**ERP (Enterprise Resource Planning)**

E-Enterprise

R- Resources (Money, manpower, materials, machines, marketing)

P-Planning

ERP is defined as it is a methodology and integrating all the resources like (money, manpower, machines, marketing, and manufacturing) to run an organization in an effective manner.

**ERP resources are:**

* Captial (money)
* Work (people, manpower)
* Devices (materials)
* Machines (manufacturing)
* Selling (marketing)

These recourses we use to run the organization in an effective manner.

It integrates all the departments.

Money (finance department)

Manpower (Administration/HR management)

Materials (purchasing/procurement)

Machines (manufacturing/production)

Marketing (sales/marketing)

ERP is a high degree of integration and easy to work in the organization. In this way the ERP help in the organization.

The ERP systems are:

* SAP
* ORACLE
* PeopleSoft
* JD Edwards

SAP is most widely used.

**SAP Overview and History**

* SAP stands for Systems Applications and Products in Data Processing.
* SAP AG is an organization or a company founded by five IBM Employees and is head quartered in Walldorf Germany in 1972.
* Market Leader in Industrial Enterprise Application (IEA) About 56% market share in the ERP market.
* It is the world third largest independent software.
* Straight lies in its high degree of integration, mainly for large, global corporate enterprises.
* SAP is defined as SAP is an ERP which integrates different Applications that are running in an organization in an effective manner.
* we use SAP because it is the combination of many system applications and it lies between high degree of integration.
* No of resources we can integrate in SAP.

**SAP Architecture**

SAP follows different types of Architecture

R/1 :1-Tire Architecture

R/2 :2- Tire Architecture

R/3: 3- Tire Architecture

**R/1 :1- Tire Architecture**

* It is a single tire real time Architecture.
* It was released in 1972.
* It was developed for ICI chemicals.
* All the components performed in a single system.
* It is mainly focused on two applications ie.sales and distribution and material management.

**Drawbacks:**

Security system becomes slow.

No reliability

No of users get increases.

**R/2 : 2-Tire Architecture**

It is a two-layer Architecture.

It is a big mainframe system i.e. Centralized data stored in server and clients.

Client is Graphical User Interface (GUI)

Presentation layer present on one system and Application and database layer present in other system.

**Drawbacks**:

No of users increases the R/2 becomes slow.

Data Redenicy is more.

**R/3: 3- Tire Architecture**

It is a three-layer Architecture.

In 3- Tire Architecture we have three layers

1. Presentation layer
2. Application layer
3. Database layer

**Presentation layer:**

* This is the first layer of R/3 Architecture.
* It is top layer of the system.
* No of users can access the SAP system.
* This layer consists of Graphical User Interface.
* It analyzes the user actions and transfer to application layer.

**Application Layer:**

* This is the middle layer of R/3 Architecture.
* All transactions of the end user are performed in this layer.
* The processing part is done on the application layer.
* Application layer execute the application logic which consist of one or more application servers and message servers.
* Message server means the information form the presentation layer to database layer.

Background message

Update message

Spool/print message

Network message

Enqueue message

Dialogue message

**Database Layer:**

* It stores the entire information of the system except master and transaction data.

**SAP System Landscape**

SAP system is the arrangement of SAP servers.

SAP environment is a 3-tire landscape exists.

1. Development server (DEV)
2. Quality Assurance Server (QAS)
3. Production server (PROD)

In development server objects are created and it is a unidirectional.

In quality assurance server All the objects are tested.

In production server objects lives goes on.

Landscape is always in unidirectional (0ne direction)

It cannot be in reverse.

In development server we have three types

1. Sandbox client
2. Customizing client
3. Development-testing client

In sandbox client is the place where all the system design work takes place.

**SAP Categories:**

In SAP we have two different types of modules

1. Functional module
2. Technical module

**Functional module**

Functional module is related to business.

1. SD –Sales and Distribution
2. MM –Material management
3. PP –Production Planning
4. QM –Quality Management
5. PM –Plant Maintenace

**Technical module**

Technical module is related to system.

1. FI/CO -Finance and controlling
2. PS –Project System
3. TR –Treasury
4. IS –Industry SPEC Solution
5. HR –Human Resource Management

Technical modules called “ABAP”.

It is a programming language for customizing the SAP Applications.

Between Application and configuration, we have ABAP programs.

**Customization:**

1. Coding
2. Configuration

In coding we set the code for requirement

In configuration we depend upon kind of requirement, it configure the business data and applications.

* We need ABAP development because whenever a new requirement comes and if the SAP system does not have that particular requirement, we need to customize it.

