



HR530

Technical Topics in HR

- R/3 System
- Release 4.6C
- December 2000
- 5004 3349

Copyright 2000 SAP AG. All rights reserved.

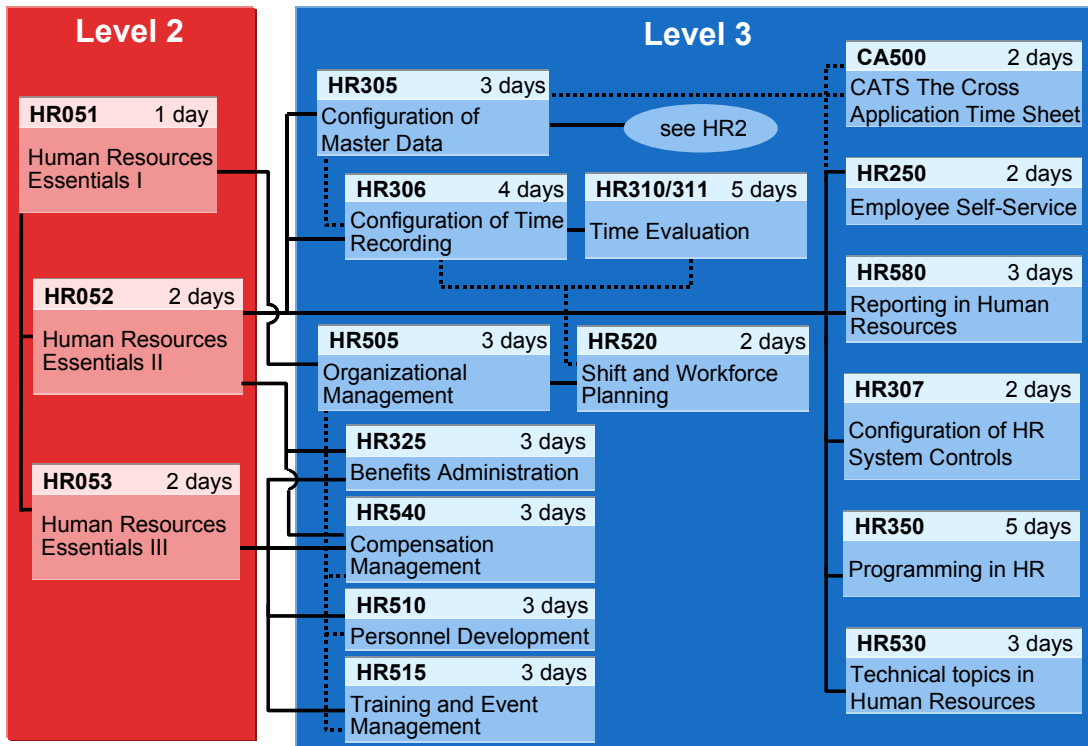
Neither this training manual nor any part thereof may be copied or reproduced in any form or by any means, or translated into another language, without the prior consent of SAP AG. The information contained in this document is subject to change and supplement without prior notice.

All rights reserved.

© SAP AG 1999

- Trademarks:
- Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.
- Microsoft®, WINDOWS®, NT®, EXCEL®, Word® and SQL Server® are registered trademarks of Microsoft Corporation.
- IBM®, DB2®, OS/2®, DB2/6000®, Parallel Sysplex®, MVS/ESA®, RS/6000®, AIX®, S/390®, AS/400®, OS/390®, and OS/400® are registered trademarks of IBM Corporation.
- ORACLE® is a registered trademark of ORACLE Corporation, California, USA.
- INFORMIX®-OnLine for SAP and Informix® Dynamic Server™ are registered trademarks of Informix Software Incorporated.
- UNIX®, X/Open®, OSF/1®, and Motif® are registered trademarks of The Open Group.
- HTML, DHTML, XML, XHTML are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Laboratory for Computer Science NE43-358, Massachusetts Institute of Technology, 545 Technology Square, Cambridge, MA 02139.
- JAVA® is a registered trademark of Sun Microsystems, Inc., 901 San Antonio Road, Palo Alto, CA 94303 USA.
- JAVASCRIPT® is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.
- SAP, SAP Logo, mySAP.com, mySAP.com Marketplace, mySAP.com Workplace, mySAP.com Business Scenarios, mySAP.com Application Hosting, WebFlow, R/2, R/3, RIVA, ABAP™, SAP Business Workflow, SAP EarlyWatch, SAP ArchiveLink, BAPI, SAPPHIRE, Management Cockpit, SEM, are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other products mentioned are trademarks or registered trademarks of their respective companies.
- Design: SAP Communications Media

Human Resources 4.6 (1)



© SAP AG 1999

Internal Use SAP Partner Only

Internal Use SAP Partner Only

Level 2

HR051 1 day
Human Resources Essentials I

HR052 2 days
Human Resources Essentials II

HR053 2 days
Human Resources Essentials III

Level 3

HR305 3 days
Configuration of Master Data

HR390 2 days
Introduction to Payroll

HR400 5 days
Payroll Configuration

HR490 4 days
Incentive wages

Note:
Please note our country specific curriculum and our curriculum for release 4.6B.

Course Prerequisites

SAP

- **HR050 - Human Resources**
- **BC420 - ABAP Dictionary**
- **BC400 - ABAP Workbench Basics and Concepts**

© SAP AG 1999

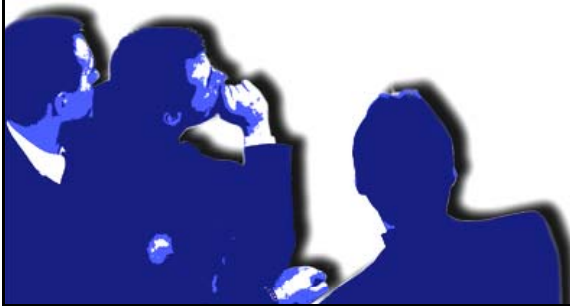
Internal Use SAP Partner Only

Internal Use SAP Partner Only

Target Group

SAP

- System administrators
- Developers



Notes to the user

- The training materials are **not teach-yourself programs**. They **complement the course instructor's explanations**. On the sheets, there is space for you to write down additional information.

Contents:

- Course goal
- Course content

© SAP AG 1999

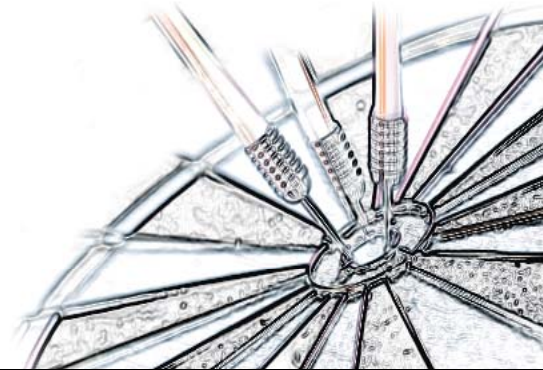
Internal Use SAP Partner Only

Internal Use SAP Partner Only



This course provides you with information on:

- Technical topics in HR



© SAP AG 1999

Course Overview

- Unit 1 **Introduction**
 - Unit 2 **Data Structures in HR**
 - Unit 3 **Customer Infotypes**
 - Unit 4 **Enhancement Options**
 - Unit 5 **ALE, Transport Link, and Data Transfer**
 - Unit 6 **Creation of Infotype Logs, Logging, and Archiving**
-

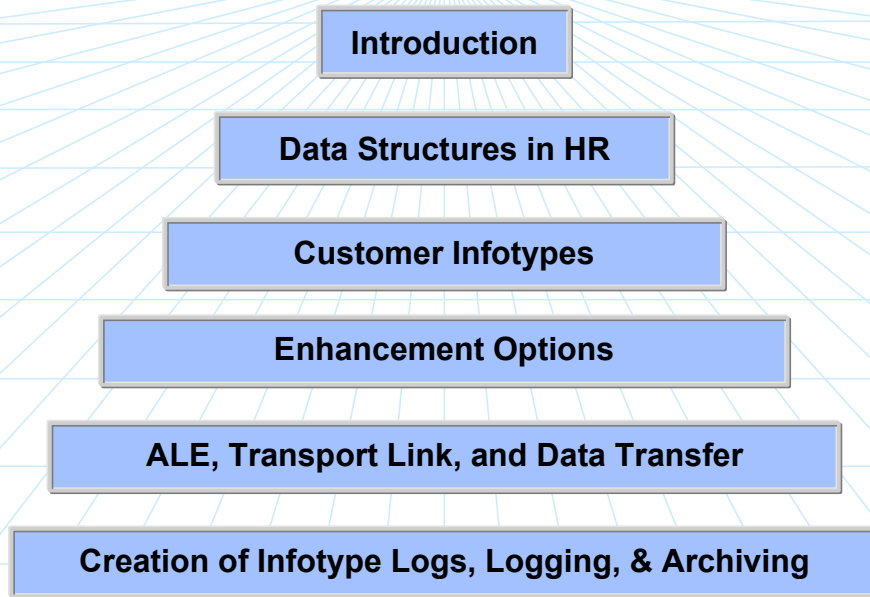
Exercises

Solutions

© SAP AG 1999

Internal Use SAP Partner Only

Internal Use SAP Partner Only



© SAP AG 1999

Internal Use SAP Partner Only

Internal Use SAP Partner Only

© SAP AG 1999

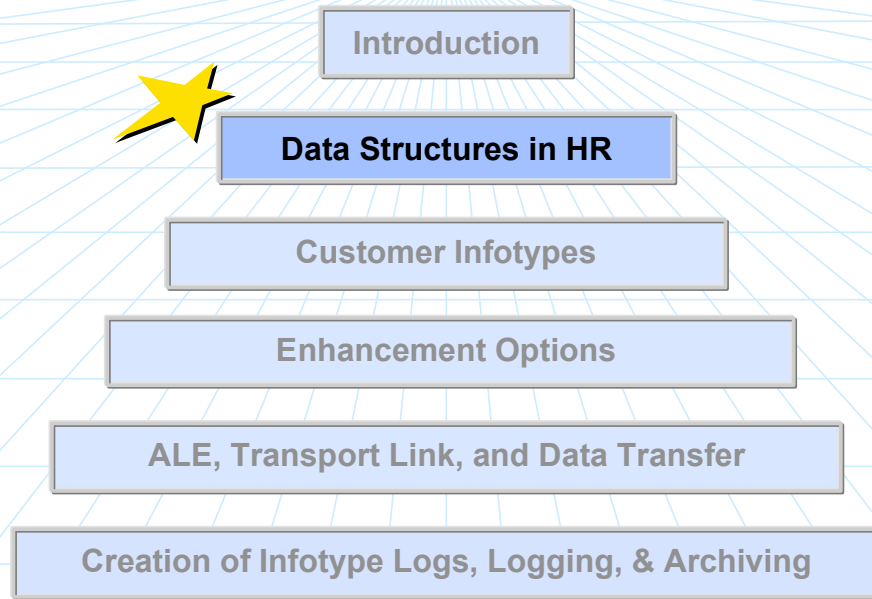
Internal Use SAP Partner Only

Internal Use SAP Partner Only



At the conclusion of this unit, you will be able to define the HR data model and the database tables and logical structures on which it is based.

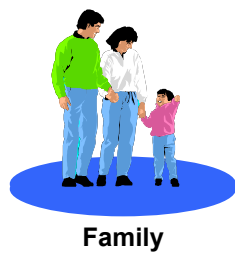
© SAP AG 1999



© SAP AG 1999

Internal Use SAP Partner Only

Internal Use SAP Partner Only



Family



Working Time



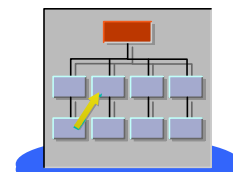
Bank Details



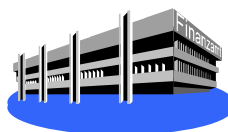
**Address/
Personal Data**



Employee/Applicant



Org. Assignment



© SAP AG 1999

Internal Use SAP Partner Only

Internal Use SAP Partner Only

Infotypes are units of information in the Human Resources System. They are used to group data fields together that all relate to the same subject matter.

