are recorded as opening book balances. • Goods receipts A goods movement with which the receipt of goods from a vendor or from production is posted. A goods receipt leads to an increase in warehouse stock.
Transfer posting and stock transfer	This feature enables you to perform stock transfers from one storage location to another storage location as well as changes in stock type or stock category of a material. It is irrelevant whether the posting occurs in conjunction with a physical movement or not. Stock transfers can occur either within the same plant or between two plants.

2.12.1.4 Returnable Packaging

2.12.1.4.1 Returnable Packaging Logistics

Business Background

Returnable packaging logistics enables you to manage the exchange of reusable packaging materials with business partners, either as empties or as part of packages when delivering goods.

As a company owning returnable packaging materials exchanged with business partners, you need to keep track of the stock of those packaging materials at each business partner. You could create account statements and send these to your business partners for verification. With postings to returnable packaging accounts, the stock exchange of returnable packaging materials between your company's locations and your business partners could be documented, resulting in an overall balance for each of the accounts.

As a company exchanging returnable packaging materials with business partners owning them, you want to keep track of the stock of those packaging materials at your locations. You could receive account statements from these business partners and match the statement postings with your own account postings.

Key Features

The following features are available:

Key Feature	Use
Managing returnable packaging accounts	You define returnable packaging accounts for packaging materials and their specific exchange relationships of location (such as your plant) and exchange partners (such as suppliers or customers). Each account shows the current balance based on the quantities exchanged between the account location and the exchange partners using returnable packaging account postings. For each returnable packaging account, you could control whether account statements are sent or received.
Postings to returnable packaging accounts	You could post to returnable packaging accounts automatically or manually. Goods movements in inventory management to returnable packaging materials involving your plant and the exchange partner could be used, for example, to trigger an automated returnable packaging account posting in the background. You could create manual postings to returnable packaging accounts for movements that do not involve inventory management of your plants or where the inventory management posting does not include the exchange partner.
Managing statements to returnable packaging accounts	You manage returnable packaging account statements either by creating account statements based on your account postings and sending those to your exchange partners or by receiving account statements from your business partners and matching those automatically or manually with your own account postings.
Ordering returnable packaging materials	You could order empty returnable packaging materials to be replenished by your exchange partner using consumption-based planning processes.
Evaluations/Monitoring	You could use various reports to get an overview on: • Returnable packaging accounts and their balances • Returnable packaging account postings • Returnable packaging account statements

2.12.1.5 Warehouse Management

2.12.1.5.1 Basic Warehouse Management

Business Background

Basic warehouse management provides support with and real-time transparency into managing and processing material movements flexibly for optimized warehouse operations.

Key Features

The following table explains the key features available:

Key Feature	Use
Warehouse Structure	Basic warehouse management supports you from the very beginning, starting with structuring your warehouse, as follows: • You define the physical structure of your warehouse or warehouse complex and map this in the system. • You define the individual storage types, such as high-rack storage area, bulk storage area, or picking storage area, and join them together under one warehouse number. • You create storage bins for each storage type. Basic warehouse management uses these to manage stock information about all products in the warehouse, at storage bin level.
Inventory Management	You can map your entire warehouse complex in detail in the system, down to storage bin level. This gives you an overview of the total quantity of each product in the warehouse. You can also always see exactly where a specific product is, at any time, in your warehouse complex. You can manage the product quantities in different stock categories on the following levels: • At storage bin level • In intermediate locations • On resources • In handling units • In nested handling units You can also store and manage the following kinds of product in your warehouse: • Batch-managed products • Products with serial numbers • Catch weight products You can also manage the following special stock in your warehouse: • Vendor consignment stock • Project stock • Customer order stock

Key Feature	Use
Handling Units	A handling unit is a physical unit consisting of packaging materials (load carriers or packing material) and the goods contained in it. A handling unit is always a combination of products and packaging materials. All the information contained in the product items, for example, about batches, is retained in the handling units and is always available. Handling units can be nested, and you can create a new handling unit from several other handling units. A handling unit has a unique, scannable identification number that you can construct according to industry standards such as EAN 128 or SSCC.
Inbound Processing	You can receive products from the following sources: • Vendors • Production • Other parts of your company • Customer returns You can create and confirm multi-step putaway tasks for the putaway of the products, including the following steps: • Unloading • Counting • Deconsolidation • Final putaway You can schedule putaway activities in one of the following ways: • Automatically during inbound deliveries • Regularly at specific times • Manually, using overviews of the daily loads You can optimize your warehouse capacity and material flow by using putaway strategies. These simplify the search for appropriate storage bins for your incoming products by automatically determining suitable storage bins for the new products. Note that many of these strategies are based on the use of handling units.

Key Feature	Use
Outbound Processing	You can pick products and send them out of your warehouse for the following scenarios: • Send ordered products to external customers • Supply products to production • Return products to vendors • Supply products to internal consumers, for example, a cost center You can create and confirm goods issue documents for the delivered products. You can optimize your warehouse capacity and material flow by using stock removal strategies. These simplify the physical process of picking by determining the optimal picking bin for the product. You can gather warehouse tasks and enable mobile execution and confirmation using radio frequency (RF) transactions. This allows warehouse workers to perform their tasks with greater efficiency and communicate statuses faster, using mobile RF devices.
Internal Warehouse Movements	You can plan, create and confirm tasks for moving products to different areas inside the warehouse, for example, replenishment of products in picking bins. You can also perform ad-hoc internal warehouse movements, using RF transactions or from the warehouse management monitor.

Key Feature	Use
Physical Inventory	You can plan, conduct and confirm regular counts of actual product quantities in the warehouse and compare the physical stock to the data in the system. Following the count, you can update the accounting data for the stock in the case of differences between the quantity of physical stock and the quantity in the system. This counting can be performed in the following ways: • Annual inventory You record all stocks on a certain day or within a fairly short period (in most cases at the end of the fiscal year). During this time, you can prohibit stock movements. • Ad-hoc physical inventory You carry out inventory-taking for certain storage bins or products. You can do this at any time during the fiscal year. For example, an ad hoc physical inventory may become necessary because a product has been damaged or because you have received complaints from a customer about a product. • Continuous inventory You use cycle counting to carry out a physical inventory of your stocks at regular intervals during a fiscal year. You can specify the intervals or cycles at which you are going to carry out the physical inventory for specific products by allocating these products to different classes. For example, this allows you to inventory fast-moving products in your warehouse more frequently than slow-moving ones. • Low-stock or zero-stock checks You can perform low-stock checks during the picking process, based on a limit value for the storage bin and product (usually a number that is easy to check at a glance). During the physical removal of stock from storage, you check whether the storage bin data reflects the actual stock situation. If the limit is set to zero, it is a zero-stock check. You can trigger a low-stock check manually or the system can trigger it automatically when the stock in the bin falls below the limit. • Putaway physical inventory You can carry out physical inventory for a storage bin at the time of the first putaway in this bin in the fiscal year. During the current fiscal year, no further physical inventory is performed for this storage bin, even if a completely different quant is stored there at the end of the year, or if the bin is empty. • Recounting **i Note** Basic warehouse management does not support sample-based physical inventory. An interface for integration to a partner solution is available.

Key Feature	Use
Reporting	You can use the warehouse management monitor to keep constantly up-to-date as to the current situation in the warehouse, and to initiate appropriate responses to situations that arise. The warehouse management monitor gives you full transparency about the following attributes of your warehouse: • Warehouse activities • Stock and bins • Resources • Planned movements • Executed movements • Inbound deliveries • Outbound deliveries The warehouse management monitor also contains alert monitoring capabilities, which highlight actual and potential problematic situations in the warehouse, and provides exception handling tools.
Resource Management	A resource is an entity representing a user or equipment that can perform work in the warehouse. You can use resource management to maximize the efficiency of your warehouse processes in the following ways: • Facilitate the management and distribution of work • Optimize the selection of warehouse orders for resources requesting work This enables effective monitoring and controlling of resources.
Quality Management	You can check whether delivered products and packaging materials satisfy your quality criteria as part of the inbound process. Basic warehouse management is integrated into Quality Management in Manufacturing using inspection lots of origin 17. You use inspection rules to determine whether a delivery item is inspection-relevant and to specify the details of the inspection, for example, inspection type, location-independent stock type, or process step performed in the warehouse.

Key Feature	Use
Production Integration	You can integrate the supply of products to production and the receipt of products from production into your warehouse. You can also return unused and unneeded parts back into stock in your warehouse. **Delivery-Based Production Supply** With delivery-based production supply, you can supply products to production based on the following order strategies: • Production Orders • Process Orders • Kanban You can stage the products required for a production or process order in the following ways: • The required products are pick parts in the case of individual orders, or release order parts in the case of multiple orders, which you stage in time and in the required quantity based on a production or process order. • The required products are products that you use continually, which you stage independently of existing orders. • The required products are materials stored in a crate or container, which you stage independently of manufacturing orders using the special method Kanban. **Advanced Production Integration** Advanced production integration optimizes the supply and receipt of products in the following ways: • You can plan the staging of products for production over a period of time, allowing you to use the space on your production supply area more flexibly. • You can receive packed products as soon as they arrive from the production line using radio frequency. This allows you to synchronize the material flows between the warehouse and production promptly, and improves inventory visibility. Advanced production integration is integrated with the manufacturing order processing. It allows you to stage and consume the materials and receive the semi-finished products or finished products in basic warehouse management. You can use advanced production integration for production orders in discrete manufacturing or for process orders in process manufacturing.

2.13 Analytics Technology

2.13.1 Process Performance Monitoring

Process Performance Monitoring allows you to monitor and analyze the performance of business processes. This can be used to identify bottlenecks in process execution and to send notifications about issues in currently running processes. A precondition for the usage of Process Performance monitoring is the configuration of S/4HANA component Process Observer for creating process-specific logs.

2.13.1.1 Process Observer

Process Observer allows you to map business processes executed in the S/4HANA system to an observation process model. The execution of the business processes along with their activities to be monitored is done during process execution. Process performance KPIs such as totals, lead times, and classifications to be evaluated in process performance monitoring are calculated at the same time.

Key Features

- Define end-to-end process definitions as business process observation models
- Maintain a repository of application events and map application events to process steps
- Define process performance KPIs (totals, lead times, and classifications)
- Define thresholds for performance KPIs
- Create instances of running business processes and log process execution information (incl. information about the user and transaction) at runtime
- Calculate process performance KPIs for single process instances at runtime
- Review running process instances that are logged with their KPIs in the process monitor
- Extract data for monitoring and analytics with BI tools

2.13.1.2 Order-to-Cash Performance Monitoring

You can check key figures to get an overview of the order-to-cash performance in your company. For example, you can track delivery blocks or billing blocks, detect changes made to critical fields of sales orders, and monitor lead times like order to delivery or goods issue to billing.

2.13.2 Analysis Path Framework

Business Background

Analysis Path Framework provides business users and managers an intuitive, easy to use analytical tool to perform interactive data explorations and drill-down analyses for root cause investigations.

Key Features

The following table explains the key features available:

Key Feature	Description
Configure APF-based apps	You can use this feature to build and enhance interactive analytical web applications.
Execute APF-based apps	APF-based apps enable the user to view and analyze the data of several Key Performance Indicators (KPIs) from different data sources. You can flexibly explore KPIs and their influencing factors step-by-step by drilling down into multidimensional visualizations of data, such as charts or tables.

2.14 Enterprise Technology

2.14.1 Master Data Maintenance

2.14.1.1 Central Master Data

Business Background

Master data represents the business data your company requires about individuals, organizations, or products. It remains unchanged over a long period of time and supports transactional processes.

The mass maintenance feature enables you to update multiple master data records at a time. To update records, you select the fields and records you want to change. After you have updated the records, the system provides statistics on the changed fields and validates the data for business transactions use before activating the changes. You can perform mass maintenance for business partner data and product master data.

Example: Example

You can define business partners, such as customers and suppliers, as well as products, such as single articles, materials, and services. Additionally, you can define relationships between the two (for example, information about a specific material and a supplier for this material are stored in a purchasing info record).

2.14.2 Middleware

2.14.2.1 Application Interface Framework

Business Background

Interfaces often transfer important data, for example, sales master data, sales orders, and invoices, between systems. As it is important to ensure correct processing, the monitoring of these interfaces is an ongoing process. This can be done using the SAP Application Interface Framework, a tool designed for business users to handle different kinds of application errors in a timely fashion.

The SAP Application Interface Framework is tightly integrated into the SAP application system. It enables business users to monitor errors related to interface issues (for example, `Material 4711 does not exist` or`Cost center 1234 is locked`).

Key Features

The following table explains the key features available:

Key Feature	Use
Interface Monitoring	The Interface Monitor displays a list of interfaces that have been assigned to the user. It also shows statistics about the number of messages with the statuses `Success`, `Error`, `Warning`, and `Canceled`.
Detailed Monitoring and Error Handling	The screen displays the selected data messages, the corresponding log messages, and the data content. The user can correct data, restart, or cancel the messages.

2.15 Country/Region-Specific Features in SAP S/4HANA Enterprise Management

This section lists and explains the key features for each country/region, covering localized features and the general feature(s) for which localization extension is provided.

2.15.1 Americas

Key Features

The following tables contain the key features for the countries in Americas.

Argentina

Cross Features

Business Area	Key Feature	Use
Cross Feature	Official Document Numbering	Process document numbering according to legal requirements for outgoing documents. Manage print authorization codes.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Master Data	Update customer and vendor master data according to legal requirements.
	Payables Management	Calculate withholding taxes in payments and generate payment notice.
	Receivables Management	Generate payment notice and post debit/credit memos.
	Withholding Tax	Update vendor master data with withholding tax exemptions and run reports with withholding tax and perceptions. Create withholding tax certificates. Post withholding tax.
Cash	Account Balancing	Manage daily report for bank and cash accounts.
General Ledger	Journal	Run general ledger document journal and credit invoice list.
Tax	VAT Reporting	Process daily value-added tax (VAT) report.
	Tax Reporting	Tax reporting (magnetic media): Generate magnetic files: electronic duplication, purchases and sales information regime and perception, and withholding taxes.

Sales

Business Area	Key Feature	Use
Billing and Invoicing	Master Data	Maintain customer master data.

Brazil

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Withholding tax calculation with standard functionality for INSS and IRRF and Condition-Based Tax for PIS, COFINS, and CSLL..
Cash	Banks and House Banks	Process localized bank master data.
	Bank Statement	Process bank files in required formats (Febraban, Itaú, and Bradesco).
	Payment Format	Process payment forms for the processes of payments using Credit on Account, Check, Payment Order, DOC, TED; Payment of boletos, Collection (Boleto) and DDA.
Tax	Tax Calculation	Calculate taxes according to regulations and business practices specific to Brazil.

Sales

Business Area	Key Feature	Use
Billing and Invoicing	Nota Fiscal Electronic Nota Fiscal Electronic Conhecimento de Transporte	Create and process outgoing Notas Fiscais (NF), electronic Notas Fiscas (NF-e) and electronic Conhecimentos de Transporte (CT-e), and electronic Correction Letter.
Sales Master Data Management	Customer Material Info Record	Maintain the record of the material according to the material data provided by your customer.
Sales Contract Management	Contract Processing	Process a contract with your customer.
	Customer Scheduling Agreement	Process a scheduling agreement for your customer.

Business Area	Key Feature	Use
Sales Order Management and Processing	Sales Order Processing	Process sales orders taking into account industrialization, resale, consumption/asset, and services requirements. In addition, the following processes are supported. • Future Delivery • Consignment stock • Third party direct ship, including Triangular Operation with Third Party Sales • Returnable Package • Return • Price and Taxes Complementar • Credit Note
	Inquiry Processing	Create a sales inquiry from your customer, such as quotations or sales information without obligation.
	Query Procesing	Create, change, or display a quotation for your customers.

Source and Procurement

Business Area	Key Feature	Use
Sourcing	Purchase Info Record	Maintain the record about a specific material and its supplier.
	Purchase Requisition Creation and Approval	Create purchase requisitions and manage the approval of purchase requisitions.
	Purchase Order Processing	Enables you to carry out localized processes for Brazil, such as: • Normal Purchasing • Credit Memo (Return) • Subcontracting • Future Delivery • Consignment • Returnable Package • Triangular Operation: Service • Freight
	Contract	Create a purchasing contract with a vendor.
	Scheduling Agreement	A scheduling agreement can be created when a material is regularly requested and provided in accordance with a delivery schedule dates.
Invoice Management	Supplier Invoice Verification	Process the verification of the invoice receipt for electronic Notas Fiscais (Nf-e) including NF-e Complementar and Conhecimentos de Transporte eletrônicos (CT-e).

Supply Chain

Business Area	Key Feature	Use
Goods Issue	Outbound Delivery Processing	Enable you to post a goods issue integrated with Nota Fiscal issuing.
Goods Receipt	Posting Goods Receipt	Enable you to post a goods receipt integrated with Nota Fiscal posting.

Canada

Finance

Business Area	Key Feature	Use

Chile

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209]
	Business Place	Manage the activation of business place.
	Official Document Numbering	Number outgoing documents according to your requirements.

Business Area	Key Feature	Use
	Pre-Numbered Invoices	Prepare reports on sheets of pre-numbered papers numbered consecutively.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	VAT	Use tax numbers.
	Withholding Tax	Process withholding tax report in accounts payable.
	Inflation Management	Inflation adjustment of open items.
Asset Management	Inflation Management	Revaluate assets.
Cash	Cash Desk	Prepare cash journal with data.
	Inflation Management	Inflation management of G/L accounts.
General Ledger	Financial Statement	File a balance sheet for tax purposes (balance tributario) in the prescribed format at the end of each fiscal year.
	Journal	Process a daily journal for all accounting documents relating to your operating activities in chronological order.
	Master Data	Make settings for localized master data.
	Trial Balance	Prepare trial balance and line items in general ledger.
Inflation Accounting	Inflation Management	Replacement of cost valuation.
Tax	VAT Reporting	Prepare sales and purchases ledger.

Supply Chain

Business Area	Key Feature	Use
Goods Issue	Outbound Delivery Processing	Enable you to post a goods issue integrated with electronic documents.
Goods Receipt	Posting Goods Receipt	Enable you to post a goods receipt integrated with electronic documents.

Colombia

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Process generic withholding tax reporting and monthly freelance data.
General Ledger	Postings and Documents	Manage year-end postings in general ledger account balance.

Mexico

Cross Features

Business Area	Key Feature	Use
Cross Feature	Official Document Numbering	Number outgoing documents according to your requirements.

Business Area	Key Feature	Use
	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Ledger	Prepare a list of your top customers.
	Withholding Tax	Process generic withholding tax reporting.
General Ledger	Audit Files	Generate files for auxiliary and electronic accounting.
	Journal	Manage localized journal entries.
Tax	Deferred Tax	Process deferred tax transfer and certificates.
	VAT	Use tax numbers.
	VAT Reporting	Prepare tax reports for sales and purchases.

Peru

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process **Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].
	Official Document Numbering	Number outgoing documents according to your requirements.
	Pre-Numbered Invoices	Prepare reports on sheets of pre-numbered papers numbered consecutively.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	VAT	Use tax numbers.
	Withholding Tax	Process withholding tax report and certificate in accounts payable.
Cash	Cash Desk	Process cash journal according to the local standard best practices.
General Ledger	Ledger	Manage general ledger and journal ledger reporting.
Tax	VAT	Use tax numbers.
	VAT Reporting	Process sales and purchases ledger reporting.

United States of America

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Receivables Management	Generation of Print Form 1099-C (Cancellation of Debt – IRS.gov).
	Withholding Tax	Generic Withholding Tax Report is used to generate the relevant print and file output of the following IRS forms: • Form 1099-MISC (Miscellaneous Income – IRS.gov) • Form 1099-G (Certain Government Payments – IRS.gov) • Form 1099-INT (Interest Income – IRS.gov) • Form 1099-K (Payment Card and Third Party Network Transactions – IRS.gov) Form 1042-S (Chapter 3 only – Foreign Person's U.S. Source Income Subject to Withholding – IRS.gov).
Tax	Tax Reporting	Display of tax information for Sales and Use Tax.

Venezuela

Cross Features

Business Area	Key Feature	Use
Cross Feature	Business Place	Manage the activation of business place.
	Official Document Numbering	Number outgoing documents according to your requirements.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Manage generic withholding tax reporting and maintain withholding tax details.
	Inflation Management	Inflation adjustment of open items.
Asset Accounting	Inflation Management	Revaluate assets.
Inventory Accounting	Inflation Management	Replacement of cost valuation.

Business Area	Key Feature	Use
General Ledger	Inflation Management	Inflation management of G/L accounts.
Tax	VAT	Use tax numbers.
	VAT Reporting	Process sales and purchases ledger reporting.

2.15.2 Europe

Key Features

The following tables contain the key features for the countries in Europe.

Austria

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Asset Accounting	Closing Operations and Reporting	Manage asset history sheet.

Business Area	Key Feature	Use
General Ledger	Closing Operations and Reporting	Collect and prepare data for Balance of Payments.
	Financial Statement	Manage annual financial statement.
Tax	VAT: EC Sales List	Process EC sales list.
	VAT Reporting	Generate XML files for periodic VAT returns.

Belgium

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Report withholding tax.
General Ledger	Closing Operations and Reporting	Collect and prepare data for Balance of Payments
Tax	VAT: EC Sales List	Create an EC sales list in XML format.
	VAT Reporting	Generate XML files for periodic VAT returns and annual sales listings.

Bulgaria

Finance

Business Area	Key Feature	Use
Asset Accounting	Closing Operations and Reporting	Manage fixed assets reporting.
	Depreciation	Influence the line values calculated on the asset level in the various depreciation reports.
General Ledger	Trial Balance	Prepare a material trial balance. Additionally, you can also reconcile G/L account balances on material accounts with total value on material level.
Tax	Closing Operations and Reporting	Process cash flow statement.
	Deferred Tax	Transfer the tax from the deferred tax account to the normal tax account.
	Tax Invoice	Print out VAT protocol in the form as required by the tax authorities.
	VAT Reporting	Prepare tax return in the form as required by the tax authorities. Prepare VIES declaration as part of the monthly VAT submission.

Croatia

Cross Features

Business Area	Key Feature	Use
Cross Feature	Official Document Numbering	Number outgoing documents according to your requirements.
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process.

Finance

Business Area	Key Feature	Use
Accounts Receivable	Overdue Receivables	Generate quarterly statistical report and submit it in the electronic format.
General Ledger	Trial Balance	Prepare a list of G/L account balances and line items in accordance with legal requirements.
Tax	VAT	Generate the report for all domestic deliveries with the tax obligation transfer.
	VAT: EC Sales List	Create the EC Sales List for tax reporting.
	VAT Reporting	Generate XML files for periodic VAT returns.

Sales

Business Area	Key Feature	Use
Billing and Invoicing	Governmental Document Validation	Handle fiscal numbering of invoices and communicate details of all cash transactions to the tax authorities.

Czech Republic

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process

Finance

Business Area	Key Feature	Use
Cash	Cash Desk	Process cash journal by handling cash receipts.

Business Area	Key Feature	Use
General Ledger	Postings and Documents	Enables you to create postings for year-end closing of profit and loss statements as well as the opening and closing balance sheet accounts.
Tax	VAT: EC Sales List	Generates a list that contains information on all tax-free goods deliveries and goods movements to registered companies within the EU.
	VAT Reporting	Prepare and process VAT return, VAT ledger statement and the EC sales list (DMEE).

Denmark

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Cash	Payment Format	Create a payment format for domestic and foreign payments, and direct debit.

Estonia

Finance

Business Area	Key Feature	Use
Cash	Cash Desk	Process localized cash journal functions by entering incoming and outgoing payments. You can post incoming and outgoing cash payments to a customized G/L account, and print the cash vouchers.
General Ledger	Financial Statement	Process financial statement (balance sheet and profit and loss statement).
Tax	Corporate Income Tax	Manage the calculation and display of social tax amounts and income tax amounts.
	VAT Reporting	Prepare and process value-added tax return.

Finland

Finance

Business Area	Key Feature	Use
Cash	Payment Format	Create a payment format for SEPA and cross border payments.
Tax	VAT Reporting	Generate files for periodic VAT returns.

France

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Report withholding tax.
General Ledger	Closing Operations and Reporting	Collect and prepare data for Balance of Payments.
Tax	Calculate Pro Rata VAT	Enables you to generate VAT returns in an electronic format and submit it to the tax authorities on a regular basis.
	VAT: EC Sales List	Generate a list that contains information on all tax-free goods deliveries and goods movements to registered companies within the EU.
	VAT Reporting	Prepare periodic VAT returns.

Germany

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Process withholding tax return.
Tax	EC Sales List	Perform and submit EC Sales List.
	Tax Returns	Perform and submit Electronic Advance Tax Returns.
	VAT Reporting	Prepare periodic VAT returns and review G/L Account information.

Greece

Cross Features

Business Area	Key Feature	Use
Cross Feature	Official Document Numbering	Number outgoing documents according to your requirements.

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Maintain transaction records involving bills of exchange and postdated checks.
	Check	Create and print G/L account cheques.
	Digital Signature	Provides you the tool to sign and approve digital data.
	Ledger	Displays line items per vendor/customer/business partner.
	Official Documents	Generate a printout of the document (referred to as FISA), that you attach to the original document at the time of filing.
	Payables Management	Display the year-end balance of each vendor along with the valuated total for each vendor.
	Receivables Management	Display line items for all customer account postings as well as special G/L transactions.
	Trial Balance	Display the period balances for all customer and vendor accounts.
Asset Accounting	Closing Operations and Reporting	Manage investment support for assets and fixed asset register.
General Ledger	Clearing	Automatically transfers open items of the 3201 account type to the respective accounts. Additionally, you can also perform automatic clearing of these line items.
	Closing Operations and Reporting	Enables you to customize the company code address data and the way this data appears in the header of the legal books.

Business Area	Key Feature	Use
	Journal	Process all FI postings of a specific posting date range.
	Ledger	Process line items for all posting accounts.
	Official Documents	Generates a printout of the document (referred to as FISA), that you attach to the original document at the time of filing.
	Parallel Ledger	Defines the intermediate account used by A/L for groups of G/L accounts, which is then used for postings.
	Postings and Documents	Enables change validation of the posting date
	Purchasing	Enables activation of the purchasing account by searching for source document types in order to make the necessary postings.
	Trial Balance	Displays the period balances for all G/L accounts.
Tax	Audit Files	Submit customer and vendor information to KEPYO at regular intervals.
	Deferred Tax	Transfer the tax from the deferred tax account to the normal tax account.
	VAT	Generate VAT returns in an electronic format and submit it to the tax authorities on a regular basis.
	VAT Reporting	Prepare tax return in the form as required by the tax authorities.

Hungary

Cross Features

Business Area	Key Feature	Use
Cross Features	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document submission by a custom solution for the transport registration process. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Payment Format	Create a payment file for domestic payments in the format defined by the clearing bank.
	Posting Business Transactions	Process entering vendor invoices and payments.
Cash	Cash Desk	Process exchange rate calculation for outgoing payments.
General Ledger	Audit Files	Prepare an XML file containing a comprehensive list of issued invoices.
Tax	Deferred Tax	Process deferred tax.
	VAT	Generate VAT returns in the required format and submit it to the tax authorities on a regular basis.
	VAT: EC Sales List	Process EU sales and purchases list in XML file format.
	VAT Reporting	Prepare tax return in the form as required by the tax authorities. Prepare domestic sales and purchases list.

Ireland

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Master Data	Provides information about individuals, organizations, or products that is used regularly and in a consistent manner.
	Withholding Tax	Calculate and report withholding tax.
Tax	VAT	Generate VAT returns in an electronic format and submit it to the tax authorities on a regular basis.

Italy

Cross Features

Business Area	Key Feature	Use
Cross Features	Official Document Numbering	Number outgoing documents according to your requirements.

Business Area	Key Feature	Use
	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document submission by a custom solution for the B2G outgoing invoicing process. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Post bills of exchange presentation document.
	Closing Operations and Reporting	Reevaluate current assets and liabilities in foreign currency. You then post the reevaluation differences to the relevant accounts.
	Withholding Tax	Report withholding tax.
Asset Accounting	Depreciation	Compare an asset depreciation over two depreciation areas.
Cash	Payment Format	Create an EC sales list in DME format.
General Ledger	Postings and Documents	Generate year-end profit and loss statement postings, and closes the balance sheet accounts and carries forward their balances into the new fiscal year.
Tax	Deferred Tax	Transfer the tax from the deferred tax account to the normal tax account. For sales made to public institutions, the tax authorities grant extension of time to remit the tax payable.
	VAT	Calculate Pro-Rata VAT.
	VAT Reporting	Prepare periodic VAT returns, generate files containing transactions with customers and vendors.

Kazakhstan

Cross-Features

Business Area	Key Feature	Use
Cross-Features	Trade Expense Management	Generate Import taxes declaration (form 320.00) in XML file format. Generate Customs Union's Import claim (form 328.00) in both PDF and XML file formats.
	Electronic Documents	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process.

Finance

Business Area	Key Feature	Use
Cash	Cash Desk	Print cash journal, cash book and incoming/outgoing cash vouchers.
General Ledger	Financial Statement	Generate financial statements (balance, profit and loss statement, cash flow reports) in PDF format in accordance with the legal requirements.
Tax	Corporate Income Tax	Subsoil use contracts split accounting functionality for the corporate income tax calculation purposes.
	Tax Invoice	Printing an outgoing invoice and an act of acceptance of works performed. Invoice journal for issued and received invoices. Direct exchange with web services of the Electronic Invoices Information System (EIIS).
	Property Tax	Calculate property tax in accordance with legal requirements.
	Transport Tax	Calculate transport tax in accordance with legal requirements.
	VAT Reporting	Generate VAT declaration in XML file format.

Supply Chain

Business Area	Key Feature	Use
Inventory Management	Output processing	Allows the printing of forms required for goods acceptance, internal goods movement and goods issue processes.

Latvia

Cross Features

Business Area	Key Feature	Use
Cross Feature	Official Document Numbering	Number outgoing documents according to your requirements.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bank Statement	Import an electronic bank statement to clear outstanding accounts receivable and payable.
Cash	Bank Statement	Convert the bank statement file to MT940 with field86 structured format.
	Cash Desk	Generate legal forms of incoming and outgoing payments.
Tax	VAT	Generate VAT returns in an electronic format and submit it to the tax authorities on a regular basis.
	VAT Reporting	Prepare tax return in the form as required by the tax authorities.

Lithuania

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Closing Operations and Reporting	Create a register that contains a list of all customer and vendor invoices.
Tax	VAT: EC Sales List	Generate a list that contains information on all tax-free goods deliveries and goods movements to registered companies within the EU.

Luxembourg

Finance

Business Area	Key Feature	Use
General Ledger	Closing Operations and Reporting	Collect and prepare data for Balance of Payments.
	Financial Statement	Generate financial statements.
Tax	Audit Files	Generate a SAF-T file in a format as required by the tax authorities.
	VAT: EC Sales List	Generate a list that contains information on all tax-free goods deliveries and goods movements to registered companies within the EU
	VAT Reporting	Generate XML files for periodic VAT returns.

Netherlands

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Receivable	Periodic Activities and Closing Operations	Determines how the compensation for the collection of overdue payments (dunning charges) is calculated.

Business Area	Key Feature	Use
Tax	VAT Reporting	Prepare VAT returns and EC sales lists in the form as required by the tax authorities.

Norway

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Trial Balance	List the opening and closing balance of each vendor/customer in accordance with legal requirements.
Cash	Payment Format	Make domestic and foreign payments by bank transfer in Telepay, BBS, and DATADIALOG format.
General Ledger	Trial Balance	Display G/L accounts with opening/closing balances and line items.

Poland

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Monitoring of Receivables	Generate a list of all customer invoices and vendor invoices that are not settled within their payment due date.
	Trial Balance	Prepare a statement of your accounts payable and receivable in accordance with legal requirements.
	VAT	Prepare VAT registers in accordance with the legal requirements.
	VAT Date	Indicates the tax reporting date in the document header. The relevant reports collect documents based on this date.
Asset Accounting	Closing Operations and Reporting	Prepare a list of assets in accordance with the legal requirements.
Cash	Payment Format	Use domestic bank transfer file format (Elixir-0).
	Valuation	Manage foreign currency valuation of cash account balances.
General Ledger	Ledger	Prepare a list of G/L account balances and line items in accordance with the legal requirements.
Inventory Accounting	Periodic Valuation of Material Inventories	Prepare turnover of the appropriate material account.

Business Area	Key Feature	Use
Tax	Tax Invoice	Generate and print internal invoices that contain the required VAT data.
	VAT	Process acquisition tax accruals. Manage reverse charge form for normal and correction runs.
	VAT: EC Sales List	Generate a list that contains information on all tax-free goods deliveries and goods movements to registered companies within the EU.

Portugal

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Manage generic withholding tax reporting.
Asset Accounting	Closing Operations and Reporting	Manage asset reporting, revaluation areas/classes/exceptions, and currency revaluation. Use the Mapas Fiscais to retrieve details of assets in your company and print these details on forms specified by the tax authorities in Portugal.

Business Area	Key Feature	Use
General Ledger	Closing Operations and Reporting	Process balance of payments using central bank reporting, and SCB indicator assignments.
Tax	Audit Files	Prepare and process standard audit file for tax purposes (SAF-T).
	Tax Invoice	Customer master data validations (VAT number cannot be changed after digitally signed documents are posted).
	VAT	Apply pro-rata VAT method in order to determine tax deduction.
	VAT Reporting	Prepare and process input tax refund, annual sales return to tax office, advance return for tax on sales/purchases.

Romania

Finance

Business Area	Key Feature	Use
Asset Accounting	Closing Operations and Reporting	Process asset chart and asset history, asset revaluation.
Cash	Cash Desk	Process cash journal. Print petty cash receipt.
	Payment Format	Make bank transfer payments.
General Ledger	Financial Statement	Prepare and process financial statement - for example, balance sheet and profit and loss statement.
	Journal	Process documents journal.
	Ledger	Process general ledger and account card for miscellaneous operations with corresponding accounts.
	Trial Balance	Process general ledger account balance.
Tax	VAT	Manage tax code procedures, process tax code assignments for normal/deferred tax system. Apply pro-rata VAT method in order to determine tax deduction if is the case.
	VAT: EC Sales and Purchases List	Process VIES 390, declaration (XML file).

Business Area	Key Feature	Use
	VAT Reporting	Prepare and process advance return for tax on sales/purchases for normal and deferred tax system. Manage VAT declarations – XML file (VAT 300, VIES 394).

Russia

Cross Features

Business Area	Key Feature	Use
Cross-Features	Trade Expense Management	• Generate import customs declarations, record and track their numbers when the company sells imported goods. Generate export customs declarations. Calculate and post customs fees and duties, if relevant. • Generate goods import declarations for importing goods from the countries of the Eurasian Economic Union. • Perform currency control during currency transactions with foreign companies: generate deal passports, create supporting document statements and currency transaction statements, keep track of the status of payments and shipments with foreign companies.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Postings and Documents	Manage contract accounting and automatic contract filling, process documents with negative postings.
	Closing Operations and Reporting	Manage automatic clearing.
	Payables Management	Accounting of down payments, payments analysis, process electronic invoices, delivery and acceptance documents.
	Receivables Management	Accounting of down payments, payments analysis, process electronic invoices, delivery and acceptance documents.
	Transfer Pricing	Process transfer pricing to evaluate the transfer of goods or services between dependently operating companies.
	Trial Balance	Manage customer and vendor turnover balance and intercompany balance reconciliation.

Business Area	Key Feature	Use
Asset Accounting	Closing Operations and Reporting	Process inventory reports and asset revaluation.
	Depreciation	Calculate and process depreciation and depreciation bonus.
	Master Data	Make settings for localization data used in property and transport tax calculation.
Cash	Cash Desk	Process cash journal and print cash documents.
General Ledger	Closing Operations and Reporting	Process balance sheet, profit and loss statement, cash flow statement and foreign currency valuation report.
	Offset Accounting	Process offsetting account determination.
Tax	Corporate Income Tax	Process profit tax reports.
	Tax Invoice	Issue paper and electronic invoices, including corrective and revised invoices.
	Property Tax	Calculate the tax amount and prepare tax return for property tax.
	Transport Tax	Calculate the tax amounts and prepare the tax return for transport tax.
	VAT	Separate VAT, deferred tax and VAT for goods in transit.
	VAT Reporting	Process sales and purchases ledger, invoice journal, inquiries from tax authorities and prepare VAT return.

Supply Chain

Business Area	Key Feature	Use
Inventory Management	Physical Inventory	Carry out the physical inventory for material stocks. Offset stock surpluses against stock shortages that have been found during physical inventory. Prepare a list of stock on hand at the beginning and end of each period, showing the value of the stock as well as its quantity. Allows the printing of forms required for physical inventory.
	Output Processing	Allows the printing of forms required for goods acceptance, internal goods movement and goods issue processes.

Sales

Business Area	Key Feature	Use
Billing and Invoicing	Billing	Allows the printing of invoices.

Serbia

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Trade Expense Management	Process customs declaration.
Asset Accounting	Depreciation	Process tax depreciation.
Cash	Bank Statement	Convert Halcom to MultiCash format.
	Payment Format	Create and export predefined TXT file with payment data required for e-banking program.
General Ledger	Financial Statement	Prepare and process financial statement.
	Ledger	Prepare general ledger for postings, as well as calculated and deducted VAT in predefined electronic format.
Tax	VAT Reporting	Prepare tax return in the form as required by the tax authorities.

Slovakia

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Master Data	VAT cash accounting.
Asset Accounting	Depreciation	Accelerated depreciation method.
Cash	Bank Statement	Derivation of external transactions from payment symbols.
General Ledger	Financial Statement	Enables you to create postings for year-end closing of profit and loss statements as well as the opening and closing balance sheet accounts.

Business Area	Key Feature	Use
	Closing Operations and Reporting	Process cash flow statement.
Tax	Deferred tax	Manage deferred tax transfer and the analysis of deferred tax accounts.
	VAT	Create and reverse acquisition tax accruals.
	VAT Reporting	Prepare and process VAT return, VAT ledger statement and the EC sales list (DMEE).

Slovenia

Cross Features

Business Area	Key Feature	Use
Cross Features	Official Document Numbering	Number outgoing documents according to your requirements.
	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	VAT	Manage accounting document validation.
Cash	Bank Statement	Manage bank statements in various formats.
	Payment Format	Create and adjust payment medium formats.
General Ledger	Closing Operations and Reporting	Mange statistical reporting to create period reports SKV, BST and SFR for The Bank of Slovenia and The Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES).

Business Area	Key Feature	Use
	Ledger	Prepare a list of G/L account balances and line items in accordance with the legal requirements.
Tax	Audit Files	Generate tax books and list of invoices paid in cash or by credit cards in a format as required by the tax authorities.
	VAT	Create and reverse acquisition tax accrual. Tax reporting date in the document header. The relevant reports collect documents based on this date.
	VAT: EC Sales List	Create the EC Sales List for tax reporting.
	VAT Reporting	Prepare form DDV-O for reporting.

Spain

Cross Features

Business Area	Key Feature	Use
Cross Features	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing B2G invoicing process. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Master Data	VAT cash accounting.

Business Area	Key Feature	Use
	Withholding Tax	Prepare statements of the withholding tax that you have collected on behalf of your vendors. You can collect tax on a variety of expenditures, in accordance with Spanish law.
Cash	Payment Format	Print checks according to the Spanish standards (SAPscript form F110_ES_CHEQUE).
Tax	Deferred Tax	Manage deferred tax transfer and the analysis of deferred tax accounts.
	VAT	Apply pro-rata VAT method in order to determine tax deduction.
	VAT: EC Sales List	Process EC sales list for Spain.
	VAT Reporting	Prepare periodic VAT returns, annual declaration of transactions with 3rd party (form 347) and VAT registers (form 340).

Sweden

Cross Features

Business Area	Key Feature	Use
Cross Feature	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Cash	Payment Format	Convert bank statement into MultiCash format.

Switzerland

Finance

Business Area	Key Feature	Use
Accounts Payable	Payment Reference	Process ISR procedure which is a payment in procedure offered by the Swiss Postal Service to firms based in Switzerland. ISR subscribers are given an ISR number in the business partner master record.
Cash	Bank Account Master Data	Maintain bank master data and outline the factors you should consider when transferring bank master data automatically.
	Bank Statement	Convert bank statements into MultiCash format.
General Ledger	Closing Operations and Reporting	Collect and prepare data for Balance of Payments.
Tax	VAT Reporting	Prepare periodic VAT returns.

Turkey

Cross Features

Business Area	Key Feature	Use
Cross Feature	Official Document Numbering	Number outgoing documents according to your requirements.
	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Process bills of exchange and checks as forms of payment. You can record, store, and use them according to local legal and business requirements.
Asset Accounting	Inflation Management	Manage inflation accounting by revaluating various assets (and their depreciation) for inflation.
General Ledger	Journal	Process document journal.
	Ledger	Process general ledger from document file.
Tax	VAT Reporting	Process sales ledger and purchases ledger.

Ukraine

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Closing Operations and Reporting	Clear reversed invoice items. Manage automatic clearing.
	Master Data	Manage customer and vendor tax data on a time basis.
	Payables Management	Accounting of down payments in foreign currency. Payments analysis.
	Postings and Documents	Manage internal contract numbers and automatic insertion and update of vendor/customer contracts. Process documents with negative posting.
	Receivables Management	Print invoices. Accounting of down payments in foreign currency. Payments analysis.
	Transfer Pricing	Process transfer pricing to evaluate the transfer of goods or services between independently operating units of a corporate group.
	Trial Balance	Manage customer and vendor turnover balance and balance notification.

Business Area	Key Feature	Use
Asset Accounting	Closing Operations and Reporting	Process the following for fixed assets: • Create and print forms for acquisition, retirement, scrapping fixed assets • Create and print fixed assets inventory cards • Create and print physical inventory list • Revaluation and the reversal of revaluation
	Master Data	Make settings for localization data.
Cash	Cash Desk	Manage cash journal and print cash documents.
General Ledger	Financial Statement	Prepare financial statements (balance sheet, profit and loss statement, cash flow statement, changes in equity statement).
	Offset Accounting	Process offsetting account determination.
Tax	Corporate Income Tax	Process income tax (known in the system as profit tax) using a separate set of accounting regulations to calculate your taxable profit.
	Tax Invoice	Prepare and process tax invoices and correction tax invoices.
	VAT Reporting	Prepare and process VAT reporting.

Supply Chain

Business Area	Key Feature	Use
Inventory Management	Physical Inventory	Carry out the physical inventory for material stocks. Prepare a list of stock on hand at the beginning and end of each period, showing the value of the stock as well as its quantity. Allows the printing of forms required for physical inventory.
	Output Processing	Allows the printing of forms required for goods acceptance, internal goods movement and goods issue processes.
Logistics Execution	Outbound Delivery Processing	Allows the printing of forms required for outbound delivery processing.

Sales

Business Area	Key Feature	Use
Billing and Invoicing	Billing	Allows the printing of invoices.

United Kingdom

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Master Data	Process business partner master data and CIS vendor verification.
	Posting Business Transactions	Process vendor invoices.
	Withholding Tax	Track and remit withholding tax for construction industry scheme.
Asset Accounting	Depreciation	Post revaluation in compliance with the requirements of the Statement of Recommended Practice (SORP) and modified historical cost accounting (MHCA) primarily used by the public sector.
Tax	VAT	Process tax on open invoices.
	VAT: EC Sales List	Process EC sales list for the United Kingdom.
	VAT Reporting	Create an electronic value-added tax (VAT) return on sales and purchases.

