**Key ERP Concepts**

3 classes of Data

3 classes or types of data exist in an ERP system:

- Master Data
- Organizational Data
- Transactional Data
**Organizational Data**

**Organizational Data**: Data elements which model the organizational structure units in an enterprise.

Examples: plants, warehouses, storage locations, divisions, distribution channels, sales organizations, etc.

Arranged according to tasks (particular activities) and functions (overall responsibilities).

Mapping actual organization units to appropriate SAP structural representation is key element in **configuration**.

Organizational data is a more specific type of master data and is rarely changed.

Before creating master data, organizational data must be in place.

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**Master Data**

**Master Data**: relatively fixed, frequently used data that remains stable over a long period of time.

Often shared between different functional areas, processes, and system modules.

Examples: customer data (address, contact info, etc.), vendor data, material data, and more.

Providing consistency and accuracy in master data with and across systems: role of **master data management**.

In SAP managed by SAP Exchange Infrastructure (XI) (old name), Process Integration (PI) (new name).
**Transaction Data**

**Transaction Data**: Transitory data generated from independent business activities, typically based on internal and external exchanges/flows (information, money, etc.).

- Customer orders, payment records, goods movements, etc.
- Archived and accessible over time, but not reused regularly.

Unlike master data, aggregate transactional data is dynamic – each transaction is unique

Transaction data pulls from organizational data, master data, and rules (and is therefore traceable).

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**Transaction Data vs. Master Data**

Transactions flow down the river of time
**Business Process Integration—Data Focus**

“The 3 Legged Stool”

Components:
- Organizational Data
- Master Data
- Rules
- Transaction Data

**Rules**

**Rules**: defines the parameters for Master Data and Transactions (valid values, uses, inter- and intra-relationships, etc.)

Determines functionality and usage of Master Data and Transaction processing.

- A P.O. can only be accepted on a valid customer account. (Must create customer account before entering first order.)
- Sales person can only give a discount of 5%.

Relatively fixed
Changes as policy changes
**Document Principle**

**Document Principle:** Every transaction that writes data to underlying database creates a uniquely numbered electronic document. Each document contains information such as:

- Person responsible (who?)
- Date and time of the transaction (when?)
- Commercial content (what?)

Once created, a document **cannot be deleted** from the database.

Key to preserving an audit trail.

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**SAP Document Flow**

<table>
<thead>
<tr>
<th>Document Type</th>
<th>Date</th>
<th>Overall Processing Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inquiry 10000001</td>
<td>30/11/03</td>
<td>Completed</td>
</tr>
<tr>
<td>Standard Order 2</td>
<td>30/11/03</td>
<td>Completed</td>
</tr>
<tr>
<td>Outbound delivery 00000001</td>
<td>30/11/03</td>
<td>Completed</td>
</tr>
<tr>
<td>Picking request 23530811</td>
<td>30/11/03</td>
<td>Completed</td>
</tr>
<tr>
<td>Goods issue delivery 4900000165</td>
<td>30/11/03</td>
<td>Completed</td>
</tr>
<tr>
<td>Invoice 96000000</td>
<td>30/11/03</td>
<td>Completed</td>
</tr>
<tr>
<td>Accounting document 980000001</td>
<td>30/11/03</td>
<td>Cleared</td>
</tr>
</tbody>
</table>

Business partner: 00 West Hills Athletic Club
SAP System Landscape High Level Overview

**Client:** a self-contained unit in an SAP system with separate master records and its own set of tables. Given an identifying number.

ERP Terms and Concepts

**Instance:** each install of an ERP (or other) software on an individual application server.

- Typically 1 instance per machine.
- Typical SAP Landscape consists of multiple instances

Typical install size: 1 terabyte.

SAP is platform agnostic. Can run on IBM AIX, IBM AS/400, Linux, HP-UX, Solaris, IBM S/390, Windows
**Typical Company Installation Landscape**

![Diagram of SAP ERP installation landscape with servers labeled Development, Test, Production, and Training]

**ERP Terms and Concepts**

**Configuration**: process of distinctively setting up each instance to fit needs of customer (within certainly existing limits)

What you do to have the system execute your business processes the way you want them executed.

*No coding necessary*. Change options in configuration settings.

Over 8,000 configuration decision points available.
ERP Terms and Concepts

**Customization**: going beyond configuration to design and write custom code to enhance or replace existing ERP functionality.

Facilitated in SAP ERP by user exits and other code hooks.

"*Configuration*, not *customization*."

"We need people that can re-engineer standard SAP and *minimize writing code*." (Valerie Homan, Manager, Enterprise Solutions, Y12 National Security Complex)

SAP Configuration

Most infrastructure decisions, including configuration decisions, occur during project implementation

Basic SAP installation--over 28,000 tables.

Once it is done, very difficult to undo or reconfigure

SAP Consultant Focus

Configuration

Customization

1990s

Today
SAP Database

At the heart of every SAP installation is a relational database server.

- Oracle, IBM Informix, SAP MaxDB, MS SQL Server, IBM DB2
- Licensed separately from SAP.

Do **not** manipulate database data apart from SAP control. SAP will not support your company.

- Tables created, managed, etc. from within SAP.
- Valid SAP-independent operations: DBMS patching, backup, recovery, auditing, performance tuning.

Keeping hardware and software infrastructure running, patched, performance tuned, etc. is the role of **SAP Basis Administrator**.

Conclusion

ERP systems do not work "out of the box." An instance requires significant configuration.

Configuration is a non-trivial activity.

Configuration brings together concepts of **organizational data**, **master data**, **transaction data**, and **business rules**.

Development in ERP requires one be cognizant of the data models established, and the functionality of various modules.

One cannot fully appreciate the complexity of configuration management without additional study.
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