Infotypes structure information, and facilitate data entry and time-dependent data storage. From the user's perspective, infotypes are data entry screens. From the database perspective, infotypes are a data structure and a set of data records that belong together.

The **ability to create histories** for infotypes is ensured by time-dependent infotype storage. The system records a validity period for each infotype record. Each infotype entered for an employee usually has several data records that are distinguished one from the other by their validity periods.

Time constraints enable you to determine how the validity periods of infotype data records interact:

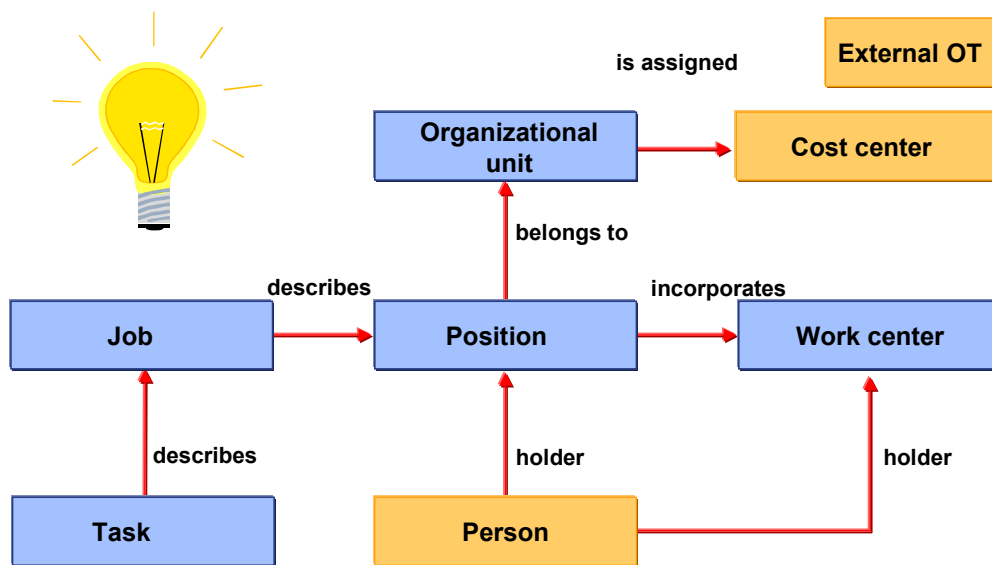
Time constraint 1: Exactly one valid data record of the infotype in question must exist for the entire time that the employee belongs to the enterprise.

Time constraint 2: No more than one valid data record of the infotype in question can exist at any one time.

Time constraint 3: Any number of valid data records of the infotype in question can exist at any one time.

The prerequisites for the existence of a personnel or applicant number are infotypes 0000 *Actions*, 0001 *Organizational Assignment*, 0002 *Personal Data*, and 0003 *Payroll Status*.

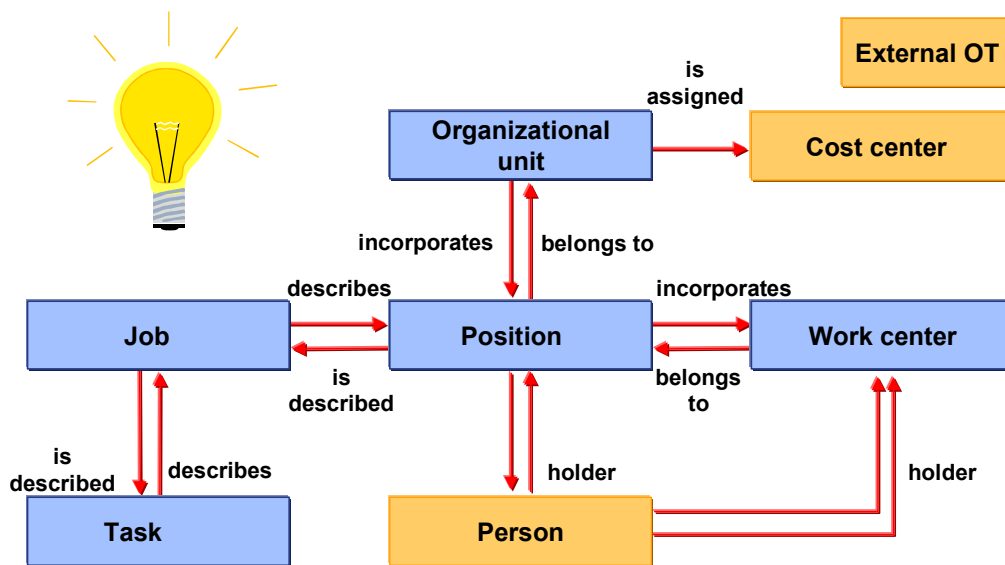
● Object-oriented design - *object types*



© SAP AG 1999

- The data model in Personnel Planning is based on an **object-oriented design**.
- The following terms constitute the basis of this object-oriented design:
 - Object Types
 - Relationships
 - Infotypes
- **Object types** are used to classify objects in Personnel Planning (organizational units, positions, jobs, etc.), which means that each object in Personnel Planning is assigned to just one object type.
- Object types are defined in table T778O by a 2-character CHAR string. The namespace A* - Z* is reserved for SAP, the namespace 0* - 9* for customers.
- With regard to the origin of a master record, a technical distinction is made between
 - **Internal object types**, whose master record is stored in Personnel Planning database tables (such as organizational units, positions, jobs, etc.)
 - **External object types**, whose master record is stored in the database tables of other SAP applications (such as persons, cost centers, and so on). Within Personnel Planning, relationships are used to reference these external object types. To define an external object type, an interface program (example/template: *RHPREL00*) and an entry in table T77EO must be created.

● Object-oriented design - *relationships*



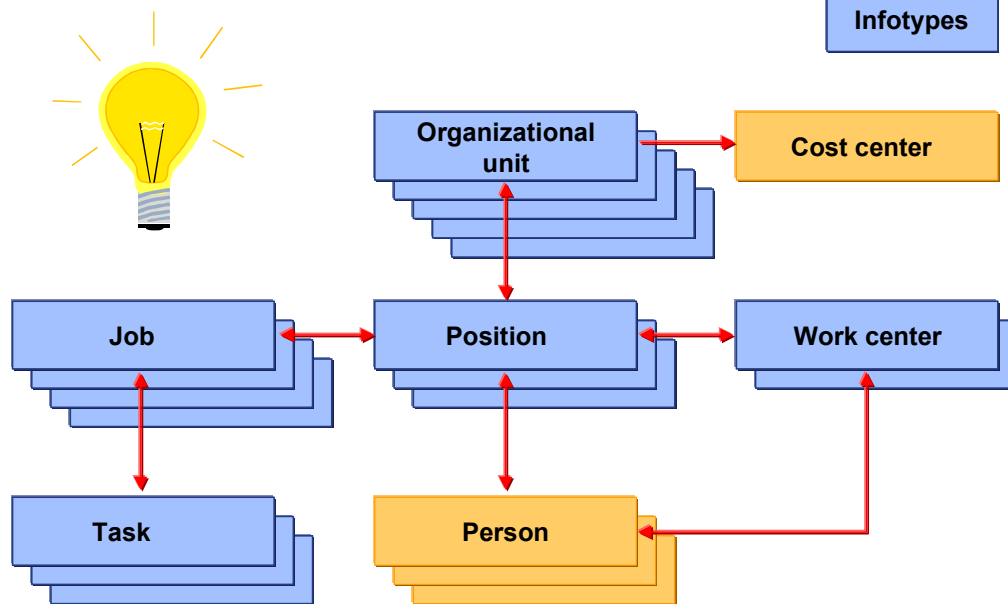
© SAP AG 1999

- **Relationships** enable you to define links between individual object types in the system.
- Relationships are defined in table T778V by a 3-character CHAR string. The namespace is delimited in table TRESC as follows:
 - SAP: '000' - '999'
 - Customer: 'AAA' - 'ZZZ'
- Relationships are generally defined in two directions: *A = bottom up* and *B = top down*.
- Example: relationship 003 ("incorporates/belongs to") is defined in the following two directions:
 - *A003 'belongs to'* and *B003 'incorporates'*
- This "convention" is no more than a default when the relationship is set up for the first time. It is not binding. However, it is important not to change or invert an assignment to directions A and B once it has been decided.
- Each relationship for internal object types is also stored physically in both directions on the database. Under certain circumstances, just one direction is stored on the database for external object types, depending on the key structure of the external object type. The relationship to the external object is stored (**external object types without an inverse relationship**).

Internal Use SAP Partner Only

Internal Use SAP Partner Only

- Object-oriented design - *infotypes*



© SAP AG 1999

- **Personnel Planning infotypes** enable you to describe and define the various characteristics and attributes of an object. After you have created an object (such as an organizational unit, qualification, or business event), you determine its characteristics by appending various infotypes.
- All of the information on objects is stored in the system as infotypes, particularly the object itself (that is, its master record) and the object's relationships. For this reason, infotypes 1000 *Object* and 1001 *Relationships* constitute the core Personnel Planning infotypes.
- Usually, you use infotype 1000 *Object* to create new objects, and infotype 1001 *Relationships* to determine the links between the objects. You must process infotype 1000 *Object* before processing other Personnel Planning infotypes.
- The infotype concept in Personnel Planning corresponds to the infotype concept in Personnel Administration. However, you must not confuse Personnel Planning infotypes with Personnel Administration infotypes because they are stored in different database tables.

- **T7780/T7770** Object Types
- **T77EO** External Object Types
- **T778V/T777V** Relationships
- **T777E** Allowed Relationships
- **T77AR** Additional Data on Relationships
- **T777Z** Infotype Time Constraint
- **T778T/T777T** Infotypes
- **T777I** Infotypes per Object Type
- **T778U/T777U** Subtypes

© SAP AG 1999

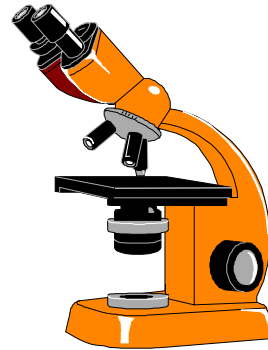
- You can access the individual tables by choosing the following path in the Implementation Guide:
 - *Personnel Management* → *Organizational Management* → *Basic Settings* → *Data Model Enhancement*

- Consistency checks for customizing data model

→ **Report RHCHECK0**

checks that Customizing of the data model in Personnel Planning is consistent

- Infotypes/additional data
 - Object type assignment
 - Time constraint
 - Structures
 - Database tables
- Relationships
 - Allowed relationships (object type assignment)
 - Time constraint
- Integration
 - Active or inactive
 - Active plan version



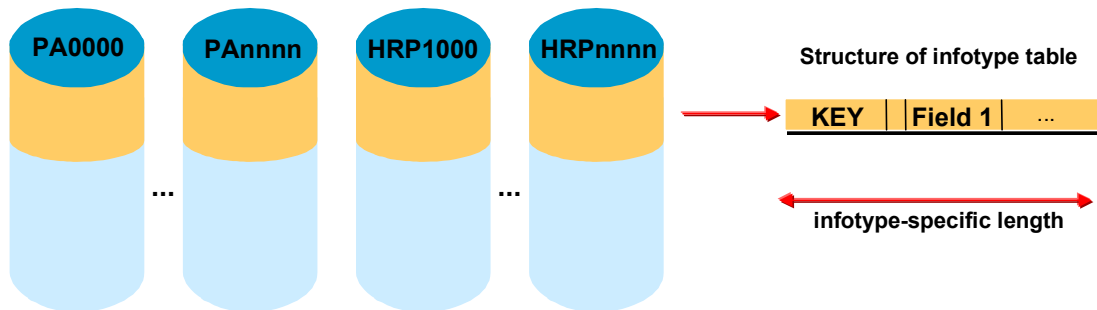
© SAP AG 1999

- **Technical implementation - *transparent tables***

Each infotype has a transparent table.

