4
CHAPTER

Features of Project System

P S has many features you can use to develop a Blueprint for a client. They are the building blocks that form the basis of your design. The following pages explain the elements PS offers for managing a project. To assist you in finding where to configure and operate these features, transaction references are provided after each feature description later in this chapter.

PS can be divided into several progressive "working elements." In summary: You need a Structure in order to Plan Costs and Resource, which can be the basis for a Budget. In order to Schedule and Time the work to be done, you need Dates and Resources, which may or may not have a Capacity to perform the work. If you want to get paid for what you manufacture or sell, you need a Revenue Plan. When you're ready with your Planning, you go ahead and Execute the project by changing its Status. Periodically, you monitor your Progress and Settle your Actuals to the correct Financial receiver so the project "sheds" its values.

REMEMBER Projects are a temporary repository for Costs and Revenues—they have a set life and are subject to closure when all work is completed, but cannot be closed if they still have unsettled values.

Structural Elements
Coding Masks
Project Profiles
Project Definition
WBS Elements
Templates
Milestones
Networks
Internal Orders
Attachments and PS Text

Cost/Resource Planning
Structure Cost Planning (WBS) Detailed Cost Planning (WBS) Detailed Cost Planning (Network) Easy Cost Planning (WBS) DIP Profiles Plan Versions (CO) Statistical Key Figures Overheads (CO) Value Categories
Budgeting
In Projects In Investment Programs Availability Control
Time and Capacity Planning
Dates in WBS Scheduling in Networks Work Centeres and Activity Types Workforce Planning
Revenue Planning
Structure Revenue Planning Detailed Revenue Planning Sales Orders (SD)
Execution
Status Management Actuals Simulation Versions
Period-End
Settlement Period-End Progress Archiving Billing

Structural Elements

A project cannot exist without a structure. At a minimum, you need a Project Definition plus at least one WBS. These two elements are what make up the basis of a project. Extending your project to include Networks makes it more complex and usually means you need scheduling and complex material handling. However, some implementations only use WBSs to plan and capture costs. In all cases, it is wise (though not mandatory) to have a method by which your WBS structure is recognized by its various levels—hence Coding Masks.

Depending on the implementation, a mask that carries intelligence (that is, it contains numbers and letters that mean something to the business) may not be the best approach, as often the coding becomes redundant over time.

Coding Masks: How Project Numbers Are Coded

Coding Masks are important as follows if you need to have some intelligence in the way your Project Definition and WBS Elements appear to the user:

- There can be many.
- They can reflect the structure of a project.
- They can control project identification.
- They only relate to Project Definitions and WBS Elements.
- They determine what special characters are permitted to separate the structure view.
- They are not connected to Profiles—the "Project ID" used in Operative or Template projects determines the mask.
- Different Masks can be used with one or many Project Profiles.

NOTE *This information is provided to assist you in finding configuration points and where the functionality may be found in the operation of PS. It is not always clear where either is found because the functionality may be embedded within a transaction, so please use it as a guide only.*

Customization:	OPSK, OPSJ
Operation:	CJ20N

Project Profiles: How a Project Should Behave—What It's Allowed to Do

A Project Profile is mandatory when creating a project:

- There can only be one per project.
- They contain the control parameters used in a project: Business rules, Organizational settings, and so on.
- They influence a project's behaviour by providing default information.

They carry "subprofiles" that further influence a project:

- Version Profile
- Planning Profile
- Budget Profile
- Investment Profile
- Status Profile
- Simulation Profile
- Network Profile

and so on.

Customization:	OPSA
Operation:	CJ20N

Project Definition: What a Project's Defaults Are

When a project is created for the first time, all settings from the Project Profile are copied into the Project Definition:

- It cannot Plan Costs or Revenues.
- It cannot have Costs or Revenues posted to it.
- It is the "Header" of the Project.
- There can only be one Project Definition for a project.
- Subsequently created WBS Elements will always inherit key organizational and profile data from the Project Definition (but these can be changed manually).

Customization:	OPSA
Operation:	CJ06, CJ20N

WBS (Work Breakdown Structure) Elements: The Hierarchical Structure

A Work Breakdown Structure represents the structural relationship that work elements of a project have with each other:

- It is a model of the work to be performed in a project in a hierarchical structure.
- It forms the basis for organization and coordination in a project.
- It carries the dates associated with a package of work.

Work Breakdown Structures can be represented in a variety of ways:

- Logic-Oriented according to PHASE (Plan, Define, Acquire, and so on).
- Function-Oriented according to FUNCTION (Engineer, Construct, Commission, Support, and so on).
- Object-Oriented according to PHYSICAL objects (Asset, Asset components, and so on).
- WBS Elements can have costs planned and posted to them.
- WBS Elements can have revenues planned and posted to them.
- WBS Elements can have a controlled Budget.