2.15.3 Africa/Middle East

Key Features

The following tables contain the key features for the countries in Africa and the Middle East.

Egypt

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Manage and record the incoming postdated checks.
	Vendor Certificates	Maintain all information related to vendor certificates in the business partner master for vendor along with information related to its validity.

Business Area	Key Feature	Use
	Withholding Tax/Stamp Tax	Manage the withholding tax rules and the calculation, and clear its open items to generate the legal remittance form and the tax payment form in accordance with the tax rules and regulations. Manage the stamp tax rules and the calculations, and clear its open items to generate the legal remittance form and the tax payment form. in accordance with the tax rules and regulations.
General Ledger	Company Certificates	Maintain all information related to the company certificates along with information related to its validity.

Israel

Cross Features

Business Area	Key Feature	Use
Cross Feature	Annexing	Enables to adjust a price according to index/currency/price list changes as defined by inflation adjustment law by handling the master data of the annexing packages that are used in the central annexing calculation.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Analysis of Payments to Suppliers	Process restrictions in a payment run by managing foreclosures in Accounts Payable and Accounts Receivable.
	Master Data	Update vendor master data with content from Shaam (Computerized Processing Service of the Authorities). Send vendor master data files to Shaam.
	Withholding Tax	Generate withholding tax file.
Asset Accounting	Closing Operations and Reporting	Process revaluation and reporting in asset management.
	Other	Process localized investment plans and asset classification.
Cash	Bank Account Master Data	Process bank master data.

Business Area	Key Feature	Use
	Cash Processes	Cash system is a receivable cash that supports main processes, such as: • Collecting payments (receivable of cash, check deferred check and credit card) • Return (cancellation) of payments • Deposit • Cash audit
Tax	Audit Files	Uniform files and annual file form 6111.
	VAT Reporting	Prepare and process data for the VAT files.

Sales

Business Area	Key Feature	Use
Sales Order Management and Processing	Annexing	Maintain annexing data in sales order.
Billing and Invoicing	Annexing	Calculate price in billing documents using annexing formulas.

Source and Procurement

Business Area	Key Feature	Use
Operation Contract Management	Annexing	Maintain annexing data in different purchase document levels such as in scheduling arrangements, Contracts and Requests for Quotation.
Purchase Order Processing	Annexing	Maintain annexing data in different purchase document levels.
Supplier Invoice Verification	Annexing	Create an annexed invoice.

Kuwait

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Generate statement of withholding tax settlements on dividends earned by entities investing in securities listed in Kuwait Stock Exchange (KSE).
	Vendor Certificate	Maintain all information related to vendor certificates in the business partner master for vendor along with information related to its validity.
Asset Accounting	Depreciation	Enclosure with Income tax declaration - Generate statement of assets depreciation in accordance with the county tax rules and regulations.
Cash	Bank Reconciliation	Manage the reconciliation between the bank statements amounts and own accounting records.
General Ledger	Company Certificates	Maintain all information related to the company certificates along with information related to its validity.
Inventory Accounting	Periodic Valuation of Material Inventories	Enclosure with Income tax declaration - generate statement of stock closing inventory at end of the year.
Tax	Corporate Income Tax	Perform an annual income tax and other taxes declaration in accordance with the county tax rules and regulations.

Oman

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Manage and record the incoming postdated checks and manage the outgoing postdated checks through a dashboard.
	Withholding Tax	Manage the withholding tax rules and the calculation, and clear its open items to generate the legal remittance form in accordance with the tax rules and regulations.
	Vendor Certificates	Manage and record the incoming postdated checks and manage the outgoing postdated checks through a dashboard.
Tax	Corporate Income Tax	Manage income tax declaration.

Qatar

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Manage and record the incoming postdated checks.
	Withholding Tax	Manage the withholding tax rules and the calculation, and clear its open items to generate the legal forms (remittance, vendor certificate, refund) in accordance with the tax rules and regulations.
	Vendor Certificates	Maintain all information related to vendor certificates in the business partner master for vendor along with information related to its validity.
Asset Accounting	Depreciation	Enclosure with income tax declaration - generate a statement of assets depreciations in accordance with the tax rules and regulations.
Cash	Bank Reconciliation	Manage the reconciliation between the bank statement amounts and own accounting records.
General Ledger	Provision	Enclosure with income tax declaration - generate a statement of company provisions details in accordance with the tax rules and regulations.
Tax	Corporate Income Tax	Perform an annual income tax declaration in accordance with the tax rules and regulations.

Saudi Arabia

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	You can process postdated checks.
	Withholding Tax	Generate the monthly withholding tax declaration and create withholding tax certificates form.
	Vendor Certificate	Maintain all information related to vendor certificates in the business partner master for vendor along with information related to its validity.

Business Area	Key Feature	Use
Asset Accounting	Depreciation	Enclosure with Zakat and Income tax declaration - Generate statement of assets depreciation in accordance with the county tax rules and regulations.
Tax	Corporate Income Tax	Perform an annual Zakat and income tax declaration and enclosures in accordance with the county tax rules and regulations.

South Africa

Finance

Business Area	Key Feature	Use
Tax	VAT Reporting	Process sales and purchases ledger reporting.

United Arab Emirates

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Manage and record the incoming postdated checks.
	Vendor Certificates	Maintain all information related to vendor certificates in the business partner master for vendor along with information related to its validity.

2.15.4 Asia-Pacific

Key Features

The following tables contain the key features for the countries/regions in Asia-Pacific.

Australia

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Report generic withholding tax.

China

Cross Features

Business Area	Key Feature	Use
Cross Feature	Official Document Numbering	Ensure consecutive numbering for financial documents.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Manage the whole life cycle of various BoE receivable and payables, including master data, process and status management, reports and counting.
	Monitoring of Receivables and Payables	Aging reporting, customer summary and details reporting, vendor summary and details reporting.
Cash	Cash Budgeting	Manage all cash budgeting for China including configuration, data preparation, cycles and approvals, budget consumption and reports.
	Cash Desk	Report for historical cash flow and movements in a specified period.
	Electronic Payment Integration (EPIC)	Process incoming and outgoing payment management and cash operations for China.
General Ledger	Closing Operations and Reporting	Process compiling a collective balance of payments.
	Financial Statement	Manage and display localized financial statements (profit and loss statement, balance sheet, cash flow statement).
	G/L Account Balance	Display G/L account balance and line items in general ledger.
	Offset Accounting	Determine offset accounts for cash flow statement.

Business Area	Key Feature	Use
	GR/IR Analysis	Analyze details of goods received but invoice not received, and invoice received but goods not received.
	Journal	Print financial documents according to China-specific format.
	Master Data	Manage master data related to account levels hierarchy.
Tax	Golden Tax Interface	Manage pre-processing of invoicing data with splitting, merging, rounding handling, and so on, and generate invoicing files for invoicing and printing to Golden Tax System.
	Global Trade	Manage the tax refund process of exporting goods, including the FI posting of accrued refundable VAT and consumption tax.

India

Cross Features

Business Area	Key Feature	Use
Cross Feature	Manage Master Data	You can manage/migrate tax-relevant master data of a business partner. This data includes excise duty, service tax, and withholding tax data.
	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document submission by a custom solution for the outgoing invoicing process. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Postings and Documents	Post and clear vendor down payments.
	Withholding Tax	Enables you to process withholding taxes (also known as tax deducted at source or TDS) including clearing according to the Income Tax Act, 1961. Enables you to prepare tax return in the form as required by the tax authorities.
Asset Accounting	Closing Operations and Reporting	Manage fixed assets reporting
	Depreciation	Calculate depreciation on asset blocks as required by the income tax laws in India.
	Master Data	Make settings for localized master data.
Tax	Corporate Income Tax	Calculates and displays the income tax depreciation and capital gain and capital loss values for asset blocks. Additionally updates the closing written down value (WDV) of an asset block.

Sales

Business Area	Key Feature	Use
Billing and Invoicing	Excise Duty	You can determine excise and other taxes on your sales, and make the appropriate accounting posting.

Source and Procurement

Business Area	Key Feature	Use
Invoice Management	Excise Duty	You can calculate excise duty either using a condition-based method or a formula-based method. Additionally, you can prepare copies of all excise registers for submission to excise authorities.
Supplier Management	Subcontracting Challan	You can handle materials issued to subcontractor without payment of excise duty or with full payment of excise duty.

Indonesia

Cross Features

Business Area	Key Feature	Use
Cross Feature	Business Place	Manage the activation of business place.
	Official Document Numbering	Manage document classes and number range maintenance in official document numbering.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Closing Operations and Reporting	Process application configuration for reporting.
	Withholding Tax	Enable you to file a withholding tax return on a monthly basis
General Ledger	Closing Operations and Reporting	Process compiling a collective balance of payments.
	Offset Accounting	Determine offsetting accounts to prepare the cash flow statement using the direct method.
Tax	VAT Reporting	Process advance returns for tax on sales and purchases.

Japan

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	For the scenario of Electronic Monetary Claim (Issuer), record bill of exchange transactions according to your requirements.
	Invoice Summary	Process the invoice summary, according to Japanese requirements, for the following document types: invoices, credit memos, and down payment requests.
	Withholding Tax	Process generic withholding tax report for certain kinds of payments that are subject to withholding taxes.
Asset Accounting	Closing Operations and Reporting	Annex 16 (1)(2)(4)(6)(8) - Supplemental forms for a corporate tax declaration to explain depreciation expense.

Business Area	Key Feature	Use
	Depreciation	Calculate tax depreciation of fix assets and J-GAAP depreciation of impaired assets.
Cash	Bank Statement	Import Zenginkyo bank statements.
	Payment Format	Process bank charge calculation. Domestic bank transfer and foreign bank transfer in Zenginkyo format.
Tax	Property Tax	Forms for property tax declaration with each municipal tax office each year.

Sales

Business Area	Key Feature	Use
Sales Order and Outbound Delivery	Expiration Date Management – Batch Inversion Check	You use this automatic batch inversion check to prevent the shipment of products from batches that are older than the previous shipments to the same customer. The batch inversion check takes place during the creation or modification of sales orders and outbound deliveries.
Sales Order	CHOAI Route Management	In case that business flow (document flow) and logistics flow are multi-steps and Hierarchical to the final consumer, the Hierarchy information (CHOAI Route) is necessary for subsequent processes, like rebate calculation. You can define CHOAI Route and can create a new sales order with specifying CHOAI Route.

Sourcing and Procurement

Business Area	Key Feature	Use
Purchase Order Processing	Purchase Orders with Temporary Pricing	You can order materials from the suppliers by creating a purchases order with estimate prices and adjust the goods prices after they have been negotiated. Prices are fixed before goods receipt.

Malaysia

Finance

Business Area	Key Feature	Use
Tax	Deferred Tax	Process deferred tax transfer and analyze deferred tax accounts.

Business Area	Key Feature	Use
	Goods and Service tax	Process GST-03 reporting.

New Zealand

Finance

Business Area	Key Feature	Use
Cash	Payment Format	Enable you to generate the payment file you send to your bank according to your format settings.

Philippines

Cross Features

Business Area	Key Feature	Use
Cross Features	Business Place	Manage the activation of business place.
	Official Document Numbering	Manage document classes and number range maintenance in official document numbering.

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Withholding Tax	Process withholding tax according to your requirements.
Tax	Payment Receipt	Official receipt printing and management.
	VAT Reporting	Process advance returns for tax on sales and purchases.

Singapore

Finance

Business Area	Key Feature	Use
Asset Accounting	Closing Operations and Reporting	Manage fixed assets reporting.
	Depreciation	Calculate tax depreciation of fix assets.
Tax	VAT Reporting	Process advance returns for tax on sales and purchases.

South Korea

Cross Features

Business Area	Key Feature	Use
Cross Features	Business Place	Manage the activation of business place.
	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Record bill of exchange transactions according to your requirements.
	Master Data	Manage time-dependent Korean-specific fields in customer/vendor master records (including one time customers/vendors).

Business Area	Key Feature	Use
	Withholding Tax	Manage generic withholding tax reporting and maintain withholding tax details. You can use section code (assign tax office number and local tax office number).
Asset Accounting	Closing Operations and Reporting	Control the depreciation due on your assets, including any sibuin postings.
	Depreciation	Prepare statements of the depreciation on assets in the format required by the local authority.
General Ledger	Trial Balance	Manage trial balance and line items in general ledger.
Tax	Closing Operations and Reporting	Prepare taxes and dues/prepaid expenses.
	Tax Invoice	Process tax invoices for all sales and other transactions involving output tax, and record incoming tax invoices for all purchases or other transactions involving input tax.
	VAT Reporting	Process sales and purchases ledger reporting.

Taiwan

Cross Features

Business Area	Key Feature	Use
Cross Features	Business Place	Manage the activation of business place.
	Official Document Numbering	Manage document classes and number range maintenance in official document numbering.
	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Tax	VAT Reporting	Process sales and purchases ledger reporting.

Thailand

Cross Features

Business Area	Key Feature	Use
Cross Features	Business Place	Manage the activation of business place.
	Official Document Numbering	Manage document classes and number range maintenance in official document numbering.
	Electronic Document	Enable the processing of electronic documents by doing the following: • Extracting the relevant data from documents created on source applications. • Monitoring the process steps related to electronic document preparation. **i Note** To realize the end-to-end processing of electronic documents, you can integrate other SAP products. These products might require additional licenses. For more information, see Document Compliance [page 209].

Finance

Business Area	Key Feature	Use
Accounts Payable and Accounts Receivable	Bill of Exchange	Record bill of exchange transactions according to your requirements.
	Correspondence	Manage your correspondence according to the local business and legal requirements.
	Deferred Tax	Transfer deferred tax.
	Withholding Tax	Manage generic withholding tax reporting.
Asset Accounting	Depreciation	Prepare statements of the depreciation on assets in the format required by the local authority.

Business Area	Key Feature	Use
Tax	VAT Reporting	Process advance returns for tax on sales and purchases.

Supply Chain

Business Area	Key Feature	Use
Inventory Management	Reports	Additional reports are provided in inventory management for reporting, as required by local authorities.

3 SAP S/4HANA Enhanced LoB Functions

SAP S/4HANA Enhanced LoB Functions enhance core functions of SAP S/4HANA Enterprise Management to provide additional business benefit for your line of business (LoB). Please note that you might need a separate license. For further information, please contact your SAP Account Executive.

3.1 Asset Management

3.1.1 Environment, Health and Safety

3.1.1.1 Incident Management

Business Background

You use the incident management solution to record and process incidents, safety observations, and near misses. This solution provides methods for recording the data to accommodate online and offline situations. After initial recording, you can collect additional information from the people involved, investigate why an incident occurred, and track the financial impact on the organization and its assets. You can report data to the relevant authorities and analyze injuries and illnesses.

Key Features

The following scenarios and key features are supported:

Managing Incidents

You can record incidents that occur in your organization and report these to the relevant authorities. You can also investigate the causes that led to an incident, and initiate actions to prevent unsafe conditions and future incidents.

To manage incidents, you can use the following features:

Key Features	Use
Initial Incident Recording	You can record basic information about an incident. This includes a description of the actual events as well as information about the people and assets that were involved in the incident. When the initial incident recording process is completed, the system automatically notifies the processor responsible to trigger follow-up activities. You can summarize the initially recorded data in a print form. This document is assigned to the incident record and you can use it as reference during the review and completion step.
Review and Completion of Incident Records	You can directly access incident records to review and complete the information that was entered during initial incident recording. If you require additional information from others, you can start a process that sends out inquiry forms and automatically notifies you when these forms have been completed. You can review the forms before automatically transferring the form entries into the fields of the incident record. Depending on the regulations that are valid for your organization, you can generate different reports that can be sent to the authorities. Approval processes support you to validate reported information.
Incident Investigation	You can carry out an incident investigation to determine the causes that led to an incident. Depending on legal or organization-specific requirements, you can configure different investigation templates to include relevant investigation steps, such as a step for a root cause analysis and a step for lessons learned.

Managing EHS Locations

You can create and edit locations and specify a location hierarchy. You use locations, for example, to specify a workplace for which a risk assessment is carried out.

To manage EHS locations, you can use the following features:

Key Features	Use
Location Import	If you want to reuse locations that exist as technical objects in a plant maintenance application, you can import them as locations into health and safety management.

Key Features	Use
Location Structure Editing	You can insert locations at different positions into a location structure to represent where these locations exist spatially or functionally in your company. The location structure also allows you to make mass changes to the attributes of multiple locations in one go, instead of having to maintain each location individually.
Location Editing	You can add new locations to the location structure or edit the master data of locations that already exist within the structure. Location master data includes the plant or company code to which that location belongs, and the precise position of the location, which can be visualized on an integrated map. For locations that have been created manually, you can also establish links to technical objects.

3.1.1.2 Environment Management

Business Background

You use the environment management solution to record collect, process, monitor, and organize environmental data in order to be compliant with environmental legal requirements that are valid for your industry. This solution enables you to record collected data from manual and automatic input, and export that data, so that it can be prepared for reporting. Initially you create compliance requirements that contain the conditions which your plant must meet to stay environmentally compliant. You then create compliance scenarios where you organize the activities that ensure compliance within your locations. After you have assigned the relevant compliance requirements to your compliance scenarios, you create environmentally-related tasks and activities that need to be completed for the orderly running of equipment and facilities. You collect and calculate chemical and physical parameter data and monitor data records and the progress on tasks to keep track of the environmental impact of your industrial operations. You can report deviations from normal operation in the system, if they occur.

Key Features

The following scenarios and key features are supported:

Managing Emissions

You can record environmentally-related data from industrial operation in your organization and export the data so that it can be reported to legal authorities. You can also process data, and initiate tasks and activities to prevent future deviations.

To manage environmental data, you can use the following features:

Key Features	Use
Prepare Compliance Requirements	You can create and define structured compliance requirements that contain conditions to which your industrial operations need to comply. You can create compliance requirements of different types, based on what they are valid for. When the compliance requirement is created, you can add environmental limits, against which the system runs checks on the recorded data. You can also add methodologies for the calculation of emissions, and add emission-relevant parameters, such as emission factors.
Prepare Compliance Scenarios	You can create compliance scenarios where you add data collections, sampling activities, data calculations, and aggregations of environmental data. You can create and assign tasks to persons responsible, that need to be complete to ensure orderly running of industrial equipment and facilities at your locations. You can assign compliance requirements and environmental limits to your compliance scenarios, so that the system can check the collected or calculated data based on those requirements. You can setup an automatic collection of data via RFC-enabled external system, so that the system can import this data autonomously.
Monitor Environmental Data	You can oversee the progress of environmentally-related tasks, or you can monitor the environmental data recorded in the system, using one of the monitor applications. You can filter through data in the environmental data explorer in order to have an organized overview of certain categories of data records.
Create Deviations	You can create deviation reports in case there is abnormal or incorrect operation of equipment which may lead to hazards. You can export deviation data in spreadsheets or file-based reports.

3.1.1.3 Health and Safety Management

Business Background

You use the health and safety management solution to assess risks within your organization as they relate to the environment or health and safety of people. This enables you to comply with regulations and gain a

comprehensive insight into the situations that involve risks. This solution supports you in identifying, analyzing, evaluating, and managing risks. You can take the appropriate actions necessary to reduce risks to acceptable levels and prevent any harmful effects to the health and safety of your employees and the environment.

Key Features

The following scenarios and key features are supported:

Managing Chemicals for Health and Safety Processes

You can approve chemicals prior to their use in your company, and enter relevant information for chemicals for which you need to assess risks. Additionally, you can create documents, such as safety instructions, that are used to inform employees about all health, safety and personal protection relevant aspects of the chemicals they use.

To manage chemicals for health and safety processes, you can use the following features:

Key Features	Use
Chemical Approval	You can use the approval process for chemicals to ensure that new chemicals that are introduced in your company are approved from a health, safety, and environmental aspect before they are ordered. This approval process can be configured to involve several parties, and you can specify several steps to be carried out by each approver.
Data Entry for Chemicals	You can enter information provided on safety data sheets and use the information for a subsequent risk assessment process. You can trigger the data entry for chemicals from the approval process or create a chemical manually and enter the relevant information.
Initiation and Processing of Risk Assessments for Chemicals	After the approval of a chemical, you can start the risk identification process by identifying chemicals used at a certain location in your company.
Creation of Safety Instructions	As part of the risk treatment for chemicals, you can create safety instruction documents for chemicals at a certain location. A safety instruction summarizes all health and safety relevant information for a chemical, as well as the required protective equipment for safe handling at the location. This document can be used to train employees and inform them about safe handling of the chemical.

Managing EHS Risk

You can identify, analyze, evaluate, and treat risks that exist in your organization. You can take workplace samples to analyze exposure data for agents and compare exposure data to occupational exposure limits (OELs) set by your organization or regulatory agencies. In this way, you can determine whether exposure levels

are acceptable for the corresponding locations or jobs. You can minimize identified risk within your organization by implementing risk-related controls and tasks.

After you have assessed and treated a risk, you can communicate information about the risk at a location and the controls to reduce that risk to a plant maintenance process. In this way, the maintenance planner can include the risk information for the maintenance worker. You can also set up the application to receive requests to perform risk assessments from an integrated system, such as *SAP Management of Change*

To manage risks, you can use the following features:

Key Features	Use
Risk Identification	You can identify risks that exist at specific locations or jobs within your organization. This involves identifying the hazards, agents, and impacts associated with each risk. You can also specify existing controls that are used to minimize the risk.
Risk Analysis	You can use different assessment steps to analyze identified risks and determine risk levels for inherent risks and initial risks. The assessment steps for each risk assessment type are customizable, and you can use the standard analysis methods or incorporate your own analysis methods. Different analysis methods, such as an exposure analysis, are available for risk analysis. However, you can also define additional analysis methods or adapt the existing analysis methods according to your requirements. If you want to analyze the risk for a specific person or group of persons, you can create similar exposure groups (SEGs) based on locations or jobs. Employees that work at the location or carry out the job and are exposed to the same agents can be grouped together. You can measure exposures for a small sampling of people and use this data to generate personal exposure profiles for all persons in the similar exposure group.
Workplace Sample Management	You can take samples in a workplace sampling process to measure the exposure of workers to hazardous agents or their components. Workplace sampling provides, as a measurement result, the average value weighted over time of an agent at the workplace. The result can be a shift average value or a short-time value in accordance with the short-time value concept. Workplace sampling can also be used to check the effectiveness of implemented controls.

Key Features	Use
Risks Evaluation	Based on the results of risk analysis, you can evaluate risks to determine whether they are acceptable for your organization, or must be reduced through risk treatment. You can either evaluate risks manually or use automatic risk determination to determine risk acceptability based on your configuration settings.
Risk Treatment	To reduce the risk level of risks that are not acceptable, you can define new controls. You can specify how the control is to be applied, for example, which material or personal protective equipment should be used. You can also specify tasks for implementing each control. After all relevant controls have been implemented, you can repeat risk analysis and risk evaluation to ensure that the risk has been reduced to an acceptable risk level. When a control is faulty or needs replacing and is already implemented in treating risks, you can replace it with either a completely new control or just change how the control is applied. You can select the affected locations and instances of the control, and make the replacement all at once to reduce administrative effort. To treat health risk resulting from exposure to agents in the workplace, you can recommend that health surveillance be conducted to monitor the health of employees. You can then transfer your recommendations to an occupational health application.
Risk Monitoring	After a risk assessment is completed, you can continue to monitor and review the identified risk at your organization to verify that risk data remains valid, and that risk treatment is effective. You can schedule recurring control inspections, specify the inspection questions used to evaluate control effectiveness, and create any required follow-up risk assessments.

Managing EHS Locations

You can create and edit locations and specify a location hierarchy. You use locations, for example, to specify a workplace for which a risk assessment is carried out.

To manage EHS locations, you can use the following features:

Key Features	Use
Location Import	If you want to reuse locations that exist as technical objects in a plant maintenance application, you can import them as locations into health and safety management.
Location Structure Editing	You can insert locations at different positions into a location structure to represent where these locations exist spatially or functionally in your company. The location structure also allows you to make mass changes to the attributes of multiple locations in one go, instead of having to maintain each location individually.
Location Editing	You can add new locations to the location structure or edit the master data of locations that already exist within the structure. Location master data includes the plant or company code to which that location belongs, and the precise position of the location, which can be visualized on an integrated map. For locations that have been created manually, you can also establish links to technical objects.

3.1.2 Maintenance Operations

3.1.2.1 Work Clearance Management

Business Background

By using work permits, you can make sure that safety measures for carrying out certain kinds of maintenance work are complied with and that safety barriers are not removed or shut down unless measures are taken to ensure safety during the maintenance work. The work permit serves as an operational safety barrier to help protect workers and prevent accidents.

A work permit is a written document that authorizes specific persons to carry out specific work at a specific time. It describes both the work to be carried out and the requirements that must be fulfilled. At the same time, it ensures that the technician cannot start working until all the required and appropriate safety measures have been taken. It is the duty of everyone involved in the planning, approval, and execution of the maintenance work to evaluate whether or not a work permit is required.

Key Features

The following features support you with this process:

Key Feature	Use
Creating a work permit for a maintenance order	You can create a work permit for a maintenance order. One order can have several work permits, typically separated according to validity, risk categorization, or job-related semantics.
Defining work permits with restricted validity	Work permits might have a restricted validity (for example, for one day only). In such cases, an ongoing maintenance order to be continued the next day would then require a new work permit. If appropriate, the new permit could be copied based on an existing one (and slightly adapted in case of changed safety considerations) and would have to be approved again.
Defining work permits for predefined risk levels	Work permits might be categorized by risk level. For example, level 1 could be for highly-critical work requiring strong protection and/or coordination measures, level 2 could be for less critical work. If a maintenance order requires both highly-critical repair work and less critical cleaning work for example, it would be appropriate to assign two separate work permits (one level 1, one level 2) to this order. Note that you can also combine different risk levels with different validities. In the Oil & Gas industry, for example, it is common to distinguish between two levels of work permits as follows: • Work permits of level 1 are used for work that involves high risks and hazards. This work requires a comprehensive safety and approval process. It includes hot work, work in an area with special entry restrictions, and so on. Level 1 work permits are usually valid for only one working shift. An extension of the work permit is only possible under certain conditions (for example 4 hours). Afterwards, the work permit can no longer be extended. If the work is not yet completed at this point in time, a new work permit must be applied for. • Work permits of level 2 are used for all work with lower risks/hazards. This work must also be completed within a predefined time period, although the time period is defined more generously (for example 14 days).
Defining work permits for dedicated safety aspects	Work permits might also be separated by dedicated semantic safety aspects, determined by the maintenance job to be executed. In case of huge maintenance orders with multiple job tasks, it might therefore be necessary to apply for multiple work permits representing safety for the different semantic aspects (such as a radiation permit and a hot work permit).
Creating a safety certificate for a work permit	In case of more extensive safety aspects to be covered by a work permit (requiring an individual planning, approval, or execution process), it is appropriate to assign dedicated safety certificates to the work permit that describe such safety aspects in detail. A common example for such a safety certificate is an isolation list (such as an electrical isolation list or a valve & blind list) specifying all the technical objects of an asset that need to be processed/switched in conjunction with a lockout/tagout.

Key Feature	Use
Approving work permits and safety certificates	Approvals are used to define certain rules or requirements that must be observed during processing of both work permits and safety certificates. In particular, you can use approvals as follows: • To explicitly confirm the execution of certain safety-related activities (by issuing the respective approval) • To block certain activities (until the required approval has been issued) • To clearly visualize that all described safety measures have been executed (as soon as all respective approvals are issued) and maintenance work can be performed safely
Processing isolation lists	This process consists of switching (for example, tagging/untagging) technical objects specified in an isolation list so that work and tests can be performed safely. To ensure that the lockout/tagout process can be performed safely and without conflicts, the system provides checks and simulations.

3.1.2.2 Linear Asset Management

Business Background

You use linear asset management to manage the entire lifecycle of linear assets like roads, rails, pipelines, or electricity transmission lines. The process will help you to optimize the reliability, availability, maintainability, and safety of the networks and infrastructure you are responsible for. Linear asset management is a comprehensive, integrated process that facilitates and connects linear asset management activities with enterprise processes and data. In addition, the process helps you to improve asset management effectiveness, efficiency, and strategy, thereby boosting asset reliability and return on investment.

Key Features

The following features support you with this process:

Key Feature	Use
Managing infrastructure	You can manage infrastructure networks of continuous assets and make use of flexible dynamic segmentation functionality to visualize the network and assets configuration.
Defining and controlling	You can define and control asset configuration, capacity, capability, and condition in one database, and automate asset lifecycle management in complex operational environments.

Key Feature	Use
Managing master data	You can manage master data about critical network assets that helps cut asset down-time, and saves time that used to be spent searching multiple systems and files for documents such as maintenance procedures and drawings.

3.1.3 Resource Scheduling

3.1.3.1 Resource Scheduling

Business Background

The SAP S/4HANA Asset Management solution for resource scheduling allows you, as a maintenance planner, to monitor the utilization of your work centers.

Key Features

You can use the following key features:

Key Feature	Use
Overview of KPIs related to maintenance planning	You can monitor important KPIs for your work centers, such as the following: • Number of maintenance orders by priority • Work center utilization
Analysis of work center utilization	You can analyze the work center utilization based on the maintenance order operations and sub-operations that are assigned to your work centers. For example, you can see which of your work centers are overloaded. You can also compare the capacity situation of selected work centers.

3.1.4 Geographical Enablement Framework for Asset Management

Business Background

Geographical Enablement Framework for Asset Management enables you to gain a comprehensive overview of your business data. You can see EAM business objects (pieces of equipment, functional locations,

maintenance orders, and maintenance notifications) on a map that allows you to analyze your data in a geographical context.

Key Features

The following table explains the available key features:

Key Feature	Use
Display and Find Business Objects on the Map	You can display and find business objects with assigned geospatial data on the map.
Assign Geospatial Data to Technical Objects (Manual and Automatic)	When you create a technical object (piece of equipment, functional location) or a maintenance document (maintenance order, maintenance notification), the system can copy the geospatial data automatically to the created business object. In addition, you can also copy the geospatial data manually.
Initiate a Business Process from a Map	You can select a single technical object or a maintenance document on the map and the system processes it further. In addition, you can initiate your business processes from the map by selecting multiple maintenance orders or maintenance notifications.

3.2 Document Compliance

Business Background

To be compliant with electronic document regulations in many countries and regions, companies are required to exchange business transaction documents, such as invoices, in predefined format among legal entities and business partners. SAP S/4HANA supports the integration with products which are enabling an end-to-end process, currently:

- SAP Document Compliance on-premise edition to transform business transactions documents into legally required electronic documents in XML format, trigger the submission of messages to the communication platform, receive and process related incoming messages, and monitor the individual steps along the process.
- SAP Integration Suite to exchange the electronic documents with the systems of legal entities or business partners. For certain countries or regions, this exchange is available as a service for which you can subscribe to Peppol Exchange service for the cloud edition of the SAP Document Compliance.
- For Brazil, you can integrate the following products:
  - SAP Document Compliance, inbound invoicing option for Brazil (nota fiscal eletrônica)
  - SAP Document Compliance, outbound invoicing option for Brazil (nota fiscal eletrônica)

Key Features

If the end-to-end process for document compliance is established (currently by integrating SAP Document Compliance, on-premise edition and SAP Cloud Platform Integration), SAP S/4HANA supports the following key features for Austria, Belgium, Denmark, Brazil, Chile, Colombia, Denmark, Germany, Greece, Hungary, Italy, Ireland, Mexico, Netherlands, Norway, Peru, Poland, Portugal, South Korea, Spain, Sweden, Singapore, Taiwan, Thailand, and Turkey

Key Feature	Use
Data mapping	Transaction documents, such as invoices, are mapped to legally required XML formats.
Process orchestration	For outgoing documents, such as customer invoices, the system processes required steps required by each business scenario and applies corresponding statues to the electronic documents.
Monitoring of document history	You can monitor all process steps that a document has been through and see the statuses throughout the entire end-to-end process of an electronic document.
Error Handling	You can display notifications and errors that occur throughout the entire end-to-end process.
Link to source document	You can, for each electronic document, trace back the source document that it refers to in original applications.
Displaying, previewing, and storing XML files	The system stores the electronic documents in XML format. You can display and preview them.
Extensibility	Some of the framework extensibility features are: • You can create new processes and document types (or copy and adjust existing ones). • You can define process steps, variants, actions and status values to orchestrate the process. • You can assign actions to be triggered by users to the buttons and menu items in the monitor. • You can support special cases like processing of lists and batches, contingency processing, cancellations, reversals and error handling.

If the end-to-end process for document compliance is established (currently by integrating SAP Document Compliance, on-premise edition and SAP Cloud Platform Integration), SAP S/4HANA supports the following key features certain country/regions:

Key Feature	Use
Incoming documents	You can process incoming electronic documents for Austria, Belgium, Brazil, Chile, Colombia, Denmark, Germany, Italy, Ireland, the Netherlands, Norway, Poland, Singapore, Sweden, and Turkey.
PDF Display	You can preview electronic documents in PDF format for Colombia, Italy, Mexico, South Korea, Taiwan, and Turkey.

Key Feature	Use
E-mail integration	You can configure the system send to your business partners electronic documents by e-mail. This function is available for Brazil, Chile, Germany Italy, Mexico, Peru, and Turkey.
Process electronic documents under contingency	When there are issues with the communication with external systems, you can switch to a contingency process to proceed with your business transactions without disruption. This feature is available for Brazil, Chile, Colombia, and Peru.

3.3 Commerce

3.3.1 Commerce Management

3.3.1.1 Receivables Management and Payment Handling

Business Background

Receivables Management and Payment Handling receives and manages a large number of postings, for example created by billing processes, and uploades these postings to the general ledger.

All commonly used payment methods for incoming and outgoing payments in your enterprise are processed.

Receivables Management and Payment Handling enables billing professionals to assign individual clearing strategies, automate payment reconciliation, and generate reports aligned with accounting principles. Processing payments in a highly automated environment enables the billing team to reduce days sales outstanding and processing costs.

The software has been tailored towards the requirements of industry sectors with a high volume of business partners and a high number of documents for processing. The processes provided with Receivables Management and Payment Handling are highly flexible to allow for a maximum of automation as well as mechanisms to ensure outstanding system performance and scalability.

Key Features

The following table explains the key features available:

Key Feature	Use
Posting of documents to enter business transactions	Postings are always saved in document format. The document is a statement for each business transaction. Postings are usually generated automatically by the corresponding business processes or by invoicing. Additional options for automatic data transfer are available. Documents can also be posted manually. When a document is posted, accounts are determined automatically for G/L Accounting. All receivables, payables, revenue and expense accounts are automatically determined based on account assignment details in the line items.
Payment and Receivables processing	Receivables Management and Payment Handling provides standard accounts receivable and accounts payable functions, which you use to manage and monitor the receivables due from your customers. The various business processes for payments provided can be classified as follows: • Automatic payment by your company This processing can be performed for all outgoing and incoming payments if the customer has granted your company the corresponding authorization. • Process incoming payments using lots The customer makes payments through the bank or post office. • Cash desk and cash journal The customer makes payments directly at your company An account may contain open debit and credit items. If they balance to zero or if there are small differences that are within the tolerance limits defined, these amounts can be cleared automatically or manually. If a customer is unable to honour their financial commitments, you can make a deferral or installment plan agreement for one or more receivables.
General Ledger Integration	Each individual business transaction, that is, each posting and each document for a given customer, is stored in order to ensure itemized verification. In view of the large document volumes, sales figures are not updated consecutively in the general ledger during posting. Instead, documents are periodically transferred to the general ledger. All standard closing activities, as for example, foreign currency valuation, receivables adjustment and revenue deferral are supported.

3.3.1.2 Convergent Invoicing

Business Background

Convergent Invoicing merges information from several billing streams as well as individually rated events. It enables service providers to consolidate charges into a single invoice and give a complete view of the customer. Providers can accommodate partnerships with third parties and ramp up new services by clearly delineating which party is responsible for any given charge. They can also manage sophisticated rules for invoice-level discounting. By greatly simplifying complex billing processes, providers can give customers a single, consolidated invoice, while delivering better, more personalized services.

Key Features

The following table explains the key features available:

Key Feature	Use
Receive, manage, and rate consumption information	In cases where the price of individual consumption events depends, for example, on the overall consumption during a billing cycle, Convergent Invoicing provides the option of storing consumption items as unrated events until they can be rated. In this case consumption information, received from a technical system, such as a mediation system, is stored and can be displayed and monitored to later trigger rating. Rated consumption information received from (external) rating systems is stored in the form of billable items depending on their status, and subsequently billed. Convergent Invoicing comprises a billing and an invoicing component. Billing manages billable items and groups and aggregates them based on business rules into billing documents, which you process further in invoicing through to the creation of the invoice to the customer.

Key Feature	Use
Bill usage of services, prepare data for invoice creation and trigger posting in Accounting	During bill calculation, you enter priced transactions from a rating system and additional data from other components as billable items to create structured bill content. Billable items can represent event detail records, call detail records, billing detail records, recurring charges, one-off charges, and other charges or credits to be billed. You can use a billing plan to define: • Dates and amounts for generating individual billable items • Periods and amounts for generating recurring charges Complex discount calculations can be applied to entire business hierarchies using master agreements, as well as to individual contracts. The discount calculation is based on discount rules which can consider all details contained in the billing data. From the invoicing data, Convergent Invoicing can generate print documents which you can forward to connected printing systems. During invoicing, Convergent Invoicing creates invoices and updates these directly in Contract Accounts Receivable and Payable. Convergent Invoicing offers flexibility in posting revenues, depending on the relevant accounting principle (for example, IFRS). You can transfer pre-aggregated invoicing data from one or more billing systems (SAP internal or external) into the invoicing process. For example, you can integrate invoicing data from Sales and Distribution into the invoicing process. The invoicing data received from the source applications can be combined to create one convergent invoice for the customer. In Contract Accounts Receivable and Payable you can add information to invoices and update them. This additional information can include open receivables from previous invoices, information about received payments, or additional charges, as for example, late payment charges or interest on overdue items. To apply changed prices or conditions, Convergent Invoicing provides rerating of consumption items for the complete inventory of stored consumption items of a contract for a given period. During rerating, billable items are reversed, and the consumption items are rated based on the changed prices and conditions. If you want to define business hierarchies, Convergent Invoicing supports you with the definition of master agreements. Using master agreements, you can group your business hierarchy members for invoicing (layout, recipient, payer, additional invoice statements) and define complex discounting rules for each member. For example, you can define which services are reduced in price and which members of the hierarchy profit from the reduction. When a member of the hierarchy, which is eligible for a master agreement, closes a contract the existing master agreement is referenced and the terms negotiated within the master agreement automatically apply to this member.

Key Feature	Use
Exception handling using clarification cases	During the processing of invoicing documents and during invoice creation, situations can arise that require you to stop automatic processing and continue with manual postprocessing in dialog. Convergent Invoicing supports you with several correction processes, for example, for correcting events that have been rated using an incorrect price. In this case, you can rerate all consumption events. If the system used incorrect consumption or billing data, you can change, enhance, or replace the data which is then subsequently processed in the standard billing and invoicing processes. You can also create a credit memo or debit memo in case an incorrect amount has been invoiced.

3.3.1.3 Credit and Collections Management

Business Background

Credit and Collections Management provides reliable, comprehensive credit scoring of new and existing customers based on historical customer data integrated with external credit rating agencies. It fully automates routine tasks in the collections process for mass volumes of customers, such as the calculation of interest payments. Billing personnel can change and continuously optimize collections strategies by using Champion/Challenger analysis as well as in-house teams and external collections agencies. A complete picture of the credit and collection history of new and existing customers enables providers to reduce days sales outstanding and the risk of nonpayment, while retaining loyal customers.

Key Features

The following table explains the key features available:

Key Feature	Use
Customer segmentation based on risk classes and payment behavior	You can put your customers into segments with regard to their credit risk, control and continually monitor sales and service processes, and respond immediately when exceptional situations arise. The segmentation takes place in Credit Management, whereby external credit information, such as D and Experian, and internal credit information, such as the length of the business relationship and the payment behavior, are considered. The external and internal credit information from the different systems are saved in the master data of the business partner. This risk-based segmentation has an influence on the collection process.

Key Feature	Use
Determination and execution of collection activities	You can evaluate the open receivables of your customers (due or not yet due) as regular intervals using different parameters, such as age and amount of the receivables, and collection history and risk class of the customer. Using business logic defined in the system settings, the system derives the relevant collection activities for each customer, such as sending reminders, creating work items for the collection specialist, and the submission of receivables to external collection agencies or to third-party applications for legal dunning procedures. Collection specialists have a detailed overview of their customers and access to all the necessary tools and functions for the required measures. Heads of department can track the progress of Collections Management at all times and, if necessary, take action.

3.4 Finance

3.4.1 Financial Planning and Analysis

3.4.1.1 Financial Planning and Analytics

The component, which provides functionalities for financial planning and analytics within S/4 HANA, is called **SAP BPC for S/4HANA**.

Business Background

To effectively control and monitor your company, you need easy-to-use planning capabilities and up-to-date analytics. With financial planning you set plans for your financial units, such as profit centers or market segments. At the end of the planning period, you compare the actual data with the plan data to determine the success of the financial units.

Key Features

The following table explains the key features available:

Key Feature	Use
Integrated Financial Planning	SAP BPC for S/4HANA provides a **central, integrated place** for all financial planning data. It also provides real-time access to master data and actual data.
Financial Planning using Microsoft Excel	You can perform financial planning using **Microsoft Excel** and **SAP BusinessObjects Analysis, edition for Microsoft Office**. SAP provides various applications for planning on fiscal years or fiscal periods. You can adapt these planning applications according to your needs.
Integration to S/4HANA Planning Functions	You can use a large set of planning functions available within SAP BPC for S/4HANA, such as top-down distribution or recalculations. To perform planning function in the SAP Business Suite, you can copy the planning data from SAP BPC for S/4HANA to the SAP Business Suite. You can afterwards copy the data back to SAP BPC for S/4HANA to use its SAP HANA-enabled reporting capabilities.
SAP HANA-Enabled Reporting	Reports on plan data and actual data are **HANA-enabled** to provide real-time access and flexible analysis capabilities.
Sample Content	We provide standard BI content for planning and reporting that you can **use as it is** or **adapt it** according to your needs. This standard planning content, for example, contains workbooks which allow you to plan on various cost objects with a focus on overhead accounting. There are other workbooks with which you can perform various types of plan data allocation.

3.4.2 Accounting and Financial Close

3.4.2.1 Central Finance

Business Background

With Central Finance you can transition to SAP S/4HANA without disruption to your current system landscape, which can be made up of a combination of SAP systems of different releases and also, with some additional effort, non-SAP systems.

Key Features

The following table explains the key features available:

Key Feature	Use
Mapping of Accounting Entities	You can map the various accounting entities in your source systems to one common set of master data in the central system.
Replication of FI and CO Postings	Financial accounting (FI) and management accounting (CO) postings are replicated to the central system. There, FI documents and CO postings are combined into one document in the central system; the universal journal entry. In addition, all cost elements are part of the chart of accounts.
Replication of Cost Objects	Before you replicate CO postings to the central system, you need to make sure that accounts are available for all cost elements in the central system. You can also replicate cost objects (for example, internal orders) to the central system. These represent the business transactions in logistics (for example, production, maintenance, and quality) and may not be at an appropriate granularity in the central system. For this reason, you can choose to transfer some cost objects, such as long-living internal orders, directly to orders in the central system and to map other cost objects, such as short-living production orders, to more long-living cost objects, such as a production cost collector, in the central system.
Harmonized Financial Reporting	Central Finance allows you to map to a common reporting structure with which you can report on financial figures originating in different source systems, benefitting from the new reporting capabilities (leveraging HANA and the new data model) in the central system.
Simplified Mergers and Acquisitions	Using Central Finance, the systems of acquired companies can be integrated more easily.