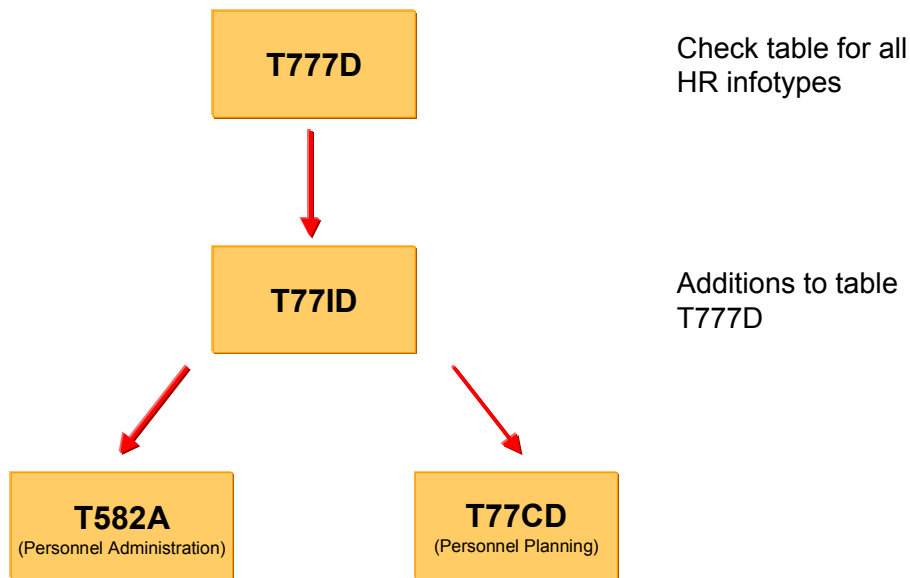
Each logical field for an infotype has a corresponding physical field on the database.

Infotype tables = transparent tables.



© SAP AG 1999

- One physical table is stored on the database for each transparent table. The names of the physical table and logical table definition in the Dictionary are compatible.
- The following naming convention applies to infotype tables; from now on, **nnnn** stands for the infotype number:
 - **PAnnnn** for transparent tables in *Personnel Administration*
 - **PBnnnn** for transparent tables in *Recruitment*
 - **HRPnnnn** for transparent tables in *Personnel Planning*



© SAP AG 1999

- Table *T777D Infotypes - Dialog/Database Assignment* is the central check table (domain INFOTYP) for all HR infotypes (Administration and Planning infotypes). It is used to store the names of all infotype-dependent repository objects (tables, structures, programs, and so on).
- Table *T777D Infotypes: Enhancements to T777D* is simply an enhancement of table T777D that exists for reasons of memory space.
- Table *T582A Infotypes - Customer-Specific Settings* is used for customer settings in Administration infotypes.
- Table *T77CD Infotypes - Customer-Specific Settings* is used for customer settings in Planning infotypes.
- Report RHT777DCHECK enables you to check the consistency of entries in these tables.

● Infotype control

Table T777D

IT	Structure	DB table	DB table Table IT
0000	P0000	PA0000	
0001	P0001	PA0001	
...			
1000	P1000	HRP1000	
1001	P1001	HRP1001	
1002	P1002	HRP1002	HRT1002
...			
9998	P9998	PA9998	
9999	P9999	HRP9999	

© SAP AG 1999

- Table T777D *Infotypes - Dialog/Database Assignment* is maintained automatically by the tool used to create new infotypes (see unit 3). Do not process this table manually.
- Each infotype in the Human Resources System has a transparent table **PA#####** or **HRP#####** and a **P#### logical structure** (stored in T777D-PPNNN).
- Logical structures are used to define interfaces between programs or between screens and programs. A logical structure does not have any data records on the database.
- To avoid direct database access, these P#### logical structures are normally used in Human Resources System programs.

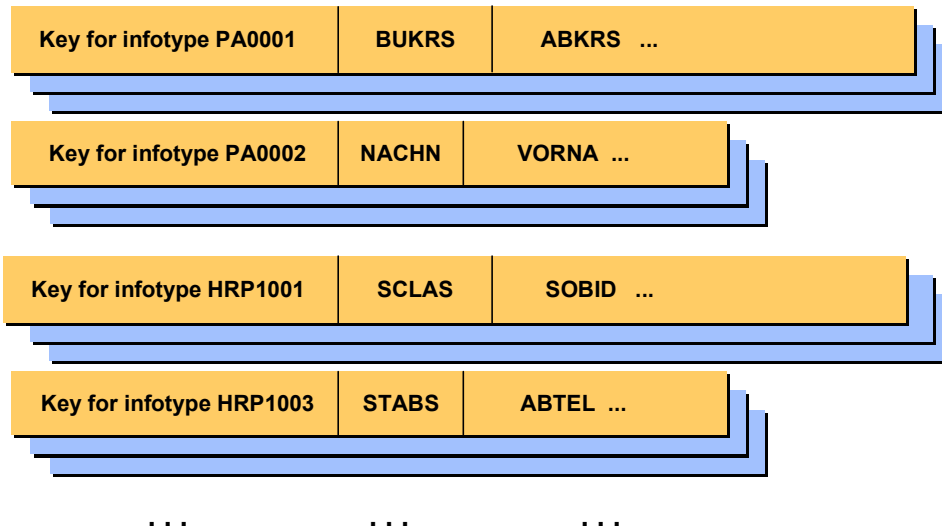
Table T77ID

Infotype	Structure of IT-specific fields	Primary table for ext. IT
0000	PS0000	
0001	PS0001	
...		
1000	HRI1000	
1003	HRI1003	
...		
1611	HRI1611	V_T5U27
1612	HRI1612	V_T5U26
...		
9998	PS9998	
9999	HRI9999	

© SAP AG 1999

- Table T77ID *Infotypes: Enhancements to T777D* is simply an enhancement of table T777D *Infotypes - Dialog/Database Assignment* that exists for reasons of memory space.
- This table is used to store structure PSnnnn or HRInnnn for the infotype-specific fields of each infotype.

The structure of transparent tables:

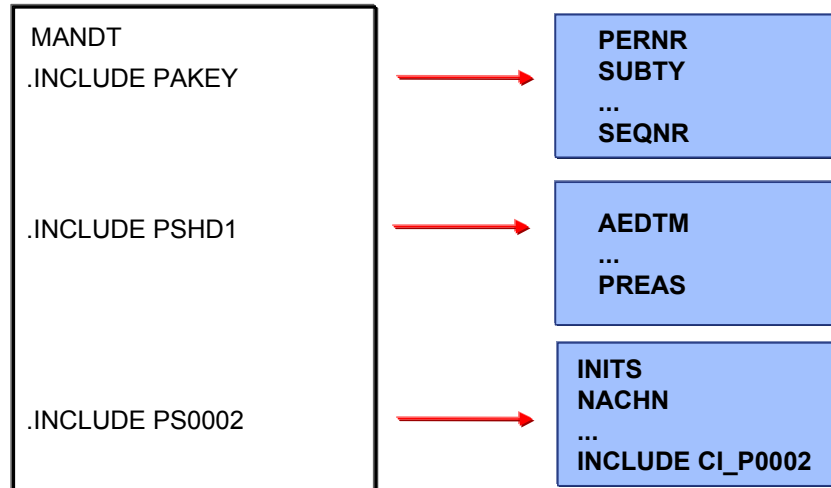


© SAP AG 1999

- A minimum set of table fields - whose values give a unique identity to each data record in the table - is known as the table's **primary key**. In this context, "minimum" means that removing any one of the fields from the key would mean that the remaining fields no longer give the data records a unique identity.
- The fields included in a primary key are known as the table's **key fields**. A combination of key field values can only occur once in a table.
- A **transparent table** consists of the primary key and other **non-key fields**. In particular, the non-key fields for infotype tables include the infotype-specific fields that contain the actual infotype data or information.

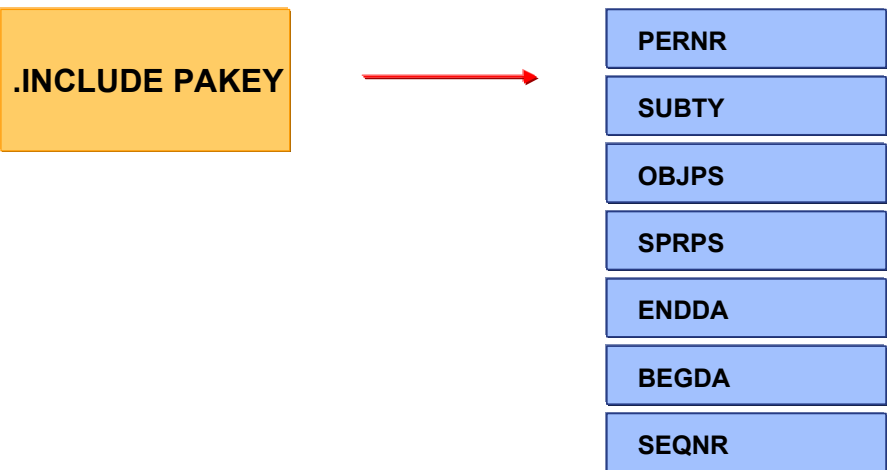
- Transparent tables: *dictionary field definition*

Example: PA0002



© SAP AG 1999

- In the Dictionary, each PAnnnn infotype table is defined with the client (field MANDT) using the following three include structures:
 - PAKEY:
 - contains the key fields of the infotype table
 - PSHD1:
 - contains administrative information on the infotype record (including the date on which it was last changed, and the user name of the person who made this last change)
 - PSnnnn:
 - contains the infotype-specific fields with the actual infotype data or information
- To ensure that transparent table PAnnnn and logical structure Pnnnn always remain mutually consistent, structure PSnnnn is also included by structure Pnnnn.



© SAP AG 1999

- The primary key of transparent table PAnnnn consists of the following key fields:

PERNR: the personnel number is the only unique key within a client for identifying an employee. It is used to access the display and maintenance screens for an employee's master data and working time data (infotypes).

SUBTY: subtypes are subdivisions of infotypes. An infotype's subtypes can have different time constraints and form their own histories.

OBJPS: the object identification is used to make a distinction between records with the same infotype, subtype, lock indicator, start date, and end date. Example: the child number in infotype 0021 *Family/Related Person*.

SPRPS: the lock indicator for HR master data enables you to lock and unlock data records. This facilitates the double verification principle. In accordance with this principle, at least two users are involved in the process of writing an active data record to the database. One of the users creates a locked infotype record. A different user unlocks - that is, activates - this data record.