Customization:	OPSA
Operation:	CJ01, CJ11, CJ20N

Templates: How a Project Should Look

A template is a neutral structure that can be used to standardize WBS structures, Networks, and Milestones:

- Templates are Master Data.
- You can have many templates to reflect different project scenarios.
- Project and Network Templates contain a Project or Network Profile.
- Templates can contain inherent business rules.
- Templates are not mandatory (unless you are using Assembly Processing), but if you have common, complex structures, they help maintain consistency.
- Operative Projects and their Networks can be used as templates, but are prone to inheriting errors in structure.
- With Assembly Processing, Projects are created in the background from a Sales Order, so you must have Standard WBSs and Standard Networks.
- Milestone Templates (Standard Milestones) can be attached to Standard WBSs and Standard Networks.
- Standard Templates do not carry Settlement Rules.

Customization:	UPUI, OPUH
Operation:	CJ92, CN02

Milestones: Things a Project Must Remember to Do

Milestones carry dates and functions that can be triggered in the future:

- They can be attached to a WBS or a Network (with slightly different functionality).
- In their simplest form, Milestones can just be reminder dates.
- In their most complex form, Milestones can be used for:
  - Automatic triggering of Customer Billing (by Percentage or Amount).
  - Preset Customer Billing Plan (by set amount).
  - Automatic triggering of subsequent events, such as the Releasing of a related Network Activity.
- Milestones can trigger a Workflow message to remind the receiver of an event.
- Milestones form the basis of SAP's "Milestone Trend Analysis" reporting function.
- When Assembly Processing is used to create auto-projects, and Milestones exist in the Standard Networks, the Sales Order Billing Plan is automatically created.
- Billing is sensitive to the Date Categories configured in Milestones:
  - By Percentage
  - By Amount

Customization:	OPSR, OPT6
Operation:	CN11, CJ20N

Networks (Part 1): How to Carry Out Tasks in a Specific Way, Order, and Time Period

Networks are used to provide for scheduling of Activities in a project:

- Unlike WBS Elements (which can only be connected in a linear fashion), Network Activities can be connected to one another using special dependencies called "Start/ Finish" rules.
- Networks have a three-tier structure:
  - Network Header
  - Network Activity
  - Activity Element
- Networks are identified by a unique number.
- Network Activities are identified by their owning Network Number plus a sequential number. Activity Elements are identified by a further sequential number.
- Networks are not "effective" until they are Released.

Customization:	OPUU, OPSC, OPUV, OPSU, OPU6
Operation:	CN21, CJ2D, CJ20N

Networks (Part 2): What Materials and Resources Are Needed to Carry Out a Task

Network Activities can perform a number of complex tasks:

- Plan/Receive Costs.
- Order/Reserve Materials and Services.
- Book Resources.
- Schedule tasks.
- There are three types of Activity, plus special settings for Service:
  - Internal—for planning Internal resources such as labour
  - External—for planning externally procured Services or Contracts
  - General Cost—for planning by Cost Element
  - Service—for planning Services (for example, Contractors)
- Activity Types are attached to Networks by using Control Keys.
- Subnetworks are other types of Orders (such as Maintenance or CS Orders) that have been manually assigned to a WBS or Network.

Customization:	OPUU, OPSC, OPUV, OPSU, OPU6
Operation:	CN21, CJ2D, CJ20N

Networks (Part 3): Internal Activities—Planning Internal Resources

- Internal Activities are defined by Control Keys. Usually, they utilize two objects to make them effective:
  - Work Center—for Capacity Planning
  - Activity Type—for pricing of resources
- Work Centers are independently managed objects. They can be an individual, a group of people, or a piece of equipment. They exist to help manage "Capacities" and to carry all the information required to determine available Capacities and to provide for Capacity levelling.
- Activity Types are independently managed objects. They belong to Cost Centers. They are attached to a "Pricing Schedule," meaning they have a planned cost per unit (which can be a standard Unit of Measure).
- When Work Centers and Activity Types are used in conjunction, they effectively "Plan the Resource" and "Plan the Cost" at the same time.
- Costs associated with a Network Activity aggregate to the WBS to which they are assigned.
- Internal Activities can have attached a set of Components or BOMs (Bills of Materials).

Customization:	OPUU, OPSC, OPUV, OPSU, OPU6
Operation:	CN21, CJ2D, CJ20N

Networks (Part 4): External Activities—Planning External Resources

External Activities are the basis for externally procured resources including Services and Contracts. They are defined by Control Keys.