**SAP CONSULTANTS**

* SAP consultants develop and implement SAP systems for business clients.
* They determine client requirements (business needs), create customized solutions smoothly integrate SAP applications with existing IT infrastructure.

Different types of SAP consultants.

**1.Fuctional consultant.**

* SAP SD consultant (sales and distribution)
* SAP HRM consultant (human recourse management)
* SAP FICO consultant (finance and controlling)
* SAP PP consultant (production and planning)
* SAP CRM consultant (customer relationship management)
* SAP SCM consultant (supply chain management)
* Gathers requirements from the client
* Translates the requirements into functional specification
* Needs to know the customizing and business terms

**2.Technical consultant**

* SAP ABAP consultant
* SAP BASIC consultant
* Needs to understand the functional requirement from the functional specification
* Translate the functional specifications to technical specifications
* Does the coding as per the technical specifications.
* Needs to know ABAP
* Techno functional consultant
* ABAP+HR
* ABAP+SD
* BIW (business information warehouse)
* Needs to know business processes.
* End users
* Those who interact with SAP but don’t have much knowledge of SAP

**ABAP consultant Roles and Responsibilities**

The roles and responsibilities in ABAP consultant is RICEF

R- Reports

I-Interface

C-conversion

E- enhancement

F-forms

A functional SAP ABAP consultant has an end-to-end role and responsibility in the SAP business.

That means from starting point to end point entire consultant has to play an important rple

Functional consultant ensures that the system is useful and it is performing right

Functional consultant will give you the configuration of the system what the business process is to be done.

All those things will be done in Functional consultant it gives the particular information or the configuration is done by the consultant into our system.

Functional consultant deals with the client end of the business cycle.

It connects the abstract business needs of the client to the logical Functional solutions from the system.

The main task is to understand the business area and ensuring that the system reacts in a proper format.

Technical consultant will provide the services for software deployment and integration

software deployment means transferring or converting the object from one system to another systems.

**TICKET process in ABAP projects for ABAP consultant**

Ticket is nothing but it is requirement or an issue that will be encountered when the consultant or the end user or client will face.

In SAP we have some tools where we have to get information from the client is called ticketing process.

The end user faces an SAP issue which is not resolve by super user that particular issue is registered in a certain team.

In SAP we have different categories

L1, L2, L3

Ticket process and ticketing tools are:

HPQC

Rev Track

HPQC: HP quality center SNOW: Service now a ticket can have various statuses

L1:

L1 team is the first point of contact for the business individuals.

L1 team member need not be expect in SAP but they are expected to have good communication skills.

L2:

When L1 team is not able to resolve the issue then L1 team escalates the issues to L2 team

L2 team members have better knowledge of SAP and are expected to resolve the issue.

L3:

L3 team members are expected to be SAP experts.

Since an individual cannot be expert in all the modules hence L3 team is composed of individuals who are expert.

Only L3 team is authorized to do any changes I existing SAP system.

**Introduction to ABAP/4**

ABAP is the Programming Language used in SAP for developing Business Application

Support and Development. It is the programming language that runs in the SAP

Run time environment created and used by SAP for the development of application programs.

All the R / 3 applications and even parts of the basis system were developed in ABAP.

ABAP Stands for Advanced Business Application Programming. It is also called as ABAP / 4 where 4 represents “Fourth Generation Language”. ABAP is an Event Driven programming language. User Actions and system events control the execution of the program.

**ABAP Work Bench:**

ABAP Workbench is a set of tools and libraries to design, implement, test and maintain the transactions and reports in the ABAP Programming language.

All the tools provided by the ABAP workbench are integrated with each other. everything In SAP is a Transaction.

A Transaction is a specific task for performing an activity and represents an end user application.

Every Transaction has a code which are to be performed in the ABAP Workbench.

The following are the some of the important T-codes that commonly used:

SE = Software engineering / Development

SM = System Maintenance

ST = System Trace / Testing

SE11= ABAP Dictionary

SE38= ABAP Editor

SE37= function builder

SE51= screen painter

SE41= menu painter

SE71= form painter

SE63= Translation

SE80= Object navigator

SE21= package maintenance

SE91= message maintenance

SE84= Repository Browser

SE24= Class builder

“SAP IDES is a tool used to learn SAP”

IDES = internet demonstration evaluation/education system.

Command prompt / Task pane is where the above commands are executed for performing different activities in IDES.

Some important command prompts that are frequently used in SAP

/o = Create a new session

/n = close the existing session

/n (T code) = Close the existing session and open the session mentioned in T-code

F3 = Back Button

CTRL + F2 = checks the syntax errors

CTRL + F3 = Activates the Objects

CTRL + S = Save the current Objects