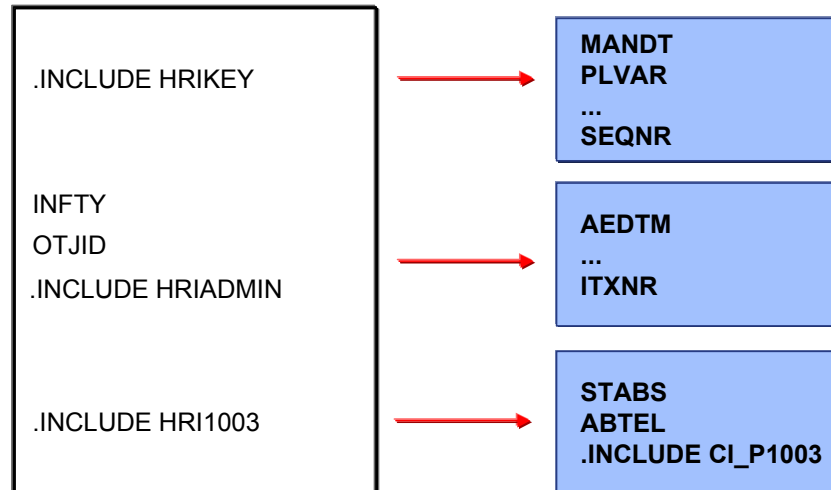
ENDDA: end date.

BEGDA: start date.

SEQNR: the sequential number is used to make a distinction between infotype records that have the same key and time constraint 3 (any number of valid infotype data records at any one time). Unlike the object identification, it is assigned by the system automatically.

- **Transparent tables: *dictionary field definition***

Example: HRP1003



© SAP AG 1999

- In the Dictionary, each HRPnnnn infotype table is defined using the following three include structures:
 - **HRIKEY:**
contains the key fields of the infotype table
 - **HRIADMIN:**
contains administrative information on the infotype record (including the date on which it was last changed, and the user name of the person who made this last change)
 - **HRInnnn:**
contains the infotype-specific fields with the actual infotype data or information
- To ensure that transparent table HRPnnnn and logical structure Pnnnn always remain mutually consistent, structure HRInnnn is also included by structure Pnnnn.

.INCLUDE HRIKEY



MANDT

PLVAR

OTYPE

OBJID

SUBTY

ISTAT

BEGDA

ENDDA

VARYF

SEQNR

© SAP AG 1999

- The primary key of transparent table HRPnnnn consists of the following key fields:

MANDT: legally and organizationally independent participant in the system.

PLVAR: a one or two-character alphanumeric **plan version key** that is used to make a distinction between different organizational plans.

OTYPE: a one or two-character alphanumeric **object key** (such as 'S' for position, 'Q' for qualification, and 'E' for business event).

OBJID: an eight-digit, non-mnemonic key that represents a single object (such as an organizational unit, qualification, or business event).

SUBTY: **subtypes** are subdivisions of infotypes. An infotype's subtypes can have different time constraints and form their own histories.

ISTAT: a one-digit key that stands for a planning status. All objects and their defining infotypes have a status. This enables you to put objects and infotypes through a planning cycle.

BEGDA: end date.

ENDDA: start date.

VARYF: variation field of the PLOG file (that contains the target object for relationships).

SEQNR: the **sequential number** is used to make a distinction between infotype records that have the same key and time constraint 3 (any number of valid infotype data records at any one time). It is assigned by the system automatically.

.INCLUDE HRIKEYL



MANDT

PLVAR

OTYPE

OBJID

SUBTY

ISTAT

BEGDA

ENDDA

LANGU

DUMMY

SEQNR

© SAP AG 1999

- **Language-dependent infotypes** contain one or more text fields (type: TEXT) that can be translated.
- The flag which indicates that an infotype is language-dependent is set in table T777D in the *LANGU* ("language-dependency") field.
- Examples of language-dependent infotypes in the standard system:
 - Infotype 1000 (Object): the object's short and long text can be translated.
 - Infotype 1002 (Description): a text of any length can be translated.
- To enable the language of an infotype record to be stored in language-dependent infotype records, a slightly modified primary key structure (*HRIKEYL*) is used for language-dependent infotypes instead of *HRIKEY* for language-independent infotypes. The language of the infotype record is stored as the first character of the *VARYF* field. In other words, instead of the ten-character *VARYF* field, the *HRIKEYL* primary key structure contains the following fields:
 - *LANGU* (language indicator) - length of 1
 - *FILLER* (filler field) - length of 9
 - The only difference between the key of a language-dependent infotype record and the key of its translated infotype records is the *LANGU* field. All other key fields are identical.

- Applicant infotype control

Table T777D

IT	DB table	DB table for applicant infotype
0000	PA0000	
0001	PA0001	PB0001
0002	PA0002	PB0002
...		
0006	PA0006	PB0006
0007	PA0007	PB0007
...		
4000		PB4000
4001		PB4001
4002		PB4002

© SAP AG 1999

- Infotype records for applicant infotypes are stored in **PBnnnn** transparent tables, the structure of which is the same as in **PAnnnn** tables.
- A distinction is made between
 - Infotypes that can be maintained for employees and applicants (such as 0001, 0002, 0006, and 0007). In this case, a **PAnnnn** database table exists for employee data, and a **PBnnnn** database table exists for applicant data.
 - Infotypes that can only be maintained for applicants (“pure applicant infotypes” with infotype numbers from 4000 through 4999). In this case, just one database table exists for applicant data (**PB4nnn**).

- Subtype control

Table T777D

IT	Subty. field	Subty. table	Subty. text tab.	TC table
0006	ANSSA	T591A	T591S	T591A
...				
0008	SUBTY	T591A	T591S	T591A
0009	BNKSA	T591A	T591S	T591A
0010	LFDNR	T591A	T591S	T591A
0011	LGART	T512Z	T512T	T591B
...				
0019	TMART	T531	T531S	
...				
0022	SLART	T517T	T517T	

© SAP AG 1999

- *Subtypes* are used to subdivide *infotypes*. For example, infotype 0006 (Address) can be divided into main addresses, temporary addresses, and business addresses, etc.
- The following fields in table T777D are used to define subtypes.

Subtype field: This contains the field in the infotype structure that contains the subtype. This is generally the *SUBTY* field. However, it can also contain a field other than the *SUBTY* field and, in addition, the value of the subtype (for example, *ANSSA* = address type in infotype 0006).

Subtype table: This contains the check table that contains all of the subtype values allowed for each infotype. This is generally table *T591A*. Depending on the subtype field, the subtype values can be stored in a different table. For example, table *T512Z* (Permissibility of Wage Types per Infotype) can be used for infotype 0011 (External Bank Transfers) because the wage type (the *LGART* field) is used as the subtype.

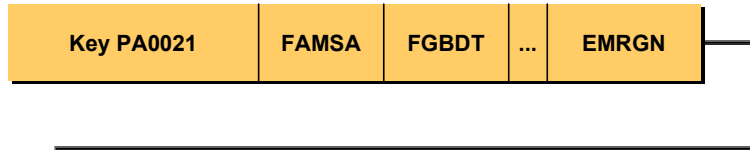
Subtype text table: This contains the text table for the subtype table, that is, the table with the names of individual subtype values. This is generally table *T591S* provided that table *T591A* is used as a subtype table. If a different subtype table is used (such as *T512Z*), its text table (such as *T512T*) is stored here.

Time constraint table: If the time constraint is dependent on the subtype, this contains the time constraint table (for example, *T591A/T591B*).

Country-specific subtypes: This field is discussed in HR307 ("Configuration of HR System Controls").

- **Infotype view that consists of primary and secondary (additional) infotype**

Primary infotype **PA0021**



Secondary (additional) infotype **PA0335**



Tables T582V/T582W: View definition - assignment of additional IT to primary IT

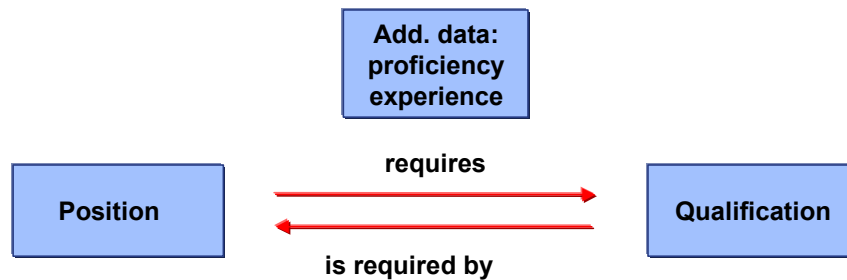
© SAP AG 1999

- Many country versions require country-specific fields that are appended to international infotypes, such as Organizational Assignment, Family/Related Person, etc.
- To ensure that the structures of international infotypes do not contain an excessive number of country-specific fields, such country-specific fields are stored in **additional infotypes**.
- In table T777D, additional infotypes are assigned the value "Z" in the "Infotype/view" field. International infotypes ("primary infotypes") are assigned the value "I".
- The primary infotype and additional infotype are maintained together on one screen in an **infotype view**. When the data you have maintained is saved, it is divided into two infotype records (a primary infotype record and an additional infotype record) with an identical infotype key.
- The infotype menu only contains the international primary infotype. The additional infotype can only be maintained together with the primary infotype. It cannot be maintained on its own. All infotype attributes, such as the time constraint, are defined in the primary infotype only.
- Infotype views are defined using tables T582V and T582W.
- When the personnel number is created, a view indicator is assigned in infotype 0003 using feature IVWID. This view indicator is used to select secondary infotypes. For obvious reasons, this view indicator must NOT EVER be changed.

- **Definition - *additional relationship data***

- "Infotype" at the relationship, i.e. attributes that cannot be stored in isolation as infotypes for the objects in question because they only refer to the specific relationship between two objects

- Example: "requires" relationship between a position and qualification



- **Table T77AR:** name of additional data structure (PADnn) for relationship type

© SAP AG 1999

- In table T77AR, a specific additional data structure can be assigned to more than one relationship type.
- At this time, the additional data concept has not been applied to customer enhancements. Customer-specific additional data cannot be created without modifying core infotype 1001. Do not do this without consulting SAP first.

- **Technical implementation - additional data**

Infotype **HRP1001**

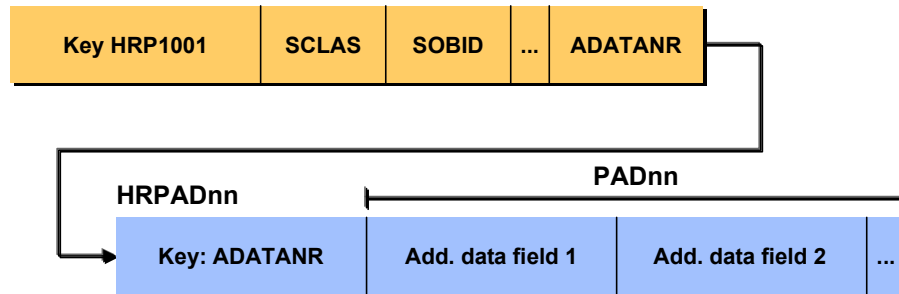


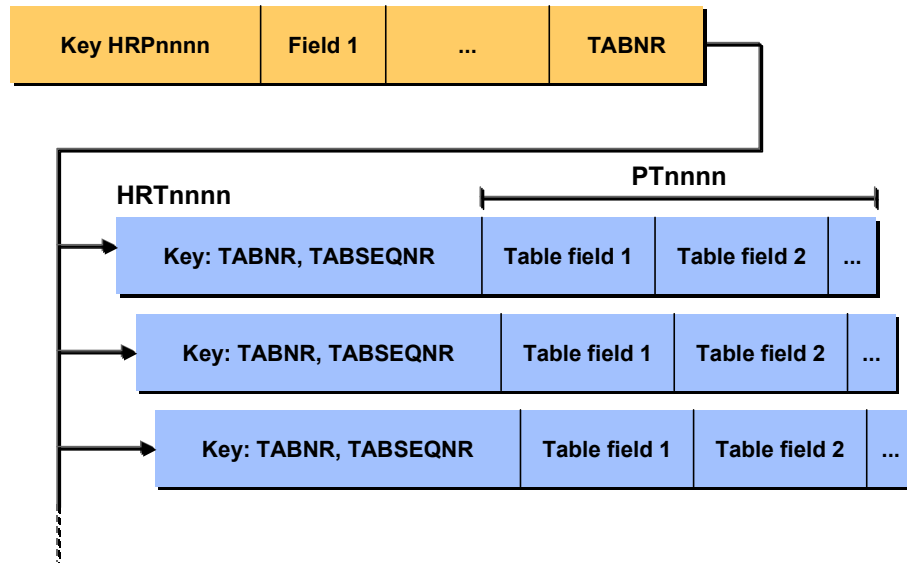
Table T77AD: Name of database table for an additional data structure

© SAP AG 1999

- The structure of additional data depends on the type of relationship. For this reason, the additional data of structure *PADnn* must be stored in separate table *HRPADnn* (assignment in table *T77AD*).
- The link between a relationship record (table *HRP1001*) and an additional data record (table *HRPADnn*) is established by an **additional data pointer** (field *ADATANR*). The additional data pointer is determined internally by SAP using internal number assignment. It must not be externally manipulated.
- To avoid direct database access to table *HRPADnn*, logical structure *PADnn* should always be used when you work with additional data - just like when you work with infotype records.
- Logical structure *P1001* of a *relationship record* (infotype 1001) is used to store additional data in the *ADATA* field. Depending on the type of relationship, the content of the *P1001-ADATA* field must be transferred to the appropriate *PADnn* additional data structure (in accordance with table *T77AR*).