- External Activities can have attached a set of Components (Materials) or BOMs (Bills of Materials).
- Costs associated with an External Activity aggregate to the WBS to which they are assigned.
- When "Released," External Activities trigger events:
  - A Purchase Requisition if the Material Component is "Non-stock" (becomes a commitment).
  - A Reservation if the Material Component is "Stock" (Assigned Cost).
  - A Reservation is cancelled when a Network Activity is "Technically Closed."
  - A Purchase Requisition/Order remains open when a Network Activity is "Technically Closed."
- Some External Activities are "Services." Services are regarded as being consumed at the time of their performance. They cannot be stored or transported, for example, construction work, cleaning services, legal services.

- They can have a preliminary Total Planned Cost that is reduced as and when Material Components are added.

Customization:	OPUU, OPSC, OPUV, OPSU, OPU6
Operation:	CN21, CJ2D, CJ20N

Networks (Part 5): General Cost Activities—Planning Unspecified Costs

General Cost Activities are the simplest form of Costing in Networks. They are defined by Control Keys:

- They carry an Amount in the currency selected.
- They require a Cost Element to determine what type of cost is being planned.
- They can have attached a set of Components or BOMs (Bills of Materials).
- In themselves, they do not generate any Purchasing Documents. However, if Material Components are attached, they will.

Customization:	OPUU, OPSC, OPUV, OPSU, OPU6
Operation:	CN21, CJ2D, CJ20N

Networks (Part 6): Material Components—Planning Materials

Material Components represent the physical materials you need to plan for within an Activity:

- Components can be added to any Activity.
- There is no restriction on how many Materials you have.
- They form the basis of all your Project Procurement (unless you are using Easy Cost Planning).
- They carry the methods by which MRP will order Materials.
- They can be Stock or Non-stock.
- Each Material Component can trigger a Reservation/Requisition.
- They form the basis of Material Project Cost Planning.
- All Material Components belong to one Activity at a time.

Customization:	OPUU, OPSC, OPUV, OPSU, OPU6
Operation:	CN21, CJ2D, CJ20N

Internal Orders: Objects that Can Be Assigned to a Project Structure

Internal Orders (IOs) are "Project Independent" unless assigned to a WBS or Network Activity. They behave in a similar way to a single WBS Element, except:

- They do not have a structure and are not hierarchical.
- They cannot be scheduled and are not time-oriented.

- There are three types of IO:
  - Type 1—Controlling
  - Type 2—Accrual Calculation
  - Type 3—Model Order
- IOs can have costs planned and posted to them.
- IOs can have revenues planned and posted to them.
- IOs can have a controlled Budget.
- IOs can be Settled.

Customization:	KOT2_OPA
Operation:	KO04

Attachments and PS Text: Attachments to the Project Structure

Attachments can be made to WBS elements and Network Activities. SAP also permits attachment of Standard Text, called PS Text:

- Documents
  - Documents are simple "hyperlinks" or URL references.
  - They can be of any extension type—Word, Excel, Access, and so on.
  - There can be many.
  - You can also create a "Private Note" as a non-hyperlinked attachment.
  - You can "Send" documents and messages to other users.
- PS Text
  - Is predefined with a description.
  - Can be attached to a WBS.
  - Can be assigned to a Template for automatic inclusion in a Project.

Customization:	OPS3
Operation:	CJ20N

Cost and Resource Planning

Any planning you may perform is determined by the amount of detail you need. From a Cost perspective, planning can be as simple as entering a planned value against a WBS. More detail is achieved by specifying where exactly the costs may be incurred (Cost Element) and exactly how many Units you want to plan for (Unit Costing). Even more detail can be applied by planning at a Network level by Material and then integrating it with CO, so the source Cost Centers are informed.

Resource Planning is mainly about the people (or roles) you may want to plan for via Work Centers and Activity Types. This type of planning optionally involves Capacity Planning, where you may share resources from another department.

Further, you may want to plan values where there is no cost involved, only a value that represents volumes or quantities based on Units of Measure. These types of plans can be used to generate Customer Invoices via Statistical Key Figures.

Remember that all planning data totals are kept in Plan Versions against the relevant object (WBS and Network).

Structure Cost Planning via WBS: Direct Entry of Costs Against a WBS Structure, Without Regard to Cost Elements

These are Costs associated with the WBS as a whole.

- Structure Cost Planning is the simplest form of cost planning.
- It is independent of cost elements.
- Plan values entered hierarchically to estimate the expected costs for a project.
- Usually "Rough-Cut"—meaning that when more detail is known, you will probably be more precise and progress to Detailed Cost Planning.
- Can be entered against any WBS (unless configuration in Plan Profile says otherwise).
- Planning is usually Bottom-up, meaning costs are aggregated from the lowest level WBS upward automatically.
- Can be "integrated" with Controlling.

Customization:	OPSB
Operation:	CJ40

Detailed Cost Planning via WBS: Planning Costs Against a WBS at Cost Element Level

- Costs associated with the WBS, but split by Cost Elements (for example, Labour, Materials, Travel, etc.).
- Cost planning by cost element is used when precise information becomes available.
- It covers planning of primary costs, capacities to be taken, and statistical key figures by cost element.
- WBS cost planning can be applied to any CO Plan Version.