Related Features

It is also possible to connect SAP S/4HANA Cloud editions, starting from SAP S/4HANA Cloud 1705, as a source system. For additional information about connecting the SAP S/4HANA Cloud system, contact SAP.

3.4.2.2 Corporate Close

[Background]

You use Corporate Close to periodically plan, create, and monitor your group close for subgroups or the corporate group, either for legal purposes or for the purposes of consolidated management reporting. This

process offers a high degree of flexibility regarding the timing of closings as well as the configuration of different accounting principles. You can automate the necessary consolidation steps to a considerable extent and supplement them with manual closing tasks.

[Key Features]

The following features are available to you as a corporate accountant:

[Key Feature]	[Use]

Master data	• Versioning helps you run different consolidations in parallel using different criteria, for example:
	  ○ For actual, plan and target data
	  ○ For parallel financial accounting (for example, U.S. GAAP, IFRS)
	  ○ For simulations
	• The smallest element of the corporate structure in consolidation is the consolidation unit. A consolidation unit can represent a company, a profit center, a business area, or a plant.
	• You use consolidation groups to combine a desired number of consolidation units for purposes of consolidation and reporting.
	• You use financial statement items to enter, post and evaluate monetary values.

Data collection	You can collect individual financial statement data from SAP systems as well as non-SAP systems. Various procedures are available for doing this.
Consolidation tasks	Consolidation tasks enable you to translate the financial data that is collected from each local currency into the group currency. You can also eliminate the financial statement imbalances that result from group-internal relationships. For example, the following consolidation tasks can be automated: • Currency translation • Interunit elimination (including elimination of IU payables and receivables, elimination of IU revenue and expense, and elimination of investment income) • Elimination of interunit profit and loss in transferred inventory • Consolidation of investments • Reclassification

[Key Feature]	[Use]
Execution and monitoring of the consolidation process	You use the consolidation monitor to run the consolidation tasks and to monitor the entire consolidation process.
Reporting	Once the consolidation tasks have been completed, you can analyze the data in reports.

3.4.2.3 SAP S/4HANA for advanced compliance reporting

You can use features of advanced compliance reporting for processing reports according to your critical compliance reporting requirements.

Key Features

Key Feature	Use
The following key features are available:	You can perform embedded analytics using data analysis. You can track the items considered for reporting under a specific reporting task. This tracking helps to analyze and audit these documents, if required. You can incorporate business rules (integration with SAP Business Rule Framework plus (BRFplus)). You can provide file name patterns for the generated document. You can perform the configurations required to make your statutory reports legally compliant (framework extensibility). Usage of advanced compliance reporting design time: you can define additional legal reports based on advanced compliance reporting.

3.4.3 Treasury and Financial Risk Management

3.4.3.1 Payments and Bank Communications

Business Background

Payments and Bank Communications streamlines, controls, and gives better transparency into business' communications with your banks. Automated payment workflows streamline routing and approval processes. Treasury managers can ensure compliance by using rules-based approval workflows that guarantee proper

payment approvals and documentation. With central in-house control over cash, financial managers can decrease dependency on banks and the need to transfer cash to regions.

Key Features

Key Feature	Use
Bank Communication Management	
Managing Multiple Bank Communication Interfaces	Bank Communication Management supports communication with multiple banks via SWIFT net, service bureaus or other channels.
Receive Payment Status Messages	Payment status messages can be received and displayed in the payment status monitor. You can use this function to display status messages containing status codes and status reason texts for particular batches or payments.
Merge Payments from Different Payment Runs	Group together payments from several payment runs into one payment run and transfer them together on payment media.
Approve Payments	You can use this function to display a work list of payment batches for processing. You can then choose to approve or reject batches from the worklist. After full approval, the payment medium for the batch will be created and sent to your bank.
Batch and Payment Monitor	With this function you can access an overview of batches (groups of payments) and see their current status. You can drill down to the payments in each batch and access information on their release (approval) process and status history.
Monitoring your Bank Statements	You can display the status of bank statements from individual house bank accounts. A bank statement that is delayed or that does not reach the monitor can be identified with this function just as quickly as any differences occurring between the bank statement balance and the internal G/L account balance. Any items that are not assigned as well as differences in posting are also recognized in this way.
Define Alerts	Define timeouts and trigger alerts, for example when not receiving an acknowledgement for a particular batch within a defined time interval.

Key Feature	Use
In-House Cash	
In-House Cash acts as an internal bank within the corporate group, with which each affiliate has one or more current accounts (e.g. in different currencies). Key functionality is the processing of internal payments between affiliates as well as external payments between affiliates and external business partners. In addition, incoming payments can be routed to the relevant affiliates. With help of In-House Cash the amount of external bank accounts required can be reduced as well as the number of cross border payments.	
Manage Master Data	The In-House Cash account is the central object and is created for each participating affiliate. The affiliate has the role of the account holder. Within the account master data following information are stored: • Account balance as well as the turnovers • Account holder and account currency • Conditions can be defined to calculate interest and charges to be debited or credited when accounts are settled. They also determine the value dates for payment transactions and account balancing. • Limits can be defined to restrict the amount-based disposal on account level.
Payment Processes	In-House cash supports the following payment processes: • Internal payments: process of clearing payables and receivables between group affiliates (credit transfer as well as direct debit is supported) • Central payments: payments from affiliates to external business partners (credit transfer as well as direct debit is supported) • Local payments: cross-border payments initiated by affiliates are transferred into a domestic payment by sending an external payment via the FI system of a local affiliate (to save costs) • External incoming payments: e.g. incoming payments that result from zero balancing offered by the external banks • Central payments with several In-House Cash centers: Cross-bank area postings enable payments between two In-House Cash Centers via all existing In-House Cash Centers.

Key Feature	Use
Route Processing for External Payments	The aim of route processing is to determine a clearing partner to make the payment. You can use this process for all types of external payments: • Local payments • Central payments
Account Balancing	The account balancing function is used to settle the accounts. Account balancing is triggered periodically (e.g. daily, weekly, monthly) in accordance with the entry in the account master data. Interest and charges for the accounts due to be balanced are calculated and posted on the basis of the defined conditions.
Bank Statements	Bank statements for the accounts managed in the In-House Cash are automatically created on a regular basis, sent and posted in the FI system of the affiliates.
General Ledger Integration	In-House Cash is set up as a subledger. Therefore all items posted on the current accounts have to be transferred during an automated end-of-day procedure to the corresponding general ledger accounts as totals.
Cash Concentration	Cash Concentration means the automated generation of payment orders that debit or credit accounts within an account hierarchy on a regular basis, e.g. daily, weekly, monthly. For example a certain minimum balance can be defined or the remaining balance on an account is always to be transferred to another account.

3.4.3.2 Cash and Liquidity Management

3.4.3.2.1 Cash Daily Operations

Business Background

Every day, cash managers need to perform tasks such as monitoring cash positions, making bank transfers, approving payments, and so on, to ensure the corporate functions and the business runs with enough fund.

Key Features

Key Feature	Use
Bank statement import status	You can use this feature to monitor the import status of bank statements for all the bank accounts that are set to be monitored.
Cash positions	You can use this feature to check the actual and forecasted cash positions with flexible selections of analytical dimensions such as bank, country/region, company code, and so on.
Cash flow items	You can use this feature to track document line items that have impact on your company cash flows, for example, invoices, payments, bank statements, financial transactions, memo records, and so on.
Bank transfers	You can use this feature to initiate a bank-to-bank transfer and track the status of the bank transfers that you made recently.
Payment approvals	You can use this feature to approve or reject outgoing payments before the payment files are sent to banks.

3.4.3.2.2 Bank Account Management

Business Background

To centrally manage the bank accounts in an enterprise, cash managers need to carry out activities such as monitoring, creating, modifying, closing, and reopening bank accounts, as well as performing annual reviews.

Key Features

Key Feature	Use
Bank account master data	You can use this feature to define bank account master data. In addition to the common properties, you can also define: • Payment signatories • Overdraft limits • Bank account groups and cash pools

Key Feature	Use
Workflow processes	You can use this feature to control the process of opening, modifying, closing, reviewing, and mass changing signatories of bank accounts
Bank account reviews	You can use this feature to perform the following tasks: • Initiate a review process for selected bank accounts to ensure that the bank account master data is up to date • Monitor the review status of launched review processes
Sent and received requests	You can use this feature to track and process requests that you have sent or received for opening, modifying, closing, reviewing, and mass changing signatories of bank accounts.
Foreign bank accounts	You can use this feature to check the foreign bank accounts and responsible signatories in your company. The information can be used for legitimate reports or analytical purposes.

3.4.3.2.3 Liquidity Management

Liquidity Management

Cash managers need to make estimates of future cash flows so that they can see clearly what payment obligations are to be fulfilled and whether there is the need to make investment or funding plans.

Key Features

Key Feature	Use
Liquidity planing	You can use this feature to develop and analyze liquidity plans. You can track the status and trace liquidity planning cycle to get an early warning indicator of liquidity shortages or a steering tool for medium- and long- term investment or borrowing.

Key Feature	Use
Cash flow analysis and forecast	You can use this feature to do the following: • Check the daily cash inflows and outflows • Analyze the past actual cash flows with various dimensions • Forecast the future liquidity trend with flexible selections of analytical dimensions, such as bank, country/region, company code, and so on

3.4.3.3 Debt and Investment Management

Business Background

You can portray the process for managing your liabilities and capital investments. The following functional areas are covered: Front Office, Middle Office, Back Office, and Accounting. In addition, integrated posting and payment processes and integrated position reporting allow you to achieve compliance with legal requirements and regulatory standards.

The integrated and automated processes (straight-through processing) provide further support by enabling you to focus on value-added activities.

Key Functions

Function	Use
Manage Financial Transactions	In Transaction Management, you can enter enter financial transactions for the following areas: • Securities (stocks, investment certificates, subscription rights, bonds, bonds with repayment schedule, warrant bonds, convertible bonds, warrants, shareholdings) • Money market (fixed-term deposits, deposits at notice, commercial papers, cash flow transactions, interest rate instruments) • Facilities • Derivatives (caps/floors, swaps, forward rate agreements, total return swaps, OTC options) • Listed derivatives (futures, repos, listed options) • Forward securities transactions • Securities lending • Forwards • Forward loans • Letter of Credit The type of financial transaction dictates which functions are available for processing the financial transaction across its lifecycle.
Portray Intragroup Transactions	Functions are also delivered that allow you to portray intragroup transactions.
Perform Central Clearing	The functions for the clearingl accounts allow you to portray clearing of your clearing-relevant financial transactions (foreign exchange transactions and swaps) by your central counterparty (CCP).
Manage Financial Positions	• Balance Sheet Transfers • Securities Account Management and Futures Account Management provide a range of functions, such as a function for performing **securities account transfers**, functions for taking **corporate actions**, and functions for **exercising security rights**.
Pay Flows	You can use the payment program for payment requests to pay flows that are relevant for payment.
Post Business Transactions in Financial Accounting	Using the integration with Financial Accounting, your posting-relevant flows can be posted in Financial Accounting.

Function	Use
Manage Financial Positions in Parallel in Accordance with Different Accounting Principles	You use valuation areas to portray parallel accounting. You therefore need to define a valuation area for each set of accounting principles. You post the valuation results separately for each valuation area.
Calculate NPVs	You can calculate the NPVs of your financial transactions and financial positions for a specific key date, including credit and debit value adjustments if necessary.
Execute Key Date Valuation	In Accounting, you can use the functions for valuating your financial positions for a specific key date.
Execute Accrual/Deferral	You use accruals/deferrals to determine for each valuation area the expenses and revenues from financial transactions or positions for a given period and to assign them to the correct accounting period, irrespective of when they were actually due.
Execute Valuation Class Transfer	You can use the valuation class transfer function for individual or multiple positions from the "Securities" and "OTC Transactions" areas. You can transfer securities positions either fully or partially to other valuation classes. You can reverse the valuation class transfer.
Execute Account Assignment Reference Transfer	You use the account assignment reference to control which G/L account in Financial Accounting is used to manage the respective position. You assign an account assignment reference to each position. With the account assignment reference transfer, you can post positions with their book value from one account assignment reference to another. This is similar to how financial positions can be transferred between G/L accounts.
Analyze Financial Transactions and Financial Positions	You can use a range of reports to analyze your financial transactions and positions specific to a key date or period. These reports are based on logical databases. Further, you can define your own reports on the basis of these databases.

Function	Use
Perform Clearing Threshold Reporting	Non-financial counterparties (NFCs) of derivative financial instruments are not generally required to use a central clearing partner to process these financial transactions. NFCs are required to perform clearing only in cases when they have not concluded these financial transactions for risk mitigation and when the rolling average position of these transactions exceeds the specified clearing threshold values continuously for a period of 30 days. Clearing Threshold Reporting (CTR) supports NFCs in monitoring their derivative financial transactions that were not concluded for risk mitigation.
Perform Trade Repository Reporting	The trade repository reporting functions support you in creating trade repository messages. Once the process is complete, your trade repository messages are available as a file on the application server for transfer to the trade repository. From the application server, you can also import and interpret incoming messages for the trade repository and store them in Document Management.
Determine Market Risks of Financial Transactions	You can measure the market risk of your financial transactions. You do this using mark-to-market methods, such as key figure analysis and NPV analysis. Furthermore, you can calculate your *Value at Risk* or your *Cash Flow at Risk*.
Limit Counterparty Risks	You can measure, analyze, and control or limit your counterparty risk.
Calculate and Monitor Rates of Return	You can calculate and monitor the rates of return on your financial assets.
Save and Analyze Position Components in the Result Database and Use Position Components as the Basis for Calculating Additional Position Key Figures	You can read the position component values of the positions and subpositions from the position management and store them as key figures in the Result Database. This enables you, for example, to store the position component values on a daily or weekly basis based on the original market data in the Result Database. You also can calculate your own position key figures (based on the original position components) that are not available in Position Management of the Transaction Manager. From the Result Database, you can generate reports in the *Analyzer Information System* (AIS), which displays these key figures.

Function	Use
Manage Market Data	In Market Data Management, you store the market data that you require for valuating and processing your financial transactions (such as security prices, reference interest rates, volatilities, and correlations). For this, you can use datafeed or the market data file interface. Using datafeed, you can automate the import of the required market data from your market data provider.
Transfer Legacy Data	If you want to implement the Transaction Manger and your data (legacy data) are in a source system, you need to ensure that these data are available in the Transaction Manager for a key date. Legacy data is transferred to the system using a process comprising a number of steps. However, for some of these steps, you have alternative ways of transferring data.
Transfer Data Using Standardized Interfaces	The standardized interfaces known as Business Application Programming Interfaces (BAPIs) turn SAP applications into open systems that let you exchange data across system boundaries.
Process Payments Using In-House Cash	The system provides a BAdI with which you can connect payment programs, such as *In-House Cash*.

3.4.3.4 Financial Risk Management

Business Background

You can deploy robust analytical functions that perform thorough checks for foreign exchange risks and counterparty risks.

You can model a range of scenarios to gain insights into the extent of risks at the time of the analysis. Further, you can apply effective hedge strategies in accordance with international accounting standards.

The system provides all-round support throughout the hedging process, from identifying risks and quantifying and analyzing them through to hedging risks with optimum hedging instruments. For hedging instruments, the complete process is covered, from front office, middle office, and back office through to accounting.

In addition, for your trade finance, you can use functions for depicting letters of credit.

Key Functions

Function	Use
Determine FX Risk Positions	In *Exposure Management 2.0*, you collect future incoming and outgoing payments of your company that are associated with an FX risk. These payment flows are either actual payments that already have a fixed amount and time settings or they are only planned payments. Exposure Management 2.0 helps you identify the risks in payment flows and provides integration with Hedge Accounting for Exposures (E-HA).
Perform Hedge Accounting for Hedging Relationships Used to Hedge FX Risks	• You can manage hedging relationships with which you document how you use financial instruments to hedge your risk positions (exposures) against FX risks. • You can portray *fair value hedges* (FVH) and *cash flow hedges* (CFH) including *net investment hedges (NIH) for foreign subsidiaries*. • You can run effectiveness checks for your hedging relationships and to document your hedging relationships. It also offers valuation and accounting functions for hedge accounting purposes.
Review Balance Sheet FX Risks	You can calculate and review balance sheet FX exposures and the related hedging transactions as well as the resulting net exposure.
Manage Hedging Instruments	In the Transaction Management, you can enter your hedging instruments: • Foreign exchange transactions (purchase, sale, forward exchange transaction) • Derivatives (OTC option) The type of financial transaction dictates which functions are available for processing the financial transaction across its lifecycle.
Manage Incoming and Outgoing Transaction Correspondence for Hedging Instruments	You can use the Correspondence Framework to automate processing of your transaction correspondence.
Portray Intragroup Transactions	Functions are also delivered that allow you to portray intragroup transactions.
Perform Central Clearing	The functions for the clearing accounts allow you to portray clearing of your clearing-relevant financial transactions (foreign exchange transactions and swaps) by your central counterparty (CCP).

Function	Use
Manage Financial Positions	• Balance Sheet Transfers • Securities Account Management and Futures Account Management provide a range of functions, such as a function for performing **securities account transfers**, functions for taking **corporate actions**, and functions for **exercising security rights**.
Pay Flows	You can use the payment program for payment requests to pay flows that are relevant for payment.
Post Business Transactions in Financial Accounting	Using the integration with Financial Accounting, your posting-relevant flows can be posted in Financial Accounting.
Manage Financial Positions in Parallel in Accordance with Different Accounting Principles	You use different valuation areas to portray parallel accounting. You need to define a valuation area for each set of accounting principles. You determine the valuation results and then post them separately for each valuation area.
Execute Key Date Valuation	In Accounting, you can use the functions for valuating your financial positions for a specific key date.
Execute Accrual/Deferral	You use accruals/deferrals to determine for each valuation area the expenses and revenues from financial transactions or positions in the Transaction Manager for a given period and to assign them to the correct accounting period, irrespective of when they were actually due.
Execute Valuation Class Transfer	You can use the valuation class transfer function for individual or multiple positions from the "Securities" and "OTC Transactions" areas. You can transfer securities positions either fully or partially to other valuation classes. You can reverse the valuation class transfer.
Execute Account Assignment Reference Transfer	You use the account assignment reference to control which G/L account in Financial Accounting is used to manage the respective position. You assign an account assignment reference to each position. With the account assignment reference transfer, you can post positions with their book value from one account assignment reference to another. This is similar to how financial positions can be transferred between G/L accounts.

Function	Use
Analyze Financial Transactions and Financial Positions	You can use a range of reports to analyze your financial transactions and positions specific to a key date or period. These reports are based on logical databases. Further, you can define your own reports on the basis of these databases.
Perform Clearing Threshold Reporting	Non-financial counterparties (NFCs) of derivative financial instruments are not generally required to use a central clearing partner to process these financial transactions. NFCs are required to perform clearing only in cases when they have not concluded these financial transactions for risk mitigation and when the rolling average position of these transactions exceeds the specified clearing threshold values continuously for a period of 30 days. Clearing Threshold Reporting (CTR) supports NFCs in monitoring their derivative financial transactions that were not concluded for risk mitigation.
Perform Trade Repository Reporting	The trade repository reporting functions support you in creating trade repository messages. Once the process is complete, your trade repository messages are available as a file on the application server for transfer to the trade repository. From the application server, you can also import and interpret incoming messages for the trade repository and store them in Document Management.
Determine Market Risks of Financial Transactions	You can measure the market risk of your financial transactions. You do this using mark-to-market methods, such as key figure analysis and NPV analysis. Furthermore, you can calculate your *Value at Risk* or your *Cash Flow at Risk*.
Limit Counterparty Risks	You can measure, analyze, and control or limit your counterparty risk.
Save and Analyze Position Components in the Result Database and Use Position Components as the Basis for Calculating Additional Position Key Figures	You can read the position component values of the positions and subpositions from the position management and store them as key figures in the Result Database. This enables you, for example, to store the position component values on a daily or weekly basis based on the original market data in the Result Database. You also can calculate your own position key figures (based on the original position components) that are not available in Position Management. From the Result Database, you can generate reports in the *Analyzer Information System* (AIS), which displays these key figures.

Function	Use
Manage Market Data	In Market Data Management, you store the market data that you require for valuating and processing your financial transactions (such as security prices, reference interest rates, volatilities, and correlations). For this, you can use datafeed or the market data file interface. Using datafeed, you can automate the import of the required market data from your market data provider.
Transfer Legacy Data	If you want implement the *Transaction Manager* and your data (legacy data) is in a source system, you need to ensure that this data is available in the Transaction Manager for a key date. Legacy data is transferred to the system using a process comprising a number of steps. However, for some of these steps, you have alternative ways of transferring data.
Process Payments Using In-House Cash	System provides a BAdI with which you can connect payment programs, such as *In-House Cash*.
Transfer Data Using Standardized Interfaces	The standardized interfaces known as Business Application Programming Interfaces (BAPIs) turn SAP applications into open systems that let you exchange data across system boundaries.

3.4.4 Financial Operations

3.4.4.1 Receivables Management

3.4.4.1.1 Collections Management

Business Background

Collections Management supports you in proactive receivables management and collecting outstanding receivables. Using collection strategies, you can valuate and prioritize customers from a receivables management view. Customers that fulfill the rules defined in a strategy are distributed to work lists. You can call up your work lists and initiate contact with your customers in their order of priority. Once you have contacted the customer, you can document the result by creating a promise to pay, by setting the customer to resubmission or, if you are also using dispute management, by creating a dispute case.

Key Features

The following table explains the key features available:

Key Feature	Use
Managing Master Data	You can manage collection-specific data of business partners and use it for integration with other functions. Data, such as risk class and score, is included to the collection profiles of your business partners, if you are also using credit management.
Creating Work Lists	You can create collections work lists based on your collections strategy and team management principles and based on the accounts receivable data.
Customer Contact	You can prepare customer contact by checking valuation of customers according to your collection strategy. You can get an overview of customer accounts and view past contacts and past payments. You can check resubmissions and choose contact persons.
Supporting Collections Activities	As a collector on the phone, you can renew promises to pay, create resubmissions and document your customer contacts. If you are also using dispute management, you can create dispute cases.
Monitoring of Incoming Payments	You can check, whether incoming payments are received as promised and, if you are also using dispute management, you can check the dispute status of payments.
Supervise Collection Process	As a team leader, you can monitor the work list progress and reassign work list items. You can assign the work list items to the collection specialists, both, manually and automatically.

3.4.4.1.2 Credit Evaluation and Management

Business Background

The creditworthiness and payment behavior of your business partners affect the business results of your company immediately. You use credit evaluation and management to reduce the risk of financial losses and to optimize business relationships with your business partners. It supports your company in determining the risk of losses on receivables from your business partners early and in making credit decisions efficiently, and even automated.

Key Features

The following table explains the key features available:

Key Feature	Use
Master Data	You can manage all credit-relevant master data of a business partner. This data includes the current credit limit, credit score and the risk class. Master data fields have a change history with information about the user, the time of change and the changed values.
Business Partner Scoring	You can have the scores determined by the master data of the business partner, as for example by the country/region of origin, or by the payment behavior.
Credit Limit Request	You can calculate the credit limit of a business partner automatically and implement an approval procedure where changes to a credit limit can be checked and approved by a the credit controller responsible.
Credit Evaluation and Analyses	You can display credit-relevant data of your business partners, such as payment behavior summary, credit exposure or credit limit utilization. You can analyze credit profiles and credit limit utilization of business partners.
Documented Credit Decision	To make decisions about blocked sales orders or the amount of the credit limit quickly, credit evaluation and management supports the credit controller in determining the required customer-related data and analyses. Negative credit decisions are saved, together with the data that lead to the decision as documented credit decisions. You can process blocked sales orders in a work list with documented credit decisions.

3.4.4.1.3 Dispute Management

Business Background

Dispute Management allows you to investigate and resolve dispute cases for open invoices. For example, In business relationships, business partners frequently reduce the amounts of payments. These reductions have usually not been agreed with the payment recipient and therefore, the payment recipient has to investigate and resolve them. With dispute management you can organize and store all information and documents related to a dispute case. This includes data that already exists in accounting and new data that you enter when creating a dispute case. The dispute cases can be processed by the colleagues responsible in your company.

Key Features

The following table explains the key features available:

Key Feature	Use
Organizing Documents Related to Dispute Cases	You can organize and store all information and documents related to a dispute case, such as sales orders, invoices or attachments.
Processing Dispute Cases	You can create dispute cases, for example when post processing an account statement or during analysis of overdue open items. When you create a dispute case, the system copies automatically information from the journal entry, for example, the disputed amount, into the dispute case. You can also configure the system so that dispute cases are opened or closed automatically based on payments received. You can set and release dunning blocks and create correspondence, either manually, or configure the system so that correspondence is send automatically to your customers.
Integration with Accounts Receivable	You can manage dispute cases that refer to accounts receivable, such as underpayments or overdue items. You can make dispute cases visible in the accounting transactions and update the information in the dispute case in clearing transactions, such as in incoming payments or offsetting credit memos. So you can include other colleagues and departments in finding a solution to the dispute case from transactions that they know. All colleagues can check the current status of the dispute case. In clearing transactions the dispute cases are updated automatically and the processor of the dispute case is always informed about the last activities in accounting.
Assigning Credit Memos and Payments	You can assign credit memos and payments to open invoices. When the system clears an invoice for which a dispute case with credit memo or payment exists, the dispute case is updated.
Analyzing Dispute Cases	Reporting allows you to detect quality issues, control the workload, track the dispute process and manage deductions per customer.

3.4.5 Contract Accounting

Business Background

Contract Accounting receives and manages a large number of postings, for example created by billing processes, and uploades these postings to the general ledger. All commonly used payment methods for incoming and outgoing payments in your enterprise are processed.

Contract Accounting enables billing professionals to assign individual clearing strategies, automate payment reconciliation, and generate reports aligned with accounting principles. Processing payments in a highly automated manner enables the billing team to reduce days sales outstanding and processing costs.

Contract Accounting has been tailored towards the requirements of enterprises with a high volume of business partners and a high number of documents for processing. The processes provided with Contract Accounting are highly flexible to allow for a maximum of automation as well as mechanisms to ensure outstanding system performance and scalability. As a result, it increases customer satisfaction because payments are accurately and quickly processed while collections target the proper customers.

Key Features

The following table explains the key features available:

Key Feature	Use
Posting of documents to enter business transactions	Postings are always saved in document format. The document is a statement for each business transaction. Postings are usually generated automatically by the corresponding business processes or by invoicing. Additional options for automatic data transfer are available. Documents can also be posted manually. When a document is posted, accounts are determined automatically for G/L Accounting. All receivables, payables, revenue and expense accounts are automatically determined based on account assignment details in the line items.
Payment and Receivables processing	Receivables Management and Payment Handling provides standard accounts receivable and accounts payable functions, which you use to manage and monitor the receivables due from your customers. The various business processes for payments provided can be classified as follows: • Automatic payment by your company This processing can be performed for all outgoing and incoming payments if the customer has granted your company the corresponding authorization. • Process incoming payments using lots The customer makes payments through the bank or post office. • Cash desk and cash journal The customer makes payments directly at your company An account may contain open debit and credit items. If they balance to zero or if there are small differences that are within the tolerance limits defined, these amounts can be cleared automatically or manually. If a customer is unable to honour their financial commitments, you can make a deferral or installment plan agreement for one or more receivables.

Key Feature	Use
General Ledger Integration	Each individual business transaction, that is, each posting and each document for a given customer, is stored in order to ensure itemized verification. In view of the large document volumes, sales figures are not updated consecutively in the general ledger during posting. Instead, documents are periodically transferred to the general ledger. All standard closing activities, as for example, foreign currency valuation, receivables adjustment and revenue deferral are supported.

3.4.6 Real Estate Management

3.4.6.1 Real Estate Management

Business Background

Real Estate Management is a comprehensive software solution with the ability to boost profitability by managing your real estate portfolio - irrespective of whether you manage corporate, commercial, or residential real estate.

Key Features

The following table explains the key features available:

Key Feature	Use
Property Portfolio	You can use this feature to create master data objects required to manage your real estate portfolio.
CAD Integration	You can integrate *SAP 3D Visual Enterprise* with real estate master data. CAD providers can use a standard interface to integrate other CAD solutions.
Contracts	You can create contract offers and contracts to map contractual relationships with your business partners. The contract type determines whether a contract is a lease-in (landlord/vendor contract) or a lease-out (tenant/customer contract) as well as whether it is for properties or non-properties. It is also possible to create contracts for services, sales, or security deposit agreements. You can manage all important data in the contract, including terms and conditions, critical dates, contract objects, business partners, service charge settlement parameters, condition adjustment rules, and the cash flow.

Key Feature	Use
Critical Dates	You can use this feature to define reminder dates, on which real estate objects or contracts are checked and submitted for continued processing.
Sales-Based Leases	You can manage sales-based and consumption-based lease agreements in a contract. You are able to report sales or consumption for different product types on a periodic basis for calculating and settling sales-based rent.
Financial Accounting Integration	Your posting-relevant flows can be posted in financial accounting. Beside periodic postings based on contract conditions, you can also make postings for processes (for example, service charge settlement and sales-based settlement), one-time postings, and accrual/deferral postings. You can manage outgoing and incoming payments for contracts, account statements (electronic bank statements and postprocessing of account statements), and dunning within financial accounting. You can use functions like cost planning, assessment, and settlement also for real estate objects.
Adjustment of Conditions	You can use this feature to automatically adjust conditions using different calculation methods: • Free adjustment (residential/commercial) • Index adjustment (adjustment based on index levels) • Adjustment based on representative list of rents (apartment) • Adjustment based on comparative apartment rent (apartment) • Adjustment based on modernization measure (renovation or modernization of real estate object) • Service charge settlement (adjustment of advance payments and flat rates) You can maintain and adjust conditions on contracts or on the following real estate objects: pooled spaces, rental spaces, and rental units.
Service Charge Settlement	You can use this feature to calculate and distribute apportionable costs for the use and maintenance of real estate (for example, heating, janitorial services, cleaning, repairs) to the tenants occupying the space, for a particular settlement period, according to a number of different parameters. The service charge settlement, or charge-back process ensures that operating costs for services are accurately determined and billed.
Third Party Management	You can manage real estate objects that are owned by others. A specialized type of third-party management is acting on behalf of a condominium owners' association (COA).
Corporate Real Estate Management	You can use this feature to optimize your internal room and space management. You can plan and execute internal moves for the occupants of rooms. You can reserve meeting rooms and spaces for short periods of time.

Key Feature	Use
Land Management	This feature integrates your company's internal view with the public and legal view of land management. You can depict land registers, parcels and other public registers, link them to other master data objects, set up contracts, and run reports.
Information System	You can use reports to collect, summarize, and evaluate data all around real estate management (for example, master data, contract data, and flow data).
Correspondence	You can create documents (in letter form, e-mail or fax) and send them to your business partners. You can either use standard correspondence or modify the correspondence to your individual needs.

3.5 R&D / Engineering

3.5.1 Product Development for Discrete Industries

3.5.1.1 Embedded Systems Development

3.5.1.1.1 Embedded Software Management

Business Background

Embedded software is computer software that is embedded in one or multiple products. It provides functions together with various hardware and systems.

Embedded software has a specific requirement on the hardware and software that allows it to function accurately. To manage the compatibility information between a software and other parts of a product structure, you can use constraint management.

Key Features

The following table explains the key features available:

Key Feature	Use
Managing Constraints	You can view and maintain the compatibility information of the following: • Hardware constraint: the compatibility between an embedded software and a hardware • Software constraint: the compatibility between an embedded software and another software You can also check the software compatibility in a product structure after simulating the explosion of the product structure.

3.5.1.2 Handing Over Product Structure for Production

Business Background

You can use this business process to define a transition of product structures from engineering, such as bills of material or product structures to manufacturing. During the handover, a new manufacturing product structure is created from scratch or an already synchronized manufacturing structure is updated based on changes from the engineering product structure.

The process is focused to keep the engineering and manufacturing product structure synchronous, while only the manufacturing product structure is updated.

Changes from engineering can be handed over to the manufacturing product structure with or without change management.

Key Features

The following table explains the key features available:

Key Feature	Use
Plan Handover of Product Structure	During the planning step the product manager plans to produce a component or product in a specific plant. The planning information is stored within a synchronization unit.

Key Feature	Use
Synchronize Product Structure	The synchronization process itself duplicates all missing BOM objects (header, item, changes states) from the source structure to the target BOM. If you have already documented an intended deviation with an operation, this is also considered during the synchronization. The operation leads to adding or subtracting of an item. It also can overwrite an attribute of the target structure header or item. A comparison of the new proposed target BOM and existing target BOM returns conflicts that you can resolve. This step is mainly executed by the system. The proposed target BOM and the conflicts are presented to the user. The system supports the user with a predefined set of solutions that can be applied to solve the conflict. The source structure can also be displayed for reference. Each resolution of a conflict may lead to an operation, which is also memorized for later synchronizations. At the end the user can store the new or updated target BOM.

3.5.1.3 Visual Instance Planner

Business Background

Visual Instance Planner (VIP) is an application that enriches the engineering structure of the Product Structure Management (PSM). The application is intended to bring 3D data into PSM using variant configuration. The application allows you to create variants based on the 3D data and map the geometric instances onto the variants.

Key Features

The following table explains the key features available:

Key Feature	Use
Starting a planning session in Visual Instance Planner.	This feature allows you to start a planning session to create variants and map geometric instances onto the variants directly from PSM. When planning is complete, the plan is saved back to PSM.
Working with a product structure	This feature allows you to modify, validate, and save the actions performed on the product structure.
Adding instances to the product structure	This feature allows you to assign geometric instances to the product structure.

Key Feature	Use
Adding instances automatically to the product structure	This feature allows you to assign geometric instances automatically to the product structure.
Maintaining object dependencies	This feature allows you to display, create, or change object dependencies using the dependency maintenance tables for variant configuration on the Web UI.
Navigating to product structure	This feature allows you to view the product item and the product item variant if exists in the PSM Web User Interface.

3.5.1.4 Visual Asset Planner

Business Background

Visual Asset Planner is a solution for SAP Enterprise Asset Management (SAP EAM) for restructuring the design structure (derived from the CAD) to match the asset structure. It also creates 3D design data for the asset structure.

You can load multiple SAP 3D Visual Enterprise source files or manufacturing bill of material (MBOM) with visual representation generated from SAP 3D Visual Enterprise Manufacturing Planner as source structure. You can also load functional location hierarchy, equipment (spare part), or equipment structure as a target structure. The solution allows you to create a visual link for these technical objects.

Key Features

The following table explains the key features available:

Key Feature	Use
Starting a planning session in Visual Asset Planner	This feature allows you to start a planning session to restructure the 3D design data from CAD to match the asset structure and create viewable for the asset from the SAP S/4HANA system.
Working with functional location hierarchy planning	Functional location hierarchy planning allows you to restructure the 3D design data and generate a file depicting the functional location hierarchy with the relevant metadata tagging from SAP S/4HANA. The generated file can be used for maintenance and service purposes. The target for this scenario is a functional location hierarchy and the file that is generated is linked to the top level functional location.

Key Feature	Use
Working with spare parts planning	Spare parts planning allows you to create a visual spare parts file for an equipment from document structure or material BOM which contains 3D files. The source for this scenario is an equipment and the generated file that is linked to equipment can be used for spare part selection process in Asset Management.
Automatically assigning visual nodes to functional location or equipment hierarchy	This feature allows you to automatically assign visual nodes to functional location or equipment by comparing the metadata identifier between source and target structure. Automatic assignment is only possible for planning scenario functional location hierarchy planning.
Saving and creating a document info record	This feature allows you to save the asset planning at any point in time. This generates a VDS file by exporting the visuals from the target panel and the metadata from the target structure to be tagged onto the exported file. This file can then be linked to a new document which will be linked to the target functional location as an object link.

3.5.1.5 SAP 3D Visual Enterprise Manufacturing Planner

Business Background

The SAP 3D Visual Enterprise Manufacturing Planner application supports you in creating and maintaining manufacturing structures (manufacturing bill of materials (MBOMs) and routings). The application uses engineering structures (engineering BOMs (EBOMs)) as input through a visually guided planning process. It allows you to visualize an engineering structure in the *Source Panel* and maintain MBOMs and routing in the *Working Panel*. You can visualize the final multilevel assemblies in the *Target Panel*.

Key Features

The following table explains the key features available:

Key Feature	Use
Managing planning scope alternative	You can create a new planning scope alternative, change an existing one or delete a planning scope alternative. You can also search and start planning for an existing planning scope alternative based on its attributes

Planning BOM and routing for a planning scope alternative	You can visualize the engineering BOM (EBOM) and plan manufacturing MBOM (MBOM) as follows: • By moving components from *Source Panel* to *Target Panel* • By making a direct copy of the EBOM • By creating your own custom assembly header • By restructuring the planned MBOM to get the desired MBOM.
Maintaining manufacturing structure and routing	You can perform the following functions on the manufacturing structure: • Adding components from EBOM to MBOM • Making a direct copy of an assembly (plan as designed) • Creating a new manufacturing structure • Creating a nonvisual component • Restructuring assemblies in the planned MBOM • Managing routing, quality notification, and object dependency • Exporting and uploading visual work instructions • Allocating and deallocating a component from an operation • Handling a phantom assembly • Integrating with project systems
Simulating and saving changes to a planning scope alternative	When the manufacturing structure is ready, you can save it back to SAP S/4HANA. Based on the manufacturing structure in the planner, the MBOMs and routing component allocation are updated in SAP S/4HANA. If the target MBOMs are configurable, the object dependency is also updated. You can also validate the manufacturing structure before saving to check for errors using *Simulate Save* option.
Starting the application from Product Structure Management Web User Interface	For a planning scope alternative, when the engineering structure is a Product Structure Management (PSM) structure, you can also start planning from the PSM Web User Interface.

3.5.2 Product Development for Process Industries

3.5.2.1 Recipe Development

3.5.2.1.1 Recipe and Formula Development

Business Background

You use Recipe Development to describe the manufacturing of products or the execution of a process. Recipes comprise information about the products and components of a process, the process steps to be executed, and the resources required for the production.

The recipe types in Recipe Development enable you to create a general description of the requirements or concrete procedural instructions depending on your needs. Making the data of enterprise-wide recipes more concrete allows you derive site- and plant-specific recipes from it.

Key features

The following features are available:

Key feature	Use
Creating and managing recipes	Recipes comprise the information about the production process for a product, as well as the input and output substances and packaging used in that process. The different recipe types enable you to create a general description of the requirements or concrete procedural instructions depending on your needs. Based on the ingredients used, you can also carry out different calculations, for example to determine a product's nutritional value.
Creating and managing specifications	You can use the business object specification for the substance, packaging and recipe properties specification categories. Specifications are data objects that use value assignments for physical and chemical data to define certain properties.
Developing formulas	Material and substance data of recipes is managed in formulas. Here, you store all the relevant information about the products and components of the process.

Key feature	Use
Defining the recipe production process	You can define a sequence of chemical, physical, or biological activities for converting, storing, or transporting material or energy. The process contains all the activities that are required to produce a product or different intermediate products.
Creating and managing product labels	You use labeling to create and manage label sets. Label sets are based on specifications, and are used as input for final product label creation and label artwork design. They include lists of data for ingredients, qualitative information (such as nutrients), components and packaging.
Checking compliance of recipes and specifications	You can use compliance check to check whether a product complies with certain constraints. These can be, for example, legal constraints or constraints laid down by an enterprise. Compliance check can be used for all substances for which a specification or recipe has been created.

Related features

Classification [page 93]

Bills of Materials [page 90]

Engineering Change Management [page 93]

3.5.2.1.2 Handing Over Recipe for Production

Business Background

You can use this business process to do the following:

- Create and update a manufacturing bill of material (BOM) using a recipe as data source.
- Create and update a master recipe using a recipe as data source.

The creation or update of BOMs and master recipes typically occurs when the development department has completed product and process definition and this information has been finalized and approved for use in production.

This source information from product development is then made available for creating and updating product structures and data for use by manufacturing. GSS automates creating and updating manufacturing BOMs and master recipes, thereby enabling the user to keep development and manufacturing data aligned, reducing effort and improving data accuracy and consistency.

Key Features

The following table explains the key features available:

Key Feature	Use
Initiate handover of recipe	You select the source for which you want to create or update a manufacturing BOM or a master recipe by navigating in the corresponding recipe. The recipe to be used as source must be in a status that is relevant for the hand over process.
Plan synchronization of recipe to BOM	The synchronization of a recipe to a manufacturing BOM starts with a planning step. During this step, you define attributes for your target manufacturing BOM to be created. Once these parameters have been maintained, you can start the synchronization.
Synchronize recipe to bill of material	If you synchronize the recipe for the first time, the system will display a proposal for a target manufacturing BOM in the reconciliation workbench. There you can review the proposal before you start the creation. If you synchronize a recipe which has been synchronized previously, the system creates a new change state for the target BOM based on the recipe data. In the reconciliation workbench, the system shows the proposed target change state and compares this to the existing BOM change state. All changes are shown as conflicts in the reconciliation workbench. You can resolve these conflicts manually, before you start creation of the new BOM change state. If any errors occur, the synchronization stops and returns details about the errors.
Plan synchronization of recipe to master recipe	The synchronization of a recipe to master recipe starts with a planning step. During this step, you define attributes for your target master recipe to be created, such as: • Plant • Material • BOM Usage • Number of alternative BOM • Change number to be used when updating or creating master recipes (if change number use is required) • Master recipe group and group number Once these parameters have been maintained, you can start the synchronization.

Key Feature	Use
Synchronize recipe to master recipe	If you synchronize the recipe for the first time, the system will display a proposal for a target master recipe in the reconciliation workbench. There you can review the proposal before you start the creation. If you synchronize a recipe that has been synchronized previously, the system creates a new change state for the target master recipe based on the recipe data. In the reconciliation workbench, the system shows the proposed target change state and compares this to the existing master recipe change state. All changes are shown as conflicts in the reconciliation workbench. You can resolve these conflicts manually before you start creation of the new master recipe change state. If any errors occur, the synchronization stops and returns details about the errors.

3.6 Sales

3.6.1 Sales Planning and Performance Management

3.6.1.1 Incentive and Commission Management

Business Background

You can reproduce sales structures and set up flexible incentive systems. You use standard agreements as the basis for creating individual agreements and for settling commission cases.

Key Features

Key Feature	Use
Compensation planning	You use this feature to design a consistent remuneration plan, break down your company's strategy to specific sales targets, and to cascade plan changes. You can easily build new organizations into its sales composition and integrate compensation for the sale of newly designed products.

Key Feature	Use
Compensation operations	You use this feature to align internal and external sales targets with a company's overall strategy and to automate sales force compensation for meeting those targets.

3.7 Manufacturing

3.7.1 Production Planning

3.7.1.1 Production Planning and Detailed Scheduling

Business Background

You use Production Planning and Detailed Scheduling (PP/DS) for SAP S/4HANA as a production planner to create finite production plans taking into account resource schedule, component availability and order dates/times in detail. Typically, you use PP/DS to plan your critical products and bottleneck resources.