- **Technical implementation - table infotypes**

Table infotype **HRPnnnn**



© SAP AG 1999

- **Table infotypes** are infotypes whose data part includes a repetition structure of any length (such as texts consisting of any number of lines, or courses consisting of any number of days). To enable repetitions of any length to be stored, the data part must be stored with the repetition structure ("table part", defined by logical structure *PTnnnn*) in separate table *HRTnnnn*. The name of this transparent table is stored in table T777D in the *TBTAB* field ("database table for table infotype"). In this way, the *T777D-TBTAB* field is used to flag a table infotype.
- The link between a primary record (table *HRPnnnn*) and a table part (table *HRTnnnn*) is established by a **table pointer** (field *TABNR*). Just like the additional data pointer, the table pointer is determined internally by SAP using internal number assignment. It must not be externally manipulated.
- To avoid direct database access to table *HRTnnnn*, logical structure *PTnnnn* should always be used for the *table part* when you work with table infotypes - just like when you work with infotype records.

- **Definition: external object types and relationships**

- **External object types** = object types that are not stored in PD structures (that is, no record in HRP1000); instead, they are simply referred to in the context of relationship records (records in HRP1001 only)

- **Table T77EO** (IMG path: "Maintain Object Types" - "External Object Types")

Object type	Key structure	Inverse rel.	Interface
P	PKEYS	X	RHPREL00
K	PKEYK		RHKOST00
...			

Depending on the key structure, a distinction is made between external object types with a physical inverse relationship in HRP1001 (for example, persons from PA), or without (for example, cost centers from CO).

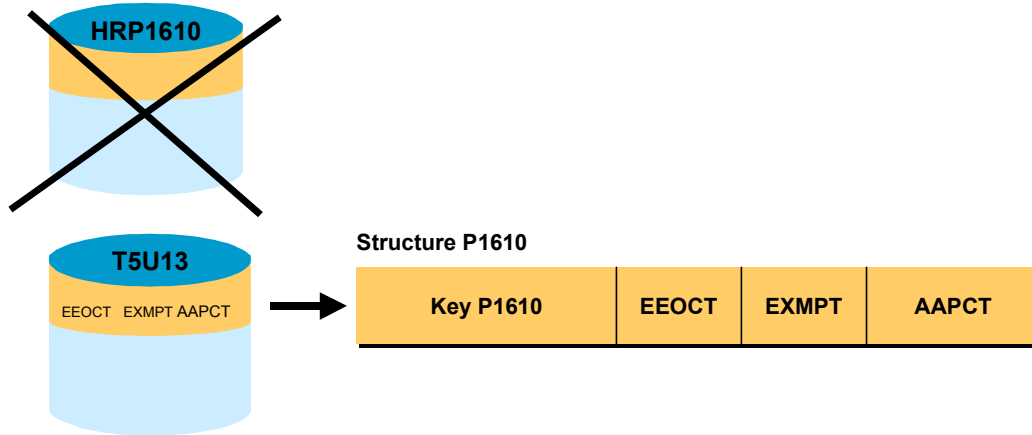
- **External relationships** = simulation of complete relationships, that is, no relationship direction is stored physically in HRP1001 (**table T77EV**; IMG path: "Maintain Relationships" - "Allowed Relationships" - "External Relationships").

© SAP AG 1999

- To ensure that an inverse relationship can be created in table HRP1001 for an external object type, the key structure of the external object type must be of type NUMC and have a length of 8 (8-digit character key). In other words, it must be of the same type as the object ID field (HRPnnnn- OBJID) in the infotype tables. When an external object type is set up for the first time, the "inverse relationship" field (*T77EO-INREL*) must be set in table T77EO. It is not possible to change this setting at a later date in a live system. If you were to do so, inconsistencies could result.
- Even if no physical inverse relationships (for example, a cost center) exist in table HRP1001 for an external object type (in other words, relationships only exist **to** objects of this object type, such as relationships **to** the cost center), evaluations or requests are often required starting **from** objects of this object type. This means that a relationship is evaluated that does not physically exist in this direction in table HRP1001 (for example, which positions are assigned to cost center xyz?). The system then returns these "**simulated inverse relationships**" in the *HRI1001* structure to report and function modules. (Note: you must not confuse structure *HRI1001* with structure *HRInnnn* for the infotype-specific fields of an infotype.) The only difference between structure *HRI1001* and logical structure *P1001* of the relationship record is the type of field OBJID. Instead of type NUMC with a length of 8, *HRI1001-OBJID* is of type CHAR with a length of 45, which means that the "**enhanced object ID**" can include any external key with a maximum length of 45. This corresponds to the type of field *P1001-SOBID*, that is, the target object ID of a relationship record.

- **Definition: external infotypes**

- **External infotypes** = simulation of information on Personnel Planning objects, which are only stored in Customizing tables for Administration and not in transparent infotype tables HRPnnnn, as a Personnel Planning infotype
- For example: additional job data for the USA, infotype 1610 and T5U13



© SAP AG 1999

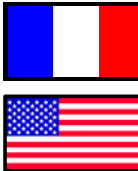
- For a variety of reasons, some information on Personnel Planning objects is not stored physically in Personnel Planning infotype tables. Instead, it is stored physically in Personnel Administration customizing tables, for example.
- This information needs to be simulated as **external infotypes** in logical structure *Pnnnn* so that it can be displayed as an infotype in basic Personnel Planning transactions (for example, *detail maintenance*) and evaluated in reports of logical database PCH using the INFOTYPES statement. However, these external infotypes can only be maintained using the appropriate maintenance view of the pertinent customizing table (primary table). Therefore, an external infotype has a logical structure *Pnnnn* but no transparent table *HRPnnnn*.
- An external infotype is flagged in table *T777D* in the *EXT_INFITY* field ("external infotype").
- Control is determined in table *T777D* using the following fields:
 - *EXT_TABNAM* ("primary table for external infotype"): view of pertinent customizing table
 - *EXT_W_FUNC* ("function module for table name"): function module if view is determined dynamically during runtime
 - *EXT_R_FUNC* ("function module for read access"): function module for read access to primary table, which means that this module returns infotype data of an object to structure *Pnnnn*.
- Customer-specific external infotypes should only be created after consultation with SAP.

- **Definition: *country-specific infotypes***

- **Country-specific infotypes** = infotypes only relevant to a specific country that are only displayed in general infotype overviews if the appropriate country indicator is entered

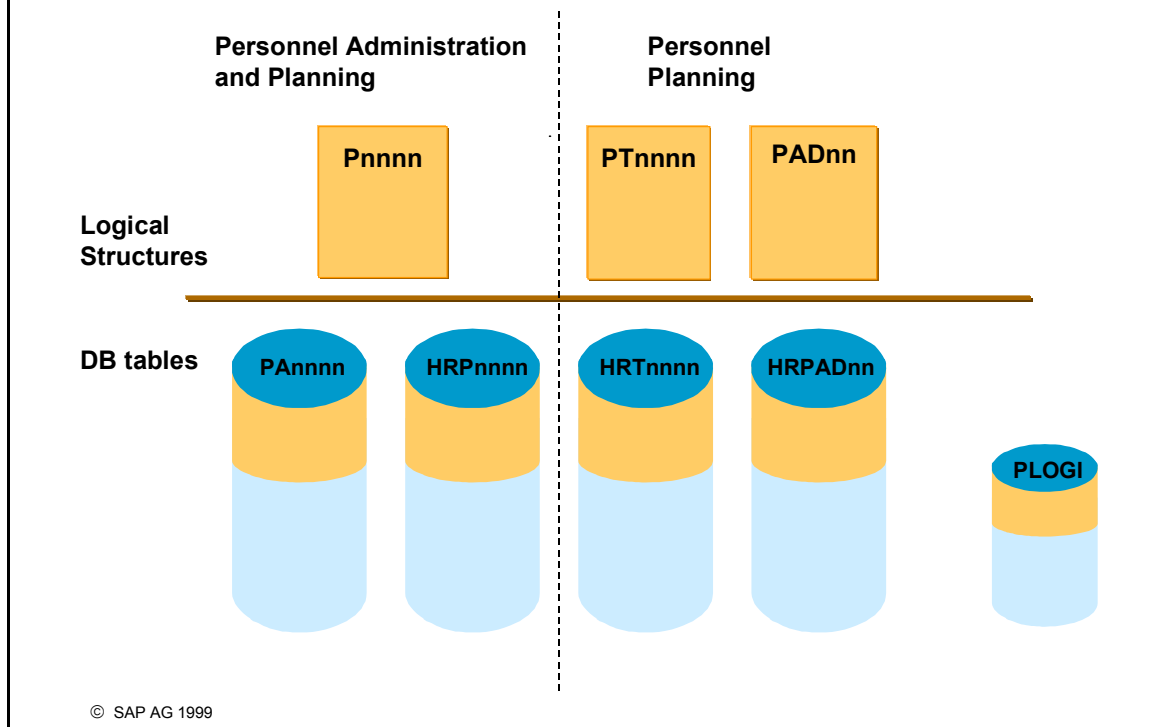
- **Table T77NI** (IMG path: "Infotype Maintenance" - "Maintain Country-Specific Infotypes")

IT	Country indicator
1600	FR
1601	FR
1610	US
1611	US
...	

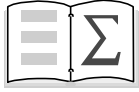


© SAP AG 1999

- **Country-specific infotypes** are flagged in table *T777D* in the *NAT_INFTY* ("country-specific infotype") field.
- Table *T77NI* is used to assign a country-specific infotype to one or more country indicators (from table *T005*).
- If you enter the country indicator in detail maintenance (by POPUP) and in report *RHDESC00* (by parameter), the appropriate country-specific infotypes are also shown in infotype overviews.
- User-specific country indicator defaults can be defined using the *PNI SPA/GPA* parameter. A maximum of six country indicators can be stored here. The *PNALL SPA/GPA* parameter can be used to activate general display of all country-specific infotypes.