Customization:	OPSB
Operation:	CJ40

Detailed Cost Planning via Network: Planning Costs Against a Network Activity Using Cost Elements, Materials, Services, or Activity Types

- Costs associated with the Network and calculated in one of three ways:
  - General Costs—By Cost Element
  - Internal Costs—By Activity Type (Labour and Machinery)
  - External Costs—By Material and Services

- When performing detailed cost planning at Network Activity level, calculated costs aggregate to the owning WBS Element.
- Network Activity cost planning can only ever be applied to Plan Version 0.

Customization:	OPUU, OPSC, OPUV, OPSU, OPU6
Operation:	CN21, CJ2D, CJ20N

Easy Cost Planning via WBS: Planning Costs Against a WBS via Unit Costing, but with the Use of Cost Models to Make Data Entry Simpler

Cost Models need to be designed for Easy Cost Planning (ECP) to work.

- ECP Models have three attributes:
  - Characteristics (the type of data)
  - Derivatives (how the cost is derived)
  - Entry Screen (HTML Code)
- They can be used to calculate costs based on Units × Activity price or Materials.
- They can carry default Cost Elements for manual entry of planned costs.
- They simplify entry of costs against a WBS because the "model" used carries all reference information.
- ECP can only be used in the Project Builder.
- ECP cannot be used for Networks.
- ECP items (the costs) are not distributed over time.
- Execution Services are an extension of ECP for creating subsequent documents such as PRs, POs, and so on.
- Costs Planned in ECP will show under Annual Planning for the start year of the WBS.

Customization:	SPRO
Operation:	CKCM

Plan Versions: Distinct Repositories for Keeping Your Planned Costs Separate

Plan Versions are designed to keep a history of original and revised versions of your planned costs:

- You can have as many as you want.
- They are created in one of two ways:
  - By directly entering planned costs into them
  - By copying one plan version to another
- They are "Fiscal Year" dependent.
- Plan Version 0 is reserved as the baseline plan and also carries Actual Costs.
- Networks always plan to Plan Version 0.

- Easy Cost Planning can plan against any CO Version.
- Plan Versions can be used to track a project's POC (Percentage of Completion).

Customization:	OKEQ
Operation:	CJ9BS, CJ9CS, CJ9FS, CJ9C, CJ9B, CJ9F

Statistical Key Figures: Objects Used for Storing and Planning Invisible Costs or Consumption

- SKFs are designed to carry planned and actual statistical values (usually Quantities).
- Once defined, they can have actual dates and values entered against them that are assigned to a WBS or Network Activity.
- SKFs are used only for recording purposes and have no accounting impact.
- SKFs can be used as inputs for SD Billing (Resource Related Billing).
- SKFs can be distinguished in three ways:
  - Non-aggregated values
  - Aggregated values
  - Progress level for result determination

Customization:	KK01
Operation:	CJS2, CJK2, KB31N

Overheads (CO): Additional Costs Calculated via Costing Sheets

Planned overhead costs are based on Planned costs plus a mark-up (by percentage or fixed amount):

- Costing Sheets carry the calculation upon which planned overhead costs are based.
- They can be calculated based upon Cost Element, Activity Type, or Material.
- They can be calculated against a WBS or a Network.
- They are calculated "on the fly" when costs are planned.
- They can be seen as separate line-items in the cost plan.
- Costing Sheets are attached to WBSs and Networks.

Customization:	KZS2
Operation:	CJ20N

Value Categories: Giving Meaning to Values

Value Categories are intervals of Cost Centers, Commitment Items, and Statistical Key Figures. They are required for:

- Updating the project information database
- Calculating project interest

- Defining structure reports for costs, revenues, and payments
- Updating quantities in the project info database RPSQT

Customization:	OPI1
Operation:	Not Applicable

Budgeting

A clear understanding of Budgeting is mandatory when used in PS. Though similar to Planning, it is definitely not the same. A budget is used in PS to carry values that are more "definitive" than Planned Costs because they represent an approved value rather than one used to calculate the plan. Usually, the business would perform Planning, then use that Plan as the basis for generating a Budget. Then, any activity that results in a "Commitment to spend" can be monitored and acted upon with Availability Control.