Key Features

The following table explains the key features available:

Key Feature	Use
Create proposals for in-house production or external procurement to cover product requirements	You can create proposals for both internal production and external procurement with dates and times across multiple plants to cover material shortages. You can create production plans either with automated production planning run using heuristics or with manual intervention.

Key Feature	Use
Optimize plan and sequence the resource schedule and the order dates/times	You can adopt a finite plan taking resource availability and capacity into account. With a finite plan, hard constraints modelled in the system are taken into consideration. You can automate the optimization of the plan according to certain criteria, such as setup times and setup costs, to achieve a finite plan or to improve the planning situation. You can sequence planned orders on production lines for individual lines or for a complete line network. Your order sequence takes required dates and restrictions into account with minimal possible violations. You can enable continuous production, particularly in process industry by adjusting the duration of production without changing the order quantity.
Create proposal based on simulative planning parameters	You can create proposals for both internal production and external procurement with dates and time based on simulative planning parameters, without affecting operative planning.
Planning with Characteristics	You can use planning with characteristics where receipts are consumed with requirements, based on matching characteristic values. You can plan or pre-assign resource capacities for products with specific attributes, with the purpose of using the capacities more rationally.
Execute and monitor production at defined reporting points	You can enter and monitor production confirmation (backflushing) for planned orders with defined reporting points.

3.8 Supply Chain

3.8.1 Advanced Warehouse Management

Business Background

Advanced warehouse management provides tools for managing and processing material movements flexibly, to optimize more complex warehouse processes.

Key Features

The following table explains the key features available:

Key Feature	Use
Inventory Management Optimization	You can optimize the management of product quantities in different stock categories, for example, by using slotting functions to assign the best bin type for a product that is to be put away, based on product characteristics. During slotting, advanced warehouse management automatically determines a storage concept for a product, based on underlying putaway storage parameters on the basis of master data. These parameters describe the following: • The storage section in which the product is to be stored • The properties that the storage bin is to have • The putaway strategy that is to be used
Inbound Process Optimization	You can optimize the process of receiving products and putting them away in the warehouse, for example, by planning several inbound deliveries that are arriving in the same transport. You use transportation units or vehicles to group the deliveries, and perform the warehouse activities for all of the inbound deliveries in the transportation unit or vehicle at the same time.
Outbound Process Optimization	You can optimize the process of picking products and sending them out of the warehouse, for example, by combining or splitting items from the outbound warehouse requests in waves. You can combine or split items into waves, on the basis of criteria such as activity area, route, or product. You can set up wave templates that use the same wave attributes for warehouse request items that fulfil the stated conditions of the template. Advanced warehouse management can create waves automatically based on wave templates and data in the warehouse request. You can set advanced warehouse management up to automatically release and re-release waves

Key Feature	Use
Material Flow Control	You can run and control automated warehouse equipment, as follows: • Communicate with programmable logic controllers (PLCs) via telegrams to trigger movements and receive status updates • Subdivide warehouse tasks into smaller tasks and send the tasks to the PLC in step-by-step fashion • Use an enhanced putaway strategy and stock removal strategy that considers physics and limitations • Define capacity limits for communication points, conveyor segments, or resources • Track, evaluate and influence the process of the material flow system • Monitor the communication between the material flow system and the programmable logic • Call up logs for exceptions using the alert monitor and link these exceptions with follow-on actions The material flow system includes the following features: • Automatic identification of HUs using scanners on the automatic storage retrieval facility • Automatic diversion of HUs that cannot be stored • Fully automatic putaway of HUs in the storage bin using any number of interim steps • Malfunctions reported by the controls taken into account • Reduction in empty traveling paths for stacker cranes through interleaving • Goods to man picking principle
Yard Management	The yard is where you maintain vehicles and transportation units that arrive or depart from your warehouse. You can use yard management to move transportation units from one yard bin to another inside a yard. Possible types of yard movement are as follows: • The transportation unit arrives at the checkpoint and is moved to a parking space or to the door. • You move a transportation unit from a parking space to the door, or from the door to a parking space. • You move a transportation unit in the yard from one parking space to another, or from one door to another.

Key Feature	Use
Labor Management	You can plan labor times and resources in your warehouse, by measuring, planning, simulating, and visualizing the activities in your warehouse. You can compare and evaluate the performance of your warehouse employees based on engineered labor standards. After the work has been performed, you can compare the planned and actual times, and trigger incentives such as bonus payments using the HR system. You can use short-term operational planning to define calculated planning goals, based on the workload, employees in the warehouse, and the calculated measurement service.
Value Added Services	You can perform and document value-added services in the warehouse, such as assembling products, packing products, labeling, or kitting. You can perform value-added services in the inbound and outbound delivery processes.
Kitting	You can create kits in kit to order or kit to stock processes. The following rules apply to the kit to order process: • A kit is always delivered in full to a customer. • The kit header and the kit components are always scheduled for the same date. • All components of a kit must come from the same warehouse. • The kit header and kit component have a quantity ratio – defined by the kit structure –to each other. This quantity ratio is recalculated as soon as there are changes at kit header level or at kit component level. In the kit to stock process, the following applies: • You can trigger kit creation manually or using a value-added service order. • You can perform reverse kitting to split up a kit back into its components.

Key Feature	Use
Cross-Docking	You can create and confirm tasks to transport products or handling units from goods receipt to goods issue without putaway occurring in between. Using cross-docking enables you to fulfil urgent sales orders, or to reduce processing and storage costs. You can perform cross-docking in the following ways: • Opportunistic cross-docking Advanced warehouse management can determine the cross-docking relevance of the products after they have physically arrived in the warehouse • Merchandise distribution Advanced warehouse management receives inbound and outbound delivery documents from the system which contain the merchandise distribution process methods and the purchase order item. For the inbound delivery, advanced warehouse management first considers all outbound deliveries that have the same reference number. In addition, advanced warehouse management uses the merchandise distribution process to determine the warehouse process type, and to perform the merchandise distribution cross-docking according to Customizing.
Warehouse Billing	Warehouse billing allows you to perform the following activities: • Record the quantity of warehouse services used for services agreed upon in an agreement in a connected SAP Transportation Management (SAP TM) system. • Send this quantity information back to the SAP TM system for charge calculation and settlement based on the charges you have agreed to in the agreement.
Cartonization Planning	You can use cartonization planning to improve the creation of shipping handling units (HUs) based on information from product master data and outbound delivery orders, such as quantities, volume, and weight. Cartonization planning results in the creation of planned shipping handling units (PSHUs) that you can use as templates for creating shipping HUs during picking or packing. You can create PSHUs manually or automatically in cartonization planning. You can create nested PSHUs for cartonization planning of deliveries where HUs are packed into larger HUs.

Key Feature	Use
SAP Dock Appointment Scheduling	You can plan vehicle arrivals in your warehouses efficiently, and collaborate with the parties involved in an appointment. • Planning for the Warehouse Planning of vehicle arrivals at the warehouse, and loading and unloading of the vehicles, is important for managing the efficient running of the warehouse, and for balancing the workload across the working day. You can use SAP Dock Appointment Scheduling to schedule loading appointments for loading and unloading vehicles and to get an overview of the workload of a loading point for each day. • Planning for the Carrier For a carrier, planning is important to reduce the amount of time when the vehicles are not available for use, for example, if they are waiting to be unloaded. Carriers with access to the system can plan loading appointments for their own vehicles directly in the system, and update details of their loading appointments.
Shipping and Receiving	You can use shipping and receiving to manage the following aspects of your warehouse: • Usage of vehicle and transportation units (TUs) for managing the transports to or from your warehouse • Loading and unloading, including arriving at and departing from doors • Yard management You can use the shipping cockpit to perform the following activities: • Plan TUs for a given day You can plan the TUs and assign warehouse management outbound deliveries to them. • Perform and monitor outbound deliveries using TUs With the shipping cockpit, you can monitor the status of deliveries assigned to a TU and trigger related actions for the TU or the deliveries.
Transit Warehousing	You can use transit warehousing when you are receiving or shipping cargo as part of a longer transportation chain. The cargo is not destined for your warehouse and you do not unpack or put it away in your warehouse as stock. Instead, you receive cargo and store it until it is required for transportation to the next stop in the transportation chain. The transportation of the cargo is planned in a connected SAP Transportation Management (SAP TM) system, and the plan is transferred to advanced warehouse management. The warehouse processes are performed in advanced warehouse management and the results are sent back to SAP TM.

3.9 Enterprise Technology

3.9.1 Geographical Enablement Framework

Business Background

Map-driven user experiences are ubiquitous, and they are enabled through mobile devices with built-in GPS receivers. Whereas consumers are quite satisfied by easily locating places and checking for directions, requirements in asset intensive industries such as Utilities, Oil & Gas, Mining, Public Services, and Transportation/Rail go far beyond simple use cases. Existing GIS (geographic information system) solutions that maintain multiple layers of map information, visualization of linear assets, and objects represented by polygons (example: a certain area of land) need to be merged with their related business processes and reflected in SAP solutions.

Key Features

The SAP Geographical Enablement Framework works as the foundation to extend business data with spatial attributes for SAP S/4HANA functions. As a framework that enhances the spatial capabilities inherent in SAP HANA, it enables organizations to develop geo-spatially enriched business data and make them accessible from within SAP S/4HANA functions, as well as external GIS systems. The framework is being delivered with a standalone Geometry Explorer, Geometry Editor, and a template for the Business Partner business object as an example for spatially enabling other business objects.

The following table explains the key features available:

Key Feature	Use
Geometry Explorer	The framework provides a standalone web-based Geometry Explorer. It allows the end user to view both business data from SAP S/4HANA functions and engineering data from GIS systems on the same map to obtain better insights. It also allows the end user to access multiple SAP S/4HANA functions directly from the map to improve efficiency.
Geometry Editor	The framework provides a standalone web-based Geometry Editor. It allows the end user to search, view, and update geometries for any geo-enabled SAP business object.
External Connectivity	Framework exposes the geometries and attributes of geo-enabled SAP business objects as feature classes, to be consumed using standard GIS tools.
Framework Development Technology	The framework provides APIs for application development; it also provides geometry-buffering functionality for synchronization with the embedded map user interface, while updating geometry and application data concurrently.

3.9.2 Master Data Management

3.9.2.1 Master Data Governance

Business Background

Master Data Governance (MDG) reliably supports you in keeping your master data consistent even when your system landscape is complex and distributed across various locations. MDG enables you to adjust your master data quickly to reflect legal changes and respond flexibly to new requirements and to business transactions such as takeovers of other companies. MDG also enables you to track changes made to master data.

MDG, central governance provides central ownership of master data in line with a company's business rules and business processes. MDG, central governance delivers domain-specific applications as well as a framework for custom-defined master data. MDG, central governance offers change request-based processing of master data with an integrated workflow, staging, approval, activation, and distribution to all systems. MDG, central governance can use SAP's as well as company-specific business logic to create master data ready to be used in a company's business processes.

MDG, consolidation and mass processing provides an understanding of enterprise master data that is owned and maintained de-centrally, as well as general mass processing capabilities for master data. MDG, consolidation delivers capabilities to standardize the master data and to detect duplicates. For each of the resulting match groups, MDG, consolidation calculates a best record out of the duplicates in that group, using survivorship rules on the master data attributes. The best records can be used in dedicated analytical or business scenarios. MDG, mass processing enables you to update multiple master data records at a time. To update records, you select the fields and records you want to change. The system then provides statistics on the changed fields and validates the data for business transactions use before activating the changes.

Key Features

The following table explains the key features available:

Key Feature	Use
Master Data Governance, Consolidation and Mass Processing	You can use the following consolidation and mass processing applications: • Master Data Governance for Custom Objects • Master Data Governance for Material • Master Data Governance for Business Partner • Master Data Governance for Supplier • Master Data Governance for Customer

Key Feature	Use
Master Data Governance, Central Governance	You can use the following central governance applications: • Master Data Governance, Generic Functions • Master Data Governance for Custom Objects • Master Data Governance for Financials • Master Data Governance for Material • Master Data Governance for Business Partner • Master Data Governance for Supplier • Master Data Governance for Customer

3.9.3 Middleware

3.9.3.1 Application Interface Framework

Business Background

Interfaces often transfer important data, for example, sales master data, sales orders, and invoices, between systems. As it is important to ensure correct processing, the monitoring of these interfaces is an ongoing process. This can be done using the SAP Application Interface Framework, a tool designed for business users to handle different kinds of application errors in a timely fashion.

The SAP Application Interface Framework is tightly integrated into the SAP application system. It enables business users to monitor errors related to interface issues (for example, `Material 4711 does not exist` or`Cost center 1234 is locked`).

Key Features

The following table explains the key features available:

Key Feature	Use
Interface Development	You can develop your own custom interfaces to enable data transfers from other systems. Application Interface Framework enables users to easily implement the basic interface building blocks on application layer, meaning data structure handling, data mappings and validations, and business logic. Interface components, such as structure and value mappings, checks, and actions, can be reused in other interfaces.

4 SAP S/4HANA Industry-Specific LoB Functions

SAP S/4HANA Industry-Specific LoB Functions enhance core functions of SAP S/4HANA Enterprise Management to provide industry specific business benefit for your line of business (LoB). Please note that you might need a separate license. For further information, please contact your SAP Account Executive.

4.1 Automotive

4.1.1 Vehicle processes for Wholesale and Retail

4.1.1.1 Vehicle Sales and Distribution

Business Background

Vehicle Sales and Distribution allows you to sell and deliver new and used vehicles to your business partners. The vehicles that you offer can be based on different models from various vehicle manufacturers.

Key Features

The following table explains the key features available:

Key Feature	Use
Vehicle Sales (From the Stock)	You use this feature to allocate available vehicles and sell them to your business partners. With the vehicle search option, you can search for vehicles that suit your business partner's desired configuration and properties. The vehicles that you find can be reserved for processing inquiries, quotations, or sales orders. The delivery document is used while shipping vehicles to business partners and to create billing documents for settlement. Trade-in or buy-back of used vehicles can be considered during sales.

Key Feature	Use
Vehicle Procurement (To the Stock)	You use this feature to create and order vehicles with desired configurations from the vehicle manufacturer, when you plan to have these in stock. The purchase orders that you create are forwarded to the vehicle manufacturer. The vehicles are shipped, received, and posted into stock. The supplier invoice is received and verified for settlement.
Vehicle Sales (Based on Order)	You use this feature to sell vehicles that are not yet available, to your business partners. The manufacturer produces these vehicles based on the order and the configuration that your business partner requests. Once you receive the vehicle with the requested configuration, you can perform a pre delivery inspection before distributing it to the business partner. The delivery document created is used while shipping vehicles to business partners and to create billing documents for settlement. Trade-in or buy-back of used vehicles can be considered during sales.

4.1.1.2 Vehicle Ordering and Administration

Business Background

Vehicle Ordering and Administration allows vehicle importers, wholesalers, and distributors to interact with their dealers through a web portal.

Key Features

The following table explains the key features available:

Key Feature	Use
Vehicle Sales	You use this feature to configure vehicles, create orders for vehicles, and find available vehicles that suit the desired configuration and other criteria. Once you submit an order, you can track the order status and progress using the web portal.
Processing of Spare Parts	You use this feature to order vehicle spare parts, return parts that are no longer needed, and track the order status and progress.
Processing of Warranty Claims	You use this feature to create and manage warranty claims to vehicles and vehicle parts. You can process the returns of claimed parts. Recalls from vehicle manufacturers can be displayed and can be used for claims processing.

4.2 Banking

4.2.1 SAP Deposits Management for Banking, SAP S/4HANA Edition

Business Background

SAP Deposits Management for Banking, SAP S/4HANA edition enables you to manage current accounts, fixed-term deposits, and savings. It offers various functions to support the lifecycle of deposit contracts.

Key Features

The following table explains the key features available:

Key Feature	Use
Management of master data	You use this feature to manage deposit contract master data (such as the creation, changing, and display of deposit contracts). Examples of deposit contract master data include: • General data such as account number, account currency, and account product • Financial conditions (such as interest, value dates) • Business partners assigned in different roles to the deposit account (such as account holder or authorized drawer)
Monitoring of funds payable and receivable	You use this feature to monitor funds payable and receivable between banks and their customers.
Support of business operations	You use this feature to manage various business operations such as account management (the creation of direct debits, product definition, check management, and cash concentration, for example).
Management of outgoing and incoming payments	You use this feature to manage outgoing payments (such as credit transfer) and incoming payments (such as direct debit).
Support of accounting processes	You use this feature for accounting processes for debits such as the creation of standing orders.

4.2.2 SAP Loans Management for Banking, SAP S/4HANA Edition

Business Background

SAP Loans Management for Banking, SAP S/4HANA edition enables you to manage both simply structured loans, such as consumer loans, and complex loans, such as mortgage loans. It offers various functions to support the lifecycle of loan contracts.

Key Features

The following table explains the key features available:

Key Feature	Use
Management of master data	You use this feature to manage loan contract master data (such as the creation, changing, display, and archiving of loan contracts). Examples of loan contract master data include: • General data such as contract number, contract currency, and commitment capital • Financial conditions (for interest payments, repayments, or charges, for example) • Business partners assigned in different roles to the loan contract (such as main borrower or alternative payer)
Calculation of cash flows	You use this feature to calculate cash flows based on the loan contract master data.
Support of business operations	You use this feature to manage various business operations such as disbursement, waiver, write-off, borrower change, or payoff.
Management of outgoing and incoming payments	You use this feature to manage outgoing payments (such as disbursements) and incoming payments (such as interest payments or repayments). It provides functions to support incoming payment distribution.
Support of accounting processes	You use this feature for accounting processes for loans such as the creation of debit items.

4.2.3 SAP Collateral Management for Banking, SAP S/4HANA Edition

Business Background

SAP Collateral Management for Banking, SAP S/4HANA edition provides banks with the front- and back-end support they need for collateral handling and risk mitigation. It offers functions to maintain, manage, and monitor the use of collaterals.

Key Features

The following table explains the key features available:

Key Feature	Use
Central source system for collateral management	The component provides the benefits of a stand-alone application as well as software that integrates with operational SAP transaction systems (loans, deposits), customer information management, risk management, document management, and reporting.
Process support for centralized collateral management	The component manages objects and receivables. It provides integrated object-management features that can store and value data for various collateral objects, such as real estate or securities. It also supports the connection with external collateral-object systems. In addition, the component enables you to retrieve and use receivables data, such as loan information, that is managed either in SAP systems or third-party systems.
Management of collateral constellation and calculations	You can use this feature to minimize manual processing tasks and to provide a flexible way of mapping simple and complex relationships between receivables, collateral assets, collateral providers, and collateral assignees. You can use the software to support calculations such as collateral cover, collateral distribution, loan-to-value ratios, calculation of free collateral, and collateral shortfalls.

4.2.4 SAP Reserve for Bad Debts for SAP S/4HANA

Business Background

SAP Reserve for Bad Debts for SAP S/4HANA (FS-RBD) enables you to create and manage the necessary risk provisions (value adjustment and provision) for their business. It supports the management of single risk provisions as well as flat-rate risk provisions.

Key Features

The following table explains the key features available:

Key Feature	Use
Single risk provision (specific impairment)	FS-RBD enables you to create proposals for a single risk provision that can be adjusted by the credit officer. The proposals are structured on the basis of predefined institute-specific rules. The component also supports the expected cash flow approach that allows you to adjust your single risk provision with many different functions, such as special payments, expected revenue or the liquidation of collaterals. You can model *single risk provision* at the level of the risk units *Contract*, *Partner*, and *Finance Project* using the following procedures: • **Expected cash flow procedure** This procedure enables single risk provision to be created in parallel for two financial accounting standards. The risk provision will be calculated by GAAP-specific book values combined with the net present value of the modeled cash flow expectation. FS-RBD offers extensive functions for modeling the expected cash flow – based on contractual cash flows, special payments, and the expected revenue from the liquidation of collateral. • **Outstanding and open item procedure** Risk provision is managed differently according to capital (effective capital, possibly reduced by applicable collateral values), open items for interest, and open items for charges.
Flat-rate risk provision (general/collective impairment)	FS-RBD supports the flat-rate value adjustment procedure, which adapts the risk provision for credit transactions that are not included in the single risk provision by a percentage defined by different risk indicators. Risk provision is managed at the level of single transactions.
Real-time connection of financial accounting and reporting	When the risk provision is posted, the system immediately transfers all balance-sheet-relevant data to financial accounting. This real-time connection means that data is available for internal and external reporting in an instance.
Seamless integration	The component contains interfaces that enable you to use both SAP systems and non-SAP systems as a source of data. Depending on the risk provision method and the analysis horizon, the source systems (SAP and non-SAP) are connected using standard online interfaces (extractors) or standard open interfaces.

4.3 Insurance

4.3.1 Claims Management

4.3.1.1 Claim Lifecycle

Business Background

You use Claim Lifecycle to automate and manage the entire claims process, from first notification of loss to claims adjustment and financial reporting. The following lines of business are supported:

- P & C insurance, including the following lines:
  Property (home contents)
  Liability
  Automobile
- Health insurance
  Private health insurance
  Statutory health insurance
- Life insurance
- Care insurance
  Private care insurance
  Statutory care insurance
- Workers Compensation

Key Features

The following table explains the key features available:

Key Feature	Use
Claim Notification	You use this feature to record a notice of loss received through different channels and create a claim. You can capture first relevant information and evaluate the claim. The system supports you with an automated claim handler assignment.
Claim Processing	You use this feature to capture all relevant claim data supported by a Structured Facts Capture (SFC) and a Business Rule Framework (BRFplus) tool. All required business processes like investigation, evaluation, negotiation, litigation, subrogation, settlement, and archiving are supported.

4.3.2 Insurance Billing and Payments

4.3.2.1 Billing and Payments

Business Background

You use Billing and Payments to perform all collection and disbursement tasks across different lines of business. These tasks include open item accounting, payment processing, incoming payment processing, correspondence, and dunning. You can also map broker accounting and coinsurance business.

Billing and Payments allows business process automation and integration with operational insurance systems and back-office applications such as the general ledger.

Key Features

The following table explains the key features available:

Key Feature	Use
Billing and Collections	You use this key feature to integrate billing and collection activities. This enables you to centralize billing and collections. As a result, payment handling is more accurate and credit control is improved.
Disbursements	You use this key feature to automate and integrate front-office and back-office processes and systems across lines of business. Supporting a single, integrated system to run payment handling decreases the need for manual transactions and associated costs.
Collections and Disbursements for Reinsurers	You use this key feature to centralize collections and disbursements in a modern technology platform. Integration with general ledger systems ensures almost non-disruptive, end-to-end business processes that make reinsurance business process automation possible and reduce transactional costs. When reinsurance organizations consolidate collection and disbursement activities, they drive accurate payment processing, credit control, and improved customer satisfaction.

4.3.3 Compensation Operations

Business Background

You can reproduce sales structures and set up flexible incentive systems. You use standard agreements as the basis for creating individual agreements and settling commission cases.

Key Features

Key Feature	Use
Compensation Planning	You use this feature to design a consistent remuneration plan, break down your company's strategy to specific sales targets, and cascade plan changes. You can easily build new organizations into its sales composition and integrate compensation for the sale of newly designed products.
Sales Portfolio Assignment	You use this feature to assign field services to customer segments and manage business portfolio relationships, as well as transfer assignment from one agent to the other.
Sales Force Accreditation	You use this feature to keep employees up-to-date on the latest rules and regulations by verifying sales force qualifications and linking sales force credentials to compensation.
Compensation Operations	You use this feature to align internal and external sales targets with a company's overall strategy - and automates sales force compensation for meeting those targets.

4.3.4 Statutory Reporting for Insurance

4.3.4.1 Statutory Reporting for Insurance

Business Background

You use Legal Statutory Reporting for Insurance to meet statutory requirements for quarterly reporting and reporting on premium reserve funds and also to create reports for capital investments according to BerVersV and then send to BaFin.

Key Features

The following table explains the key feature available:

Key Feature	Use
Statutory reporting requirements for capital asset management	You use this feature to deliver required reports in specified layouts or electronic formats that correctly chronicle risks and portfolio data to national and international authorities. You can create forms or electronic formats from actual subledgers. Statutory reports can be preconfigured with relevant data on reporting layouts for country/region-specific or international versions.

4.4 Oil & Gas

4.4.1 Production and Revenue Accounting

Business Background

Production and Revenue Accounting integrates production volume allocations, division order management, sales contract allocations, volume pricing and valuation, royalty/working interest owner revenue distribution, payment processing, and state and federal reporting and compliance to provide a comprehensive solution that enables Upstream Oil and Gas companies to efficiently manage their vital Revenue Accounting processes.

Key Features

The following table explains the key features available:

Key Feature	Use
Ownership	You can create the master data used throughout Production and Revenue Accounting to provide a single source for Division Order information. This module utilizes common master data sources from the business partner and joint venture accounting modules, and extends these to support Revenue Accounting functions. The ownership module supports: owner transfers, funds transfers, owner consolidations, and changes in pay status. Ownership master and transactional effective-dated data is used directly in the Revenue Accounting processes, including chain of title, gross and net revenue interest, tax and marketing exemptions, pay status, special entity types, carried owners, Blanchard scenarios, and prior period adjustments.

Key Feature	Use
Production	The Production application area allocates volumes for materials such as oil or gas from custody transfer points and other points for measurement, back to the source well completions. Production master and transactional data supports effective-dating and includes a framework for managing changes affecting prior periods. Complex production scenarios can be modelled, including scenarios of: gas lift, return lease fuel, multiple streams, fuel systems, load oil, skim oil, and water chain.
Sales and Balancing	The Sales and Balancing module extends the volumetric data from the production module with associations and allocations to contracts and owners. Master data supported in this area includes maintenance of marketing relationships for sales as well as allocation rules. Upon receipt of contract sales data, an allocation of sales volumes is performed to the source well completions and to the associated owners. Actual and entitled owner volumes are derived for use in product balancing and revenue accounting. Prior period notifications and adjustments are supported. Balancing statements can be managed and made available for partners.
Valuation/Revenue Distribution	The Valuation module allows you to derive the value-based outcomes of a network of producing entities in a sales period and to allocate these amounts to owners, posting detailed accounting entries to a common ledger. The process supports the following key functions: • Settlement diversity: where a royalty owner is valued on a different basis than the producer • Formula-based value calculations for: Actual, Entitled, and Settlement Diversity scenarios • Contract pricing based on fixed or formula schemes • Pricing formulas can reference published postings, including gravity scale adjustments • Capture of internal and external marketing rates • Calculation of supported agency taxes, including support of exempt entities, owners paid on gross, owners free of marketing costs, classification of certain entities to receive special rates • Prior period adjustments, including re-allocation of funds due to historic owner transfers • Settlement statement option for input that allows for direct entry of values into a revenue distribution • Dual accounting for US-based ONRR scenarios • Changes to key master and transactional data that can impact a closed settlement will trigger a prior-period adjustment notification, where users can later manage these notifications and take appropriate action

Key Feature	Use
Check Input	You can process payments received from a third party purchaser or remitter's remittance statements into the SAP Oil and Gas system with standardized data. This process includes support for formatting and processing inbound CDEX files.
Payment Processing	You can: • Void or un-void checks to help in the management of bank reconciliation • View or update the status of checks • Analyze the variance between the current and last payment made to an owner based on month or check • Auto-clear checks from bank upload file • View balance amount to be paid for each owner • Manage minimum pay requirements based on tolerances set by the state with the capability to override by owner • Allow state backup withholding and federal backup withholding for the US • Allow NRA withholding for foreign owners • Set additional validation using special handling codes • Check if checks are consistent across check writes by running variance reporting • Run check writes at various levels—for example, at the company level, the owner level, the DOI level, or the network level • Create CDEX outbound files for management of standard check file distribution • Hold a check for pending analysis therefore not sending a incorrect check
Account Receivable	You can manage accounts receivable balances. The accounts receivable balances are updated real time when respective Accounting Document postings take place. This function allows you to view information on current, accounting periods, and historical accounts receivable balances, create comments and categorize balances, transfer balances and write-off balances
Production Regulatory Reporting	You can produce volumetric reports based on production data. These reports are used to meet the requirements of many state and federal agencies.
Responsibility Area	You use the Responsibility Area to specify who is responsible for what on the basis of entities (like the geographic locations and venture DOI) applicable for Office of Natural Resources Revenue, Production, Payment Processing, and Accounts Receivable.

Key Feature	Use
Tax and Royalty Reporting	You can: • Manage master data relationships between State and Federal tax and royalty entities and PRA identifiers • Maintain special tax reporting relationships (for example, New Mexico suffix data) • Use a report processing engine that provides complete control of execution to from validation of master data and extraction of master data for processing to report processing and review/correction before posting of journal entries and authorization for payment • Use various reconciliation and variance reports, auto suspension of records for processing, and out of statute records management

4.4.2 Inventory and Movement Management

Business Background

Inventory and movement management allows you to streamline processing and tracking of all hydrocarbon movements and inventory positions. You can consistently execute and track hydrocarbon movements and inventory updates. You can capture and track inventory information and product movements; supports quantity conversions, automatic duty and tax calculations, and pricing updates; and speeds post-movement settlements, such as invoicing and freight settlement. Timely and accurate inventory information leads to better visibility, decision making, and confidence around forecasts, replenishment planning, and trading. Consistent and automated product movement processing promotes stock updates; expedites contract-to-cash and procure-to-pay cycles; and reduces reconciliation, duplication, and corrections.

4.4.2.1 Hydrocarbon Product Management

Business Background

Hydrocarbon Product Management (HPM) addresses Oil & Gas specific industry requirements in inventory management. It provides additional quantity fields for different units of measure HPM provides a flexible Quantity Conversion Interface (QCI) that allows the conversion of volumes, masses and energy at ambient conditions (temperature, pressure, vapor pressure, calorific value, density) into volumes, masses and energy values at standard conditions. In addition, the Quantity Conversion Interface enables the calculation of density and heating value at standard conditions and functionality for managing physical inventories in tanks via Silo management by creating tank dips, and comparing those inventories at any time with the book stocks.

Key Features

The following table explains the key features available:

Key Feature	Use
Material Master with Oil & Gas characteristics	Inventory management for Oil & Gas materials requires industry specific extensions: base unit of measure (UoM), Unit of measure group and conversion group are important additional information for an Oil & Gas material in the material master. Additional fields like Air Buoyancy factor, Excise Duty Group play an important role for Oil & Gas materials and are reflected in HPM as well.
QCI	Hydrocarbons are bulk products in liquid form that are processed and shipped in large quantities by the Oil & Gas industry. Even the smallest fluctuations in temperature can result in considerable fluctuations in volume, and as a result, to significant fluctuations in value. The oil quantity conversion enables the conversion of quantity of a hydrocarbon product into different UoMs and allows an accurate correction of volumes and density. The quantity conversion itself uses external algorithms which are accessed through the Quantity Conversion Interface (QCI). Based on QCI parameters & values, conversion from one UoM to another is possible.
Silo Management	Silo/Tank Management allows a company to record physical material stocks in tanks (silos) either hourly, daily, or weekly. As a part of that process, tank dips can be recorded. The physical stock readings (tank dip readings) can be compared at any time with book inventories (storage location stocks, batch stock, or special stock), or with changes in book inventories (goods movement records). In that way, gains and losses can always be determined and goods movements can be monitored.

4.4.2.2 Tariffs, Duties and Permits

Business Background

The solution calculates and posts excise duty for dutiable materials. The system calculates and posts excise duty when a goods movements occurs, based on the quantity of material moved, and the location information of the material, if required. The component covers:

- Calculation of excise duty in purchasing and sales
- Calculation of excise duty in inventory management and physical inventory (for example, excise duty calculations for material when there are goods movements between plants with different ED rates)
- Calculation of excise duty in production orders
- Calculation and posting of excise duty liabilities and claims for goods movements of dutiable material
- Split inventory management of the ED portion and net price of a material
- The use of several excise duty rates for a material

- Revaluation of inventories after changes to excise duty rates
- Licenses for excise duty (ED) reductions and exemptions
- Region-based calculation of excise duty
- Data pool for creating reports.

Key Features

The following table explains the key features available:

Key Feature	Use
Calculation of Excise Duty in Purchasing	When purchasing contracts or purchase orders are created, the system proposes excise duty data from master records or from Customizing based on the default hierarchy . This data is used to calculate excise duty. Excise duty postings and inventory postings do not take place until goods receipt, however. Whether or not the material is ED-paid is important for excise duty postings, and whether the receiving plant or storage location is an ED-paid area or an ED-free location
Calculation of Excise Duty in Inventory Management and Physical Inventory	For dutiable material that is moved (goods movement), the system calculates the excise duties based on the quantity of material moved. Depending on the Customizing settings, the system determines and posts excise duties for the following goods movements and special forms of procurement: • Goods receipts • Goods Issues • Transfer postings • Physical inventory • Goods movements for customer special stocks • Subcontracting • Third-party business • Consignment
Calculation of Excise Duty in Sales	When sales contracts or orders are created, the system proposes excise duty data from master records or from Customizing based on the default hierarchy . This data is used to calculate excise duty. However, excise duty postings and inventory postings are made at the time of the goods issue. Whether or not the material is ED-paid is important for excise duty postings, and whether the receiving plant or storage location is an ED-paid area or an ED-free location

Key Feature	Use
Calculation of Excise Duty in Production Orders	When a dutiable material is produced with components that are also dutiable, excise duty calculation is required in the goods issue and goods receipt. If only the components are dutiable but not the finished product, excise duty postings are only made for the goods issue. Excise duty postings that refer to production orders can only be at the full ED rate, or are ED-free. Excise duty postings at reduced rates are not possible.
Revaluation of Excise Duty Inventories	If the excise duty rate changes, the excise duty value of the inventory also changes. This means that your company has new tax liabilities if there are tax increases, and can make tax claims to the tax office if there are tax reductions. You do not necessarily have to reevaluate excise duty immediately after a tax rate changes. After you have entered the new ED rate in the ED rate table, the system forwards the excise duty inventory with the old ED rate. However, the system posts the ED liabilities or claims with the new ED rate. It posts the difference between the old and new ED rates to a separate account. At the time when you want to perform an ED revaluation, the system alters the value of the excise duty inventory in accordance with the new ED rate. The system writes off the difference between the old and new ED rates. A special ledger structure (FI-GLX) is provided for reporting purposes, and contains database structures for individual items and for summary data. You can use these structures to evaluate ED postings based on various key fields, for example: • Company code • Plant • G/L account • ED status (valuation type) • ED status (FROM location of the material movement) • ED status (TO location of the material movement) • Handling type When excise duties are calculated and posted, the system fills the relevant special ledger structures. The system enters all transactions with dutiable materials in the special ledger, including those that do not involve ED postings, such as movements between two ED-free plants or storage locations. Once you have installed the structures, you can design your own reports using the Report Writer and Report Painter.

Key Feature	Use
Calculation of Cross-Company/Cross-Company Excise Duty	The following functions are available within cross-company or cross-border sales of excise dutiable material: You can map and monitor the following goods movements: • Export (goods issue in issuing plant/issuing storage location) • Import (goods receipt in cross excise duty plant/cross excise duty storage location) • Sales to customer (goods issue in cross excise duty plant/cross excise duty storage location) You can calculate and post excise duties for the following cross-company/cross-border sales scenarios (with and without using bulk shipment in the transportation and distribution (TD) component): • Pickup by the customer • Change of title at discharge • Change of title at loading

4.4.2.3 Transportation and Distribution

Business Background

The Transportation and Distribution (TD) covers the logistics activities related to:

- Delivery of product from a delivering plant to a customer
- Transfer of product between two company-owned locations
- Receipt of purchased product from a vendor.

These activities are carried out across the processes of scheduling, load confirmation, and delivery confirmation. The following organizational units are used to support oil industry processes.

These are also data retention levels in the system.

- Transportation Planning Point
- Intransit Storage Location
- Intransit Plant

Integration

The Hydrocarbon Product Management (HPM) application area supports the calculation of standard volumes using temperatures and densities. TD and HPM are integrated so that TD supports multiple units of measure within the same transaction. Temperature and density are important factors in the loading, and delivery process.

Key Features

The following table explains the key features available:

Key Feature	Use
Bulk Shipment Type	The bulk shipment type: • Determines how the shipment is processed • Is a mandatory entry on the initial scheduling screen • Cannot be changed once the shipment has been saved In Customizing each bulk shipment type has a text describing the characteristics of that particular entry. These descriptions should be made as explicit as possible to help when selecting a shipment type during scheduling.
Create/Change Attributes for Batch Material and physical inventory	Using this function you can create new batches and change the attributes of batches during the loading confirmation and delivery confirmation processes. If material is mixed from different batches, a new batch is generated, often with new classification attributes. With this function you can change the attributes of the new batch at loading and delivery confirmation. Loading Confirmation During loading confirmation, the system creates a new batch to represent the product on the vehicle. When creating the new batch, the system takes the attributes for the material on board (in-transit) from the master data record of the batch material. Delivery Confirmation During Delivery Confirmation, the system updates the shipment with the actual quantity delivered to the customer. You can change the in-transit storage location and batch in much the same way as during loading confirmation. However, this function only applies to underlying documents that are discharge relevant
Shipment Worklists and Mass Processing	The shipment worklist is a central access point for working with bulk shipments. The worklist can be used to process single shipments or multiple shipments that match specific selection criteria. The worklist can be used for the following activities: • You can search for bulk shipments using specific selection criteria • You can use the resulting list of shipments as a worklist for processing, changing, or deleting shipments • You can process single shipments so that they reach a specific target status • You can process shipments in batch mode so that they reach a specific target status • You can check the results of the processing in an application log

Key Feature	Use
Scheduling	The scheduling process helps you to plan your shipments and involves the following activities: Group underlying documents including deliveries, shipping notifications and reservations into shipments. Assign shipments to an appropriate vehicle, transport unit, and compartment. Assign a driver to the vehicle (optional). Change the quantities of product to be shipped. Plan transport-related activities using the event handling function
Loading Confirmation	The process of load confirmation records the actual quantities and products loaded for a particular shipment. Manual load confirmation is an alternative to data entry using a Terminal Automation System. Several different processes occur within the load confirmation step, the most important being the entry of actual loaded quantities. Quantities in scheduling are planned quantities and are proposed at the load confirmation stage. The planned quantities and the quantity of the products actually loaded may have changed. You can enter these quantities in the quantity field, or you can enter readings from Vehicle Meters or Rack Meters. In cases where product had been previously left on the vehicle, you can record these quantities in the shipment as prior-to-load quantities. The concept of intransit stock is central to the loading process. A goods movement occurs when the product is moved into the intransit storage location, at which point Quantity Conversion Interface (QCI) parameters can be calculated and stored. In addition, any excise duty postings which are a consequence of the goods movement are also performed.
Delivery Confirmation	The delivery confirmation process is used to confirm the delivery of actual quantities in a bulk shipment. The following diagram shows the underlying processes involved with delivery confirmation. Delivery confirmation is the final step in processing bulk shipments. It enables you to enter the final quantities delivered and to process the differences between quantities delivered and loaded. Several options exist for processing product that has been loaded but not delivered. Delivery confirmation must be completed for each vehicle in the shipment. The vehicles in the shipment each have an individual status, however, it is not until the shipment has a Shipment Status of 6 that shipment processing is complete and the final postings are made. Delivery confirmation is also a prerequisite for Shipment Costing.

Key Feature	Use

Transportation Planning Interface	**Terminal Automation System Interface**
	
	This interface allows data on loading transactions (loading information) to be sent from SAP Oil & Gas to an external system (Terminal Automation System). After the loading transaction has taken place, the external system sends the loading information back to SAP Oil & Gas, where it is processed automatically. The interface supports the transfer of loading information for the following business processes: pick-ups, shipments, goods movements, and physical inventory counts. The Terminal Automation System Interface supports the following functions:
	
	• Sending loading information to an external system
	• Receiving loading information from an external system that is destined for SAP Oil & Gas:
	  ○ Using IDocs and ALE
	  ○ Using an internal table and a Remote Function Call (RFC)
	  ○ Manually entering loading information in SAP Oil & Gas
	  ○ Processing loading information in SAP Oil & Gas Depending on whether the loading information is entered in a sales contract, order or contract call-off, or a shipment, the system calls various function modules for further automatic processing.

Key Feature	Use
Unified Shipment Interface	Depending on whether the loading information is entered in a sales contract, order or contract call-off, or a shipment, the system calls various function modules for further automatic processing. Interface for Delivery Confirmation Processing This interface helps to automatically create delivery confirmations in SAP Oil & Gas. The delivery confirmation is the final step in the shipment process. It contains all data relevant for delivering bulk product. The interface helps to copy this data from external systems to SAP Oil & Gas. The following interfaces in the Transportation and Distribution (TD) component are available for exchanging shipment data with external systems. The shipments whose data is to be transferred, have various shipment statuses: • Transportation Planning Interface (TPI interface) for shipments with status 1 (partly scheduled) and status 2 (completely scheduled). The data is transferred using IDoc OILSHI01 to SAP Oil & Gas, where function module IDOC_INPUT_OILSH1 or IDOC_INPUT_OILSH2 (if the shipment comparer is used) is called. • Terminal Automation System interface (TAS interface) for shipments with status 3 (partly loaded) and status 4 (completely loaded). The data is transferred using IDoc OILLDD01 to SAP Oil & Gas, where function module IDOC_INPUT_OILLDD is called. • Interface for delivery confirmation processing (DCP interface) for shipments with status 5 (partly confirmed) and status 6 (completely confirmed). The data is transferred using an RFC to SAP Oil & Gas, where function module RFC_SHIPMENT_DEL_CONF_PROCESS is called.

4.4.2.4 Marketing, Accounting and Pricing

Business Background

The solution Marketing, Accounting, and Pricing (MAP) is enhanced with additional functions required for the downstream oil business.

Key Features

The following table explains the key features available:

Key Feature	Use
Contract pricing	Contract pricing determines the price of a material based on the contract. The contract number is used as a reference in sales documents to allow contract-specific pricing.
Cumulative contract call-off pricing	In cumulative call-off pricing, the price of a material is determined dependent on the (current) order quantity invoiced. Cumulative call-off pricing makes it possible to give a customer a discount based on the quantity already invoiced.
Customer price lists	The customer price list simulates the pricing which would be performed in an order. You can use the customer price list to view prices for a pre-defined list of frequently ordered products and quantities.
Default pricing dates	Carry forwarded from sales order
Head office and branch level pricing	Pricing procedure of a head office for customers that are assigned to the head office can be used . relationship between head office and branch offices in the customer master data record can be set up.
Location flexible pricing using the differential reference code (DRC)	The Differential Reference Code (DRC) is a means of grouping ship-to customers according to their geographic location. It enables you to construct a pricing strategy based on market conditions in specific areas.
Time pricing	In the oil industry, product prices often change several times a day. For example, during the busiest hour at the loading site, the prices could be higher. Date and Time Pricing allows flexible pricing, which takes the time of day into account.
Gross and net volume pricing	Gross and Net Unit Of Measure pricing is to control if the system should determine the price of a material based on gross or net unit of measure.
Formula and average pricing	Formula and Average (F&A) Pricing uses external quotations such as Platts, Reuters, and others to determine the price of a material. It can be used both on the purchasing side (MM) as well as on the sales side (SD). The purpose of formula and average pricing is to enable the calculation of product prices based on external quotations over a set time period. The calculation is performed with company-defined calculation rules. Currency fluctuations within the time period are taken into account either by daily conversion or by averaging.
Differential invoicing	If the product is delivered before the averaging period has elapsed, it is necessary to create a provisional invoice. When the averaging period has ended and the final price is known, the price difference is invoiced by creating a differential invoice.