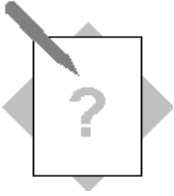


- Each infotype nnnn has:
 - a logical structure *Pnnnn*
 - a transparent table *PAnnnn* (Administration infotype) or *HRPnnnn* (Planning infotype)
- In addition, each table infotype nnnn has the following in Personnel Planning:
 - a logical structure *PTnnnn* for the table part
 - a transparent table *HRTnnnn* for the table part
- Each relationship type also exists with additional data:
 - a maximum of one logical structure *PADnn* for the additional data of this relationship type
 - a maximum of one transparent table *HRPADnn* for the additional data of this relationship type
- The logical structures are directly relevant to programming in HR. Direct access to transparent tables is not required and should, therefore, be avoided.
- For infotype 1000, transparent table *PLOGI* is a redundant directory of all Personnel Planning objects. It is used for reports.
- For each Personnel Planning object, the **table** contains just one entry with the object identification:
- MANDT (client)/PLVAR (plan version)/OTYPE (object type)/OBJID (object ID)
- The table can be displayed and built up using **report** *RHPLOGI0*.



- You now have an overview of the data models in Personnel Administration and Personnel Planning.
- You have learned about transparent tables PAnnnn and HRPnnnn and the Pnnnn logical structures, which exist for each infotype in the Human Resources System.

© SAP AG 1999



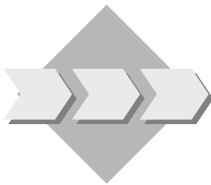
Unit: Data Structures in HR

Topic: Object Types and Relationships



At the conclusion of these exercises, you will be able to:

- Create new object types and relationships in Customizing.



You want to enhance the object-oriented Personnel Planning model with new object types and relationships.

- 1 You want to manage office reservations in Organizational Management. Offices can be reserved by organizational units.
 - 1-1 Create a new object type with the object type abbreviation "##" and the name "Office ##". ## is your two-digit group number.
 - 1-2 Make sure that relationships and descriptions can be maintained for objects of this type.
 - 1-3 Create a new relationship to indicate which organizational units reserve which offices. Several organizational units can share one office. However, you must prevent offices from being reserved by too many organizational units. Create a relationship with the abbreviation "Y##" and the names "reserves (##)" and "is reserved by (##)".
 - 1-4 Create an evaluation path to illustrate the assignment of offices in the organizational structure. To do so, use customizing transaction **OOAW**.
 - 1-5 Access **General Structure Maintenance** in the Organizational Management menu. Create objects for your new object type, and link them to organizational units using your new relationship. You can choose any organizational units, for example from the IDES model company (object ID 00000001).

Exercises



Unit: Data Structures in HR

Topic: Selection Using Table T777D



At the conclusion of these exercises, you will be able to:

- Outline important fields/indicators in table T777D.

- 2 Use transaction **SE16 Data Browser** to create an overview of all
 - Table infotypes
 - Language-dependent infotypes
 - Country-specific infotypes
 - Infotypes that can be maintained for applicants
 - Infotypes that can only ever be maintained for applicants
 - Additional infotypes



Unit: Data Structures in HR

Topic: Object Types and Relationships

- 1 You want to manage office reservations in Organizational Management. Offices can be reserved by organizational units.
 - 1-1 Access the SAP Implementation Guide by choosing **Tools → AcceleratedSAP → Customizing → Project Management → SAP Reference IMG**. In the IMG, choose **Personnel Management → Organizational Management → Basic Settings → Data Model Enhancement → Maintain Object Types**. To create a new object type with the object type abbreviation "##" and the name "Office ##", use the *New entries* function. ## is your two-digit group number.
 - 1-2 Choose the following IMG activity: **Infotype Maintenance → Maintain Infotypes**. Include your new object type in infotypes 1000, 1001, and 1002.
 - 1-3 Choose the following IMG activity: **Relationship Maintenance → Maintain Relationships**. Create a new entry with the abbreviation "Y##" and the names "reserves (##)" and "is reserved by (##)".
 - 1-3-1 When you perform the *Relationship Characteristics* step, enter the B direction for your relationship ("is reserved by (##)") with a warning if 100% is exceeded.
 - 1-3-2 When you perform the *Additional Data on Relationships* step, enter your relationship and select the *Relationship percentage* indicator.
 - 1-3-3 When you perform the *Allowed Relationships* step, enter both of your new relationship's directions from and to the organizational unit object type.
 - 1-3-4 Choose the following IMG activity: **Infotype Maintenance → Maintain Subtypes**. Enter the new subtypes, AY## and BY##, with appropriate texts for infotype 1001. Maintain the time constraint for your new object type ##, infotype 1001, and subtype BY##, and for object type O (organizational unit), infotype 1001, and subtype AY##. In both cases, the value of the time constraint is "3".

- 1-4 To maintain evaluation paths, access customizing transaction **OOAW**. In the first step, create the abbreviation and name of your new evaluation path. The abbreviation must start with **Y##**. In the second step, enter a name for the individual steps of the evaluation path. Define an evaluation path:

10	O	A	Y##	reserves	*	##
20	O	B	002	is line supervisor of	*	O

- 1-5 Access *General Structure Maintenance* for your newly defined evaluation path by choosing **Human Resources → Organizational Management → Organizational Plan → General Structures → Change**. Under Object type, enter *Organizational unit* and under Object ID, *1*. Create offices, and relationships to organizational units.

© SAP AG 1999

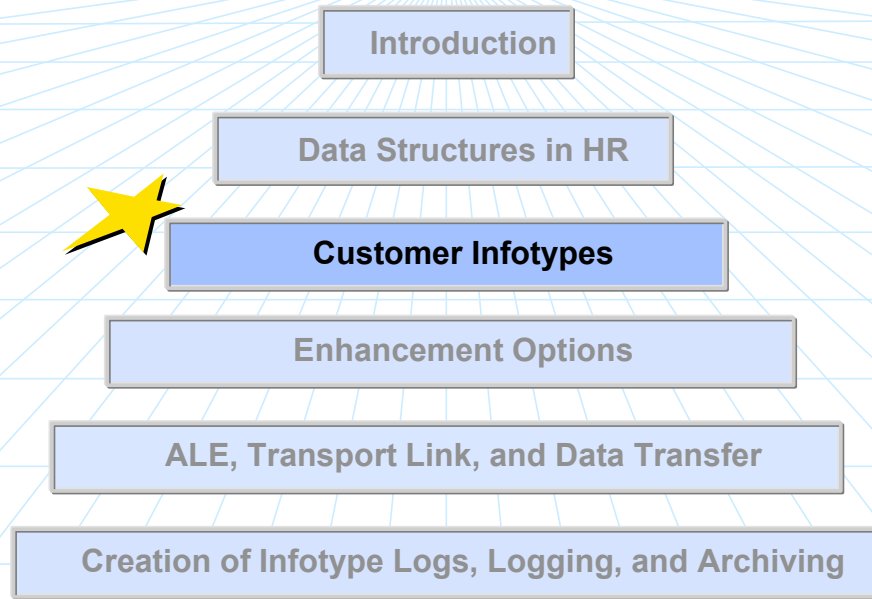
Internal Use SAP Partner Only

Internal Use SAP Partner Only



At the conclusion of this unit, you will be able to:

- **Create or enhance infotypes if the infotypes included in the standard system do not meet your requirements.**



© SAP AG 1999

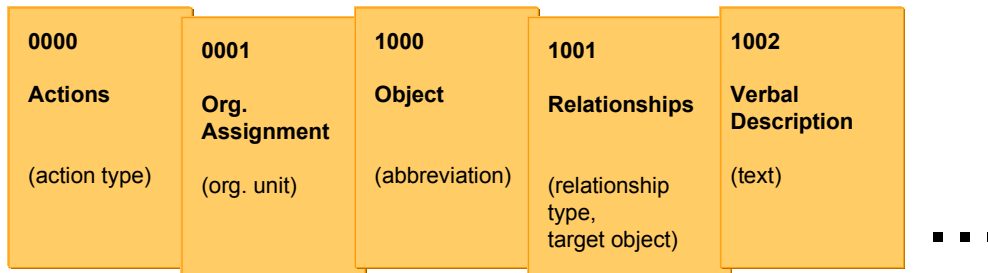
Internal Use SAP Partner Only

Internal Use SAP Partner Only

- "What is an infotype?"

- Structure definition in Repository Key fields, general fields, PSnnnn
- Database table PAnnnn or HRPnnnn
- Processing program (module pool) MPnnnn00
- Screens 1000, 2000, 3000 MPnnnn00 / 1000, 2000, 3000
- Table entries for control e.g. T582A, T582S, T777I, T777Z, ...

Standard infotypes:



© SAP AG 1999

- An infotype has an entry in check table T777D, and several infotype-dependent elements in the Repository.
 - In addition to the structures and database tables discussed in unit 2 (Data Structures in HR), each infotype has a module pool containing the infotype-specific entry and list screens with their validations, and a dialog module.
 - When you create individual elements, take careful note of the following:
 - Some infotype-dependent infotype objects must be processed using the Data Dictionary.
 - Some infotype elements must be processed using the infotype copy programs in Personnel Planning and Personnel Administration. They have been created for this specific purpose.
 - Some infotype-dependent settings must be entered using customizing for infotypes.
- If you observe these notes, you can avoid inconsistencies in infotype-dependent objects and table entries. More detailed information on how to create and enhance infotypes is included in later sections of this unit.

- **Namespaces for infotypes**

Infotype structures

Standard: P0000 - P1999

Customer: P9000 - P9999

Infotype-specific fields

Standard: PS0000 - PS0999 or
HRI1000 - HRI1999

Customer: PS9000 - PS9999 or
HRI9000 - HRI9999

Database tables

Standard: PA0000 - PA0999 or
HRP1000 - HRP1999

Customer: PA9000 - PA9999 or
HRP9000 - HRP9999

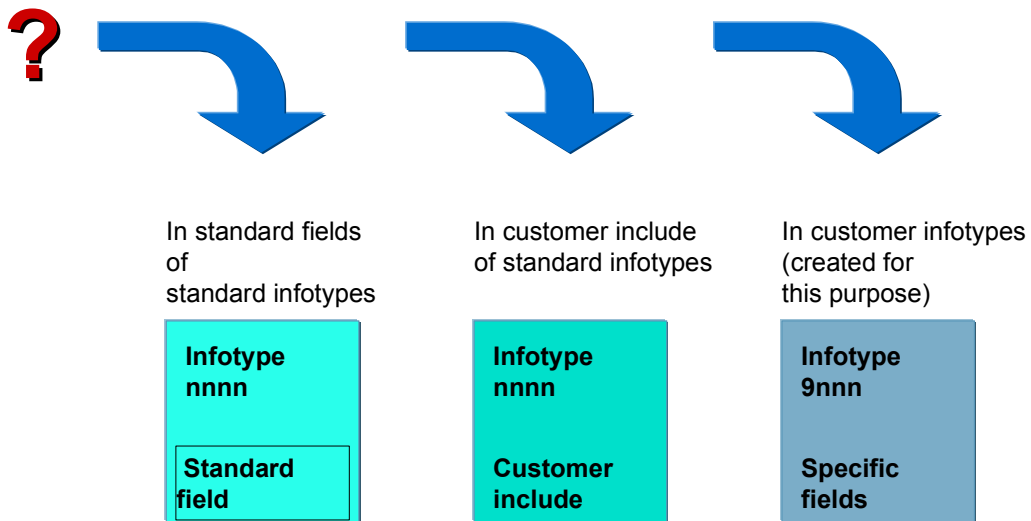


© SAP AG 1999

- When working with infotypes, it is important to comply with the above namespace conventions.
- Other namespace conventions for standard infotypes:
 - Time Management infotypes are assigned to namespace 2000-2999
 - Recruitment infotypes are assigned to namespace 4000-4999
- Namespace enhancement
 - In Release 4.0A, infotypes are not included in the namespace enhancement.
 - In Release 4.5A, the Repository objects of infotypes can be created with a namespace prefix. The infotypes themselves, however, cannot be created with a prefix.