Budgeting in Projects: When the Budget Is Controlled from Within a Project

Budgeting is the process of transferring the Plan (usually Version 0) to the area reserved in the project for the budget (it is not mandatory to copy from the Plan):

- Whether cost planning was performed at WBS level or not, the budget can be keyed directly.
- Budgets only apply to WBS Elements (or Internal Orders is used).
- The Budget does not have to equal the Cost Plan.
- For Capital Projects, the budget can have originally been distributed from the Investment Program to which it belongs.
- The Budget Profile contains your default settings and it is these settings that will influence PS behaviour.
- A project Budget has the following "columns":
  - Original Budget
  - Supplement Budget (within, or to project)
  - Released Budget
  - Carried-Forward Budget
- Every time a Budget is changed, a record is kept for auditing purposes.
- When a WBS has a budget, its Status is set to BUDG. This can be undone in transaction OPSX, but only if reversal conditions are met.
- Availability Control applies at the lowest level of a WBS—it cannot be applied exclusively at higher WBS levels.

Customization:	OPS9, CJBN, OPTK
Operation:	CJ30, CJ37, CJ38, CJ32, CJ3A, CJBV

Budgeting in Investment Programs: When the Budget for All Projects Is Controlled by a Capital Investment Program

Budgeting functionality in Investment Management (IM) programs is almost identical to that of Budgeting in Project Systems:

- An IM Budget is effectively a budget managed and distributed to either WBS Elements or Internal Orders.
- An IM Budget can be derived from a Project Plan as long as:
  - The lowest level IM Position (called the Investment Measure) is linked to a Project or Internal Order.
  - A Cost Plan exists in the Project or Internal Order.
- Even if the budget is distributed to a project from an IM program, the budget can still be managed from within the project (if configured).

Customization:	OIB1, OIB3
Operation:	IM34, IM32, IM44, IM52, IM32, IM30, CJ34, CJ37

Availability Control: When You Need to Control Expenditure

Availability Control (AC) is the process of checking expenditure against allowed limits. It is triggered when you attempt to post costs to a project that has AC activated at the WBS that will get the cost, or at a higher WBS if AC is activated to include subordinate WBSs.

The system uses configured tolerance limits both above and below the actual budget amount to determine what action is taken.

If, when costs are charged to a WBS, the tolerance is detected as having been reached, certain action can be taken. You can configure PS to:

- Display a warning message and allow the transaction to continue.
- Send a mail message to the person responsible for the project detailing what happened (and optionally disallow the transaction).
- If required, have AC activated via a regular batch job (executed in the background) to check which projects have reached a predetermined expenditure level. Any that have, will automatically get AC activated. The advantage of this is more a performance issue (why have a time-consuming calculation occurring before it is really required?).
- Selected Transaction Groups and Cost Elements can be exempted from AC.
- When the budget changes, or tolerance limits change, automatically "reconstruct AC" (that is, all relevant WBS elements will be modified).
- Availability Control in User Status if you want to manage it at individual WBS level.

Customization:	SPRO
Operation:	CJBV, CJBW

Time and Capacity Planning

These are the methods at your disposal for managing Schedules relating to Dates and Times and the Human Resources within a Project's life cycle. How you manage the dates associated with both WBS and Networks depends on the detail you want: for example, if you only use WBS Elements, you cannot "schedule" your project based on constraints or durations (as you can with Networks). Dates do, however, play a part in Cost Planning, as the duration of the various WBSs determines where in the calendar the planning will show. For Networks, true "Scheduling" can be performed because each Activity can have dependencies on other Activities.

Dates in WBS: Managing Basic and Forecast Dates

- Dates in WBSs are divided into three categories:
  - Basic—either entered manually or taken from the earliest basic start dates and the latest basic finish date of the activities assigned to the WBS element.
  - Forecast—as for Basic Dates.
  - Actual—can be manually entered or entered via Confirmations and Actuals.
- All dates carry a Duration.
- Dates can be reconciled, extrapolated, and shifted by referencing subordinate WBS Elements.

Customization:	OPTQ
Operation:	CJ21, CJ24, CJ29, CJ20N

Scheduling in Networks (Part 1): Managing Start/Finish Rules and Executing Scheduling

Scheduling is only appropriate for projects that use Network Activities. To be effective, it is dependent upon the Start and Finish dates of Activities being associated with one another via "Start/Finish" rules.

The following dates are relevant to scheduling:

- **Scheduled Start**   When you are scheduled to start this work.
- **Scheduled Finish**   When you are scheduled to finish this work.
- **Latest Forecast**   If you will miss the Scheduled Finish, what is your best estimate of a finish date.
- **Actual Dates of events occurred**   When you really did start. This information can be automatically completed by other related triggers (such as a Time Recording, or the completion of a Purchase Order).
- **Latest Start Date**   If you will not make the Scheduled Start, what would be the latest date to start.

- **Latest Finish Dates**   If you will not make the Scheduled Finish, what would be the latest date to finish.