Key Feature	Use
Origin, destination, and external data in the sales and purchasing cycle	Using External Details in sales documents and purchasing documents, we can store additional information on the origin and the destination of the ship-to party as well as other information which is relevant for shipping. This information is used for calculating US excise duty, among other things. You can also set additional delivery data and define the following additional fields
Conditional exclusion (highest prices)	Condition exclusion technique with the IS-Oil enhancement which allows selection of the highest price.
Alternative pricing date at invoicing	Pricing date & pricing time ,loading date & loading time can be updated at the creation of invoice
Five-decimal pricing	Five Decimal Pricing allows us to create condition record for prices ,surcharges, discounts with five decimal places. ->Subtotals of a document currency with five decimal places result in more accurate calculations and are intended for the following purposes.
Additional Information on Invoice Output	The print program `RVADIN01` for invoices has been enhanced to include gross/net Hydrocarbon Product Management (HPM) data on the invoice form `MAP_Invoice` . Using this print program, you can include additional information on the invoice, such as the temperature and density of the material.

4.4.2.5 Marketing, Contracts and Order Entry

Business Background

The solution Marketing, Contracts, and Order Entry meets the requirements of the oil industry in the areas of fast order entry and contract processing. Customer order processing and contract processing have been enhanced with the following functions:

- Calculation of excise duty in purchasing and sales
- Automatic determination of organizational data
- Display and defaulting of items from the last order
- Determination of a sequence of up to five preferred delivery plants for the delivery of the goods
- Release of non-delivered quantities of a contract call-off
- Restrictions for deviations from the contract conditions
- Redetermination of the item type during order entry

Key Features

The following table explains the key features available:

Key Feature	Use
Purchase Order Number as a Required Entry	If a customer order number appears on the order for that customer, you can define the PO number (purchase order number) field as a required entry.
Contact Person Details	You can save specific information about contact persons at the customer location in the Contact person view of the customer master record. Contact person details can contain the following information: • Last name and first name of the contact person • Telephone number of the contact person • Form of address • Department • Function
Last Order Number	When you create an order, the system looks up then number of the last order that was created for the same ship-to party, sold-to party, and sales area combination. If an order exists, the number is displayed in the Last order field in the Create order: Overview screen. In such a case you have the following options: • You can display the last order • You can copy items from the last order into the order you are processing. You can copy the following data: • The material in the last order • The material and quantities in the last order • Individual items from a selection list • You can search the order history for orders with other ship-to party, sold-to party, and sales area combinations by entering R as the matchcode ID in the matchcode search.
Item Category Redetermination	During sales order processing, the system can automatically change the item category to the one configured for the customer/material combination. The system uses the item category determined by the standard procedure together with the customer classification and material group to determine a new item category. This can be used, for example, in consignment processing. Using item category redetermination, consignment materials can be entered in the same sales order with materials which are sold normally. You can also configure the item category redetermination for any other item categories.

Key Feature	Use
Automatic Plant Determination	If you do not set the IS-Oil planExcise Dutyt determination indicator PD , standard plant determination is invoked. In this case, the system searches for the delivering plant in the following sequence: • Customer-material information record • Customer master • Material master
Excise Duty	If the material is subject to excise duty, the system displays information about the excise duty status in the HT(excise duty handling type) and To (excise duty tax key for "to" destination) fields. The definition of the fields is contained in the Tariffs Duties and Permits (TDP) component. You must define theED group (excise duty group) field in the Oil specific data view in the material master record.
Partner Function Plausibility Check	The system checks whether a ship-to party has already been assigned to another sold-to party in a specific sales area.
Contract Handling	Contract handling covers the following activities: • Set up call-off restrictions to force compliance with contract terms • Quantity correction of call-offs using the final delivery indicator • Assign multiple ship-to partners to a contract
Multiple Ship-To Parties Per Contract	With this function you can link multiple ship-to parties to a single contract. You can also delete or add ship-to parties to contracts that already exist.
Restrictions for Contract Call-Offs	The following restrictions can be entered in the contract. Call-offs which deviate from the contract restrictions trigger a message. The message type indicator setting in the contract determines which type of message displayed. • Product restriction: A contract call-off can only contain items which were created with reference to a contract. Thus, no materials can be called-off without a reference to a contract. • Quantity restriction: Over-delivery is impossible. • Unit of measure restriction: No change to the unit of measure is allowed. • Ship-to party restriction: A call-off is only allowed for ship-to parties which are defined in the contract (see also: Multiple Ship-to Parties per Contract). • Terms of payment restrictions: No change to the terms of payment is allowed. • Validity restrictions: Checks the beginning and the end of the validity period.

Key Feature	Use
Final Delivery Indicator	The final delivery indicator is used to release non-delivered quantities at contract level for a contract call-off that is the quantity is available again on the contract for a contract call-off. If there are partial deliveries for a contract call-off, when you set the final delivery indicator in the delivery document, the non-delivered material of the quantity in the contract can be re-added to the contract quantity. In addition, the system assigns the status fully delivered to the contract call-off.

4.4.2.6 Marketing Retail Network

Business Background

A company may carry out its business operations at a large number of different locations. Each of these business locations has its own story to tell in terms of performance and profitability. For oil companies, the business location is typically the service station, but may include depots and non-fuel sales outlets.

This component provides functions for managing business locations such as service stations, depots and terminals. With these functions you can manage sales data, data on vendors, dealers, supply contracts, plant maintenance, and so on.

The system allows you to enter and integrate all relevant data on business locations, independent of the geographic location, in a virtual database. In this way, Marketing Retail Network (MRN) supports a multitude of functions, from delivery planning to profitability analysis.

Key Features

The following table explains the key features available:

Key Feature	Use
User-Defined General Data for a Business Location	A link is provided from the business location to the long text handling utility. The link supports the centralized storage of text-based information for each business location. The MRN Location Management application is sometimes described as a virtual application. This is because the application has no transaction data of its own, rather it uses transaction postings in related components, such as Sales and Distribution (SD) and Controlling (CO) to derive information about the business location in terms of revenue and profitability. The MRN Location Management application provides enhanced handling of SD Sales Contracts for Retail Network users. Marking Business Locations for Deletion You can only archive a business location record if it is marked for deletion.
MRN Data Archiving	Archiving Procedure This process describes the basic procedures when performing an archiving session. You are in the Archive Administration; Initial Screen (transaction SARA). You have entered the name of the archiving object in the Object Name field. Archive administration has access to the archive files you want to reload.

4.4.2.7 Bulk Distribution Requirements Planning

Business Background

The solution optimizes planning in petroleum product distribution. It supports the active management of customer inventory by a vendor inventory (VMI: vendor-managed inventory). The vendor can use it to pre-plan replenishment deliveries to a customer.

Key Features

The following table explains the key features available:

Key Feature	Use
Site Control Parameters (SCP)	Site control parameters record site information that is used to control or influence bulk logistical processes such as delivery planning, shipment scheduling and unloading operations.
Replenishment Control Parameters	You can enter material-specific parameters to control bulk replenishment at a delivery site by using the replenishment control parameters screen for that site.
Storage Object Characteristics (SOC)	In connection with bulk material handling processes such as delivery planning, scheduling and unloading operations there is a requirement to record information about the tanks, containers or silos that are used to receive the bulk material.
Sales Meter Management	In connection with bulk material handling processes such as delivery planning, scheduling and unloading operations, there is a requirement to produce flow meter data and convert it to product quantities.

4.4.3 Bulk Supply Chain Operations

Business Background

Bulk supply chain operations allows you to integrate process management for hydrocarbon products, from post-planning to scheduling to post-custody transfer. It supports you in day-to-day operational scheduling, nomination, tracking, inventory projections, custody transfers, and service management for bulk hydrocarbon supply chain movements. It provides you a single, comprehensive platform for managing inventory, scheduling, and transportation processes; integrates external systems for trading, production, and service provider analytics; and automates routine tasks in the background. As a result, hydrocarbon providers can reduce inventory working capital, lower transportation and storage costs, improve fleet utilization, make more informed decisions, and eliminate overhead time and costs.

4.4.3.1 Exchanges

Business Background

The solution enables the setup of exchange agreements between oil and gas companies and handles the exchange of products at various locations. In order to manage exchange business transactions, you can:

- Create an exchange agreement
- Create quantity schedules for planning and monitoring material quantities
- Balance differences in value of exchanged materials using fees
- Settle claims and liabilities against one another (netting)
- Exchange unlike products, and balance the logical inventory that results (logical inventory adjustment)
- Create exchange statements that reflect the current status of your exchange activities in a specific period
- Create additional evaluations with respect to your exchange activities (for example, creating a list of all goods receipts and goods issues within an exchange agreement) .

Key Features

The following table explains the key features available:

Key Feature	Use
Quantity Schedules	Quantity Schedule let you control and monitor the quantity that can be delivered/received by period in contracts and subsequent call off. .
Fee handling	In an exchange agreement, fees (Handling, Location, Differential, Wharfage) are used to settle the difference in value between the materials that are exchanged. They are assigned to contracts and copied to subsequent documents. Depending on Exchange agreement settings they can be internally or externally posted.
Sub/Base product relationships	You exchange several sub products but to simplify Exchange balance accounting, only a base product is tracked.
Logical Inventory Adjustment	A logical inventory adjustment can be posted to settle quantity imbalances of an exchange agreement without posting physical movements. This can also include an optional negotiated payment.
Purchase Assignment (Load Balancing)	Business scenario where you assign an existing contract or purchase order to a delivery in order to fulfill a customer order.
Netting In movement-based	Netting you collect all the bills (billing documents) into one single Netting document and then settle up with the exchange partner, rather than billing each goods movement to the exchange partner separately.

Key Feature	Use
Exchange Statement	The exchange statement is used to inform your partner of the current status of the exchange agreement.
Exchange Reporting	Several reports can be used to monitor the exchange status (Customer balances, Vendor balances, Exchange balances , Evaluations of existing quantity schedules, Evaluations of material movements, Evaluations of exchange entitlements, Evaluations of exchange transactions and so on)
Exchange Agreement	An exchange agreement is made between two oil companies (exchange partners), when the companies would like to exchange product at different locations. The exchange agreement consists of the exchange header and the assigned sales contracts and purchase contracts.
Split Invoicing	Split invoicing allows you to create several invoices with different terms of payment, instead of one invoice. For example, using the split invoice, you can invoice fees, taxes and the material value (of the product) separately.

4.4.3.2 Trader's and Scheduler's Workbench

Business Background

The Trader's and Scheduler's Workbench (TSW) solution provides functions for stock projection and for planning and scheduling bulk shipments using nominations. TSW provides the relevant master data to model the supply chain. The stock projection, planning, and nomination processes enable the scheduler to schedule bulk shipments while taking into account supply, demand, and available transportation.

Key Features

The following table explains the key features available:

Key Feature	Use
Inventory Planning Workbench (IPW)	The stock projection worksheet is the legacy planning tool which works in an offline mode and can only be accessed for one location-material combination. The IPW allows you to work on several location-material combinations in an online mode. Also the simulations are user specific which allows a scheduler to work out their scenarios before publishing it. The IPW has also specific user settings and alert configurations for inventory.

Key Feature	Use
My Nominations App	It allows the scheduler to do a mass copy of older nominations and then modify parameters before saving them. It will also allows the scheduler to mass edit nominations. You can select nominations from the nomination worklist and use copy advanced to create single or multiple copies of the same. You have an option to copy events, comments and load/discharges from the earlier nominations. The options can be saved as a default which gets automatically picked on use of copy button.
Regional Inventory View App	You can use this app to load the location-material combinations in a tabular form for a date horizon, along with inventory numbers and the corresponding alerts. These are also reflected on the KPI tile in the Fiori Launchpad, thus enabling the scheduler to monitor the stock easily. Alerts from IPW can be classified, as alerts, warnings and information and then can be displayed along with the corresponding inventory figure for a date horizon. From this app, the location-material combinations can be opened in IPW for the date horizon.
Mass Change Events App	You can use this app to mass change the events across nominations and nomination items.
Nomination Scheduling	A nomination is the scheduling document used for communicating between Trader's and Scheduler's Workbench (TSW) and the carrier.
Ticketing	This object is an official notice sent by a partner, such as a carrier, that is sent by fax or E-mail and contains information about the movement of product.
Location balancing	The Location Balancing process involves comparing demand and supply quantities for a specific period and maintaining a balance between these quantities.
Three-way pegging	You use Three-Way Pegging to plan and schedule bulk shipments based on supply and demand information.

4.4.4 Upstream Operations Management

Business Background

Upstream Operations Management enables companies, for example, oil and gas companies, to carry out their exploration and production operations in the most cost-efficient way to maximize profitability.

Key Features

The following table explains the key features available:

Key Feature	Use

Field Data Capture	• You can maintain measurements for various nodes in a Production Network for a specific time range. The measurements can vary from volumetric flow rates to pressure and from compositional analysis to deferment events. These measurements are requisite to run allocation. You can do the following:
	  ○ Maintain volumetric meter and tank readings
	  ○ Maintain well and well completion test data and theoreticals
	  ○ Maintain component analysis
	  ○ Maintain zonal contribution factor
	  ○ Maintain well reading data (non-volumetric)
	  ○ Maintain deferment events for a network objects
	• View data errors present in the selected Production Network and allocation period and subsequently fix the errors
	• You can connect to your field data repository through SAP MII and publish measurement and well test to ERP

Allocation	You can allocate volumes of produced and injected materials (for example, crude oil, condensate, water, and natural gas) to their originating well completions. You can determine the sales, fuel, inventory or non-sales (for example, reinjected or fuel gas) dispositions measured between specific points in the network as the product flows downstream from the well completion towards the network's end point or custody transfer points. You can also determine the quantity that can be produced within a production network given the constraints of the network objects that make up that production network. You can also do the following: • View the status of selected networks • Run allocation for Ready to be Allocated networks • View the results for networks that have already run allocation • View the aggregated and node level allocation Results in tabular or graphical view • Submit and approve allocation results • View the allocation factors at node level

Key Feature	Use
Deferment	• You can analyze the difference between the system capability and the allocated result. It explains the reasons for overproduction and underproduction. • You can view and maintain deferment events. • You can view aggregated and node level deferment results. It displays the system capability, allocation values and deferment values. You can reduce the unexplained deferment values within the tolerance limit by viewing the unexplained and explained deferment values separately and creating deferment events to minimize the unexplained deferment result. You can view the results in tabular and chart views. • You can analyze whether deferment events are linked to available work orders. You can view existing events linked to work orders, link events where they are missing, or link multiple events to an existing work order.
Forecasting	In Production forecasting you can do the following: • Setup and maintain a new project into the production-forecasting module of Upstream Operations Management • Assign and revoke access rights of users for master data like projects, constraints, and so on • Capture various constraints (Potential, Capacity, Risk, Opportunity and Events) for network objects in a scenario • Preprocess scenarios and calculate the production forecast (future predication of hydrocarbon production) and submit the forecast results for approval in the forecasting module • View the production forecast results at a scenario or network or network object level • Approve and publish forecast results • Create custom hierarchy • Upload data through a predefined template from a local machine or server to the UOM application • Analyze forecast results and compare them with the actual results. You can perform a step-by-step analysis of production results by looking at various measures and dimensions from different perspectives
Ownership	You can use this function to define ownership information for oil and gas producing assets and execute ownership allocation.
Reports	• You can view the master data of Network Object, for example, Production Network, Well, Well Completion and so on. Master data includes information like medium and frequency. • You can view measurement data based on Production network and Network objects inputs.
Geographic Information System (GIS)	The geographical information system (GIS) provides operations personnel with an integrated decision-making environment.

4.5 Professional Services

4.5.1 Projects and Engagement

Business Background

Commercial Project Inception synchronizes the creation of sales documents (quotation, contract, or sales order) and projects between Sales and Distribution and Project System, and provides visibility and control of the customer engagement process.

Features

Key Feature	Use
Commercial project inception	You can create projects with the creation of sales documents (quotation, contract, or sales order). When you create a sales document, this feature enables you to also create a project using standard WBS elements. If you copy a sales document with items, using the Commercial Project Inception feature, you can decide whether to create a new project or use the project already assigned to the source item.

4.5.2 Resource Management

Business Background

A range of tools and reports are available to establish links between employees and business objects, and thereby adjust processes and workflows to suit the size of your company and the spectrum of your services.

Features

Key Feature	Use
Lean staffing	You can use tools to manage assignments of employees to both client-facing and internal engagements. You can: • Easily identify the right professionals for your engagements • Assign selected employees to engagements and apply rules • Monitor employee assignments • Simplify and validate time recordings for employees (CATS) • Obtain reliable reports and forecasts about employee utilization • Use integrated functions for service-specific billing and financials
Enhanced time recording	You can: • View data for staff assignments from Lean Staffing • Use data from Lean Staffing assignments to perform automatic input checks during time recording in CATS • Integrate up to 10 service attributes to enhance the data record structure in Lean Staffing
Forecasting of employees to projects	Employees can plan their time, thereby documenting their availability in parallel. This improves the assessment of your employee commitments, raises visibility of employee utilization and increases the reliability of the business forecast.

4.5.3 Service Management

Business Background

Service attributes enable you to integrate attributes and information across the service delivery process, namely staff assignment, forecasting, time recording, controlling, billing, and debit memo request.

Features

Key Feature	Use
Service attributes	You can use additional parameters that allow flexible definition and capture of diverse requirements for service providers. These parameters are then available throughout the commercial service process, and can be used selectively in individual process steps, especially to control processes in resource-related billing.
Work periods in resource-related billing	Besides the availability of service attributes, you can also use work periods to add enhanced capabilities for billing services. In resource-related billing, the system consolidates work and cost assigned to a project (Project System) and considers these values for invoice creation.
Power lists	You can use power lists to combine lean staffing with specific processes (such as staff assignments or the order to bill process) or to invoke actions based on the information you choose to display. You can use power lists for: • Staffing assignments • Sales documents • Debit memo requests

4.6 Public Sector

4.6.1 Finance

4.6.1.1 Grants Management for Grantee

4.6.1.1.1 Sponsor Management

Business Background

Adapt a grantee's organizational structure to meet a sponsor's business requirements.

Help users manage grant information, and provide status indicators of the grant process according to the administrative requirements of their sponsors. Coordinate funding throughout the grant lifecycle, restrict specific grant posting objects, and control transactions based on grant status. Users can maintain master data components for managing, controlling, and reporting based on the sponsor's administration requirements.

Key Features

The following table explains the key features available:

Key Feature	Use
Define sponsor master data	Define a grant sponsor by defining all of the default rules the sponsor expects for reporting and grant execution.
Document sponsor communication	Track all documentation regarding the sponsor and the specific grant including correspondence, documents, and so on.
Document and enter all budgetary agreements with the sponsor for each grant agreement	Document and enter all budgetary agreements with the sponsor for each grant agreement.
Release budgets	Control the use of available funds by releasing budget in tranches throughout the fiscal year or lifetime of the grant based on sponsor defined rules.
Reports	Report on all attributes of a specific or series of sponsors and grant agreements. Grants Management keeps all information based on the sponsor perspective, that is, the sponsor's currency, time frames, fiscal years, and so on.

4.6.1.1.2 Budget Management

The maintenance, management, and monitoring of grant budgets. Approved budgets can be transferred to other sponsored programs and cost categories, and changes can be monitored and tracked throughout the entire budget cycle.

Key Features

The following table explains the key features available:

Key Feature	Use
Enter grant budget data and update as required	You can: • Use budget entry documents to enter and update approved grant budgets. • Use budget entry documents to represent budgets in the sponsor's currency and fiscal year. • Use the budget entry documents to act as an audit trail, allowing you to track changes to your budgets and enter descriptions or explanations for each change • Set up workflows to ensure that each change to your budget must be approved.
Release grant budgets	Control the use of available funds of a grant by releasing your budget in tranches throughout the fiscal year or lifetime of the fund.
Allow grant budget increases from revenue	Define the rules for when and how a budget increase based on grant revenue is permitted.
Reporting	Use reports to support the grant budget maintenance process including, but not limited to, reports that allow you to do the following: • Get a budget overview • Compare budget versions • Get an overview of revenues increasing the budget

4.6.1.1.3 Grants Billing and Receivables

Business Background

Maintaining sponsor billing methods and ensuring proper accounting and timely reimbursement.

Receiving funding is a major milestone for many institutions with many requirements. To meet these requirements, institutions must document and automate many processes, including billing and receivables.

Key Features

The following table explains the key features available:

Key Feature	Use
Manual billing	Manual request of payback to the grantee organization.
Resource Related Billing	Bill grant expenses based on consumption. Ability to bill based on different basis of accounting: accruals vs cash.
Milestone Billing	Bill grant expenses following a specific grant or project milestone plan.
Periodic Billing	Bill grant expenses based on specific installments and periodic or non-periodic dates.
Reporting	Report on billable amounts based on status (open, partially or completely billed) for one grant, group of grants, sponsor or group of sponsors.

4.6.1.1.4 Closeout

Business Background

Create customized closeout rules that meet sponsor guidelines and requirements.

Customizable financial closeout rules can help grantees restrict or prevent additional postings, review and act on outstanding obligations, detail sponsor requirements for preparing financial and technical reports, maintain program and grant stages of completion, and detail the steps required for organizational reporting. The closeout process includes a final review of financial transactions and administrative tasks to ensure that proper action is taken to conclude the programs and projects according to a sponsor's requirements. This support helps ensure that the grantee properly concludes all programs and projects according to sponsor specifications.

Key Features

The following table explains the key features available:

Key Feature	Use
Run overhead or indirect cost calculation	Based on sponsor defined rules and guidelines, charge the necessary grant overhead to the sponsor by increasing the grant expense and billing it for reimbursement.
Transfer residual budgets	Transfer residual budgets among sponsored programs or classes or return unused budgets to grant.
Reporting	Report on all grants that are either about to close or closed.

4.6.1.2 Public Sector Collection and Disbursement

Business Background

Public Sector Collection and Disbursement (PSCD) is used to manage taxes, charges, and state benefits from or for business partners, citizens, students, and taxpayers. The business partners (citizen, student or taxpayer), their accounts (citizen accounts, student accounts, or tax accounts) and contract objects (objects for taxes and state benefits), including the related business transactions, are managed in Contract Accounts Receivable and Payable.

Key Features

Key Feature	Use
Mass Data Processing	You can manage open item and payment processing in a mass processing run.
Master Data Management	You can manage master data to link business partners, contract accounts and contract objects in all possible combinations.
Inbound Correspondence	You can use contract objects to control the obligation of a business partner to submit inbound correspondence. You can perform mass or single processing runs to select overdue inbound correspondence and execute a correspondence dunning run.

4.6.1.3 Public Sector Financials

4.6.1.3.1 Budget Maintenance

Business Background

The maintenance, management, and monitoring of public funds. You may transfer approved budgets to other projects and departments and monitor and track changes throughout the entire budget cycle.

Key Features

The following table explains the key features available:

Key Feature	Use
Map your budget structure	Use the budget structure to define which of your organizational units, sources of funding and other account assignments are used to represent and control your budget. You can use a budget address to control which of your account assignment elements become key elements of your budget process.
Upload planning data	Upload approved budgets to the system
Enter budget data and update as required	You can • Use budget entry documents to enter and update approved budgets. • Use the budget entry documents to act as an audit trail, allowing you to track changes to your budgets and enter descriptions or explanations for each change. • Set up workflows to ensure that each change to your budget must be approved.
Release budgets	Control the use of available funds by releasing your budget in tranches throughout the fiscal year or lifetime of the fund.
Allow budget increases from revenue	Define the rules for when and how a budget increase based on revenue is permitted.
Define cover eligibility	Define rules for the cover eligibility of your funds management budget to cover over-expenditure in one budget by allowing additional budget to be made available from another source.

Key Feature	Use
Key figures	You may define key figures by filtering specific attributes of your budget data. The resulting amounts can be used to • Release your budget data • Transfer budget between budget types • Compare values in reporting
Status management	You can: • Subdivide the budget process into individual budgeting phases; each phase is represented by a status. • Regulate the permitted budget processes and user authorizations for each budgeting phase.
Reporting	Use reports to support the budget maintenance process including, but not limited to, reports that allow you to do the following: • Get a budget overview • Compare budget versions • Evaluate budget information using key figures • Get an overview of revenues increasing the budget

4.6.1.3.2 Budget Execution

Business Background

The integration of operational processes and accounting processes with maintained budget.

Enables real-time and parallel budget controls that can operate on multiple levels, helping to monitor and control funds while reducing procurement and operating costs.

Key Features

Key Feature	Use
Map your posting structure	Use master data elements to map the budget structure and reporting needs according to your organizational units and functional viewpoints. Mapping a posting structure for your account assignments allows you to determine how your commitment and actual postings are represented in your budget structure. They can be mapped on a different level to your budget addresses and allow you flexible control of your budget data.

Key Feature	Use
Budget availability checks	You can: • Monitor and compare budget values with commitment and actual budget values. • Define single or multiple budget availability control checks to run simultaneously. • Set a threshold for the available budget. • Define what will happen should budget consumption reach or surpass this threshold.
Earmarked funds	Earmarked funds are documents that allow you to reserve part of the available budget for expected revenues or expenditures.
Update operational processes that commit budget	All information relevant for the commit budget process is recorded, allowing you to refer back to the original business process or document, or even to a preceding step in the process that commits budget (if it exists).
Update operational processes that consume budget	All accounting information relevant for calculating the budget consumption is recorded. This enables you to see, for example, the movement of goods, the status of invoices and payments, and allows you to check budget availability.
Requests	Requests support an approval process allowing a separation of duties between recording and posting a financial document.
Cash ledger	A separate cash ledge supports Cash-Basis Accounting (CBA), and is a complete, balanced set of accounts that takes expenses and revenues into account, but only at the time that cash is paid or received.
Budgetary ledger	The budgetary ledger enables simultaneous posting of budget maintenance and execution documents. It supports the creation of financial statements for governmental reporting.
Reporting	Use reports to support the budget execution process including, but not limited to, reports that enable you to do the following: • Get a budget execution overview • Get an overview of budget availability • Evaluate budget execution information using key figures • List the operational transactions affecting budget execution • Compare fiscal years • Display commitment and actual line items • Compare budget lines versus commitment and /or actual line items • Display earmarked funds journal

4.6.1.3.3 Budget Closing and Financial Reporting

Business Background

The planning, standardizing, scheduling, and monitoring of financial and budget close activities.

Key Features

Key Feature	Use
Manage open remaining commitments and budget committed at the end of the fiscal year	You can: • Close out open commitments in the old fiscal year. • Transfer *remaining commitments to the new fiscal year (if legally permitted). *Commitments with a full or partial amount that has not reached the final stage of execution, and which can be invoiced or paid, depending on the legal requirements. • Transfer the committed budget along with the carried forward commitments It is also possible to have an approval process associated with this transfer.
Manage residual budget at the end of the fiscal year	You can: • Calculate residual budget. • Transfer residual budget to new fiscal year (if legally permitted). It is also possible to have an approval process associated with this transfer.
Reconcile budgetary accounting	You can reconcile budgetary accounting data with financial and managerial accounting
Key figures	You can use key figures for a number of processes including, but not limited to: • Calculating the residual budget for the carryforward of budget data
Reporting	Use reports to support the closing process and provide financial reporting including, but not limited to: • Monitoring of the commitment carry forward • Cash flow reporting • Cash basis reporting

4.6.1.4 Tax and Revenue Management

4.6.1.4.1 Taxpayer Identification and Returns Processing

Business Background

Tax Identification and Returns Processing enables government agencies to administrate the complex and lengthy tax and revenue management life cycle including the key processes such as registration, account maintenance, tax return filing and remittance processing, billing, correspondence and contact management, audit and compliance.

Key Features

Key Feature	Use
Revenue Type Definition	You can define the revenue types that represent the agency tax type. You can configure tax return forms and business rules to validate and bill the tax return or tax object for each revenue type.
Taxpayer Registration	You can use guided procedures that facilitate the registration process, supporting a single view of the taxpayer while accommodating all revenue types, both form (self-assessed) and object-based taxes (such as vehicle or property taxes).
Tax Return and Registration Capture	You can use submission of various types of tax returns, such as amended and joint returns, through multiple channels such as paper, fax, batch upload, and the Internet.
Automatic Form-Based Tax Return Processing	You can use a rules engine to automatically validate the tax return data to satisfy the filing obligation record.
Manual Form-Based Tax Return Processing	Once the tax return has been automatically validated and exceptions have been raised you can resolve the exceptions within the tax officer work center. Once you have resolved the exceptions, the tax return is finalized and released for billing.
Tax Object Processing	You can use a rules engine to calculate the tax liability for tax objects (such as vehicles and property) based on the tax object attributes.
Invoicing	You can process the creation of invoices and the integration of billing documents in Public Sector Collections and Disbursement.

4.6.1.5 Multichannel Foundation for Public Sector

Business Background

`SAP Multichannel Foundation for Public Sector` is a constituent-facing solution that enables public sector organizations to interact with their constituents using a set of standardized and reusable OData services.

Key Features

The following table explains the key features available:

Key Feature	Use
Manage Online Accounts	You can access a constituent account, change the password, and reset a forgotten password.
Manage Constituent Details	You can: • View and update personal, address and contact information, and communication preferences. • Display, add and delete business partner relationships. • Display contract object and fact details.
Process Forms	You can: • Display filing obligations. • Display, update and submit forms. • Verify and auto-populate forms content using a business rule engine. • Add, delete and display attachment. • Submit forms without user registration.
Access Billing Information	You can view the account summary, bills and details of a particular bill.
Manage Payments	You can: • Manage bank account details. • Manage credit card details. • View and update the payment and refund account assignment. • Make a one-time payment. • View the payment history. • Cancel a scheduled payment. • Manage auto-payments. • Create or cancel a payment on account. • Execute credit card payments without user registration.

Key Feature	Use
Display Communication	You can: • View alerts and correspondences. • Display or search the business directory.
External User Management	You can: • Create or change users and privileges. • Receive user ID and password notifications.

4.7 Retail

4.7.1 Retail for Merchandise Management

The empowered consumer has fundamentally changed retail. Companies need to establish a digital foundation to simplify their business with a detailed understanding of their customers' needs and the capabilities that allow them to serve customers individually and seamlessly.

Companies need to respond to the increasing need to engage customers at the right moment, consistently, and across multiple sales channels and technologies. A real-time retail platform helps companies transform their business and makes new business models possible, which can in turn increase revenue, profitability, and market share.

SAP S/4HANA as a digital core helps companies to achieve these business goals.

4.7.1.1 Marketing and Merchandising

4.7.1.1.1 Master Data Management for Merchandising

Business Background

Master data is used to support operational processes in all areas of merchandise management. Master data contains the most important information about sites and business partners, such as suppliers and customers, as well as about all articles.

Master data management for merchandising significantly reduces the time required to perform tasks because data is proposed automatically and is based on one single source of truth. Master data objects such as assortments or different kinds of product taxonomies facilitate the daily work of different retail specialists and help retail processes run smoothly.

Key Features

Product Data Management

Key Feature	Use

Article maintenance	• Use the article master to store data about all individual articles that a company purchases, sells, or produces.
	• Maintain article information:
	  ○ Descriptive information such as article description or weight
	  ○ Identifying information such as Global Trade Information Numbers (GTIN)
	  ○ Available units of measurement such as piece, carton, or pallet
	• Maintain control information that determines how articles are processed in:
	  ○ Logistics
	  For example, in replenishment.
	  ○ Sales
	  For example, selling prices and validity periods.
	  ○ Purchasing
	  For example, supplier relationships and purchase conditions.
	• Display information associated with articles such as stock levels or stock values.
	• Classify and structure articles according to a product taxonomy in multiple ways.
	• Maintain specific information for different kinds of articles, such as fresh produce and clothing.
	• Collectively maintain generic articles with many variants, for example, with different colors and sizes.
	• Maintain structured articles that consist of a specific set of individual articles, such as sales sets and displays.

Article reference handling and article mass maintenance	• Perform mass operations and use reference and default handling capabilities for large volumes of data involved in article maintenance.
Article discontinuation	• Exclude articles from assortments as of a certain date, for example, if specific articles are no longer to be sold or can no longer be procured. • Discontinue seasonal products, that is, discontinue large numbers of articles within a short period of time.
Article list	• Predefine a list of articles to be used across multiple processes as selection criteria.

Product Taxonomy Management

Key Feature	Use
Article hierarchy	• Group articles in a structure such as a consumer decision tree (CDT) that reflects how consumers typically arrive at purchase decisions.
Merchandise category hierarchy	• Group articles in merchandise categories according to common properties. • Apply a hierarchical structure to merchandise categories to create a merchandise category hierarchy.
Reclassification	• Move objects such as articles, merchandise categories, and merchandise category hierarchy levels in the merchandise category hierarchy structure if necessary.

Location Management

Key Feature	Use
Site maintenance	• Model an organizational unit that carries out logistical processes involving articles, such as inventory management, sales, and procurement. A site corresponds to the term location and can be either a store or a distribution center. • Enhance site master data with business partner information that is needed for a site to assume the role of a customer or a supplier in processes such as receiving, billing, and distribution.
Site classification	• Group sites to simplify the maintenance process.

Business Partner

Key Feature	Use
Business partner management	• See Central Master Data [page 142]

Season Management

Key Feature	Use
Season management	• Use seasons for time-dependent structuring by bundling articles according to their limited product life cycle. Seasonal attributes are especially but not limited to fashion articles, for example, snow shovels are seasonal. Examples of seasons are summer, winter, and fall; however, a season can also be defined at a more detailed level, by collection or theme. • Control logistical processes, such as sales and purchasing, based on the parameters maintained for different seasons.

Value-Added-Services Management

Key Feature	Use
Value-added-services management	• Manage value-added services that enhance the value, worth, functionality, or usefulness of ordered articles. Value-added services can be either articles or activities such as putting shirts on hangers, ironing, or labeling.

Global Data Synchronization

Key Feature	Use
Global data synchronization	Procure, track, and update article master data from suppliers quickly and easily to optimize master data exchange.

4.7.1.1.2 Assortment Planning and Management

Business Background

Companies strive to offer products in the right place and at the right time in order to meet consumer needs and expectations. To achieve this goal and support their retail processes, companies use assortments to model the assignments of the product mix (articles) to stores or store clusters according to aspects such as regional considerations.

Through well-designed store layouts, retailers aim to create a convenient and appealing shopping experience, which is further enhanced by the optimum presentation of the merchandise on shelves, racks, and other in-store display fixtures, taking into account the number of products on display. This can be executed using a third-party space management solution.

Key Features

Assortment Management

Key Feature	Use
Assortment management	• Create assortments by assigning articles and site(s) with the relevant validity periods.
Listing maintenance and analysis	• List articles as a result of maintaining assortments. The article-site-validity period combination specifies when the respective articles should be carried in the respective stores. • Control logistical processes by using listings. • Analyze listings for the purpose of basic evaluations.

Store Layouts and Space Management Integration

Key Feature	Use
Layout maintenance	• Structure the assortments of a store using a layout concept as the basis for space management integration.
Space management integration	• Integrate the capabilities of a third-party space management solution and use these capabilities to optimize shelf space by determining the best place for articles on the shelves and calculating how much space to allocate to each article based on factors such as sales volume and margins.

4.7.1.1.3 Retail Price Planning and Management

Business Background

A key aspect of how retailers address the market is the price strategy. That is, sales prices are planned based on various factors such as purchasing prices and margin goals, taking into consideration what consumers are willing to pay for products in stores or through non-store channels. Once a price strategy has been defined, it needs to be implemented, for example, by making the relevant sales prices available to stores and all other sales channels.

Key Features

The following table describes how the key features available for retail price management can be used.

Key Feature	Use
Retail price planning	• Define retail sales prices for articles at the level of sales channels or sites with a validity period based on strategies such as planned markups on procurement prices. • Recalculate and maintain retail sales prices based on changes in influencing factors, such as purchase price adjustments or the need to comply with a new business strategy.
Bonus buy	• Specify sales price deals for promotional offers such as buy two, get one free, spend at least a certain amount to get a percentage off or for special sales prices or discounts when a coupon is presented.

4.7.1.1.4 Promotion Planning and Management

Business Background

Retail promotions are marketing activities targeted at consumers and used by retailers over a limited timeframe to increase customer retention and boost sales volumes.

Effective promotion planning and management allows companies with retail processes to adjust price schedules to match customer and market needs that vary with channel and location. Promotions are planned outside the digital core and are then transferred for the execution of logistical processes, for example, article quantities are handed over to procurement.

Key Features

The following table describes how the key features available for promotion planning and management can be used.

Key Feature	Use

Promotion logistics	• Create a promotion or execute promotion planning requirements for participating stores to support use cases such as:
	  ○ Consumer promotions designed to promote or boost sales through price deals for consumers and/or agreements with suppliers
	  ○ Stock reduction strategies, for example, reduce stock levels of seasonal merchandise through attractive price deals
	  ○ Product launch, for example, through effective in-store presentation
	• Specify execution data such as store notifications or details for procurement.
	• Activate follow-on processes based on the promotion data for each specific use case.
	• Maintain and monitor planned and execution data of promotions.

Promotion integration	• Integrate the capabilities of a promotion planning solution to be able to execute promotions in logistical processes, such as handing over article quantities to procurement.

4.7.1.2 Omnicommerce Customer Experience

4.7.1.2.1 Store Commerce

Business Background

Solutions for store merchandise and inventory must let retail store associates and managers:

- Access product and inventory data from anywhere in stores and at any time.
- Improve productivity and accuracy.
- Enable customer service and inventory management.

Solution capabilities for store merchandise and inventory must provide comprehensive, role-based functionality that is easy to learn and use. Retail store associates and managers have real-time access to product and inventory data for all locations in the area, from desktops, laptops, and mobile devices. Companies can increase workforce efficiency, improve store performance, and increase store sales, shopper loyalty, and customer and employee satisfaction.

Key Features

Store Merchandise and Inventory

Key Feature	Use
Product lookup	• Access real-time product, promotion, and stock information. • View style, color, or size variants of products. • Check product availability in nearby stores.
Stock adjustment	• Adjust the stock of products for different reasons such as shrinkage or spoilage.
Product ordering	• Order products by reviewing order proposals. • Order products ad-hoc when standing in front of the shelf.
Stock transfer	• Transfer products from one location to another.
Handling of received products	• Post receiving for goods from internal and external suppliers. • Support trusted goods receipt and/or detailed goods receipt.
Stock inventory count	• Perform cycle counting and zone-based physical inventory. • View stock inventory counts for monitoring purposes and approve or initiate a recount.

Key Feature	Use
Store walkthrough	• Resolve issues related to product quality and prevent lost sales. • Perform daily product-related tasks such as making adjustments to stock inventory levels. • Review and modify product order proposals.
Label printing	• Print labels ad hoc, for example, if labels are missing or are damaged.

4.7.1.2.2 Point of Sale

Business Background

Store connectivity includes the connection of point-of-sale (POS) or store merchandise management solutions to support the exchange of master data and transactional data.

Typically, most information about articles, prices, and promotions is maintained at the corporate headquarters and needs to be distributed to the point of sale (POS) or to store merchandise management solutions in the relevant stores. The sales and other transactions, such as financial transactions or goods movements, that are performed using the local POS or store merchandise management solution need to be transferred back to the central system and processed.

Key Features

Store Connectivity

Key Feature	Use
Assortment list	• Transfer article-related information to POS and store merchandise management solutions, including article descriptions, units of measure, and sales prices. • Use the information in assortment lists, for example, to support the planning of in-store visual inspections.
POS inbound data	• Transfer and process transactions from POS and store merchandise management solutions, such as sales, returns, goods movements, and financial postings.
POS outbound data	• Transfer information needed at POS and store merchandise management solutions in addition to article information, such as exchange rates, tax data, merchandise categories, and promotions.

4.7.1.3 Sourcing, Buying, and Private Label

4.7.1.3.1 Merchandise Buying

Business Background

Retailers need to be able to source and buy merchandise and services using procurement processes and control mechanisms across the supply chain. Through effective buying processes, companies can procure goods faster and at lower cost from suppliers globally in order to:

- Contribute to the bottom line through informed negotiating, while achieving compliance and increasing automation.
- Reduce cost and react flexibly to dynamic market conditions.
- Support effective sourcing, contracts, operational buying, and management of large volumes of invoices.
- Adopt buying processes to specific merchandise and handle purchase orders efficiently and accurately.
- Increase procurement process efficiency and transparency through order consolidation.

Key Features

The following table describes how the key features available for merchandise buying can be used.

Key Feature	Use
Purchase order processing	The specific use cases in retail processes are: • Create purchase orders for single articles, generic articles together with variants, structured articles with sub-items, and full products with empties. • Provide variant quantities easily and conveniently in a variant matrix or automated by means of an appropriate distribution curve. • Review information about season assignment, value-added services, and related retail allocations and promotions. See also Purchase Order Processing [page 120]
Purchase order scheduling	• Automate purchase order scheduling at a highly granular level along the inbound supply chain by defining important intermediate steps such as Ex-factory dates and the arrival of merchandise at shipping destinations. • Communicate the scheduled dates to and receive confirmations and corrections from external partners. • Monitor progress along the inbound supply chain and perform actions in response to changes that differ to planned schedules.

Key Feature	Use

Collective purchase order management	• Collect and consolidate multiple store orders into a single purchase order for external suppliers to:
	  ○ Eliminate inefficient manual procurement activities associated with large numbers of individual orders.
	  ○ Speed up supply chain processes from supplier to warehouse to retail location.
	• Combine the requirements of recipients that may exist as warehouse orders or sales orders to create a single order for a supplier (pull process).
	• Use distribution data for a collective purchase order to control and monitor the distribution of merchandise to recipients.

4.7.1.3.2 Replenishment Collaboration

Business Background

Close collaboration between business partners along the supply chain is of major importance with regard to streamlining logistical processes and ensuring that consumers are not faced with out-of-stock situations in stores.

In a vendor-managed-inventory business model, the task of ensuring that merchandise is available in stores is handled by the suppliers or manufacturers. To enable business partners to fulfil this task to the best of their ability, retailers need to provide the necessary information, including sales and inventory data.

Key Features

The following table describes how the key features available that support replenishment collaboration can be used.

Key Feature	Use
Vendor-managed inventory	• Make stock figures and sales data available to suppliers and manufacturers to support their activities with regard to material requirements planning and replenishment planning.

4.7.1.4 Supply Chain

4.7.1.4.1 Replenishment Planning and Allocation

Business Background

Companies often face the challenge of having to deliver optimum of amounts merchandise to a large number of stores on a regular basis. To achieve this, automated processes can be implemented to optimize and integrate merchandise flow across the supply chain, including processes that involve third parties.

Typically, these processes conform to one of the following principles:

- Pull: Demand originating from the recipients is bundled and procured.
  Replenishment is a pull process used to supply stores with merchandise on a demand-driven basis.
- Push: An overall quantity of an article is distributed to the recipients according to rules, ratios, or strategies.
  Retail allocation is a push process whereby a retail company centrally allocates merchandise to a number of recipients, for example, stores or customers, in order for this merchandise to be distributed.

Key Features

Replenishment

Key Feature	Use
Replenishment integration	• Provide the master data and movement data required to run replenishment processes. • Use order proposals as the basis for creating purchase orders for external or internal suppliers.

Merchandise Allocation Execution

Key Feature	Use
Merchandise allocation execution	• Create a merchandise allocation to control which stores get which merchandise in which amount and when (push process). • Define how merchandise is distributed, for example, through a third-party process such as ordering products from suppliers or through stock reduction, that is, by using existing stock, which controls further process steps in the supply chain. • Generate follow-on documents, for example, purchase orders and warehouse orders. • Move merchandise to stores. • Base merchandise allocation optionally on promotions. • Integrate the capabilities of third-party merchandise allocation planning solutions.