If you require detailed information on the general namespace enhancement, see CSS note 16466: Customer namespace for SAP objects.

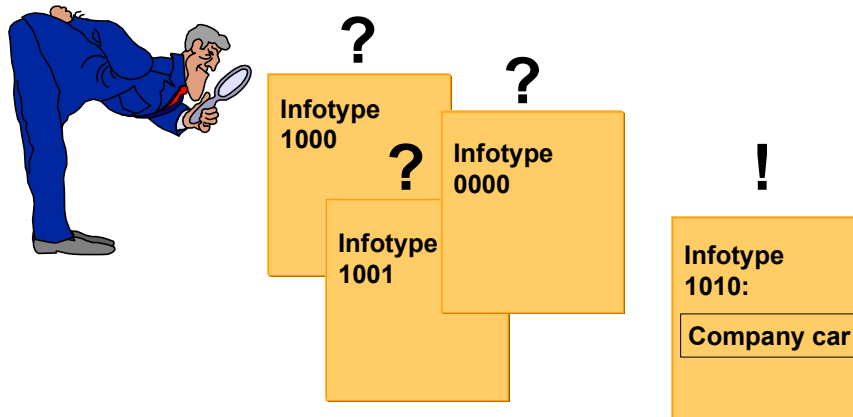
- Where can enterprise-specific information be stored?



© SAP AG 1999

- There are three different ways of storing customer-specific information in infotypes:
 - You can use the fields that already exist in standard infotypes. For example, you can store the required information in a specific field of a standard infotype that you have not used before.
 - You can enhance a standard infotype, which means creating the fields that you require in a customer include.
 - You can create a new infotype with the fields that you require.
- Before you enhance standard infotypes or create new infotypes, you should always determine whether the infotypes included in the standard system meet your requirements.

- When can you work with standard infotypes?

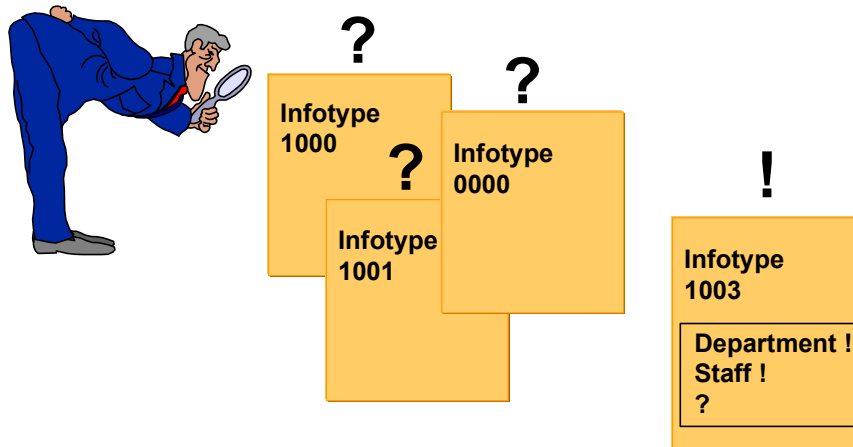


- When a suitable field exists in the standard infotypes.

© SAP AG 1999

- Problem: You want to store specific information in the system.
- Procedure: Check all of the standard infotypes to determine whether one of the fields in a standard infotype can be used to store this information.
- Situation: You find an infotype that contains a suitable field.
- Procedure: Use this infotype to store your specific information.
- Example: You want to store the following information: "position entitled to company car".
Use standard infotype 1010 (Authorities/Resources).
- Note: You can obtain information on specific fields from infotype-specific structure Pnnnn (or from the PSnnnn or HRInnnn structure).

- When can you work with an enhancement to standard infotypes?

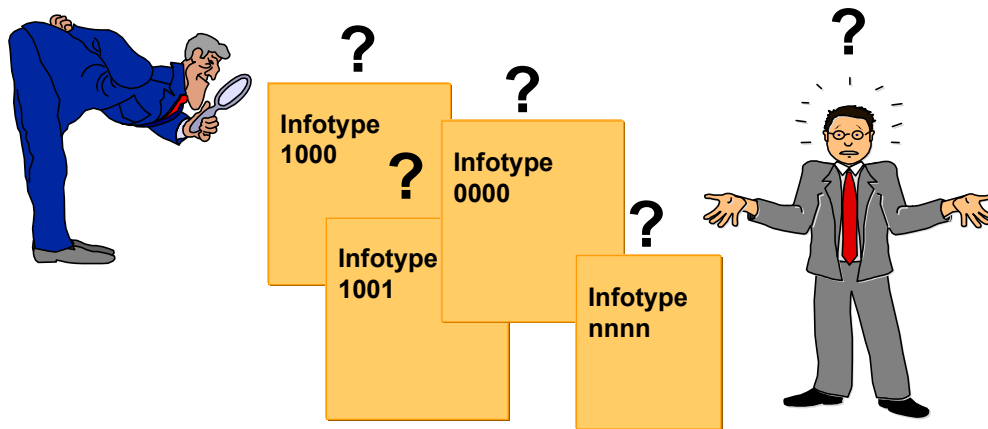


- When a standard infotype meets most of your requirements.

© SAP AG 1999

- Problem: You want to store specific information in the system.
- Procedure: Check all of the standard infotypes to determine whether one of the fields in a standard infotype can be used to store this information.
- Situation: You find an infotype that is suitable for most of your data. However, additional fields are required.
- Procedure: Use this infotype's customer include structure (CI_Pnnnn) to store your specific information by including the fields you require in this structure.
- Example: You want to store information on an organizational unit to determine that it manages a project.
You can use the customer include for standard infotype 1003 (Department/Staff) by enhancing it with the "project management" field.
- Advantage: The enhanced infotype does not change the infotype defined in the standard system. In particular, you are not required to convert the database for a release upgrade if SAP simultaneously enhances this infotype in the standard system (the sequence of fields in the Dictionary and database could differ). The changes required for evaluations are also minimized.

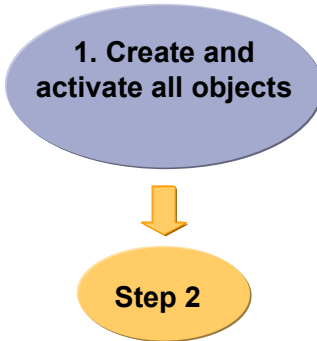
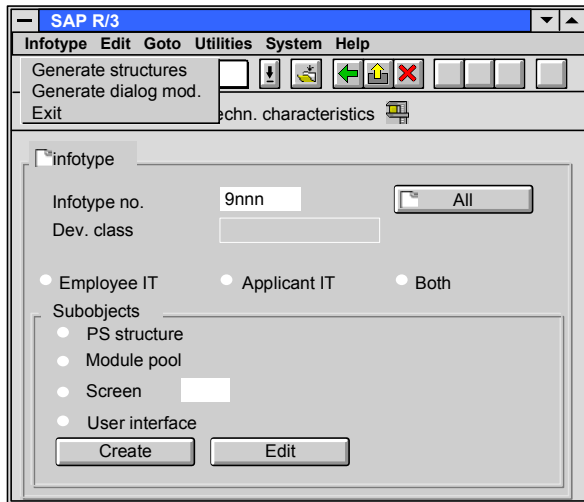
- When can you work with customer infotypes?



- When you cannot store the required information in any of the standard infotypes.

© SAP AG 1999

- Problem: You want to store specific information in the system.
- Procedure: Check all of the standard infotypes to determine whether the fields in a standard infotype can be used to store this information.
- Situation: The information cannot be stored in any of the standard infotype fields.
- Procedure: Create a new infotype to meet your requirements using the infotype copy programs.

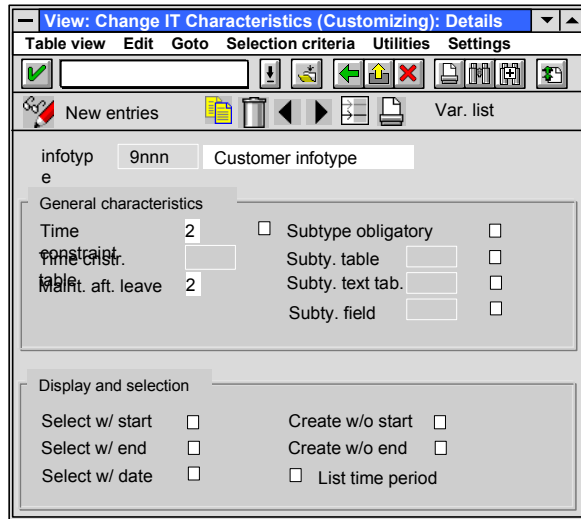


© SAP AG 1999

Internal Use SAP Partner Only

Internal Use SAP Partner Only

- Step 1:
- You must store the infotype-specific fields of your infotype in the system. To do this, create structure PS9nnn in the Dictionary.
 - Make sure you create a *structure*, not a *database table*.
 - Save and activate your structure.
 - You might need new data elements and domains for your structure.

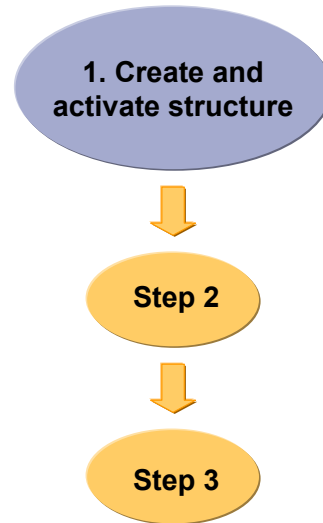
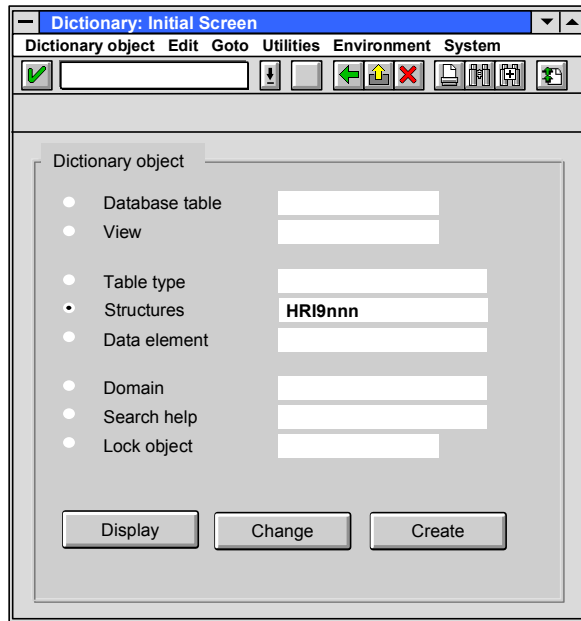


Step 1

2. Adapt screens and maintain tables

© SAP AG 1999

- Step 2:
- Call the infotype copy program for Personnel Administration (transaction PM01).
 - Enter a four-digit infotype number 9nnn in accordance with the PS9nnn structure that you created.
 - Create your new infotype. The infotype copy program creates the following objects automatically:
 - Database table PA9nnn
 - Structure P9nnn
 - Module pool: MP9nnn00
 - 3 screens (1000, 2000, 3000) for the module pool
 - Interface status
 - Dialog module (RP_9nnn)
 - When new infotypes are created, the following table entries are maintained automatically:
 - T777D Check Table for Infotypes
 - TDCD Dialog Modules