Customization:	OPU6
Operation:	CJ20N, CN24(N)

Scheduling in Networks (Part 2): Managing Start/Finish Rules and Executing Scheduling

- There are two scheduling techniques:
  - Forward—Scheduled activities starting with the basic start date and calculating forwards to determine the earliest start and finish dates.
  - Backward—Scheduled activities where the latest start and finish dates for the activities are calculated backward, starting from the basic finish date.
- Floats are the number of days between the Latest Start Date and the Scheduled Start Date. They can be negative if Backward Scheduling calculates an unrealistic Finish Date:
  - Total Float—Number of days that can be shifted without affecting the Latest dates of the subsequent Network.
  - Free Float—Number of days that can be shifted without affecting the Earliest dates of the subsequent Network.
- A Project can "Start in the Past."
- Activities are connected using Relationship Types: FS—Finish/Start, SS—Start/Start, FF—Finish/Finish, SF—Start/Finish.
- Duration determines the length of time an Activity takes.
- Relationships between Activities determine the sequence of phases in terms of time.

Customization:	OPU6
Operation:	CJ20N, CN24(N)

Work Centers and Activity Types: Planning Capacities and the Cost of Utilizing the Resource

- Work Centers can represent, for instance, a piece of machinery, a role or an individual job. The carry set values that determine the following:
  - Usage—What section of the organization uses it, what Value Key (dimension, time, area) is applied, how it is set up and so on.
  - Defaults—Control Key to determine task lists or Order Types (in the case of PS, the Network Type) and Units of Measure.
  - Capacities—To specify the Formula used when determining the capacity.
  - Scheduling—To calculate how long it takes to perform one unit.

- Costing—Assign a Cost Center and optionally the default (allowed) Activity Type(s) that will be defaulted when the Work Center is used to plan in a project's Activities.
- Technical—Type of machine, Rounding Categories, for instance.
- Activity Types can represent a specific unit of chargeable work, such as a laboratory test or a person's job. They also carry set values that determine the following:
  - Basic Data—Unit of Measure, Cost Center Category, default Cost Element, Pricing Indicator (for instance, based on Plan Price or Manually calculated).
    - They belong to a Cost Center.
    - They have a validity (between dates) and can expire.
  - Activity Types have Planned Prices, which are the basis for Cost Planning in Networks and/or WBS Elements.

Customization:	OP40, OP45, OP42, OP13
Operation:	CMP2, CNR2, CM01, CM01, CM51 KP26, KL01–KL05

Workforce Planning: Planning Who Does What, and When

Workforce Planning involves the HR (Human Resources) module of SAP to provide a Personnel Number for use in determining the actual capacity and cost of providing an individual resource. It is used in relation to a Work Centre, and an Activity Type that have been entered against an Internal Network Activity (if Networks are used) or in Unit Costing (if not).

- When a Personnel Number is added to the Person Assignment tab of a Network Activity, PS will determine the Capacity for the Work Centre to perform the task.
- Entering the Personnel number assists in the process of confirming time in CATS (Cross-Application Time Sheets).
- Data entered in the Network Activity is available for Capacity Planning and Leveling. However, the system will not prevent you from over-utilizing a resource.

Customization:	CMPC
Operation:	CJ20N, CMP9

Revenue Planning

This involves how expected income is planned and managed for Sales-oriented Projects. Revenue can be planned against a project even if there is no connection to a Sales Order. However, the WBS Element must be marked as a Billing Element. The revenue plan can come from a Quotation or a Sales Order, if you configure your Plan Profile to do so (meaning that if you tick the "Automatic Revenue Planning" box, planned revenue will show in project reporting). In essence, the most basic of revenue planning (structural) works in exactly the same way as Structure Cost Planning. At a detailed level (by Cost Element), you use "Revenue Elements," which are just Cost Elements with a special indicator.

Revenue associated with a project always shows up with the Negative (–) symbol in reporting.

Structure Revenue Planning: Direct Entry of Revenue Against a WBS Structure, Without Regard to Revenue Elements

It is Revenue associated with the WBS as a whole.

- It is the simplest form of revenue planning.
- It is independent of revenue elements.
- Values are entered hierarchically against WBS Elements to estimate the expected revenue for a project.
- It is usually "Rough-Cut"—meaning that when more detail is known, you will probably be more precise and progress to Detailed Revenue Planning.
- Revenue Plan can only be entered against "Billing Elements."
- It bears no relation to Revenue planned in a Sales Order.

Customization:	OPSB
Operation:	CJ42

Detailed Revenue Planning: Planning Revenue Against a WBS by Revenue Element

Revenue associated with the WBS, but split by Revenue Elements (for example, Labour, Materials, Travel, etc.).

- Revenue planning by Revenue Element is used when precise information becomes available (when you know which Revenue Elements to use).
- Revenue Planning cannot take place in a Network.
- If a "Billing Plan" is created from within a WBS, the subsequent Sales Order will recognize it for "Periodic Billing." However, if a Billing Plan is created against a Sales Order that is connected to a WBS, the Project Billing Plan will be deleted.
- WBS revenue planning can be applied to any Plan Version.