4.7.1.4.2 Demand Forecasting and Planning

Business Background

Companies use planned demand data to support requirements planning methods in order to optimize stock levels across the supply chain and thereby better meet consumer needs and expectations.

Key Features

The following table describes how the key features available for demand forecasting and planning can be used.

Key Feature	Use
Distribution curve	• Define common quantity distribution ratios for variants of a generic article across variant-creating characteristics. • Use distribution curves in sales, purchasing, and demand management scenarios to distribute quantities automatically across different variants of a generic article if the quantity is provided at the level of the generic article.
Demand management	The specific use case in retail processes is: • Create and organize planned independent requirements for multiple articles at the same time, for example, all variants of a generic article. See also Material Requirements Planning [page 49]

4.7.1.4.3 Omnichannel Inventory and Order Response

Business Background

Companies need to manage inventory, that is, the quantities and the value information for articles carried at sites need to be managed across many locations and channels. Goods movements need to be reflected in inventory, such as an increase in inventory when a goods receipt is posted or a decrease in inventory when a goods issue for a sales transaction is posted. Physical inventory supports the processes of counting article quantities and posting the resulting adjustments. The transparency of inventory information is crucial to the success of any company with retail processes.

A sales order represents an agreement between a retailer and a customer concerning the sale and delivery of goods. Sales order fulfillment comprises the follow-on processes in the supply chain that result in the handover of merchandise to a customer and is completed by the billing process.

Key Features

The following table describes how the key features available for omnichannel inventory and order management can be used.

Key Feature	Use
Inventory management	The specific use cases in retail processes are: • Review stock for generic articles with variants. • Review stock for empties. • Review inventory values at retail price. See also Inventory Management [page 126]
Goods receipt	The specific use cases in retail processes are: • Enter quantities for variants of generic articles using a matrix. • Consider tied empties, for example, bottles and crates, during goods receipt. • Optionally explode structured articles such as prepacks at goods receipt into their individual components (often used during in-store goods receipt) See also Logistics Execution [page 131] and Inventory Management [page 132]

Key Feature	Use
Supplier consignment	The specific use cases in retail processes are: • Define the consignment control for an article for each site, for example, distribution centers and stores, independently of each another. • Automatically convert goods that are to be transferred from a site's consignment stock to a site's own stock. • Transfer goods from a consignment stock to other sites and retain the consignment stock category.
Physical inventory	See Inventory Management [page 126]
Inventory valuation	The specific use cases in retail processes are: • Enable valuation at retail price in parallel in one currency. • Decide whether changes in retail price affect margins. • Automatically valuate all goods movements at retail based on the material ledger and post physical inventory differences at retail. • Automate revaluation of inventory at retail if sales prices are recalculated for inventory management on an exact-article basis. See also Inventory Accounting [page 28]

Merchandise distribution	• Plan, control, and manage the flow of merchandise from suppliers to distribution centers and then on to stores or customers.
	• Carry out cross-docking in the distribution center through support of push and pull processes to move the merchandise through the warehouse more quickly, thereby reducing the costs for processing and storage.
	• Plan merchandise distribution based on:
	  ○ Retail allocation (push)
	  ○ Collective purchase orders (pull)
	• At goods receipt, automatically or manually adjust the distribution data to correspond with the quantities actually delivered and then distribute the merchandise among the recipients.

Order management	The specific use cases in retail processes are: • Create and maintain sales orders for single articles, generic articles along with variants, structured articles with sub-items and full products with empties. • Provide variant quantities easily and conveniently in a variant matrix or automated by means of an appropriate distribution curve. • Review and change season assignments and/or value-added services. See also Sales Order Management and Processing [page 104]

4.8 Utilities

4.8.1 Finance

4.8.1.1 Bill to Cash

4.8.1.1.1 Billing of Energy and Services

Billing of Energy Products

Billing of energy products is performed for all types of customer groups including commercial, industrial, and residential customers. It takes place periodically for a defined period (such as monthly, yearly) or is triggered by certain events such as a move-out. Defining products is used as the basis for billing.

The amount to be paid is calculated by applying rates or products to the measurement data. The measurement data can either be discrete meter reading values or equidistant time series values. It is also possible to bill on the basis of flat rates. The end customer's bill can include not only utilities billing documents but also documents from other sources.

By creating a budget billing plan, the utilities payments are evenly spread across the supply period.

The following key features support the process:

Key Feature	Use
Definition of rates and products	Billing is performed on the basis of rates/products. This includes billing rules and various other aspects, such as prices and discounts. In deregulated markets, rates/products can be managed for energy supply or grid usage according to the market role of the utilities company.
Schedule billing and budget billing plan	To control when billing or budget billing is executed, certain parameters and dates such as the end of the billing period, budget billing dates, period length and so on are defined in a schedule.
Billing and simulation	To calculate the amount to be paid, measurement data is processed and priced according to the assigned billing rules. The billing simulation can be executed to obtain billing results without making accounting-relevant changes. To avoid overcharged bills, bills can be outsorted according to special validations that can be customized. They are then automatically locked for further processes until they are released. Billing reversal can initiated to deal with incorrect bills.

Key Feature	Use
Budget billing plan	A utility company bills for its services at the end of a supply period. Throughout the current period, it therefore charges budget billing amounts to spread the payments evenly. The dates and the amounts for the budget billing amounts are defined in the budget billing plan. The budget billing plan forms the basis for the increase in the budget billing amount.

4.8.1.2 Commerce Management

4.8.1.2.1 Receivables Management and Payment Handling

In deregulated markets, the distributor is usually paid for providing grid-related services, such as grid usage, to other market participants. A very common market model of handling grid usage invoices and payments between the supplier and distributor is described as follows:

- The distributor sends grid usage invoices to the supplier.
- The supplier checks the invoices and makes payments to the distributor.
- The consumer, as the consumer of energy, pays for grid usage as part of their energy product provided by the supplier.

Invoice Verification and Payment (Supplier View)

Key Feature	Use
Receive and process grid usage bills	Grid usage bills can be received using market communication, checked and verified and posted to accounting. The data that is exchanged relates to end customers (points of delivery) to whom the supplier provides services or an energy product.
Create complaints	Complaints can be created for bills for which the supplier has a grievance.
Send payment or non-payment advice notes	Payment and non-payment advice notes can be sent to the market partner according to the verification results.
Monitor communication	Data exchange to involved market partners is logged and can be monitored.

Invoice Receivables Mgmt and Paymt Handling (Distributor View)

Key Feature	Use
Prepare and send grid usage bills to suppliers	Electronic bills can be created at end customer level. Grid usage bills are aggregated for each supplier and sent to the suppliers electronically.
Receive and process incoming payments and payment advice notes	Complaint notifications and payment advice notes are received electronically and can be processed. Incoming payments that have been posted to the supplier's account can be assigned to the corresponding payment advice notes. Receivables can be cleared at end customer level. Complaint notifications can be processed to validate the complaint. Dunning activities can be triggered if required.
Postprocessing Grid Usage Payments	Payments can be postprocessed at account level. Payments of a supplier that cannot be allocated at end customer level can be reimbursed.
Monitor communication	Data exchange to involved market partners is logged and can be monitored.

4.8.2 Metering

4.8.2.1 Meter Logistics and Operations Service

4.8.2.1.1 Measurement Data Management

Measurement Data Processing

Measurement data comprises all types of measurement data collected by meters. It can be equidistant time series values or discrete values. It can have the character of meter readings (cumulative index values), consumption, demand data, and so on. Data provided by meters can either be read remotely by smart meters or manually for conventional meters.

Measurement data is validated when it is received. If validation is successful, it is available for subsequent processes such as energy billing or energy settlement.

In deregulated markets, measurement data is communicated between various market participants.

Key Feature	Use
Manage measurement data	The master data can be configured so that measurement data in the form of discrete data or equidistant time series values can be managed.

Key Feature	Use
Schedule the collection of discrete meter readings	In the case of periodic collection of discrete meter readings, periodic meter reading orders are created and issued according to this schedule.
Receive and process measurement data	This feature is used to upload or enter measurement data. This data is provided from different sources, such as external systems, market partners or read manually. The measurement data is validated and if necessary replacement procedures are applied. Manual adjustments are possible. Additional calculations can be executed to convert meter readings to consumption values, sums of quantities and so on.
Provide measurement data to market partners	Measurement data can be sent to other market participants. You can define what types of information is received by certain recipients. Monitoring and error handling capabilities are available for the communication process.

Energy Schedule and Settlement in Deregulated Utilities Markets

In deregulated markets, a common requirement consists of determining energy consumption at specific aggregated levels or entities and communicating this information to involved market partners.

Energy Schedule: The supplier is responsible for determining an energy schedule for their customers for the following day. The energy schedule (usually based on consumption forecasts) can be the total calculated load shape for the customers in a specific grid, i.e. a time series of aggregated consumption values for the next (schedule) day. This energy schedule has to be sent to the involved market participants, such as the responsible distributor and settlement coordinator.

Energy Settlement: The distributor determines the total load shape for each supplier based on the measured energy consumption of the suppliers' customers and communicates it to suppliers and involved market participants.

Key Feature	Use
Settlement-related entities	The following entities that can be used to group points of delivery are provided: Settlement Unit and Utilities Grid. The assignment of a point of delivery to these entities is tracked on a time-related basis.
Aggregation of time series values	Aggregation of consumption of all points of delivery with assignment to a settlement unit or grid can be calculated and processed in the form of equidistant profile values. The same logic can be applied to aggregate energy feedings into the grid.

Key Feature	Use
Synthetic load profiling	Synthetic load profiling is based on synthetic profiles for a specific customer group and customer-specific usage factors. Synthetic load profiling provides the capability to de-aggregate a load shape. The resulting equidistant time series values can be processed to calculate aggregated consumption.
Provision of settlement results to market participants	Involved market participants are automatically determined. Settlement results can be sent to them. Data exchange to involved market partners is logged an can be monitored.
Monitor communication	Data exchange to involved market partners is logged and can be monitored.

4.8.2.1.2 Meter Logistics and Operation Services

Meter and Device Management

Device Management covers procurement, warehousing and stock movement of devices by using the integration in logistic process as well as installation, replacement and removal of meters and other devices at the customer location. These meters can be smart or conventional meters. The remote functional capabilities of smart meters have to be managed so that they can be leveraged in all relevant processes.

To ensure a correct measurement of values, inspection and certification is applied to all relevant devices.

Key Feature	Use
Manage device data	Devices are configured by assigning device-specific master data. This includes registers, the device category and other data such as commands.
Installation of devices	Devices can be installed, replaced and removed. If device attributes are changed, the device can be modified. It is possible to maintain allocations and relationships between devices.
Inspection of devices	The devices can be inspected in different ways according to legal and internal requirements. Periodic replacement can be used to manage all devices that have to be replaced in a certain year. Individual devices are inspected in the sample lot procedure. These devices are representative of a group of devices. You can certify individual devices during certification.

Disconnection and Reconnection Management

Disconnection and reconnection processes are managed by the utilities company. Disconnection is the interruption of a utilities service. Possible reasons for such an interruption can be outstanding payments or at the request of the utilities company or a customer.

Smart meters can be disconnected / reconnected either remotely or manually according to the device capabilities. Additional conditions or constraints are also considered with conventional meters, which are disconnected / reconnected manually.

Key Feature	Use
Processing disconnection	This feature covers the processing of disconnections requested by customers as well as automatically triggered disconnections. In the latter case, an automatic request for disconnection is launched according to the customer's status, for example, as defined in the dunning process.
Processing reconnection	This feature covers the processing of reconnections requested by customers as well as automatically triggered reconnections. In the latter case, an automatic request for reconnection is launched according to the customer's status, for example, in the incoming payment process. This implies that reconnection is triggered based on an incoming payment or a customer request.

4.8.3 Sales

4.8.3.1 Sales and Customer Service for Residential Customers/Commercial and Industrial Customers

4.8.3.1.1 Customer Service Management

PoD Master Data and Registration Management (Distributor View)

In deregulated markets, the distributor usually manages the master data and service registrations for all points of delivery (PoD) in their grid area. They maintain master data and communicate changes in master data to all other involved market participants. They manage registration processes, such as start and end of supply, change of supplier, and so on.

Key Feature	Use
Management of PoD-related master data	PoD master data can be created or changed. Changes can either be applied manually or initiated by requests received electronically or notification messages. Creation and changes to the PoD address, settlement-related information (usage factor, synthetic profiles) are communicated to the market participants involved electronically.
Managing Grid Usage Registrations and Terminations	Requests for registration and termination of supply services at PoD level can be received and processed automatically to minimize manual interactions. Acknowledgement and notification messages can be sent electronically to the involved market participants. PoD master data can be changed accordingly.
Monitor communication and registration processes	The progress of registration processes and data exchange to involved market partners is logged and can be monitored.

Registration for Grid Usage (Supplier View)

In deregulated markets, the supplier has a supply contract with the end customer. When the supplier concludes a new contract with an end customer at a PoD, the supplier has to be registered to deliver energy to this PoD. A request for start of supply registration is sent to the distributor. Upon ending a supply contract, the registration for grid usage has to be terminated. A request for end of supply is sent to the distributor.

Key Feature	Use
Registering for grid usage	A request to register grid usage for a PoD can be created and sent to the market participants electronically using market communication.
Terminating grid usage	A request to terminate grid usage for a PoD can be created and sent to the market participants electronically using market communication.
Monitor communication for registration and termination processes	Progress of registration and termination processes and data exchange to involved market partners is logged and can be monitored.

4.8.3.1.2 Multichannel Foundation for Utilities and Public Sector

For Utilities

Multichannel Foundation for Utilities and Public Sector is a customer-facing solution based on Gateway. It provides utility companies a powerful and cost-effective way to extend their customer interactions to digital channels such as Web, Mobile, and Social. SAP Multichannel Foundation for Utilities offers a set of standardized and reusable OData services that are used by the customer-facing applications to access data and processes from SAP for Utilities.

The standard services consist of self-service scenarios that enable customers to securely access and manage key account information and perform important activities online, like bill payment, entering meter readings, creating inquiries and sending requests to a utility company.

A responsive Web application template for customer self-services is also included with the solution.

Key Feature	Use
Managing Online Accounts	This feature enables the customer to manage their online accounts in the following ways: • Create a new online account (as an existing customer of the utility company) • As a new customer, create a new business partner with a new associated online account • Log in to an online account • Log out of an online account • Change password of the online account • Reset password • Switch between multiple business partners linked to an online account
Managing Customer Details	This feature enables the customer to manage their personal and contact information in the following ways: • View and update personal information • View and update address information • View and update contact information such as phone and e-mail • View and update preferred method of communication • View and update preferred communication language • View and update billing address for the business agreement(s)

Key Feature	Use
Managing Utility Contracts	This feature enables the customer to manage their utility contracts in the following ways: • Create a utility contract (move in) • End a contract (move out) • View and update details of a contract
Managing Meter Reading Data	This feature enables the customer to manage meter reading data in the following ways: • View meter reading history • View upcoming meter reading dates • Enter a meter reading • Submit a meter reading without having the need to log on with a username and password

Viewing Bills and Consumption	This feature enables the customer to view their billing and consumption information in the following ways::
	• View account summary
	• View consumption history
	• View bills
	• View details of a specific bill
	• Download the bill as a PDF file
	• Inquire about a specific bill
	• Additional features for smart meter users (based on SAP EDM) include:
	  ○ View current consumption
	  ○ View forecasted consumption
	  ○ Download consumption data

Managing Budget Billing Plans	This feature allows a customer to manage their budget billing plans for their contracts in the following ways: • View budget billing plans • Modify current budget billing plan amount to the value within the allowed range and specify the starting date for the changed plan • Opt in to a payment plan and specify the starting month for the payment plan • Opt-out of a payment plan

Key Feature	Use
Managing Payments	This product feature enables a customer to manage payments through their online accounts in the following ways: • Manage bank account details • Manage credit card details • View and update payment and refund account assignment • Make a one-time payment • Make a one-time payment without having the need to log on with a username and password • View payment history • Cancel a scheduled payment before it is processed
Communicating with the Utility Company	This feature enables the customer to manage their communication with the utility company in the following ways: • Send a message to the utility company • Attach a file when sending a message • Trigger a customer follow-up workflow, automatically • View past interactions with the utility company • Request a change of data through an approval process • View alerts • Create service requests using service notification • View the service notification history • View a service order linked to a service notification • View and download the electronic version of the letters sent by the utility company such as welcome letters and dunning letters
Managing Outages	This feature allows a customer to manage their energy outages in the following ways: • Report an outage for their property • View outage map published by the utility company

Key Feature	Use
Agent Co-browsing	This product feature enables a customer service agent to co-browse the self-service Website with a customer should they face difficulty in navigating through the Website, or finding a page, menu or button to carry out a task. The agent sees the same information on the Website as the customer and is able to guide them. This feature allows the agent to do the following: • Search for a customer using first name, last name, contract account ID, business partner ID, address, phone and E-mail • Co-browse the entire self-service Website with the customer • Perform some actions such as entering a meter reading and updating the address on behalf of the customer

5 SAP S/4HANA Compatibility Packs

Please note that the specific usage rights for SAP S/4HANA Compatibility Packs are set forth in the Software Use Rights Document.

Localization

In addition to the compatibility packs listed in this document, SAP provides the following functional localizations for the following countries:

Country	Functional Localization
Argentina	Electronic invoicing
Austria	Electronic invoicing
Brazil	TAXBRJ tax calculation schema
China	Electronic invoicing
Croatia	Electronic invoicing
Denmark	Electronic invoicing
Finland	Electronic invoicing
Kazakhstan	Electronic invoicing
Mexico	Electronic invoicing
Portugal	Electronic invoicing and delivery documents
Russia	Electronic invoicing
South Korea	Electronic invoicing
Turkey	Electronic invoicing
Ukraine	Electronic invoicing

5.1 Asset Management

5.1.1 Maintenance Operations

5.1.1.1 Analytics for Maintenance Operations

Business Background

The *Plant Maintenance Information System* is part of the *Logistics Information System* that you can use to analyze maintenance data.

Key Features

The following standard analyses are available in the *Plant Maintenance Information System*:

Key Feature	Use
Location- and Planning Group Analysis	Two standard analyses are provided to evaluate the location data and the planning group data. The information structure `S061` (*Location and Planning*) provides the data for both analyses. For the location, you can, for example, analyze the number of unplanned, planned, entered or completed orders, the overall estimated costs, the total planned costs and the total actual costs or the internal and external material rate. For the planning group, you can, for example, analyze the number of entered breakdowns, notifications or orders, or the actual total revenues and costs.
Object Class- and Manufacturer Analysis	Two standard analyses are provided to evaluate the object class data and the manufacturer data. You can, for example, evaluate the number of entered and completed notifications or orders, or get key figures about the internal and external material rate and material costs. The information structure `S062` (*Object Class and Manufacturer*) provides the data for both analyses.
Single Object-Damage Analysis	In the standard analysis for single object-damage, you can evaluate the damage data for single objects. You can, for example, evaluate the amount of damage, how many individual causes of damage there are and the number of activities performed. The information structure `S063` (*Damage Analysis*) provides the data for this analysis.
Object Statistics	You can use the standard analysis for object statistics to view statistical data for the technical object. You can, for example, view the acquisition value, get key figures about the total number of functional locations and pieces of equipment and evaluate the number of functional locations with no equipment installed. The information structure `S065` (*Object Statistics*) provides the data for this analysis.

Key Feature	Use
Breakdown Analysis	In the standard breakdown analysis, you can evaluate data recorded in connection with the breakdown of a machine. The aim of this analysis is to find out the cause behind a short or long breakdown period, or the period between two consecutive breakdowns. The information structure `S070` (*Breakdown Statistics*) provides the data for this analysis.
Vehicle Consumption Analysis	The standard vehicle consumption analysis enables you to evaluate the key figures *Distance Covered*, *Operating Hours*, *Fuel Mass* and *Fuel Volume*. The information structure `S114` (*Vehicle Consumption Analysis*) provides the data for this analysis.
Costs Analysis	You can use the standard costs analysis to evaluate the key figures regarding the costs incurred. You can, for example, analyze the total planned and actual costs for maintenance measures, the actual revenues, and the actual costs for company's own and external material for maintenance measures. The information structure `S115` (*Costs Analysis*) provides the data for this analysis.

5.2 Finance

5.2.1 Accounting and Financial Close

5.2.1.1 From FI-AA: Derived Depreciation Areas

Business Background

A derived depreciation area is an area for which the values are calculated from two or more real depreciation areas using a calculation formula.

The rules for positive/negative net book value of a derived depreciation area are checked with each posting and depreciation change in the corresponding real depreciation areas.

Technical Information

Type of Component	Component
Application Component	Derived Depreciation Areas (FI-AA-AA-BV-DD)
Software Component	S4CORE

5.2.1.2 From FI-AA: Group Assets

Business Background

You can group together several fixed assets into a group asset in order to handle these assets depreciation area-specifically for the depreciation calculation and depreciation update.

A group asset is represented in the system by a separate master record.

Technical Information

Type of Component	Component
Application Component	Group Assets (FI-AA-AA-BV-GA)
Software Component	S4CORE

5.2.1.3 Special Ledgers (FI-SL)

Business Background

You can use special ledgers to define ledgers yourself for reporting purposes.

You can manage the ledgers you define yourself with any account assignment objects as general ledgers or subledgers. Account assignment objects can be SAP dimensions from multiple applications (for example, account, business area, profit center) and own dimensions (for example, region).

The following functions (amongst others) are available with the special ledgers:

- Flexible database structures with additional fields
- Selective data retrieval
- Adjustment postings (for example, for the currency valuation)
- Alternative chart of accounts
- Alternative fiscal year with multiple fiscal year variants
- Total line items from other applications
- SAP-wide reporting (with data from different SAP applications)

Technical Information

Type of Component	Component
Application Component	Special Ledgers (FI-SL)
Software Component	S4CORE

5.2.1.4 Cost of Sales Ledger

Business Background

The cost of sales ledger (table GLFUNCT) contains the totals records for cost of sales accounting, which is a type of profit and loss statement that matches sales revenues to the costs of the products sold.

The contents of the cost of sales ledger and all special ledgers created in table GLCUNCT are included in the Universal Journal (table ACDOCA).

Technical Information

Type of Component	Component
Application Component	FI-SL-SL
Software Component	QRT_STAG

5.2.1.5 Reconciliation Ledger

Business Background

The reconciliation ledger tracks postings entered in Controlling for which the value flows affect other organizational units in Financial Accounting. This includes postings such as:

- Activity allocations
- Repostings
- Settlement of internal orders

Special reports let you investigate these postings across functional areas, company codes, or business areas.

With the new architecture, the contents of the reconciliation ledger (table COFIT) and all special ledgers created in table COFIT are included in the Universal Journal (table ACDOCA).

Technical Information

Type of Component	Component
Application Component	CO-OM-CEL
Software Component	S4CORE

5.2.1.6 SAP Financial Closing Cockpit

Business Background

The *SAP Financial Closing Cockpit* helps you with the planning, execution, and analysis of closing operations for the organizational units of your corporate group.

The solution provides a structured user interface for recurring periodical tasks in the closing process in which several people responsible are involved.

The following types of closing steps are supported: Transactions, direct execution of programs, execution of programs in batch processing, workflows and manual steps.

To optimize the closing process, the solution provides the following functions:

- event-controlled organization of closing activities
- Process overview and monitoring options
- Analysis tools

Technical Information

Type of Component	Component
Application Component	Financial Closing cockpit Add-on (CA-GTF-FCC)
Software Component	FCCO

5.2.1.7 Preparations for Consolidation

Business Background

With the preparation for consolidation you prepare financial reporting data in such a way that it can be processed from the consolidation application (for example consolidation (EC-CS)).

These preparations are prerequisite for the automatic transfer of data from the SAP Financial Accounting (FI) applications, Profit Center Accounting (EC-PCA), Materials Management (MM) and Sales and Distribution (SD) to consolidation. These applications that feed the consolidation manage the required account assignments in your documents and make these available to the consolidation with the data transfer.

The preparation for consolidation includes functions that can be used independently of SAP Consolidation to reconcile receivables/payables or expenses/revenue between consolidation units and to transfer data to the consolidation application of the parent company.

> **i** Note
>
> The data of the preparation for consolidation is stored in table GLT3 . Note that you may need table GLT3 when implementing SAP S/4HANA for the migration of general ledger accounting data.

Technical Information

Type of Component	Component
Application Component	Feeder components for consolidation: FI, EC-PCA for example
Software Component	S4CORE

5.2.1.8 Profit Center Accounting (EC-PCA)

Business Background

Profit Center Accounting supports you in determining internal operating income for profit centers according to period accounting or cost of sales accounting. It is also possible to display restricted assets on the profit centers.

Finally so-called statistical key figures (for example, employees, square meters) can be managed on the profit centers. This makes it possible to determine all the key figures normally used in Controlling (return on investment, cash flow, sales per employee, etc.).

Technical Information

Type of Component	Component
Application Component	Profit Center Accounting (EC-PCA)

Type of Component	Component
Software Component	S4CORE

5.2.1.9 Consolidation (EC-CS)

Business Background

The features of Consolidation (EC-CS) can be used for external as well as internal group reporting. Different types of consolidation are available on the basis of custom-defined organizational units (for example, companies or profit centers).

Consolidation enables you to periodically schedule, generate and monitor your consolidated financial statements. This process offers a high degree of flexibility with regard to the timing of closings as well as the configuration of different accounting principles.

Technical Information

Type of Component	Component
Application Component	Consolidation (EC-CS)
Software Component	S4CORE

5.2.1.10 Report Writer and Report Painter: Usage in Finance

Business Background

Report Writer and Report Painter are tools for creating reports that fulfil reporting requirements in Finance.

You can use Report Writer and Report Painter to report on data from multiple applications.

Report Writer uses a graphical reporting structure that is the basis for the reporting definition. During the definition the user sees the structure of the report in the form in which the report appears when the data is issued.

To make the report definition easier, you can use line models or column models and standard layouts.

In Report Writer you use functions such as sets, variables, formulas, cells and key figures to help you create complex reports that meet specific reporting requirements.

When working with Report Writer, you can use certain functions that are not supported by Report Painter. These functions include:

- Multidimensional column structures
- User-defined definition of inactive row and column combinations
- Enhanced functions for using cells in column formulas

Technical Information

Type of Component	Component
Application Component	Multiple application components in Finance, for example, FI-SL-IS, EC-PCA-IS-RP, EC-CS-IS-STD-RW, EC-CS-IS-USD-RW, CO-PC-IS
Software Component	S4CORE

5.2.1.11 DataSources: Usage in Finance

Business Background

A DataSource is an object that makes data for a business unit available to the SAP Business Warehouse (BW). DataSources contain a number of logically-related fields that are arranged in a flat structure and contain data to be transfered to BW.

DataSources are mainly shipped with the back end.

> **i** Note
>
> You can continue to use the DataSources for Finance; exceptions are listed in SAP Note 2270133. However, we recommend that you switch to the new DataSources as soon as they are available.

Technical Information

Type of Component	Component
Application Component	Multiple application components in Finance, for example AC, FI, CO, EC, TR
Software Component	S4CORE

5.2.1.12 Data Retention Tool (DART)

Business Background

The Data Retention Tool is designed to help SAP users meet legal requirements concerning data retention and data transfer for tax auditing. You use the tool to periodically extract and store tax-relevant data from various SAP applications. The data is extracted into sequential files which can be viewed with the tool in different ways.

We still support DART segments that are based on the old database tables (such as `COEP` and `FAGLFLEXT/A`) which have been replaced by the Universal Journal (table `ACDOCA`).

Technical Information

Type of Component	Component
Application Component	CA-GTF-DRT
Software Component	QRT_STAG

5.2.1.13 From Joint Venture Accounting: Redundant Tables

Business Background

Joint Venture Accounting enables you to form joint venture partnerships by defining Joint Operating Agreements (JOAs) with one or more partners. By combining monetary or personnel resources, you can share your project's expenses and revenues with dedicated partners. As operator you can manage ventures, arrange venture activities, and maintain accounting records. This allows you to remit venture expenses, collect revenues, and distribute revenues to your partners according to their ownership shares.

You can use the Joint Venture Ledger line item and totals tables, such as `JVS01` and `JVT01`, as well as the Billing Ledger tables, such as `JVS02` and `JVT02`.

Technical Information

Type of Component	Component
Application Component	CA-JVA

Type of Component	Component
Software Component	S4CORE

5.2.2 Travel Management

5.2.2.1 Travel Management

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Travel Management covers the end-to-end process from a travel plan, the reservation of travel services on through the creation of an expense report, its approval, settlement and posting (to financial accounting, human capital management or using data medium exchange).

Key Features

The following table explains the key features available:

Key Feature	Use
Travel Request	As a traveler, you can submit a request for an intended trip. As a manager, you can approve or reject a travel request.
Travel Planning	As a traveler, you can plan your travel itinerary by booking travel services (flights, hotels, rental cars, ...)
Travel Expenses	As a traveler, you can create and submit your expense report for reimbursement. As a manager, you can approve or reject a travel expense report.

5.2.3 Receivables Management

5.2.3.1 Electronic Bill Presentment and Payment (FI-AR, FI-AP, FI-CA)

Business Background

SAP Biller Direct allows billers to send and their customers to receive invoices electronically, thus making invoicing more efficient.

The following key features are available for bill recipients (integration with `FI-AR` and `FI-CA`)

Key Feature	Use
View bills	Bill recipients can view account balances–bills, credits, and payments.
Download bills	Bill recipients can download bills as PDF files and other formats in case an optical archive has been connected.
Pay bills	Bill recipients can pay open bills by credit card or bank transfer. They can also settle open receivables with credits.
Create payment advice notes	Bill recipients can create payment advice notes.
File complaints and make inquiries	Bill recipients can file complaints by opening a dispute case and make inquiries.
Manage balances	Bill recipients can view monthly balances and line items. They can also carry out balance confirmation.

The following key features are available for billers (integration with `FI-AP`)

Key Feature	Use
Upload and download bills	Billers can upload bills for their recipients. They can also download the bills that they have uploaded.
View open bills	Billers can check which bills are already entered in their recipients' accounting system.
View payments already made	Billers can view the payments that their recipients have already made.
Manage balances	Billers can view monthly balances and line items. They can also carry out balance confirmation.

Technical Information

Component Type	Component
Application Component	Biller Direct (`FIN-FSCM-BD`)
Software Component	`S4CORE`

5.3 Human Resources

5.3.1 Core HR and Payroll

5.3.1.1 HR Administration

> **i** Note
>
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Business Background

HR Administration enables you to manage many benefits processes, storing information on employees by date and time. Regional HR organizations can access flexible, localized processes delivered for more than 50 countries/regions.

Key Features

The following table explains the key features available:

Key Feature	Use
Personnel Administration	You can enter and process employee-related data within your company. Personnel Administration automatically checks all data as it is entered to ensure that it is plausible. All employee-related data is logged with the exact date. Data remains transparent in your time progression at all times, and creates the basis for sound personnel decisions.

Key Feature	Use
Working with Object Manager	You use the object manager to find employees whose data you want to display or edit.
Business Processes in Personnel Administration	You can perform the following business processes for an employee: • Hiring a New Employee • Organizational Reassignment of an employee • Country/Region Reassignment of an employee • Employee Leaving the company • Employee Reentry into the company
Personnel & Organization	You can use this component to manage employee master data and organizational data from a single point of access: the landing page. This intuitive user interface offers a unified and enhanced rich search, activity-based access to tasks, organizational data, employee master data, analytics, and a built-in collaboration platform.
Maintaining HR Master Data	You can use the functions for maintaining HR master data to perform all the tasks necessary to enter, update, and analyze employee data.
Technical Processes in Personnel Administration	• You can set up general authorizations that are based on the SAP-wide authorization concept or you can set up HR-specific structural authorizations that check by organizational assignment to determine if a user is authorized to perform an activity. • The employment period calculation functions enable you to determine different employment periods from the employee data. The result of the employment period calculation is required for further processes or functions. • Within Personnel Administration, the storage functions provided by SAP ArchiveLink facilitate the use of content servers to store copies of incoming documents, such as employment contracts, appraisals, and employee photos. Thus the Human Resources department can save time and money by managing the personnel file centrally as it increases in size and detail. • You can use the archiving and delete functionality to archive or destroy long-term change documents from Personnel Administration that belong to a personnel number or an applicant number.
Service Request Side Panel	As an administrator, you can use this side panel to create and maintain service requests, directly alongside the application you are using. It enables you to provide context relevant data within the service request, which aids the Shared Service Center (SSC) agent in understanding the issue.
Management of Global Employees	This is a comprehensive solution that helps global companies streamline their expatriation and repatriation processes from A to Z according to their specific needs - from the planning and the preparation of the global assignment, to the global assignment itself and the repatriation – and thus track global employees throughout the world at any time. The recruitment process, however, is not within the scope of this functionality.

Key Feature	Use
Concurrent Employment	You use this component to manage HR master data, the time data, and benefits of your concurrently employed employees, and to run the payroll for these employees.

5.3.1.2 Payroll

> **i** Note
>
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Business Background

Payroll allows you to process and ensure accurate, on-time payrolls across the enterprise. You can use this solution to process payrolls, third-party payments, tax reporting, and accounting data by country, region, and language. With its integrated functions, the solution manages differentiated value that supports net payroll calculation and legal reporting. Using this solution, users can enter HR information that becomes immediately available to payroll programs for gross-to-net calculations.

Key Features

The following table explains the key features available:

Key Feature	Use
Gross Payroll	You use this feature to determine an employee's basic remuneration as well as any special payments, overtime payments or bonuses that must be effected for the period in question.
Net Payroll	You use this feature to determine employee's net remuneration, according to contractual requirements. Net pay is the amount paid after the deduction of net and social insurance contributions from gross remuneration.
Off-Cycle Payroll	As an addition to regular payroll, which carries out payroll at fixed regular intervals, this feature enables you to carry out specific off-cycle payroll activities for individual employees on any day.

Key Feature	Use
Loans	You use this feature to enter, administer and perform payroll for company loans in the SAP system.
Bank Transfer	You use this feature after the payroll run, to generate data medium exchange (DME) files for your bank. Based on these files, the bank can process the wage and salary payments.
Posting to Accounting	You use this feature to evaluate the payroll results for posting to accounting. This feature is the interface between Payroll and Accounting.
Reporting	You use this feature to generate various reports to be used internally or to be sent to legal authorities. Some examples of reports are the Remuneration Statement, Payroll Journal, and Payroll Account.
Payroll Control Center	You use this feature to control the complete payroll process. It helps you to plan, monitor and audit your process, producing high quality results quicker and more efficiently.

5.3.1.3 Organizational Management

> **i** Note
>
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Business Background

As an HR professional or manager, you can gain a full view of your organizational structure - and capabilities of talent management processes. Assigning requirements to developed job positions provides input for choosing the most fitting, talented employees.

Key Features

The following table explains the key features available:

Key Feature	Use
Manager's Desktop	This component provides managers with data on the organizational plan of their area of responsibility and enables them to edit this information.
Editing Jobs, tasks, and staff assignments	You can create, display or assign jobs, tasks, or staff assignments.
Authorizations for Human Resources	You can set up general authorizations that are based on the SAP-wide authorization concept or you can set up HR-specific structural authorizations that check by organizational assignment if a user is authorized to perform an activity. Note: All information refers to the SAP Standard Release 4.70 unless otherwise stated.
Workforce Viewer	The Workforce Viewer provides a simplified solution for representing organizational (org.) structures. The main objective is to use and display the solution within the Human Capital Management (HCM) lanes for applications such as Manager Self-Service (MSS), Personnel & Organization, and Employee Self-Service (ESS). The solution has been conceptualized to provide an easy-to-use and aesthetically pleasing graphical representation of different org. structures. Currently, the solution displays three different object types, organizational units (OrgUnit card), positions (position card), and employees (employee card).
Position Budgeting and Control	You can use this component to finance employees efficiently in accordance with budget or legal requirements.
HR Funds and Position Management	Gives you a detailed view of your overall personnel budget, and links this budget to the staff and positions in your organization.
Personnel Cost Planning and Simulation	This component enables you to execute operational personnel cost planning. You plan the development of your employees' wages and salaries and employee benefit costs, for example, employer contributions to social insurance and further education and training costs. You can simulate different planning scenarios that are based on various assumptions and analyze the effects they have on the company. Personnel Cost Planning and Simulation enables you to support strategic personnel management and the overall strategy of your company.

5.3.1.4 Compensation Management

> **i Note**
>
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Business Background

Compensation management enables you to differentiate between your remuneration strategies and those of your competitors while still allowing flexibility, control, and cost effectiveness. It provides a toolset for strategic remuneration planning that reflects your organization culture and pay strategies, and it empowers line managers within a framework of flexible budget control. Compensation Management allows you to control bottom-line expenditures and offer competitive and motivating remuneration, be it fixed pay, variable pay, stock options, merit increases, or promotion – in other words, total compensation.

Key Features

The following table explains the key features available:

Key Feature	Use
Compensation Administration	You can use this component to plan and process remuneration changes.
Long-Term Incentives	You can use this component to set up your company's long-term incentive (LTI) plans and describe how equity compensation should be granted and handled.
Budgeting	You can use this component to create, change, and monitor budgets in your company.
Job Pricing	You can use this component to analyze, evaluate, and determine the compensation level for specific jobs, based on the current market rate. This component enables you to offer competitive compensation packages that attract the best possible pool of applicants, thus enabling you to hire the best possible employees for your organization.

5.3.1.5 Manager Self-Service

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Manager Self-Service enables you to increase productivity and reduce operational burdens for HR staff. A role-based user interface that helps managers make decisions on executing human capital, financial, and

operational management strategies. This solution supports planning, analysis, budgeting, recruitment, compensation, employee development, and cost management processes on any device. Access to automated processes, data, and workflow requests can reduce cycle times and transactional costs. It integrates self-services with business intelligence capabilities and aggregates data from all sources. Managers can use this integrated data to make informed decisions regarding corporate strategies and resource management.

Key Features

The following table explains the key features available:

Key Feature	Use
Manager Self-Service: Home page	You can view: • Team • Birthdays and Anniversaries • Time Recording Status for My Team • Deadline Monitor • Competency Matchup • Substitution
Manager Self-Service: Work Overview Page	You can use this application to access your inbox. The inbox lists the work items, alerts, and notifications for which you are responsible.
Team	• You can have an overview of the team attendance and also view the team calendar. • You can display employees for one or more organizational units, display directly reporting employees in a list, search for employees. • You can start a process for one or more employees. • You can start the hiring process for a new employee. • You can display forms and attachments. • You can select one or more direct reports to manage their participation bookings.
Recruiting	• You can obtain a comprehensive overview of all requisitions that you have initiated with your own requisition request that you are processing as a substitute for another manager, or that were assigned to you by a recruiter. • You can call and edit questionnaires for candidates. • You can assess candidates with regard to the Talent Pool or requisition. • You can display a data overview of requisitions, requisition requests, candidates, and job postings. • You can create or edit a requisition request. • You can specify substitutes who can take over their tasks during planned or unplanned absences under the recruitment process.

Key Feature	Use
Talent Management	• You can display the pie-chart and competencies matchup information. • You can execute a flexible or predefined appraisal process. • You can plan or approve compensation for managers or employees assigned to you. • You can display an overview of the current status of the planning process in Compensation. • You can display detailed information about an employee's compensation. • You can compare compensation of multiple employees. • You can display an employee's detailed employee compensation profile.
Planning	You can: • Display service requests submitted requesting master data changes and budget updates • Manage planning rounds as part of Express Planning
Projects	You can: • Display service requests submitted requesting master data changes and budget updates • Display planned costs and cost consumption on orders for which you are responsible • Display planned costs and cost consumption for projects based on the work breakdown structure (WBS) elements • Display the budget and funds available on orders for which you are responsible • Display the budget and funds available for projects based on the work breakdown structure (WBS) elements
Budget	You can display: • Critical variances by profit Centers, Cost centers, or orders • Critical postings by profit Centers, Cost centers, or orders • Costs and depreciation associated with each asset and piece of equipment • Assets and pieces of equipment that are assigned to each employee
Organization	You can: • Displays the Organization Units in the manager's area of responsibility • Select and launch position profile • Request an administrative change for a job, position, or organizational unit • Search for organizational processes • Change the position requirements for your positions
Reports	You can use this service to launch reports that are relevant for you.

Key Feature	Use
Substitution	You can substitute both tasks and applications to other users in an organization.
Reminder of Dates	You can use this service to see the birthday, anniversaries, and dates from the monitoring of task absence data for the employees who are in your area of responsibility.
Employee Self-Service on Behalf in MSS (WDA)	You can launch services (applications) on behalf of your employees

5.3.1.6 Employee Self-Service

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Employee Self-Service enables you to improve productivity by automating processes and reducing administrative costs, cycle time, and error rates. By giving employees more control over their own data, organizations can realize a quicker return on investment. Self-services gives employees personalized access to their own HR data, processes, and services. Employees take more responsibility for their jobs and career development. Employees can enter, display, and update personal information such as bank information and emergency contacts. HR staff members freed from routine inquiries and data entry can focus on strategic initiatives that contribute to business goals.

Key Features

The following table explains the key features available:

Key Feature	Use
Employee Self-Service (ESS) in Training and Event Management	You can: • Display the current business event offering. • View all of their bookings and the status of each booking. • Provide support for the organization and management of business events by giving internal Intranet users access to an event calendar divided into subject areas. • Make bookings or prebookings for business events directly via Intranet. • Access information on bookings they have made for training courses or other business events offered by your company. • Cancel your own bookings on business events offered by your company.
Employee Self-Service (ESS) in Recruitment	You can: • Apply to vacancies advertised internally • Create attachments • Check the status of your job applications over the intranet
Employee Self-Service (ESS) in Personnel Development	You can: • Edit your qualifications profile • Compare your qualifications profile with the requirements profile of the position to which you are assigned. • View the qualifications (skills, talents, knowledge) that have been recorded in the system for you • View the requirements of the position to which you are assigned • View the appraisals where you have been the appraisee (annual reviews, for example)
ESS Services in Compensation Management	You can: • Execute salary surveys • Display a total compensation statement • Exercise awards
Employee Self-Service for Concurrent Employment	You can: • Maintain Multiple Personnel Assignments • Prevent Access to Services • Customize Global Employment Roles
ESS for Enterprise Compensation Management	You can view and print their Total Compensation Statement (TCS) whenever required.

Key Feature	Use
ESS for Personnel Time	You can record your time and absences for the projects assigned to you.
Employee Self-Service (ESS) in Training and Event Management	You can: • Display the current business event offering • View all of your bookings and the status of each booking • Access to an event calendar divided into subject areas through the intranet • Make bookings or pre-bookings for business events directly through intranet. • Access information on bookings that you have made for training courses or other business events offered by your company • Cancel your bookings for business events offered by your company
International Services	International Services are available with ESS

5.3.1.7 Benefits Enrollment and Administration

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Benefits Enrollment and Administration enables you to develop and manage employee benefit plans. As an HR staff, you can improve communication of information to and from benefits providers and review related reports. As a manager or an employee, you can access and change your benefits selections through self-service.