Customization:	OPSB
Operation:	CJ42

Sales Orders (SD): Revenue Planning via Sales Order (or Quotation)

It is not mandatory to have a Sales Order (SO) associated with a Project for Revenue Planning if Structure Planning is used.

- Revenue planning to a project via an SO is performed in one of two ways:
  - By entering revenue values against an SO Line Item that is assigned to a WBS.
  - Creating a Billing Plan (must have a Cost Element).

- When performing detailed cost planning at Network Activity level (which can only be done via Sales Orders), revenue plans aggregate to the owning WBS Element.
- WBS revenue planning can be applied to any Plan Version.
- Network Activity revenue planning can only ever be applied to Plan Version 0.

Customization:	OPSB
Operation:	CJ20N

Execution

Though not specific to PS, "Execution" is a generic term for the point at which a project is ready to be released. It is usually the point at which "Actual" costs, revenues, dates, and so on, will be posted to a project. So, normally, a project that has been Released by System Status would fall into this category. Execution can also be controlled by User Status—meaning that a project can remain in a Created state, but can have Business Transactions opened via a User Status. In any event, it is logical to assume that most projects reach this phase, which would also include the Period-end.

Status Management: Setting Project Restrictions (Business Processes) by Status

- There are two types of Status:
    - System—Predetermined SAP status.
    - User—Determined by configuration.
- System status CRTD is automatically set by SAP when a project is created.
- The system Status set by user is restricted to:
    - REL—Released.
    - TECO—Technically Closed.
    - CLSD—Closed.
- Other system statuses can be used to LOCK certain information within a project.
- System Status set at higher levels affects all lower levels (not so with User Status—it must be copied down the hierarchy).
- User Status can be configured to prevent certain business transactions.
- A history of Statuses can be kept if you have configured the tick box "Change Documents" in Project Profile Status Management.
- A number of "Hidden" System Statuses inform you of past events, such as Budgeted, Costs Planned, Availability Control, Date not Updated, Activated, and so on.

Customization:	OK02
Operation:	CJ20N

Actuals: Posting Actual Costs, Revenues, and Dates to a Project

Actuals are "real" values that hit a project based on actual events.

There are several ways that actuals can hit a project:

- Financial Journals (Cost and Revenue).
- Time-sheets (Confirmations).
- CO Postings (Overheads).
- Material and Service deliveries.
- Activity Allocations.
- Payments.
- Realized Milestones (releases Billing Blocks if connected to a Sales Order).
- Settlement from other objects (for example, Maintenance Orders, Internal Orders).
- Status must be REL to receive Actuals or TECO to receive realized commitments.
- A WBS must have the "Account Assignment" indicator set to On before it can receive costs.
- Actual Dates are automatically updated when costs hit a project.
- Actuals are usually posted to the lowest level of a Project's structure (with the exception of Revenue).

Simulations: Simulating What You Want to Do Before You Really Do It, Without Committing

Simulations mean what they say—they provide you with a tool to try things out in a project. They carry the following information:

- Structures.
- Dates.
- Costs.
- Material components.
- Milestones.
- Billing plans.
- They are identified by what's termed as a Version Key, which is attached to your "simulated" project.
- They require a Simulation Profile, which tell the simulated project what type of data can be managed.
- In essence, you are using all the functionality of PS structures and Plans, but are not doing any actual postings.
- It's a planning tool and uses the Planning Board to manage structures and planning data.
- Simulations can be created from existing Operative/Standard projects and from other simulated projects.
- Operative projects can be generated from simulated projects.

Customization:	OPUS, SPRO
Operation:	CJV1–CJV6

Project Versions: Snapshots of a Project for Comparison Purposes

- Project Versions should not to be confused with Plan Versions.
- They are exact copies of a project, including all plans, actual costs, and progress information.
- They are subject to a "Profile" that is used to determine the kind of information a version will carry.
- They can be automatically created based on Project Status.
- They cannot be modified.
- They are useful when comparing baseline information with current information.
- They can be seen in most standard reports.

Customization:	OPTS
Operation:	Not Applicable

Period-End (and Regular Processes)

This term not only applies to the financial milestone that occurs on a monthly or annual basis, but also to processes within a project that need to be performed on a regular basis, such as Settlement and Billing.

Settlement: Transferring Actual Values to the "Owner"

Settlement is not mandatory, but if it is not carried out on a project that has received costs, the project cannot be closed. The exception to this is a Settlement Profile that states "Not to be Settled."

- The purpose of Settlement is to balance a project to zero.
- It is necessary because of the temporary nature of a project.
- A project can be settled to almost any other entity:
  - Profitability Segment (for Results Analysis)
  - Asset
  - Another Project
  - A Material
  - A Cost Center
  - A P&L Account
- Settlement "Rules" must be in place—that is, there must be an Origin (by Cost Element) and a Receiver.