Key Features

The following table explains the key features available:

Key Feature	Use
Benefits Management	You can perform the following main activities using this component: • Enroll employees in benefits plans and terminate enrollments • Monitor continuing eligibility for plans • Monitor provision of evidence of insurability • View information about current benefit enrollments • Print enrollment and confirmation forms • Transfer data electronically to plan providers • Administer retirement plans
Benefits Employee Self-Service	You can use this component to manage your benefits independently online. You have continual access to up-to-date information about your benefits, and any changes you make are immediately effective.
USA Specifics	Addresses functions in the Benefits Administration component that are specific to United States employers. This component includes information on infotypes that are used to administer COBRA plans, Flexible Spending Accounts and Tax-Sheltered Annuity Plans, as well as reports that are used to monitor employee contributions made to benefits plans.
Asia Specifics	This component enables you to implement the Claims function for Asia. This function caters mainly to medical claims, but this can also be used for other claims such as cloth reimbursements. Since most of the health care is private, a medical insurance is part of the contract of employment.
UK Specifics	This new solution for the UK market enhances existing functions delivered with the International Benefits component. It provides you with a wide range of functions to implement your chosen Flexible Benefits scheme and enable your employees to enroll in benefits plans.
Pension Fund (PA-PF)	This component includes functions that • Calculate employee contributions to the pension fund • Calculate benefits (technical account management) • Create reports • Manage a pension fund

5.3.1.8 HR Shared Services

> **i** Note
>
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Business Background

HR Shared Services enables you to deliver accurate, consistent, and timely responses to employees and managers. It simplifies the workflow required to respond to HR requests. Providers can reduce costs while helping to improve employee satisfaction with services. It provides HR services through shared-services channels in an engaging, helpful manner. Organizations can optimize shared-service delivery using the consistent, predictable, and easily navigated workspace that our software provides.

Key Features

The following table explains the key features available:

Key Feature	Use
HCM Processes and Forms	You can use this component to execute HR processes in which changes are to be made to HR master data. You can use interactive forms to integrate all involved roles directly in the process.
HR Administrator	This subcomponent of HR Administrator Services contains the HR Administrator portal role that provides all tasks and functions for the HR department in the portal. The role of HR Administrator is integrated optimally in the HCM Processes and Forms framework: The system automatically forwards the processing steps of a process that are to be performed by an HR administrator to the portal role. You can also edit employee data in this role. This function is based on the maintenance of HR master data. The HR administrator can call the master data maintenance directly using the Employee Data Maintenance in the portal or through the backend system. The HR administrator can also change master data without using the HCM Processes and Forms framework.
Digital Personnel File (DPF)	You can use this component to provide central storage for all documents that affect the employees of your company. You can store documents relating to the work relationship, remuneration, life events, for example, or certificates and other legal documents. You can design the structure of the Digital Personnel File (DPF) to suit your own requirements.

Key Feature	Use
Web Dynpro ABAP UI (Alternative UI)	The HCM Processes and Forms framework previously used the Adobe interactive forms solution integrated with Web Dynpro ABAP for its user interface (UI). A new UI based on the Floor Plan Manager (FPM) framework has been created as an alternative.

5.3.2 Talent Management

5.3.2.1 Goal and Performance Management

> **i** Note
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Business Background

Goal and Performance Management enables you to motivate your workforce by aligning them with corporate goals. Managers can cascade goals, review employee performance, and identify each employee's development needs with standardized, consistent appraisal and performance processes. Using this solution, managers can develop employees, calibrate their overall performance, and review potential ratings in a visual grid. They can also integrate those performance ratings with compensation management to support pay for performance - enabling the HR organization to monitor, support, and control performance processes.

Key Features

The following table explains the key features available:

Key Feature	Use
Development plans	You use this component to map general and individual personnel development plans in your system. You can use these development plans to plan and manage short-term and long-term personnel development measures.

Key Feature	Use
Objective Setting and Appraisals	This component supports you when you perform user-defined appraisal processes that assure appraisals are performed in a formalized and standardized manner in a standard business context. You can depict the typical phases of an appraisal process such as planning, reviewing, and performing.
Appraisal Systems	This component provides you with the support you need for creating appraisal systems, and planning, implementing, and reporting on appraisals. An appraisal system is a self-contained process that enables you to make formal and standardized evaluations in a business context using one or more templates (appraisal models), and in as objective a manner as possible.

5.3.2.2 Talent Assessment

> **i** Note
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Business Background

Talent Assessment enables you to consolidate employee talent profiles for full assessments in a structured and objective approach. With greater ease and speed, HR professionals and business leaders can prepare, conduct, and follow-up on talent review meetings with a cross-organizational view of up-to-date talent data. As a result, business leaders can make more-informed decisions on talent pool membership, and create and manage succession plans, employee performance and potential ratings.

Key Features

The following table explains the key features available:

Key Feature	Use
Transfer of Data to Talent Management	You can use this function to transfer existing Talent Management data from other applications into Talent Management (PA-TM).
Search in Talent Management	You can search the talent pool to identify possible successors for important positions or to discuss talents in talent review meetings

Key Feature	Use
Assessment of Employees	You can use this function to assess your employees.
Talent Profile	You can store all information relevant to Talent Management for an employee.
Talent Group	You can use this function to create groups for classifying talents and thus structure the pool of talents in your enterprise in larger logical units: Assigning a talent to a particular talent group enables a systematic entry of that talent's development and thus a better overview when managing talents, for example, for Succession Planning.
Talent Review Meeting	You can use this function to prepare, hold, and follow up on meetings for discussing talents.
Side-By-Side Comparison	You can use this function to place the short profiles of two or more talents next to each other and compare them side-by-side.
Talent Development	You can use this function to edit development plans for employees and monitor their progress.

5.3.2.3 Skill Management

> **i** Note
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Business Background

Skill Management enables you to maximize employees' utility within your company. You can plan and implement specific personnel and training measures to promote the professional development of your employees. You can also ensure that staff qualification requirements are met and planned. By taking into account employees' preferences and suitability, you can increase job satisfaction. Personnel development sets out to ensure that all of the employees in all of the functional areas in your company are qualified to the required standards, and will remain so in the future. This is achieved by developing qualification potentials.

Key Features

The following table explains the key features available:

Key Feature	Use
Qualifications and Requirements	You use the Qualifications and Requirements component to define, structure, and manage your qualifications catalog. Based on this qualifications catalog, the organizational structure (and, if required, other information) you can create profiles. You can then use these profiles to manage, evaluate, and compare object characteristics. The profiles can be used to show both the requirements of a position and the qualifications and career goals (preferences) of a person. You can also run profile matchups to find out how suitable certain persons are for a certain position in your organization, for example. If any qualification deficits arise, you can plan further training measures.

5.3.2.4 Succession Management

> **i** Note
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Business Background

Succession Management enables you to develop and manage employee benefit plans. HR staff can improve communication of information to and from benefits providers and review related reports. Managers and employees can access and change their benefits selections through self-service to better serve their own needs. HR staff can maintain legal compliance at lower cost on a single record system integrated with self-services and payroll processes. Integrated processes support all HR administrative tasks and flexible reporting and analytics provide a fuller view and insight into benefits processes.

Key Features

The following table explains the key features available:

Key Feature	Use
Careers	This function enables you to create and change careers. A career is a collection of jobs or positions, and describes a generally applicable career path within the organizational structure. By defining careers, you can portray the principal personnel development paths within your company.
Career Planning	This function enables you to prepare and work your way through career planning scenarios. A career planning scenario takes an employee's personality, skills and abilities and determines the positions this employee should occupy in the course of his or her future career, and the training measures required to obtain the additional qualifications needed for this. A career planning scenario anticipates how an employee's career will develop.
Succession Planning Scenarios	This function enables you to prepare and work your way through succession planning scenarios. Succession planning sets out to ensure that there is a continuous supply of qualified personnel.
Organizational Basis of Succession Planning	You use this function to make organizational arrangements for Succession Planning.
Job Architecture for Talent Management	You can use this function to edit the job architecture for Talent Management, meaning the job catalog with functional areas, job families, jobs, and positions. In particular, the job architecture forms the basis for Succession Planning.
Automatic Limiting of the Validity for Successor Assignments and Talent Assignments	The system uses this function to automatically delimit or delete successor assignments and talent assignments for employees (see Delimit) if one of the following situations arises: • An employee previously assigned to a position as a potential successor becomes the new holder of this position. • A talent's employment status changes from Active to Left Company, Inactive, or Pensioner.

5.3.3 Time and Attendance Management

5.3.3.1 Time Capture

> **i** Note
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Business Background

Time Capture enables you to record and manage time data effectively and efficiently. It provides you with a comprehensive and effective business concept and related processes for manual and automatic recording of personnel times. Time recording allows you to enter employee time data for working time, leave, business trips, and substitutions using different methods. This data can be entered as clock times or in hours and can contain account assignment specifications for other SAP applications.

Key Features

The following table explains the key features available:

Key Feature	Use
Maintaining and Displaying Time Data Using The Time Data Menu	You can update or display time data using the Time data menu. This option allows you to access all Time Management infotypes in the Personnel Time Management, and then display or maintain them.
Maintaining and Displaying Time Data Using Calendars	You can maintain or display data using either a weekly, monthly, or annual calendar. Using calendars facilitates the fast entry of data, and also allows you to view the data record history for a selected period.
Fast Entry of Data	The fast entry of time management data enables you to maintain several subtype records for an employee within the same time infotype, as well as maintain one infotype for several employees. The fast entry function merely takes required entries into account. This allows you to record essential time management data more quickly and efficiently.
Cross-Application Time Sheet	You can use the Cross-Application Time Sheet for recording working times and tasks. It enables you to control all business processes concerning your employees' tasks – from paying the employees, through monitoring the progress of a project, to creating invoices.
Personnel Time Events	The Personnel Time Events component enables you to connect external time recording systems to SAP Time Management. If your employees enter the start and end of their working times on time recording terminals, you can use this component to process the resulting time events in Time Management. You can also process employee expenditure data resulting from purchases at company cafeterias and service stations.
Plant Data Collection	This component controls the transfer of confirmations to Time Management from the following application components: • Production Planning and Process Control • Plant Maintenance and Customer Service • Project System

Key Feature	Use
Timesheet	You can log in time spent on different tasks (projects or non-project related) using this feature.

5.3.3.2 Time Calculation

> **i** Note
>
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Business Background

Time Calculation enables you to define and manage time elements for payroll schedules, and shifts. Use a time-evaluation component to generate a variety of payroll-related time codes to determine employee pay. Decision makers can use time management analytics to get other targeted workforce information. You can get this solution designed for global processes, as well as localized processes for more than 50 countries/regions, in a single platform.

Key Features

The following table explains the key features available:

Key Feature	Use
Work Schedule	You store working and break times for groups of employees in this component. This then allows to you to structure working times for your enterprise. You can define work schedules with flextime models or rotating shifts for particular organizational units. You can also set up the legislative regulations, collective agreements, and internal company policies that stipulate employee working time in your system.
Shift Planning	This application component allows you to determine and schedule the appropriate number and type of human resources required for your enterprise to carry out business requirements.
Integrating Time Management with Other Components	You can use the Integrating Time Management with Other Components to record time data that can also be used and processed by other components.

Key Feature	Use
Time Manager's Workplace	It is a user interface incorporating the tasks involved in administrating employee time and labor and time evaluation messages. It was specifically designed to meet the needs of time administrators in decentralized departments.
Time Management for Concurrent Employment	If you have employees who have one or more personnel assignments with one or more employers, you can use this component to process your employees' time-management data.
Time Evaluation Without Clock Times	You can use this component to evaluate employees' personnel times. It processes time data that has been imported to the SAP system from time recording subsystems and data that has been recorded online. You can use this component to evaluate the time data of employees who enter only exceptions to the work schedule and of employees who record all times relevant to their working time (actual times). Processing in this component assumes that times are expressed as the duration of work, and not the start and end times of work times and employee absences. All recorded times are recognized as working time. Working time provisions to be checked, such as calculation of overtime, relate to employees' daily or weekly work performed.
Time Evaluation With Clock Times	The Time Evaluation With Clock Times component is used to evaluate employees' personnel times. It processes time data that has been imported to the SAP system from time recording subsystems and data that has been recorded online. You use this component to evaluate employees' time data where all times that are relevant to the working time (actual times) are recorded. Processing in this component assumes that times are expressed as start and end times of work performed or of absences. The main function of the component is to classify the actual times by comparing them with the planned working time data stipulated in the daily work schedule (planned working time start and end, core times, break times). Working times that exceed the specified working time frame are recognized, and are generated as overtime if attendance approvals exist for the relevant employees.
Time Data Processing in Time Evaluation	You can use this function to customize the processing steps of time evaluation to suit your requirements.
Day Processing of Time Data in Time Evaluation	You can use this to evaluate time data on a daily basis.
Integration with Payroll	You can use this component to provide the Payroll component or a third-party payroll system with information on bonuses and the valuation of hourly and overtime wages. This information is required for the calculation of the gross wage.

Key Feature	Use
Time Statement Form	You can use the time statement form to present the results determined by time evaluation to your employees in a clear layout. You do so by using the time statement form to create a template that is used by the system to create your employees' time statements.
Message Processing in the Time Manager's Workplace	A redesigned message processing function has been integrated into the Time Manager's Workplace. It enables time data administrators to use the same user interfaces for processing time evaluation messages as for maintaining time data.
Time Management Pool	The Time Management pool is a comprehensive instrument that can be used to check, correct, and display evaluated time data. Time data administrators can perform all their most important administrative tasks, such as processing time evaluation messages, from one central screen.
Incentive Wages	This component is implemented for performance-oriented remuneration. The following forms of remuneration are covered: • Time wages • Premium wages • Piecework wages You can implement both individual incentive wages and group incentive wages.

5.3.3.3 Absence Management

> **i** Note
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Business Background

Absence Management enables you to define and manage working calendars and vacation allowances for global and localized processes for more than 50 countries/regions in one platform. Use multiple interfaces: employee self-services, manager self-services, and mobile access. Employees can enter absences, attendance, and breaks. Managers can approve attendances and absences.

Key Features

The following table explains the key features available:

Key Feature	Use
Absences/Attendances	You can use this component to create the basic time information for the evaluation and accounting of your employees' working times. You can also record working times or absence times for individual employees.
Quotas	You can use this component to set up and administrate time accounts, which concern employees' absence entitlements and attendance and overtime approvals.

5.4 Manufacturing

5.4.1 Quality Management

5.4.1.1 Quality Improvement

Business Background

To improve your processes and products you can analyze different quality key figures.

Key Features

The following feature is available, but it is part of the SAP S/4HANA Compatibility Packs:

Key Feature	Use
Quality key figures	The quality management information system allows you to analyze quality key figures, for example, concerning quality inspections or notifications.

5.4.2 Production Planning

5.4.2.1 Sales and Operations Planning

Business Background

Sales and Operations Planning (SOP) is a flexible forecasting and planning tool with which sales, production, and other supply chain targets can be set on the basis of historical, existing, and estimated future data. Rough-cut planning can also be carried out to determine the amounts of the capacities and other resources required to meet these targets. You can use SOP to streamline and consolidate your company's sales and production operations. SOP is particularly suitable for long- and medium-term planning.

Key Features

The following features are available:

Key Feature	Use
Standard SOP	Enables you to plan at any level of aggregation, for example, high-level planning of planning hierarchies and/or product groups or detailed planning of finished products. Not only can you create sales and production plans, you can also plan other items of information such as key figures from an information structure. Moreover, you can also perform resource leveling for work center capacities, materials, production resources/tools, and costs to ensure that resources are sufficient to meet targets. You plan using an easy-to-use planning table such as a spreadsheet, in which you can define macros and events and compare actual data with planned data. Standard SOP comes largely preconfigured with the system.
Flexible Planning	Offers multiple options for customized configuration: You can plan on any organizational level, and also define the content and the layout of the planning screens. You can process your planning data from the standpoint of almost any organizational unit (for example, sales organization, material group, production plant, product group, material) and even from the standpoint of the entire enterprise. The planning table in which you work resembles a spreadsheet. You have enormous scope to track previous planning data, anticipate market demand, run analyses, and perform what-if simulations. A series of mass processing functions automate the planning of large volumes of data.

5.4.2.2 Material Requirements Planning

Business Background

Material requirements planning enables you to ensure the availability of materials and perform basic production planning. It is typically performed by the MRP controller who monitors the material shortage situation and solves any issues on time. Another main task is to ensure that sufficient supplies have been planned to cover requirements — whether from sales orders, stock transfer orders, or from production, for example. The goal is to ensure that both customer and production demand are available on time and to avoid any disruptions due to missing parts.

Key Features

The following features are available:

Key Feature	Use
Execute classic MRP	If you have implemented BAdIs in classic MRP, you can continue to use these BAdIs in the classic MRP run in SAP S/4HANA. You can use MRP lists to check the classic MRP result. MRP lists are used to find materials with issues. These lists are snapshots of the material supply and demand situation at the time of the last classic MRP run.
Demand forecasting	You can estimate future material demand based on historic material consumption data. You can then use the material demand forecast to create planned independent requirements which are planned in the planning run and result in purchase requisitions or in planned orders. You can also use the demand forecast to compute safety stocks and reorder points.
Forecast-based planning	You can perform forecast-based planning which is based on material consumption. As for reorder point planning, forecast-based planning operates using historical values and forecast values and future requirements are determined using the integrated forecasting program. However, in contrast to reorder point planning, these values then form the basis of the planning run. The forecast values therefore have a direct effect in MRP as forecast requirements.

Key Feature	Use
Line balancing and sequencing	You can adjust the capacity of a line hierarchy to a specific model mix using line balancing. The capacity of the line hierarchy is determined by the number of takts and the number of individual capacities in the line segments. The model mix is determined by several materials, the rate of the materials and the rate routings, according to which the materials are produced. You can adjust the capacity by changing the number of takts (processing stations) and the individual capacities (people) and, if applicable, the assignment of the operations to the line segments. Here, the system automatically adjusts the rate routings in the background. You carry out a line balance if you use sequencing and if you produce several materials or material variants on a production line at one time. In sequencing, the system determines the production sequence of planned orders on the assembly lines.
Graphical planning table	You can use the graphical planning table (also known as the graphical planning board or Gantt chart) for capacity load leveling and sequence planning. You can display the data from the various evaluation lists in the capacity evaluation using the SAP presentation graphic. You can also use the SAP Gantt chart Operation/ Work Center to obtain an overview of the dates of operations at a work center. You can define the settings for the layout of data for the various graphics in the graphics profile. You specify whether the system displays the data for the standard overview as blocks, bars or lines.

5.4.3 Manufacturing Execution for Discrete Industries

5.4.3.1 Production Execution

Business Background

This capability enables you to make all the necessary preparations required for production, to coordinate the exchange of data relevant to production, and to document production progress. It is typically performed by the production operator and includes the following tasks:

- Material staging before production starts.
- Reporting goods withdrawals.
- Processing time tickets for a production order or a process order.
- Entering the goods receipt information for the order on completion of the product.
- Executing planned manual production steps.
- Documenting and logging production information.

Key Features

The following features are available:

Key Feature	Use
Electronic records	You can use electronic records to evaluate the logs that can be written for changes in database table content. These logs are stored in database table `DBTABLOG`. You can also display change documents and logs of long text changes. Electronic records are part of the SAP functionality that supports legal compliance in the regulated environment (for example, in the production of active ingredients and pharmaceuticals).
Electronic batch record	You can use the functionality of electronic batch record (EBR) if you work in a regulated environment (production of active ingredients, pharmaceuticals, and so on). The content of the EBR is stored in optical archives (using SAP ArchiveLink technology). EBR content is revisited during external audits. The content has to be available for 10 years on average.
Material identification/reconciliation (process industry)	You can use material identification to identify and verify the ingredients at the production line. You can use material reconciliation to analyze and verify ingredients at the end of a production process. It enables you to compare the material quantity that actually flowed in with the planned quantity or the quantity of the material produced. You can also display other information regarding the ingredients using the movement types. Reconciliation of the ingredients can ensure that there are no discrepancies outside of the valid range in the relationship between the input and yield.
Process messages	When a manufacturing order is carried out, actual process data is needed that documents the process and is available for further processing in the system and in external function modules such as process control systems. You can use this feature to send actual data from process control to predefined message destinations. Depending on the destination type, various business transactions are triggered in this way in the SAP S/4HANA system or in an external system and data is reported.
Control recipes (process industry) Control instructions (discrete manufacturing)	Using control recipes/instructions, you transfer control data from the manufacturing order to process control. The information contained in a control recipe/instruction and the destination to which it is sent are user-defined.
Process operator cockpits (process industry)	You can use this feature to link various elements of your company's process control systems as well as to monitor production execution processes. Process operator cockpits provide a single view to the operator. They can be configured for specific tasks or work groups. In one interactive screen, you can include elements such as a toolbar with shortcuts to various operations, a process instruction sheet, and a view of a process control system.

Key Feature	Use
Process instruction sheets (process industry)	You can use process instruction sheets (PI sheets) to exchange data between the partially or completely manually operated production level and the system. In manually operated production lines, this usually involves a process operator who uses the PI sheet to transfer production-relevant actual data to the system and receives data from the system. You can describe the entire production process of a product or only part of it in a PI sheet. If the PI sheet only represents part of the production process, you usually need several PI sheets to manufacture a product. You can, for example, define control and picking information for the individual production steps in the PI sheets. The PI sheet is used to inform the process operator about the individual production steps that need to be performed. The process operator can interactively maintain the PI sheet according to the phase sequence. In addition to control information, the PI sheet can contain input fields and pushbuttons. You can, for example, define fields to be filled by the process operator with the quantity of material components consumed for a phase. The material withdrawals must then be posted as goods issues in inventory management. You can use process messages to carry out this function automatically.
Work instructions (discrete manufacturing)	You can use electronic work instructions that represent the result of control instructions which are sent to your machine operator. The content is displayed as text on the screen. The instructions describe how and in which sequence a product is manufactured and can be processed on the screen. You can enter, confirm, report, or complete data interactively. Work instructions thus facilitate communication between the system and your machine operator on production lines that are operated manually (either fully or partially).
Production campaign (process industry)	You can group planned orders and process orders to produce a certain amount of a material over a certain period of time. This is done in an uninterrupted sequence on one production line. The aims of production campaigns are to: • Reduce costs achieved by grouping sequences of identical production charges and thus carrying out more efficient setup and clean-out processes which can be very costly. • Increase product quality in cases where the desired quality level is achieved gradually in the production process as opposed to immediately from the first batch. • Achieve more exact settlement resulting from clear distribution of campaign fixed costs (setup, clean-out, and tear down costs) to the orders involved.

5.4.3.2 Manufacturing Analytics

Business Background

The Shop Floor Information System is part of the Logistics Information System that you can use to analyze manufacturing data.

Key Features

The following standard analyses are available in the Shop Floor Information System:

Key Feature	Use
Work center analysis	You can use the work center standard analysis to evaluate work center data. The information structure S024 provides the data for the analysis.
Operation analysis	In the standard operation analysis you can evaluate the data from the operation. The information structure S022 provides the data for the analysis.
Material analysis	The material standard analysis allows you to evaluate the data for material. The information structure S023 provides the data for the analysis.
Production order analysis	In this analysis you can evaluate the data for production orders. The information structure S021 provides the data for the analysis.
Material usage analysis	In the material usage analysis, you can analyze data from the production orders, run schedule headers, and process orders. You can use the material usage analysis to find information on the total number of components used to produce a material, the individual components that were affected by the material usage, the planned and actual requirements quantity, for example. The information structure S026 provides the data for the analysis.
Run schedule header analysis	The run schedule header analysis enables you to evaluate the key figures from the run schedule header. The information structure S025 provides the data for the analysis.
Product costs analysis	Data from production orders, run schedule headers, and process orders can be evaluated in the product cost analysis. Both planned and actual costs for production and process orders are updated to product costs. The planned costs are updated at the exact time of release, the actual costs are updated at the point of completion confirmations and goods issues. The information structure S027 provides the data for the analysis.

Key Feature	Use
Reporting point statistics analysis	You can use this analysis to evaluate the data from repetitive planning. Here, the number of units for so-called reporting points (comparable with events in the production order) are determined and updated. The data required for the analysis is provided by the confirmed quantities and the confirmed scrap for the reporting point, which are updated in information structure S028.
Kanban analysis	The Kanban standard analysis is based on the data from the Kanban component that is updated to the information structure S029.
Exception analysis	You can display exceptions that you have defined using the *Early Warning System*. The exception analysis acts as a filter. That is, only the exceptional situations are displayed providing you with timely system support in the detection and correction of undesirable situations.

5.4.4 Manufacturing Execution for Process Industries

5.4.4.1 Production Execution

Business Background

This capability enables you to make all the necessary preparations required for production, to coordinate the exchange of data relevant to production, and to document production progress. It is typically performed by the production operator and includes the following tasks:

- Material staging before production starts.
- Reporting goods withdrawals.
- Processing time tickets for a production order or a process order.
- Entering the goods receipt information for the order on completion of the product.
- Executing planned manual production steps.
- Documenting and logging production information.

Key Features

The following features are available:

Key Feature	Use
Electronic records	You can use electronic records to evaluate the logs that can be written for changes in database table content. These logs are stored in database table `DBTABLOG`. You can also display change documents and logs of long text changes. Electronic records are part of the SAP functionality that supports legal compliance in the regulated environment (for example, in the production of active ingredients and pharmaceuticals).
Electronic batch record	You can use the functionality of electronic batch record (EBR) if you work in a regulated environment (production of active ingredients, pharmaceuticals, and so on). The content of the EBR is stored in optical archives (using SAP ArchiveLink technology). EBR content is revisited during external audits. The content has to be available for 10 years on average.
Material identification/reconciliation (process industry)	You can use material identification to identify and verify the ingredients at the production line. You can use material reconciliation to analyze and verify ingredients at the end of a production process. It enables you to compare the material quantity that actually flowed in with the planned quantity or the quantity of the material produced. You can also display other information regarding the ingredients using the movement types. Reconciliation of the ingredients can ensure that there are no discrepancies outside of the valid range in the relationship between the input and yield.
Process messages	When a manufacturing order is carried out, actual process data is needed that documents the process and is available for further processing in the system and in external function modules such as process control systems. You can use this feature to send actual data from process control to predefined message destinations. Depending on the destination type, various business transactions are triggered in this way in the SAP S/4HANA system or in an external system and data is reported.
Control recipes (process industry) Control instructions (discrete manufacturing)	Using control recipes/instructions, you transfer control data from the manufacturing order to process control. The information contained in a control recipe/instruction and the destination to which it is sent are user-defined.
Process operator cockpits (process industry)	You can use this feature to link various elements of your company's process control systems as well as to monitor production execution processes. Process operator cockpits provide a single view to the operator. They can be configured for specific tasks or work groups. In one interactive screen, you can include elements such as a toolbar with shortcuts to various operations, a process instruction sheet, and a view of a process control system.

Key Feature	Use
Process instruction sheets (process industry)	You can use process instruction sheets (PI sheets) to exchange data between the partially or completely manually operated production level and the system. In manually operated production lines, this usually involves a process operator who uses the PI sheet to transfer production-relevant actual data to the system and receives data from the system. You can describe the entire production process of a product or only part of it in a PI sheet. If the PI sheet only represents part of the production process, you usually need several PI sheets to manufacture a product. You can, for example, define control and picking information for the individual production steps in the PI sheets. The PI sheet is used to inform the process operator about the individual production steps that need to be performed. The process operator can interactively maintain the PI sheet according to the phase sequence. In addition to control information, the PI sheet can contain input fields and pushbuttons. You can, for example, define fields to be filled by the process operator with the quantity of material components consumed for a phase. The material withdrawals must then be posted as goods issues in inventory management. You can use process messages to carry out this function automatically.
Work instructions (discrete manufacturing)	You can use electronic work instructions that represent the result of control instructions which are sent to your machine operator. The content is displayed as text on the screen. The instructions describe how and in which sequence a product is manufactured and can be processed on the screen. You can enter, confirm, report, or complete data interactively. Work instructions thus facilitate communication between the system and your machine operator on production lines that are operated manually (either fully or partially).
Production campaign (process industry)	You can group planned orders and process orders to produce a certain amount of a material over a certain period of time. This is done in an uninterrupted sequence on one production line. The aims of production campaigns are to: • Reduce costs achieved by grouping sequences of identical production charges and thus carrying out more efficient setup and clean-out processes which can be very costly. • Increase product quality in cases where the desired quality level is achieved gradually in the production process as opposed to immediately from the first batch. • Achieve more exact settlement resulting from clear distribution of campaign fixed costs (setup, clean-out, and tear down costs) to the orders involved.

5.4.4.2 Manufacturing Analytics

Business Background

The Shop Floor Information System is part of the Logistics Information System that you can use to analyze manufacturing data.

Key Features

The following standard analyses are available in the Shop Floor Information System:

Key Feature	Use
Work center analysis	You can use the work center standard analysis to evaluate work center data. The information structure S024 provides the data for the analysis.
Operation analysis	In the standard operation analysis you can evaluate the data from the operation. The information structure S022 provides the data for the analysis.
Material analysis	The material standard analysis allows you to evaluate the data for material. The information structure S023 provides the data for the analysis.
Production order analysis	In this analysis you can evaluate the data for production orders. The information structure S021 provides the data for the analysis.
Material usage analysis	In the material usage analysis, you can analyze data from the production orders, run schedule headers, and process orders. You can use the material usage analysis to find information on the total number of components used to produce a material, the individual components that were affected by the material usage, the planned and actual requirements quantity, for example. The information structure S026 provides the data for the analysis.
Run schedule header analysis	The run schedule header analysis enables you to evaluate the key figures from the run schedule header. The information structure S025 provides the data for the analysis.
Product costs analysis	Data from production orders, run schedule headers, and process orders can be evaluated in the product cost analysis. Both planned and actual costs for production and process orders are updated to product costs. The planned costs are updated at the exact time of release, the actual costs are updated at the point of completion confirmations and goods issues. The information structure S027 provides the data for the analysis.

Key Feature	Use
Reporting point statistics analysis	You can use this analysis to evaluate the data from repetitive planning. Here, the number of units for so-called reporting points (comparable with events in the production order) are determined and updated. The data required for the analysis is provided by the confirmed quantities and the confirmed scrap for the reporting point, which are updated in information structure S028.
Kanban analysis	The Kanban standard analysis is based on the data from the Kanban component that is updated to the information structure S029.
Exception analysis	You can display exceptions that you have defined using the *Early Warning System*. The exception analysis acts as a filter. That is, only the exceptional situations are displayed providing you with timely system support in the detection and correction of undesirable situations.

5.5 R&D / Engineering

5.5.1 Enterprise Portfolio and Project Management

5.5.1.1 Project Logistics and Financial Control

Business Background

This function provides special features that help in the logistics execution and financial aspects of a project.

Key Features

The following table explains the key features available:

Key Feature	Use
Special Maintenance Functions and Project Planning Board	You can maintain the structures for your project. A clear project structure is the foundation of successful project planning, monitoring, and control. There are several functions available for creating and editing WBS elements and networks. • Special maintenance transactions • Network Structure Graphic In the network structure graphic you have the functionality for editing existing networks, such as inserting new activities or creating new relationships. • Hierarchy Graphic The hierarchy graphic acts as a quick and easy way to create and edit WBS elements. You can change the project hierarchy by creating or inserting WBS elements, or move these around in the hierarchy. • Project Planning Board The project planning board allows integrated processing of your project, giving you a graphic overview of the project objects. You can create, edit and evaluate the data for a project. The Gantt chart is the basis of the project planning board. The project planning board consists of a table area and a graphic area. It displays the hierarchical structure of the project and the corresponding dates.
Special Date Planning Functions	• In project scheduling you can schedule the project with all assigned activities, as in WBS scheduling. Additionally, you can decide whether just networks are scheduled or whether service and maintenance orders are also scheduled. • You enter dates in the work breakdown structures and individual networks. You can check and change them in all stages of a project. Scheduling determines the earliest and latest start and finish dates for carrying out activities in the network and calculates the required capacity requirements as well as the slack time or "floats". • You can change basic and forecast dates. Basic dates are the dates that have a binding character for time scheduling and for other related areas such as capacity planning. Forecast dates are dates that you expect based on a more detailed planning or on changes during the course of the project. You can enter basic and forecast dates for WBS elements and activities. In networks, you can also forecast values for the work as well as for the dates.

Key Feature	Use
Simulation Versions	When you are planning complex projects, it is often necessary to simulate and save changes to a project, without affecting the operative project. To do so, you use simulation versions that can be changed, costed and scheduled. You can create a new simulation versions for a project by either transferring data from an existing operative project or completely independently, for instance in the quotation phase of a project.
Project Texts	You use this to maintain and display project texts for WBS elements and network activities. You can edit project texts either in the Project text catalog or during project maintenance.
Production Resources and Tools	• Unlike machines and fixed assets, production resources and tools (PRTs) are movable operating resources that are required to perform an activity and can be used repeatedly. For example, PRTs include documents, engineering drawings, jigs and fixtures, and measurement instruments. • You can maintain PRTs for network activities using the Special Maintenance transactions for networks.
Workforce Planning	You use this to distribute work in internally processed activities of a project to personnel resources according to periods. The personnel resources that you can assign to activities are persons , positions , and organizational units in human resources (HR). You can carry out workforce planning with a project view or a work center view, depending on your responsibilities. In reporting you can analyze workforce planning from project, work center, and personnel resource views.
Claim Management	When you detect a variance from your project plan, you create a claim in Project System. The Project System supports Claim Management using a notification type called *claim*. You use these notifications to document variances from your project plan, name the person responsible, and initiate follow-up activities. The following are among the points you enter in the claim: • Cause of the variance • Person or group responsible • Costs arising from the variance • Actions and tasks to be initiated because of the variance The integration of unit costing with the claim and the link to workflow functions ensure efficient Claim Management execution.
Progress Tracking	• You use this to monitor the progress of material components in PS based on events and dates. • By tracking events that have been defined in Customizing for Progress Tracking or in the progress tracking function itself, the user gains improved control over the progress of network components.

Key Feature	Use
Special project reporting functions	• This allows you to execute reports for personnel cost planning. You can use this to obtain an overview of how your projects are progressing. You can compare planned and actual costs, planned and actual work, and basic start and finish dates for the projects selected. • You can combine a number of projects with similar characteristics, thereby effecting more efficient project control. This enables you to carry out analyses that allow for clearer costs at higher level, such as project manager level.
Structure Information System	The Information System gives you an overview of single or multiple objects you select for a specific project, part of a project or across projects.
Project-specific archiving tools	You use this these tools to archive project structures. You can archive and delete operative objects in PS such as work breakdown structures and networks.
Financial planning and control for project-specific purposes	• You can agree on a transfer price for the rendering of a particular service between two WBS elements, display, and change the agreement. • You can calculate the sales price for a customer inquiry based on project planned costs and save your results in a document. You can also create a quotation, based on a sales pricing. • Easy cost planning enables you to quickly calculate planned costs for WBS elements. This is useful while carrying out project processing on cost controlling and preliminary costing for complex projects. • You can use the forecast workbench to create cost forecasts manually. You can save different versions of the forecasts and then compare the various versions.
Project-oriented procurement	This is used to consolidate information from the procurement process from a variety of applications that can be configured by the user. You can process information from the procurement process for objects in the Project System, and execute individual procurement functions.

5.5.2 Product Safety and Stewardship

5.5.2.1 Product Compliance for Discrete Industries

5.5.2.1.1 Manage Product Compliance

Business Background

Use *Product Compliance for Discrete Industries* to manage environmental product compliance across your organization. These features support you to ensure product marketability, brand protection, and to reduce

compliance costs. They enable you to manage regulatory requirements based on substance lists and to manage compliance assessments of your product portfolio. Additionally, they support compliance collaboration processes with suppliers and the ability to embed compliance controls into business processes, such as engineering, manufacturing, purchasing and sales.

Key Features

The following table explains the key features available:

Key Features	Use
Manage regulatory list revisions	You can manage substance-related regulatory list revisions based on legislation, industry standards, and customer or corporate-specific requirements. These regulatory list revisions are the basis for the compliance requirements that your products have to meet. You can prepare, create and use new regulatory list revisions, as well as updates of existing regulatory list revisions, such as EU REACH-SVHC or EU RoHS.
Manage compliance assessment processes	The system supports you with compliance assessment processes for products, components and basic materials. You can start or request the initial assessment of a product manually or automatically. You can assign and determine the relevant compliance requirements for your product. Based on your assignments, the system carries out compliance checks thus supporting you to fulfill compliance requirements relevant for your products. When finalizing a compliance assessment, documents can be generated by the system to answer customer requests or for internal use.
Embed controls into key business processes	The system supports you with compliance assessment processes for products, components and basic materials. You can start or request the initial assessment of a product manually or automatically. You can assign and determine the relevant compliance requirements for your product. Based on your assignments, the system carries out compliance checks thus supporting you to fulfill compliance requirements relevant for your products. When finalizing a compliance assessment, documents can be generated by the system to answer customer requests or for internal use.
Stay compliant within change management	If a compliance relevant change occurs, such as a BOM change or a change in the material supplier relation, the system supports you to stay compliant by carrying out compliance checks.

Key Features	Use
Monitor and explore compliance	The system supports you to identify compliance assessments that are in process for your products. Additionally, you can explore the compliance status of your products and components.

5.5.2.2 Product and Chemical Compliance for Process Industries

5.5.2.2.1 Managing Product and Chemical Compliance

Business Background

This process helps you to track and record the quantities of regulated substances in your company that are purchased, imported, produced, sold, or exported. If a limit value specified in regulations is reached or exceeded, the system issues a warning. You can use the data for required reporting to authorities.

Key Features

The following key features are supported:

Key Features	Use
System preparation for substance volume tracking	You define materials that are relevant for substance volume tracking. You enter one or more quantity limits for sustainability data, and define the threshold that triggers a system warning.
Daily monitoring of tracked substances	You display the current totaled quantities of the tracked substances. You receive information about which substances are soon to reach a quantity limit, or, about those which have already exceeded their limit.
Integration of substance volume tracking into business processes	Substance volume tracking is integrated into and visible in other business processes, such as purchasing, manufacturing and sales.

Key Features	Use
Report definition for substance volume tracking	You define layouts for your reports for substance volume tracking. You specify how the system collects data. You define the steps that need to be carried out for releasing and sending your reports. You also define if versioning for your reports is required, so that changes can only be made within a new version.
Report creation for substance volume tracking	You can create reports for substance volume tracking in several languages by using the concept of phrases. When a monitoring period, such as a calendar year, has expired and all data is available, you can trigger report generation.
Report publishing for substance volume tracking	Once reports have been released, you can send the report to relevant authorities.

5.5.2.3 Safety Data Sheet Management

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

This process enables you to manage all data, which is needed to create and send safety data sheets (SDS) according to chemical regulations and requirements.

Key Features

The following features are available:

Key Features	Use
Preparation of safety data sheet creation in different languages	You need to provide safety data sheets in several languages according to regulatory requirements. By using the concept of phrases, you are able to manage data efficiently for different languages. You can define a single layout for safety data sheets that includes country/region-specific data. Safety data sheets can be printed in multiple languages using the same set of data.
Data management for safety data sheets	Once you have managed hazardous substances and related data that fall under different regulations, the system uses this data to create all defined safety data sheets automatically. The system supports you by determining and providing as much data as possible that is relevant for safety data sheets. You can exchange data electronically within the logistics chain.
Safety data sheet definition using templates	You define layouts for safety data sheets using templates. You specify how the system collects data. You define the steps that need to be carried out for releasing and sending safety data sheets. You also define versioning for safety data sheets, so that changes to safety data sheets can only be made within a new version.
Safety data sheet publishing	Send safety data sheets: You can send these to your customers and to relevant authorities electronically. The automatic process can be integrated into the sales process. Updated versions of safety data sheets can be distributed automatically. Display safety data sheets: You can view safety data sheets that provide information required in different business processes.

5.5.2.4 Dangerous Goods Management

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

This process enables you to manage all data, which is needed to classify and process dangerous goods in the logistics chain according to dangerous goods regulations.

Key Features

The following key features are supported:

Key Features	Use
Dangerous goods classification	You classify products and materials according to dangerous goods regulations. The classified dangerous goods are the basis for dangerous goods processing and document generation in the logistics chain.
Dangerous goods processing	You maintain supplementary dangerous goods relevant data; this is then provided together with classification data for document generation.
Integration of dangerous goods processing within business processes	Dangerous goods processing, for example checks, are integrated into and visible in other business processes, such as sales order and delivery. Checks are possible, for example, on modes of transport and mixed loading, as well as routing management.
Document template definition	You define layouts. You specify how the system collects data.

5.5.2.5 Global Label Management

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

You use Global Label Management during the planning, creation and printing phases of labels. It is a centrally integrated scenario-based solution to manage all labeling requirements worldwide.

Key Features

The following features support you with this process:

Key Features	Use
Label creation in different languages	You need to provide your customers with labels in several languages according to regulatory or customer-specific requirements. By using the concept of phrases, you are able to manage data efficiently for different languages. Together with material details, you can manage relevant label data, such as the packaging hierarchy.
Label definition using templates	You use templates to define layouts for labels of different sizes using the same set of data. Several languages can be printed on the same label. You specify how the system collects data. You define the steps that need to be carried out for releasing your labels. You also define if versioning for your labels is required, so that changes can only be made within a new version.
Integration into business processes	Global label management is integrated into several business processes, such as make-to-stock, make-to-order, shipment, and receipt of purchase order.

Key Features	Use
Label preview, validation and printing	You can use the label check to simulate label output before printing. Automatic printing can be determined as part of logistics processes, such as process order or delivery in sales. In addition to automatic label printing, you can also print labels manually.
Data and activity log	Changes to label data, user and printing activities are logged in the system.

5.5.3 Product Development for Discrete Industries

5.5.3.1 Engineering Record

Business Background

The engineering change process is an important process in product development. It helps to initiate, administer, review, approve, and execute product changes through a controlled process.

Key Features

The following table explains the key features available:

Key Feature	Use
Engineering record handling	You can plan your engineering changes in engineering records, which help to group all kinds of objects to then guide them through a controlled engineering change process.

5.6 Sales

5.6.1 SD Analytics Based on Logistics Information System

Business Background

You can use Sales and Distribution (SD) analytics based on the logistics information system to analyze sales information.

Key Features

The following table explains the key features available:

Key Feature	Use
Customer analysis	You can access data directly from the customer statistics. Direct access by customer is possible and is not dependent on the sales organization.
Material analysis	You can access specific statistical data that is directly linked to a material. You can use this analysis to determine the quantity of a material sold.
Sales organization analysis	You can view data from the perspective of the sales organization.
Shipping point analysis	The shipping point analysis is based on data that has been updated from the creation of the delivery note. You can determine who delivers, in what way (for example, by freight forwarding), and the route.
Sales employee analysis	You can determine the sales volume that a sales employee has achieved for a specific customer.
Sales office analysis	You can determine the sales volume that a sales group has achieved in a division.
Variant configuration analysis	You can evaluate data for configurable materials.
Exception analysis analysis	You can display exceptions that you have defined using the early warning system.

Technical Information

Type of Component	Component
Application Component	LO-LIS
Software Component	S4CORE

Related Information

Sales Monitoring and Analytics [page 109]

5.6.2 SD Rebate Processing

Business Background

You can use Sales and Distribution (SD) rebate processing to grant a price discount to your customer.

Key Features

The following table explains the key features available:

Key Feature	Use
Work with rebate agreements created in SAP ERP	You can work with previously existing rebate agreements that you have created in SAP ERP. You can only process these existing rebate agreements until the end of the validity date of the rebate agreement. Afterwards, you must close these rebate agreements by final settlement. You cannot create new rebate agreements using SD rebate processing in SAP S/4HANA.
Creating rebate agreements using customer trade promotion in SAP CRM	If you have integrated your customer trade promotion scenario in SAP CRM with SAP S/4HANA, you can use SD rebate processing. That is, you can continue to create rebate agreements through the customer trade promotion functionality in SAP CRM.

Technical Information

Type of Component	Component
Application Component	SD-BIL-RB
Software Component	S4CORE

Related Information

Settlement Management [page 38]

5.7 Service

5.7.1 Service Master Data Management

5.7.1.1 Technical Assets, Structures, History

Business Background

Technical assets and their substructures serve as a reference on which a service is performed. At the time of initiating a service, the predefined technical master record can be referenced. This substantially shortens planning and preparation time when a service is required. This thereby reduces costs.

Key Features

The following table explains the key features available:

Key Feature	Use
Maintain Customer Installed Base	You can provide precise information and management on installed customer assets, equipment, location and substructures of the customer installed base. You can maintain master data that is required when you carry out maintenance on a piece of equipment.

Key Feature	Use
Phase-In Phase-Out Equipment	You can transfer assets from their current assignment, either to be reused by another department or company, or to be disposed of completely.
Scrap Assets	Once a piece of equipment has been phased out of service, it can be scrapped. You can remove it from the customer asset register.
Analyze Damages	You can analyze reported damages, sorted by damage codes, cause codes and activities.

5.7.1.2 Service Task Lists and Catalogs

Business Background

This process helps you to define the scope of work and effort required for inspections, services, and planned repairs. It helps you to standardize recurring work sequences and to plan these effectively with required resources, tools and materials. Single or several tasks offered to customers are customer-facing service offerings.

Key Features

The following table explains the key features available:

Key Feature	Use
Standardize Tasks	You can define the scope of work and effort required for inspection, service, and planned repairs. You can describe a sequence of individual activities which can be used for a spot-service, or repeatedly within a company. You can reduce the service effort by using standardized work sequence changes, for example as a result of new legal regulations.
Service Catalogs and Products	You can manage service products as sellable and billable. These services are standardized and offered in service catalogs.

5.7.1.3 Service Maintenance Plan and Event Scheduling

Business Background

This process helps you to specify the service scope and maintenance cycles for triggering service events. Depending on the scope of services and calculated scheduled calls, expected costs can be calculated for a specific time period.

Key Features

The following table explains the key feature available:

Key Feature	Use
Preventive and Predictive Activities	You can plan preventive and predictive activities, based on time and counter. You can schedule individual service tasks and allocate required resources, tools and materials.

5.7.2 Service Management

5.7.2.1 Service Initiation

Business Background

This process helps you to register a customer request for service. the logging service requests serves as a central communication channel between the requestor and the service provider.

Key Features

The following table explains the key feature available:

Key Feature	Use
Manage Incoming Service and Support Requests	You can manage incoming service and support requests. You can identify customers with their installed base and identify customer service contracts and warranty entitlements. You can use a centralized system to log and streamline processes, including the monitoring and follow-up of customer needs and requests. The initial service request serves as a central customer reference for further updates, inquiries and progress of service fulfillment and delivery.

5.7.2.2 Service Planning and Scheduling

Business Background

This process helps you to carry out the initial screening and collecting of information for incoming service requests. This includes relevant service contracts and warranty entitlements.

Key Features

The following table explains the key features available:

Key Feature	Use
Identify Service Issues	You can use incoming service requests to identify service issues that need to be resolved. The following help you in planning and scheduling processes: • Customer Asset Management: You can propose data from customer asset management , such as work centers, and access information regarding their skills and competencies. • Work Order Management: You can process notifications, plan resources, integrate catalogs and materials, and initiate the update technical documents and drawings.

Key Feature	Use
Define Follow-Up Activities	You define follow-up activities with a variety of options, such as • A simple answer to a support request • The delivery of a service where labor and service parts are required • Logistic activities, such as managing returns

5.7.2.3 Service Execution and Delivery

Business Background

Service organizations require access to up-to-date information about service history and equipment configuration to provide the appropriate service. This process helps you to optimize, streamline and carry out your service deliveries.

Key Features

The following table explains the key features available:

Key Feature	Use
Job Lists	These support you in processing and confirming service jobs. They provide information on jobs to be carried out, as well as crucial information, such as the urgency, start and end dates, and assigned work center. You can configure job lists so that they reflect how work is organized in your particular organization. You can record counter readings, process notifications and work orders, and the installation and dismantling of equipment.

Key Feature	Use
Confirmation Lists	These contain all planned service jobs that can be confirmed. You can check planned job data. You can record the time spent carrying out the job, the required materials used, enter a user-defined text, and, if necessary, create an activity report. It sets the notification to technically completed, stores the time confirmation, and posts a goods issue for the order.

5.7.2.4 Service Control

Business Background

Services have different levels of complexity. Service personnel require a flexible way to support and control the delivery of services from a financial and logistics perspective.

Key Features

The following table explains the key features available:

Key Feature	Use
Service Request	You can create, manage, monitor and complete the entire service process using a service request.
Service Order	You can use service orders to deliver services You can also record the internal and external resources required, the costs collected, customer billing or internal cost settlement in the service order.
Service Fulfillment Support	You can use carry out large projects, process extensive budget planning data, and schedule complex services over a lengthy time period.

5.7.2.5 Service Billing and Settlement

Business Background

Service organizations require billing data from various sources to enable accurate and timely billing of services. They also need to track service revenue.

Key Features

The following table explains the key features available:

Key Feature	Use
Debit Memo Processing	You use this feature to apply a debit to a customer account, either by creating a debit memo request, or directly by creating a debit memo with reference to a billing document. A debit memo request is then created with the amount to be debited. The debit memo is sent to the customer and posted to accounting.
Credit Memo Processing	You can use this feature to apply a credit to a customer account, either by creating a credit memo request, or by creating a credit memo with reference to a billing document. The credit memo is sent to the customer and posted to accounting.
Billing Document Processing	You can create billing documents, for example invoices for customers from items in the billing due list. When you post billing documents, the system forwards these to accounts receivable and triggers the issue of billing documents. You can change or cancel billing documents as needed. You can also create billing documents for retroactive billing. You can setup billing batch execution by scheduling billing creation and output. You can also manage documents blocked for billing.

Key Feature	Use
Invoice Correction Processing	You use this feature to create an invoice correction request if the wrong quantities or prices have been calculated for the customer. The invoice correction request can be automatically blocked by the system until it has been checked. The system calculates the difference between the amount that was originally calculated and the corrected amount for each item. The system creates a credit memo with reference to the invoice correction request. The credit memo is sent to the customer and posted to accounting.

5.7.2.6 Claims, Returns and Refund Managment

Business Background

This process helps you with the handling of all complaints and returns. It is possible to trigger logistical follow-up actions, such as inspections of returned materials, resolution of issues and claims, and refunds management.

Key Features

The following table explains the key features available:

Key Feature	Use
Manage Complaints and Returns	You can streamline complaints and returns management to improve tracking and to help service organizations process requests faster.
Process Warranty Claims	You can process large numbers of warranty claims automatically. You can trigger logistics follow-up actions, such as an inspection of a returned material, resolution of issues, and claims refund management.
Register Warranties	You can create warranties and assign technical objects to these warranties.

5.7.3 Service Parts Management

5.7.3.1 Service Parts Warehousing

Business Background

Automatic processes for full control of warehouse operations supports companies supports companies to improve asset utilization, to increase throughput and safety, and to ensure on-time compliant and accurate order fulfillment.

Key Feature

The following table explains the key features available:

Key Feature	Use
Manage Inventory	You can manage the stock stored in your warehouse. You can evaluate and display documents and stock information.
Create Reservations	You can manage and create reservations of stock at plant level, storage location level, or batch level to ensure the availability of materials when they are required.
Distribute Stock	You can fully automate warehouse and distribution operations. These include: inbound processing, receipt confirmation, cross-docking, outbound processing, warehouse and storage management, and physical inventory management.
Create Reports	You can create reports to evaluate and display material and accounting documents.

5.7.3.2 Service Parts Fulfillment

Business Background

Companies need to be able to monitor service parts, and keep them ready for withdrawal at a later date and for a specific purpose. This process simplifies and accelerates goods movement processes.

Key Features

The following table explains the key features available:

Key Feature	Use
Monitor Service Parts	You can monitor location and quantities of service parts.
Reserve Service Parts	You can reserve service parts that will be required for a future service delivery. The reserved service parts are taken into account within the material requirement planning process. In this way, materials can be procured in time if they are out of stock.

5.7.4 Service Agreement Management

5.7.4.1 Contract Management

Business Background

This process facilitates consistency to ensure superior support and services. Contract management helps companies create, manage and automate service contracts such as billing plans, price agreements and conditions. This process enables you to process service deliveries with automatic checks for contractual agreements.

Key Features

The following table explains the key features available:

Key Feature	Use
Use Automatic Service Contract Processing	You can create, manage and automate processing of service contracts, such as billing plans, price agreements and conditions. You can reference service contracts in subsequent service processes.
	You can create service plans that enable contractual preventive service and maintenance strategies based on time and performance.

5.8 Sourcing and Procurement

5.8.1 Subsequent Settlement

Business Background

Suppliers may agree to immediate or retrospective reductions in the purchase price on condition that a certain quantity or value of goods is bought, that payment is effected promptly, or that promotional activities are carried out. Conditions of purchase involving retrospective supplier payments may also be defined for situations in which the supplier bears all or part of certain costs initially incurred by a customer, for example, costs of disposal of used packaging.

Subsequent settlement involves calculating and accounting for the amounts due in accordance with the conditions agreed between a customer and a supplier at the end of an agreed period.

Key Features

The following table explains the key features available:

Key Feature	Use
Processing of existing rebate agreements	Existing rebate agreements can be processed up until the end of the validity date of the agreement and can then be closed by a final settlement.

5.9 Supply Chain

5.9.1 Efficient Logistics and Order Fulfillment

5.9.1.1 Basic Shipping

Business Background

Transportation is an essential element in the logistics chain. It effects both incoming and outgoing goods. Effective transportation planning and processing ensures that shipments are dispatched without delay and arrive on schedule. Transportation costs play an essential role in the calculation of the price of a product. It is important to keep these transportation costs to a minimum so that the price of a product remains competitive. Efficient transportation planning and processing helps to keep these costs down.

The transportation functions can handle planning and execution for both inbound and outbound processes. Moreover, they enable you to control and monitor the entire transportation process from the planning stage to

goods issue at the shipping point (outbound) or vendor location (inbound), through to goods receipt at the customer location or in your own plant.

Key Features

The following table explains the key features available:

Key Feature	Use
Transportation Planning and Creation of Transportation Documents	Transportation planning involves activities that must be performed before the transport leaves the shipping point. These activities include, for example, acquiring the services of a forwarding agent and specifying the route for the transport. To handle the various forms of transportation (for example, individual or collective processing), different types of transportation documents are available.
Transportation Planning List	This list contains transportation documents for which planning activities still have to be completed and which match defined selection criteria. You can use the list as a basis for performing transportation planning activities, such as organizing a means of transport or scheduling loading activities.
Transportation Execution	You use this feature to complete the formalities involved in getting a transport ready for dispatching to the customer. Tasks in an outbound process include weighing the transports, loading, and posting goods issue. At check-in (when a truck arrives on the company's premises) information about the means of transport such as driver details, the weight of the truck, and its arrival time can be recorded. You can store this information in the transportation documents, which can be printed, for example, when the completion status is set.
Direct Store Delivery (Backend)	This feature enables you to distribute goods directly to the end customer. In this process, distribution does not take place via a retail company's distribution centers. The Direct Store Delivery (DSD) business process is based on a specific DSD tour scenario, a type of cycle. This tour scenario starts in the distribution center with order processing and the related shipment preparations, followed by physical delivery of the goods to the customer, and ends with system processing of the tour data in the distribution center. The DSD backend process is the basis for integrating a mobile solution. The mobile solution supports drivers' activities during the shipment process. Alternatively, a paper-based DSD process is also supported.
Transportation Cost Processing	This feature enables you to calculate and settle costs for transportation processes. Calculation and settlement of transportation costs is handled in a separate document and allows you to refer to parts of the transportation document for which cost calculation must be carried out.

Key Feature	Use
Tendering for Service Agents	The option to offer transports directly using the Internet provides a useful addition to the planning functions in the transportation component. Planners can include forwarding agents who do not use an SAP system in the decision-making process; these forwarding agents can then use their own systems to process the data. A planner can react to the offers made by the forwarding agents and can also supervise the tendering status. The planner receives tendering statistics and can verify the service quality of a service agent.
Monitoring	To be able to plan and execute the transportation activities, worklists for transportation documents are available.

5.9.1.2 Warehouse Management

Business Background

Warehouse Management provides you support with and real-time transparency into managing and processing material movements flexibly for optimized warehouse operations.

Key Features

The following logistic features are available to support you in whatever warehouse role you may have:

Key Feature	Use
Inventory Management	Manage material quantities in different stock categories on storage bin level
Inbound Processing	Create and confirm putaway transport orders for the putaway of delivered or received materials
Outbound Processing	Create and confirm picking orders for picking quantities of material for deliveries or production supply
Internal Warehouse Movements	Create and confirm orders for execution of warehouse internal movement of goods
Physical Inventory	Plan, conduct and confirm count of stock in warehouse
Reporting	Provide actual stock and goods movement lists

5.10 Industries

5.10.1 Defense and Security

5.10.1.1 Military Planning and Operations

5.10.1.1.1 Force Generation

> **i** Note
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> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Build forces with a single, integrated platform for managing personnel, material, and financial data in a table of organization and equipment (TOE). With integrated, real-time information, force planners can quickly generate forces for any domestic, administrative, or wartime activity based on the capabilities of their personnel, equipment, and budget.

Key Features

The following table explains the key features available:

Key Feature	Use
Integrate and manage information for a TOE on a single platform	• Get an overview of the availability, skills, and experience of your force members. • Get an overview of the equipment available to you.
Organize and manage the capabilities of your force structures	Plan, create and then organize your force structures and equipment according to your needs.
Manage and develop flexible organizations	• Use the TOE to get a holistic, up-to-date view your force structures and equipment. • Identify available force elements and link them to new structures, or create new force element structures for defense/wartime.

Key Feature	Use
Plan personnel staffing	• Automate processes for matching and securing the right personnel for operations and exercises. • Plan skill set required for the job. • Use the TOE to determine which personnel match the skill set. • Identify the most suitable candidates based on skill set, experience and availability.
Plan material and equipment	Enable force planners, material management officers and technical officers to plan, assign, and manage equipment efficiently using the TOE.
Plan finances and manage real estate	• Automate the creation and distribution of your financial data. • Mass create and control financial and business information. • Integrate this information for strategic and operational decision making. • Use real-time analytics to make more informed decisions and have accurate budgeting for your force structures.
Improve insight into operation readiness	Get an overview of your operational readiness using the TOE.

5.10.1.1.2 Force Deployment

> **i** Note
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Business Background

Force planners need to plan and deploy coordinated military missions. This involves organizational, personnel, material, financial, and budgeting processes for troop relocation, IT system setup, and readiness reporting.

Key Features

The following table explains the key features available:

Key Feature	Use
Options development: Plan and manage a table of organization	• Use a single, integrated platform for managing mission-critical information in the table of organization and equipment (TOE). • Integrate information on personnel, equipment, infrastructure, and finances. • Automate TOE to enable force planners better manage organization and equipment and to get better visibility into force structures, capabilities, and readiness resulting in greater operational agility.
Options development: Plan personnel staffing	• Automate processes for matching and securing the right personnel for operations and exercises. • Plan skill set required for the job. • Use the table of organization and equipment to determine which personnel match the skill set. • Identify the most suitable candidates based on skill set, experience and availability.
Options development: Plan material and equipment staffing	• Plan and execute supply chain activities and coordinate the supply chain network in the defense organization. • Define authorized materials to gain insight into inventory and equipment needs for force structures. • Plan, assign and manage materials for operations and exercises in the TOE.
Options development: Financial planning and real estate management	• Automate the creation and distribution of your financial and real estate data for operations and exercises. • Plan and allocate budget for different phases of operations and exercises. • Control and integrate financial and real estate information for strategic and operational decision making.
Plan execution: Relocation	Relocate troops in a strategic and cost-effective manner: • Get real-time accurate information on troops, equipment and transportation. • Use information to coordinate the movement of materials and personnel.
Plan execution: Operational readiness	Improve insight into personnel and materials readiness for operations and exercises: • Get a holistic view of the readiness across various force structures. • Quickly and accurately plan operations and exercises.

5.10.1.2 Military Supply Chain

5.10.1.2.1 Defense Replenishment and Planning

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Plan and execute replenishment of materials and equipment.

A military supply chain requires high performance in planning and executing the replenishment of consumable goods and defense equipment. To establish combat readiness, you must simultaneously integrate and automate logistics and fulfillment across your warehousing, transportation, and distribution processes. Collect and analyze the internal demand signals of a defense organization to create and update optimized demand plans. Quickly, accurately, and transparently match the goods demands of agile forces with supplies in a prioritized and multilevel defense supply network to achieve high delivery performance and establish combat readiness of service members. Relocate troops for operations or exercises with specific, flexible, and prioritized supply planning and execution. Manage storage, warehousing, and global inbound and outbound transportation in supply replenishment with increased accuracy, visibility, and performance.

5.10.1.2.1.1 Defense Supply Planning and Execution

> **i** Note
>
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Business Background

Quickly and efficiently match the goods demands of agile forces with supplies in a prioritized and multilevel defense supply network to achieve high delivery performance and establish combat readiness of service members.

Key Features

The following table explains the key features available:

Defense Supply Planning and Execution

Key Feature	Use
Integrate organizational data, logistic data, and material management data	• Get an overview of the materials available to you. • Remove negative data sources that influence supply data integrity.
Defense supply planning	• Automate planning runs • Improve supply planning system and prioritize requirements for provision materials. • Match goods demands with supplies to ensure combat readiness. • Improve inventory accuracy and increase inventory turnover
Equipment planning	Plan equipment replenishment for units in armed forces, police, or aid groups to ensure optimized stocking and usage: • Determine the source of supply for your equipment. • Plan and manage equipment efficiently. • Track the loaning of equipment and its return.
Initial supply	Determine what is required for the initial supply of units in the armed forces, the police, or aid groups: • Plan provisions required by each organizational unit • Deliver the right provisions, to the right place, at the right time
Defense supply operation	• Process supplies based on prioritized requirements. • Plan and manage provisions efficiently. • Improve inventory accuracy. • Reduce order fulfillment lead time.

5.10.1.2.1.2 Defense Relocation Planning and Execution

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

The relocation of troops for operations and exercises requires specific, flexible and prioritized supply planning and execution.

Key Features

The following table explains the key features available:

Key Feature	Use
Plan relocation	• When relocating an armed force, the police, or aid group, determine what equipment and goods are required and where. • Optimize the relocation of equipment and consumable goods. • Get an overview of what has been approved or already deployed to an organization's location.
Process supplies during the relocation of defense forces	• Consider prioritized goods during supply processing. • Efficiently process supplies by utilizing the integration of organizational, logistics and material management data.

5.10.1.2.1.3 Defense Inventory and Movement Management

> **i** Note
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Business Background

Manage storage, warehousing, and global inbound and outbound transportation in supply replenishment with increased accuracy, visibility, and performance.

Key Features

The following table explains the key features available:

Key Feature	Use
Manage defense inventory and movement	• Manage inbound and outbound processing of supplies. • Enable supply personnel to handle dangerous goods using packing and unpacking functionality. • Optimize the processing of supplies for an organizational structure by utilizing highly-integrated organizational, logistics, and materials management data.
Manage defense warehousing	• Manage both the inbound and outbound warehouse processing activities for armed forces, the police, and aid organizations. • Improve supply chain integrity. • Streamline data sources in order to ensure more efficient warehouse operations.
Plan and process defense transportation	• Optimize transport activities. • Plan and manage transport of equipment and spares. • Plan and execute relocations within organizations using relocation-specific transport handling.

5.10.1.2.2 Defense Equipment Management

> **i** Note
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> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Within an organization equipment can be managed and assigned to its personnel based on equipment type, personnel function, and authorization status. Tracking of supply levels as well as equipment status needs to be possible quickly and accurately.

Key Features

The following table explains the key features available:

Key Feature	Use
Manage structural equipment	• Handle requests for and loans of structural equipment, along with their return. • Assess inventory levels and adjust facility supplies. • Get information on detailed equipment levels, equipment deployed to units, and equipment availability.
Manage functional equipment	• Track functional equipment supplied to authorized personnel. • Issue required functional equipment based on assigned and authorized functional equipment status. • Plan and execute the return of functional equipment issued to personnel.
Manage personal equipment	• Issue required personal equipment based on assigned and authorized personal equipment status. • Track the status of personal equipment and support the return process. • Ensure optimized stocking and usage of equipment.

5.10.2 Engineering, Construction, & Operations

5.10.2.1 Equipment and Tools Management

> **i** Note
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> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Equipment and Tools Management (ETM) addresses the requirements of self-performing construction companies, building contractors, and equipment distributors by handling business processes such as planning, processing, and settlement and evaluation of resources (equipment and materials).

ETM allows you to deliver equipment and materials to the appropriate locations and to monitor equipment performance and use over time. You can plan deliveries, create and manage requisitions, generate shipping documentation, and track the location and performance of equipment, from acquisition through retirement.

With ETM, you can improve the availability and tracking of equipment, manage the increasing administrative workload, and reduce handling and administration costs. You can also introduce flexible prices and account

determination, optimize equipment utilization, and improve the visibility of profitability, total cost of ownership, and return on asset and equipment.

Key Features

The following table explains the key features available:

Key Feature	Use
Equipment resource management and monitoring	You use this feature to plan equipment and tools requirements and to plan deliveries, generate shipping documentation, and track the location and performance of equipment and tools.
Equipment cost settlement	You use this feature for flexible price and account determination as well as time-based and consumption-based pricing.

5.10.3 Higher Education and Research

5.10.3.1 Student Information Systems

5.10.3.1.1 Application and Admission

> **i** Note
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> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Improve the student application process by enabling students to submit applications online using the Internet Service Request (ISR) framework. The admission decision framework in Student Lifecycle Management guides students through the application procedure for courses they are interested in, and allows them to track the status of their applications, even on mobile devices. This caters to the students' needs, while the educational institution also benefits from a reduction in the amount of time, effort, and money required to run the entire admission process.

Key Features

Key feature	Use
Create and manage your admission forms	Create and edit forms easily by customizing admission form templates to suit your requirements.
Manage your forms flexibly	Use a generic form designer to create forms for various processes. Reports for creating standard configuration are also provided.
Track students application	Integrate your admission process with self-services, enabling students to track the status of their applications and requests that needs to be fulfilled.
Review applications on multiple levels and manage workflow	Enable multiple parties to review applications in an automated workflow. Manual application processes are also supported and can be tracked.

5.10.3.1.2 Curriculum Management

> **i** Note
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> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Curriculum managers can use personnel management data and finance data to create an academic curriculum that is tied to the overall organizational structure of educational institutions, including finances. As a result, they can generate a catalog that ensures all processes run smoothly. They can maintain and manage the programs offered by your university in the program catalog, manage program dates and deadlines in the academic calendars, and map and manage the program rules using rule containers.

Key Features

Key Feature	Use
Manage course or program catalog	Use course or program catalogs to allow students to book, change, or cancel their course bookings online. You can also specify the requirements that students must meet to complete the academic programs.
Create requirements catalog	Curriculum managers can define both simple and complex requirements for use in different catalogs. They can also specify general requirements in one catalog, while outlining program-specific requirements in separate catalogs.
Manage requirements catalog	Manage the requirements catalog for admission to a course, or to obtain a degree.
Track degree requirements	Students can run what-if scenarios to view requirements for a program they are considering, including courses eligible for transfer if they were to change programs.

5.10.3.1.3 Grading and Advising

> **i** Note
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Business Background

Monitor grades, course attendance, and other significant data to track a student's progress towards degree or program completion. Faculty members can use integrated grading to record student exam grades based on course-specific grade scales, and they can use course registration processes to verify course attendance.

Key Features

Key Feature	Use
View grades	Students can review exam grades and submit grade-change requests if necessary. They can view final grades and request that official copies of transcripts be sent directly to themselves or to third parties.
Monitor academic progress	Students can monitor their academic progress and assess their completion status.
Academic advisors	Create course lists reflecting student degree requirements. Integrated booking capabilities allow students to register for suggested courses. You can also group students according to program.
Maintain Attendance	Faculty members can maintain attendance for the courses.
Student Retention	Advisors can get a broad view of their students' progress to increase student retention.

5.10.3.1.4 Progression and Graduation

> **i** Note
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> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Administrators can view academic progress indicators, such as a student's grade-point average or the current number of achieved credits, at any point during the enrollment year.

Key Features

Key Feature	Use
Monitor student progress	Administrators, advisors, and teaching personnel can view a student's progress and measure it against stage-specific requirements. For example, pre-clinical studies must be completed before clinical studies can begin. They can also monitor student performances using Student and Study Analysis to help students progressing towards graduation. In addition, they can receive early warnings which include advanced warnings about underperformance in their students' academic progress.
Monitor graduation process	Administrators can track applications for graduation and evaluate results of degree audits to support the graduation process. They can also track a student's progression towards, or completion of, graduation.
Track degree requirements	Students can run 'what-if' scenarios to view requirements for a program they are considering, including courses eligible for transfer if they were to change programs.

5.10.3.1.5 Student Administration

> **i** Note
>
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Business Background

Improve the management of personal student data and academic achievements. SAP software offers student services and administrative functions, ranging from student application processing to the development of individual study plans and time tables. Educational institutions can streamline processes across administrative and service areas by integrating course management systems and other third-party applications.

Key Features

Key Feature	Use
Manage student data	Maintain and manage student data efficiently.
Manage requests	Manage all types of request service for the university and students. For example, leave of absence or request for part-time study

5.10.4 Mill Products

5.10.4.1 Non-Ferrous Metal Processing

Business Background

The prices of products containing raw materials such as copper, aluminium, lead and silver, which are traded on metal exchanges, can change daily. The non-ferrous metal processing function enables you to consider fluctuating metal prices in the area of pricing of Sales and Purchasing.

Key Features

Feature	Use
Pricing in Sales and Purchasing	Non-ferrous metal processing enables you to consider the current metal prices quoted on the metal exchanges in pricing. The most up-to-date rates are stored in the system. In addition, the metal content of each product is defined in the material master data. Various metal price arrangements with the business partners can be defined for each item in Sales or Purchasing.
Invoicing (SD) and Invoice Verification (MM)	Invoicing considers the latest metal quotation. Missing quotations trigger an invoice block.

5.10.5 Oil & Gas

5.10.5.1 Remote Logistics Management

> **i** Note
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Business Background

Remote Logistics Management (RLM) provides functions for supplying materials from base locations to remote locations (offshore oil platforms). Goods are ordered for the offshore oil platform and are delivered from the onshore plant. If the onshore plant does not have the goods in stock, the material must be ordered from a vendor. After the goods receipt at the onshore plant, the material is packed and shipped to the offshore location. Shipping is carried out in RLM using voyages and shipments. A voyage consists of one or more shipments. The actual material is loaded into containers. Materials can be held at the onshore location, if required, and returns can be created. Returns are used to return defective goods (or goods that are not needed) from the offshore location to the onshore location. For a more detailed description of this function, see below.

Key Features

The following table explains the key features available:

Key Feature	Use
Supply Chain	The Supply Chain function is used to configure the supply of materials according to the handling required (such as whether a material is stocked onshore or offshore). Supply Chain enables you to convert stock transport requisitions activated at the offshore location into purchase requisitions at the base plant.

Key Feature	Use
Goods Receipt	During goods receipt of RLM materials to be shipped offshore you can assign goods receipt items to deliveries ready for shipment, or you can accept the default assignment proposed by SAP RLM functions. Following the goods receipt of materials destined for offshore locations, RLM creates one or more deliveries ready for shipment. You receive a list of those with all other goods receipt items in a cross-docking report (presented automatically following the receipt of any RLM materials). You can access RLM packing routines from the cross-docking report so that deliveries created for a goods receipt can be packed into containers. The cross-docking report determines which deliveries have not been packed into a shipment and lists them in a packing screen.
Shipping	Shipping functions provide you with a flexible container master record. This represents the physical container used in the shipment and allows you to define shipping containers using alternative data sources, including the PM equipment master, a dedicated RLM container master, and Internet sources (such as Web pages of shipping companies). While working with a shipment you can track a specific container by referencing the flexible container master record. Additional packing routines allow you to use a simple drag-and-drop functions to pack deliveries into containers that are not yet assigned to a shipment and to transfer packed containers into a shipment once you know the loading requirements. A shipment receipt utility is provided to register the receipt of all deliveries in a shipment and to release all the containers in a shipment for use in future shipments.
Holding	The Holding function allows materials required offshore to be held onshore until the user requesting the materials is ready to receive them. Holding is controlled within the original PM order or transport requisition and will cause any subsequent deliveries to be blocked for shipment. When Holding is removed from the original document, the document is unblocked automatically and can be shipped as required.
Returns	RLM includes a returns request document that is used to control the return of materials and containers from an offshore location for various reasons, including repair, scrap, waste, return to base stock, and return to supplier. You specify the materials to be returned and this generates subsequent SAP documents, such as a material transfer or a delivery note. The subsequent documents are automatically linked to the returns request, which then serves as a controlling document for all returns activity.
Material Tracking	RLM provides a configurable reporting tool to allow you to track materials from the initiating document to the final receipt. Tracking is displayed in the form of a document flow in an expandable tree structure so that you can display as much of the flow as required. Status types are displayed for each document flow, depending on the level to which the flow has progressed. Up to five independent status types may be configured for each flow. Standard document flows are provided, but new ones can be created and configured using the navigation functions provided, or by writing custom navigation functions.

5.10.5.2 Service Station Retailing

> **i** Note
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Business Background

Service Station Retailing is part of SAP's Service Station and Convenience Retailing solution, which supports convenience retailing, fuel management, site and headquarters accounting, business analysis and reporting.

Key Features

The following table explains the key features available:

Key Feature	Use
Document Base Table	The Document Base Table (DBT) is a repository for data received from external systems and required for document creation. This typically includes transaction data from POS systems, sales meter readings, and dip readings. To improve performance and reduce data volume, data can be held in the DBT at an aggregated level. Subsequent processes, such as invoicing, settlement with clearing houses, and stock adjustment use the data held in the DBT.
Fuels Pricing	SSR allows you to: • Use market price watch as the basis for calculations of target prices for materials sold at the locations within your network • Display and maintain target prices at the location level for defined groups of materials and material /service type combinations • Simulate margins to check the profitability of new price proposals • Change target prices across the whole network or for selected locations • Track price changes • Send new prices only when there has been a price change, or according to other selection criteria.

Key Feature	Use
Meter Readings	Oil companies use sales meter readings to calculate fuel sales volumes. The billing process can use this meter reading data to calculate the amount to claim from service station partners for fuel sold at a location. • Assign sales meters to locations • Assign meters to storage objects • Receive meter reading data from locations • Maintain meter reading data manually • Process errors that occur in the meter reading upload process • Use meter reading data to create billing and goods movement documents
Dip Readings	Oil companies use dip readings to calculate stock levels of bulk fuels within the service station network. You can use this data to correct current stock levels • Define storage objects at the business location level • Receive dip reading data from locations • Maintain dip reading data manually • Process errors that occur in the dip reading upload process • Use dip reading data to create goods movements • Display dip readings and differences between book and physical stock
Payment Card Handling	To handle service station sales of products by payment card, SSR allows oil companies to: • Settle with clearing houses on behalf of service station partners and with fleet card companies directly. • Deduct the amount received from the clearing houses from the amount due from service station partners for sales recorded by meter readings or POS data. • Reconcile credit and Eurocheque card transaction data received from service station partners against data received from another external source

Settlement and Invoicing	Oil companies to recover funds from their service station partners follows below steps: You can invoice the partner for:
	• Sales of oil company-owned products such as fuels
	• A fee charged by the oil company for handling payment card settlement. The partner can be credited for:
	  ○ Sales of all products by credit cards, as the oil company will receive the money directly from the credit card clearing house.
	  ○ Sales of partner-owned products purchased by fleet cards at the service station.
	  ○ Commission on fuels sales

5.10.5.3 Six Decimal Pricing

> **i** Note
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Business Background

The solution enables you to define artificial currencies with six decimals after the decimal. By default the SAP system assumes a decimal of 2 digits for any amount field. SAP core supports only 0-5 digits after the decimal for the currencies. Oil & Gas further enhanced this to handle six digits after the decimal . With this you can create condition records for corresponding prices as well as surcharges and discounts with six digits. The system however displays the condition value with only two digits after the decimal, but subtotals can be displayed with six digits after the decimal.

This feature is an enhancement in the SAP Oil & Gas system and is used in the following areas :

- Currencies in condition types used in Sales and Distribution (SD) or in Purchasing (MM).
- Currencies used for quotations, surcharges, or rates in Formula & Average pricing.

5.10.5.4 Stock Projection Worksheet

> **i** Note
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> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

During the stock projection process, you can calculate, change, and simulate inventory forecasts using the Stock Projection Worksheet in Trader's and Scheduler's Workbench (TSW). The Stock Projection Worksheet calculates and shows the inventory forecast for a date or time period and for combinations of material, location, transport system, and valuation type. You can use the What-If functions of the Stock Projection Worksheet to simulate different affects on the inventory. You can perform stock projection for the following types of inventories.

Key Features

The following table explains the key features available:

Key Feature	Use
Base inventory	The SAP book inventory is generally the basis for calculating the base inventory. The system calculates the base inventory by taking into account all actual and expected incoming and outgoing movements. However, in Customizing you can define the physical inventory as the basis for calculating the base inventory. In this case, the Stock Projection Worksheet uses the latest update of the physical inventory as the starting inventory.
What-If inventory	The basis for calculating the what-if (simulated) inventory is either the physical inventory or SAP book inventory. The calculation of the what-if inventory considers all the actual and expected incoming and outgoing movements including what-if figures entered in the Stock Projection Worksheet.
Physical Inventory	You can use the physical inventory as the basis for generating the Stock Projection Worksheet . In this case, the system calculates the base inventory using the physical inventory. Also, the what-if inventory for future days is based on the latest update of the physical inventory. The starting inventory for a particular date is initially calculated using the first inventory quantities received for that date, for example the last reported gauge readings. In the Stock Projection Worksheet , the base inventory column displays physical inventory and the column for the planned inventory displays the what-if quantities.

5.10.5.5 TD - Shipment Cost Processing

> **i** Note
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Business Background

The solution calculates and settles shipment costs in transportation. The following items describe how the shipment costs are determined in the shipment, how they are transmitted to accounting, and how they are settled with the service provider. The system also shows you how to obtain information regarding the shipment costs to be expected in the order.

Key Features

The following table explains the key features available:

Key Feature	Use
Pricing procedure determination	The system determines the pricing procedure to be used to calculate shipment costs. Determination is carried out by transportation planning point, service agent, shipment cost item, and shipping type.
Determining the Calculation Base	The origin of the data upon which a condition type is based during shipment costing determines the calculation basis.
Determination of Geographical Influencing Factors	The following options are available for representing geographical considerations in transportation: • Distances • Locations and zones • Determination of the pricing date and the settlement date • Shipment Comparisons • Tax Determination

5.10.5.6 TSW - Freight costs

> **i Note**
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

In Trader's and Scheduler's Workbench, freight contracts represent agreements with a vessel carrier and contain the agreed upon terms, conditions and rates for bulk shipments. You can create freight contracts to represent agreements, such as time charters, voyage charters, or contracts of affreightment.

During scheduling, the system uses the data from freight contracts to calculate laytime, demurrage, and despatch. The system also compares voyage data with freight contracts to check if the time period, locations, and products scheduled for a shipment violate the agreement specified in the freight contract.

During scheduling, the system checks freight contracts for the following data:

- Vessel availability (system checks if freight contract exists)
- Freight costs (standard only)
- Laytime agreements

- Start and end events for laytime
- Demurrage rates

5.10.6 Public Sector

5.10.6.1 Social Benefit Calculation

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Social benefits are calculated and paid out using an automated back-end accounting process in Social Services in conjunction with the Public Sector Collections and Disbursement (PSCD) component.

The features described below only work in conjunction with the SAP CRM part of the Social Benefit Decision Making solution.

Key Features

Key Feature	Use
Gross Calculation	The system calculates benefit entitlement amounts and prepares the periodic payment amounts.
Net Calculation	The system bundles payment and deduction items in net calculation documents.
Social Billing	The system prepares billing documents, for example as the basis for the payment run that is executed in Public Sector Collection and Disbursement (PSCD).

5.10.7 Retail

5.10.7.1 Compatibility Pack for Merchandise Management

> **i** Note
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

The following features are available as part of the SAP S/4HANA compatibility pack for merchandise management.

For information about the features available with SAP S/4HANA Retail for merchandise management, please see Retail for Merchandise Management [page 307].

Compatibility Features

Value-Added-Services Management

Key Feature	Use
Additionals	• Offer additionals that can be either activities or articles such as putting shirts on hangers, ironing, or labeling.

For information about value-added-services management using SAP S/4HANA Retail for merchandise management, please see Master Data Management for Merchandising [page 307] under *Value-Added-Services Management*.

Retail Price Planning and Management

Key Feature	Use
Markdown plan management	• Ensure a balance between the objectives that as little stock as possible remains at the end of a season while minimizing the loss of revenue due to price reductions. • Plan the price reductions percentages and periods by means of pricing strategies.
Bonus buy using IDocs	• Specify sales price deals that can be tied to prerequisites or requirements, such as buy two, get one free, spend at least a certain amount to get a percentage off, special sales prices when a coupon is presented, and other promotional offers.

For information about the features available with SAP S/4HANA Retail for merchandise management that support retail price planning and management, including the bonus buy feature, please see Retail Price Planning and Management [page 311].

Point of Sale

Key Feature	Use
POS outbound article data	• Transfer article related information to point-of-sale (POS) and store merchandise management solutions using the IDoc format as an alternative to using assortment lists to transfer article data.

For information about the features available with SAP S/4HANA Retail for merchandise management that support store connectivity, including the assortment list feature, please see Point of Sale [page 314].

Merchandise Buying

Key Feature	Use
Purchase order optimizing	• Analyze whether increasing order quantities will be profitable in the case of upcoming known purchase price increases by using investment buying capabilities to determine the optimum quantities to be ordered on top of regular demand, based on factors such as storage cost. • Optimize purchase order quantities to external suppliers through load building by making the best possible use of transportation methods, for example, by ordering complete truck loads.

For information about the features available with SAP S/4HANA Retail for merchandise management that support merchandise buying, please see Merchandise Buying [page 315].

Replenishment Planning and Allocation

Key Feature	Use
Rapid replenishment	• Calculate required net quantities for articles for stores on a demand basis. • Generate follow-on documents such as purchase orders or sales orders for merchandise. • Monitor and analyze the results of replenishment planning and display follow-on documents.

For information about the features available with SAP S/4HANA Retail for merchandise management that support replenishment planning and allocation, please see Replenishment Planning and Allocation [page 317].

Demand Forecasting and Planning

Key Feature	Use
Sales forecasting	The specific use cases in retail processes are: • Forecast requirements based on past figures to support requirements planning methods: • Create forecasts based on freely definable data (alternative historical data) on purchase order quantities or on aggregated sales quantities from the stores that are supplied. See also Material Requirements Planning [page 49]

For information about the features available with SAP S/4HANA Retail for merchandise management that support demand forecasting and planning, please see Demand Forecasting and Planning [page 318].

Integration Scenarios

Key Feature	Use
Integration with SAP Apparel and Footwear	• Transfer required master data to enable the SAP Apparel and Footwear solution to run integrated processes.
Integration with SAP Demand Management	• Transfer required master data to enable the SAP Demand Management solution to optimize sales prices. • Receive proposals as the basis for sales prices calculation.
POWER lists (Personal Object Work Entity Repository Lists)	• Visualize specific business objects as a starting point to launch operational transactions.
Closed-loop scenarios based on SAP Business Warehouse	• Integrate information from SAP Business Warehouse in operative processes.

5.10.8 Compatibility Pack for Empties Management

> **i Note**
>
> Please note, that for customers using SAP S/4HANA Cloud, private edition, features mentioned in this chapter might be unavailable, restricted and/or might require a separate license. For further information on SAP S/4HANA Cloud, private edition, please contact your SAP Account Executive.

Business Background

Empties Management records and manages the procurement of returnable packaging, whose administration and deposit requirements you want to map.

You can use Empties Management to handle the procurement process for empties (procurement, returns) alongside suppliers and wholesalers. You can monitor and keep track of the movement of the empties between suppliers, companies, and customers.

Empties Management is integrated in Materials Management (MM) and Sales and Distribution (SD).

Key Features

The following features are available:

Key Feature	Use
Processing empties data	• The feature allows you to enter and process full products, tied empties, and untied empties in the returns order. The system automatically creates a subitem of the full product material for the tied empties. The untied empties are managed as independent materials in a main item. • When creating the (returns) delivery with reference to an order, the system copies the full product and the tied and untied empties from the (returns) order. • When creating a credit memo or an invoice, the system copies all invoice-relevant items from the (returns) delivery note, including the tied and untied empties.
Evaluating empties accounts and reports	• This feature allows you to evaluate material documents with untied empties and material documents with full products. The system can determine the tied empties from the material documents with full products. • You can use empties evaluation reports to issue a certain empties stock on basis on a specific period, for example.
Output processing	• This feature allows you to output the prepared empties data. There are several ways of displaying the empties data and the calculations based on the data, such as in a delivery note, billing document, or balance confirmation.

6 Integration

SAP S/4HANA currently supports the integration with other SAP products. The following integration scenarios are available for SAP S/4HANA. Please note that you might need a separate license. For further information, please contact your SAP Account Executive.

Business Network Integration

Ariba Network Integration

SAP S/4HANA currently supports integration scenarios with the Ariba Network that enable you to identify sources of supply for purchase requisitions in SAP S/4HANA, using the community of suppliers on the Ariba Network that are connected with the Ariba Sourcing solution. Once your suppliers are registered on the Ariba Network, SAP S/4HANA offers seamless purchase order and invoice collaboration processes with your suppliers.

For more information, see:

- Source Assignment [page 116]
- Purchase Order Collaboration (Ariba Network Integration) [page 121]
- Invoice Collaboration (Ariba Network Integration) [page 124]
- Dynamic Discounting (Ariba Network Integration) [page 36]
- Payment Advice Collaboration (Ariba Network Integration) [page 36]

SAP Fieldglass Integration

SAP S/4HANA currently supports an integration scenario for invoice handling with SAP Fieldglass. For more information, see Invoice Collaboration (SAP Fieldglass) [page 125]

Integration with SAP SuccessFactors Employee Central

SAP S/4HANA currently supports the integration scenario with the SAP SuccessFactors Employee Central using the HANA Cloud Interface (HCI) to enable replication of employee, organizational, and cost center data.

For more information, see Employee Central Connectivity (Integration with SAP SuccessFactors) [page 45]

Integration with Concur Solutions

SAP S/4HANA currently supports the integration with Concur solutions to simplify your expense and invoice processes in the areas of master data export and financial posting of expense reports, cash advances, and invoices.

Integration with SAP Global Trade Services

SAP S/4HANA supports the integration with SAP Global Trade Services to offer additional processes for your international supply chain.

Integration with Visual Enterprise Solutions

SAP S/4HANA currently supports the integration with Visual Enterprise solutions to enable the reuse of engineering visualization data for technical communications, restructuring, analytic dashboarding, and other workflows.

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