- Amounts settled from a WBS or Network can be subdivided by percentage or specific amounts.
- Settlement can be performed "Individually" or "Collectively" using Variants.
- Settlement Rules can be generated automatically (CJB1 and CJB2).
- When a WBS is deemed an Asset Under Construction, Settlement Rules are generated automatically at first settlement.

Customization:	OKO7, OKEU, OKO6
Operation:	CJB1, CJB2, CJ88, CJ8G, CJIC

Period-End: Executing Regular, Cyclical Processes

In Project Systems, Period-end Closing (PEC) is not necessarily based upon a financial period. You perform PEC for the following reasons:

- **Earned Value Analysis**   Each time you run Earned Value (the process of calculating the real progress of a project from a cost/time/percentage of completion viewpoint), EV fields in the project are recalculated and overwritten.
- **Results Analysis**   Each time you run Results Analysis, RA fields in the Project are overwritten. Results can be used as input to Settlement.
- **Settlement**   Depending on the receiver, Project costs are used to transfer costs to Fixed Assets, Profitability Segment, Cost Center, and so on.
- **Project Version**   To take a "snapshot" of the project at a certain time in its life for future comparison purposes.
- **Interest**   Calculate interest to be posted to Projects/Sales Orders and other applicable objects.
- **Periodic transfers**   Postings relevant to cost accounting (such as telephone expenses) are collected in clearing cost centres. The postings collected are then transferred to the receiver cost centers at the Period-end. (Telephone expenses, for example, are transferred to all the cost centers in the business in proportion to telephone units used by the receiver cost centers.)
- **Determining overhead surcharges**   Overheads for provision of machines, buildings, materials, personnel, and so on, are applied to costs using surcharges in Costing Sheets. Both plan and actual values apply for overhead surcharges. All reports should be run at this time to ensure results of PEC are captured.

Progress (Part 1): Updating and Reviewing a Project's Progress

Progress (Percentage of Completion—POC) is determined by several factors:

- Progress Version.
- Measurement Technique.
  - Start-Finish
  - Milestone

- Estimation
- Time Proportional
- Degree of Processing
- Quantity Proportional
- Secondary Proportional (apportioned effort)
- Cost Proportional
- Actual = Plan
- Individual (user-exit)
- POC can be used as input for Results Analysis.
- A special CO Plan Version must exist for Progress analysis.
- POC is recorded in special Statistical Key Figures (assigned to your Controlling Area).

Customization:	SPRO
Operation:	CNE1, CNE2

Progress (Part 2): Updating and Reviewing a Project's Progress

- Inputs to POC Calculation include:
  - Planned Costs.
  - Actual Costs.
  - Influences for POC calculation are the Measurement Technique used.
  - A Project's POC is updated when you run Progress Analysis.
  - For Milestone Trend Analysis, a Project Version will have been created to record the "before" situation.
- Project Progress can be monitored in a number of ways, including:
  - Planning Board.
  - Standard reporting.

Customization:	SPRO
Operation:	CNE1, CNE2

Archiving: Taking Your Projects out of the Live System

Archiving in Projects requires you to have the Deletion Flag set.

- Archiving is performed in three stages:
  - Set Deletion Flag (CJ20N).
  - Set Deletion Indicator in batch mode (set for all Deleted Projects in CN80).
  - Perform Archive in CN80. (Networks are archived only after residence times 1 and 2 have been met.)

- Some data cannot be archived:
  - Simulation Versions
  - Billing plan for WBS element
  - Invoicing plan for network activity or component
  - Unit costing for network activity or component
  - Additional attributes for project summarization using master data characteristics
  - Classification data for summarization of WBS elements
  - Classification data for order summarization of networks
  - Characteristic value assignments in variant configuration
  - Delivery information for networks/work breakdown structures
  - Delivery addresses for material components in third-party orders
  - Capacity requirements
  - Workforce planning
- Operative Projects will be archived with their respective "Status Dependent" Versions. Time Dependent versions must be archived separately

Customization:	Not Applicable
Operation:	CJ20N, CN80

Billing: Sending the Customer an Invoice

Customer projects can have Actual Costs billed using Resource Related Billing (RRB).

- DIP Profiles are used to gather the relevant actual costs from both WBS Elements and Network Activities.
- Project Milestones can be used to generate a Billing Plan.
- Sales Orders that are linked to projects can have their Billing Plan updated from within a project.
- The project Plan Profile determines how the Revenue Plan is sent to the project.

Customization:	ODP1
Operation:	DP91

Summary

You should by now be pretty familiar with the main aspects and features of PS. Armed with this knowledge, you can progress to Configuration (or Customization as it is also called). Throughout Chapter 4, there have been references to where the configuration is done—but this does not mean you know it all yet; you still need to know what each configuration transaction contains. In the next chapter, you will be shown how this is done.