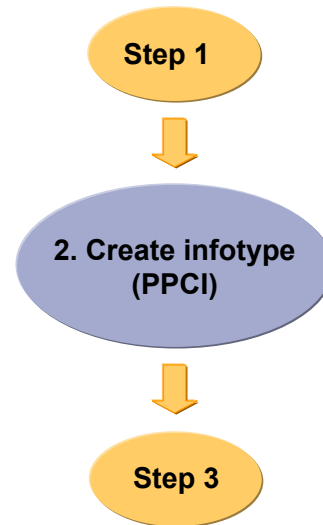
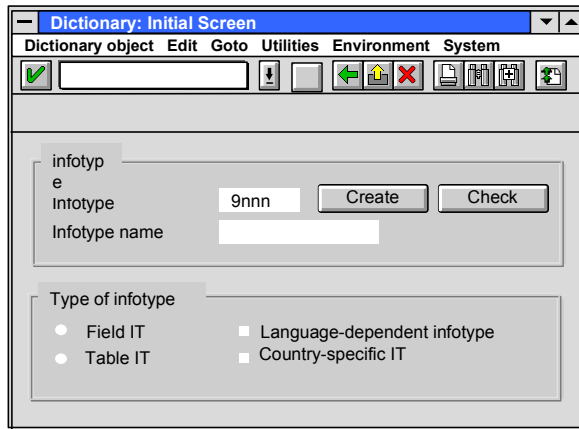


© SAP AG 1999

Internal Use SAP Partner Only

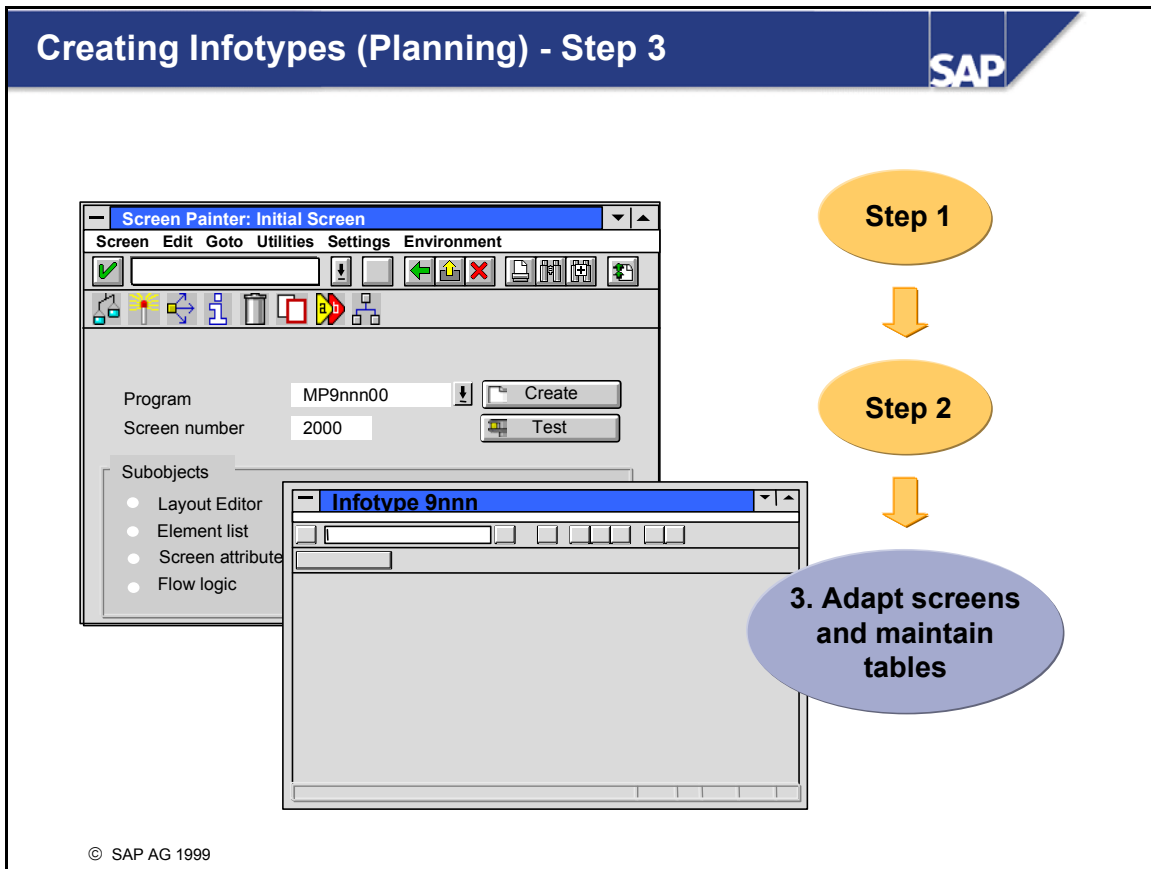
Internal Use SAP Partner Only

- Step 1:
- You must store the infotype-specific fields of your infotype in the system. To do this, create structure HRI9nnn in the Dictionary.
 - Make sure you create a *structure*, not a *database table*.
 - Save and activate your structure.
 - You might need new data elements and domains for your structure.
- If the data in your infotype has a repetitive structure (that is, you want to create a table infotype), you must also create structure PT9nnn for the table part of your infotype in the Dictionary.



© SAP AG 1999

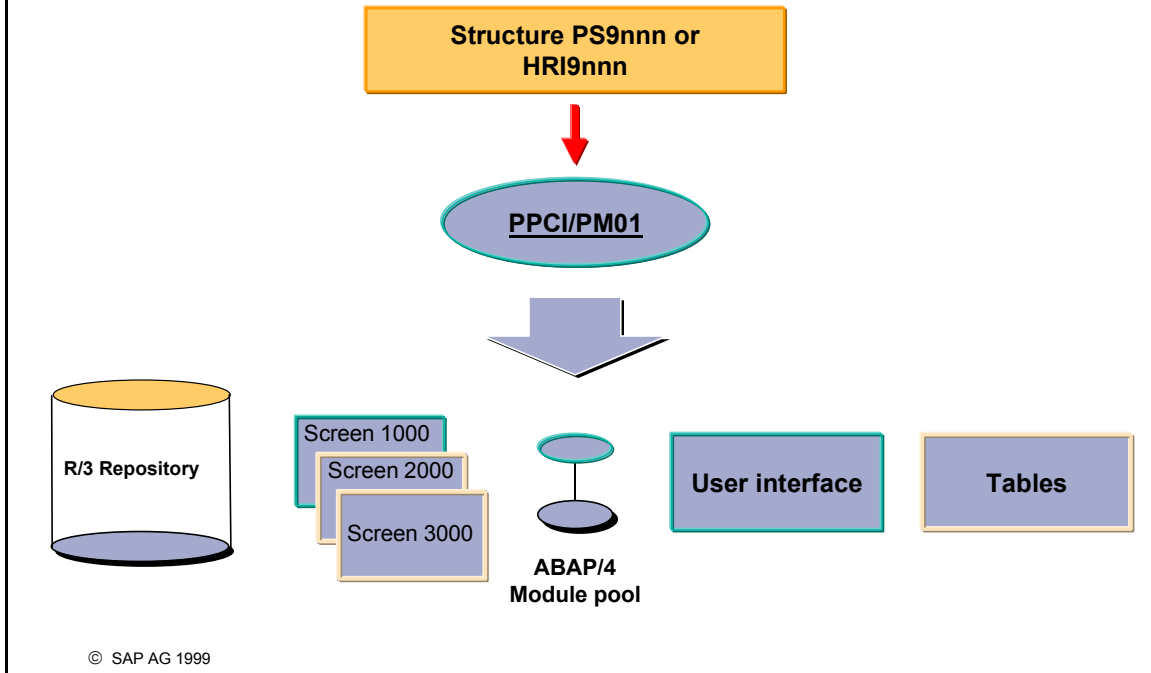
- Step 2:
- Call the infotype copy program for Personnel Planning (transaction PPCI).
- Enter a four-digit infotype number 9nnn in accordance with the HRI9nnn structure that you created.
- When you create the infotype, you can choose between field infotypes and table infotypes. You can also determine whether your infotype is language-dependent and/or country-specific.
- Create your new infotype. The infotype copy program creates the following objects automatically:
 - Database table HRP9nnn
 - Table index
 - Structure P9nnn
 - Module pool MP9nnn00
 - 3 screens (1000, 2000, 3000) for the module pool
 - CUA interface
 - Dialog module (RH_INFOTYP_9nnn)
- When new infotypes are created, the following table entries are maintained automatically:
 - T777D Check table for infotypes
 - T778T Infotypes
 - T777T Infotype texts
 - TDCT Dialog modules



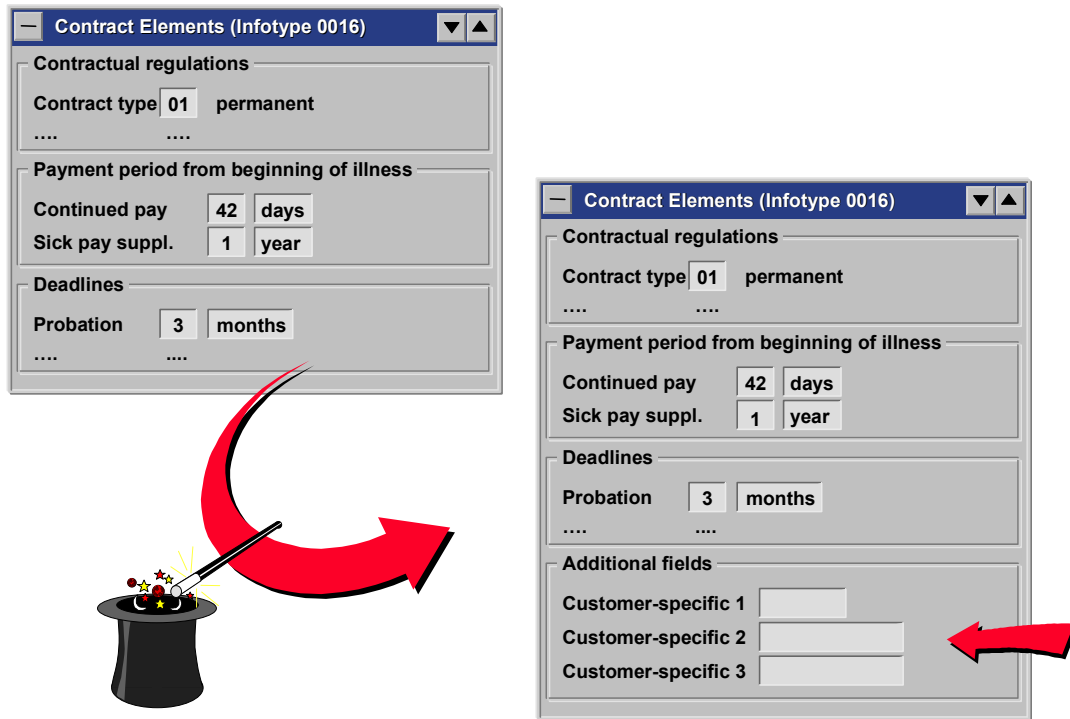
© SAP AG 1999

- Step 3:
- Adapt the new screens so that they meet your requirements.
- Edit the layout, flow logic, and field attributes (modification groups).
- Include MP9nnn20 enables you to define infotype-specific check modules in the flow logic.
- The standard value set for the first modification group is 036. When you start report RHGROUP1 with this value, you determine the functions (create, change, append, etc.) for which entries can be made in the appropriate field for this value. If you want to control input differently, use report RHGROUP0. It uses the function codes you selected to calculate the value for the first modification group.
- Maintain the table entries that cannot be created automatically:
 - T777I Infotypes per Object Type
 - T777Z Infotype Time Constraint
 - T77CD Infotypes - Customer-Specific Settings
 - T77NI Country assignment for national infotypes
- To access these tables, choose *Check* from the infotype copy program for Personnel Planning, or choose the following customizing path: Human Resources → Organizational Management → Infotype Maintenance → Maintain Infotypes.

- Procedure used to create new infotypes - *overview*

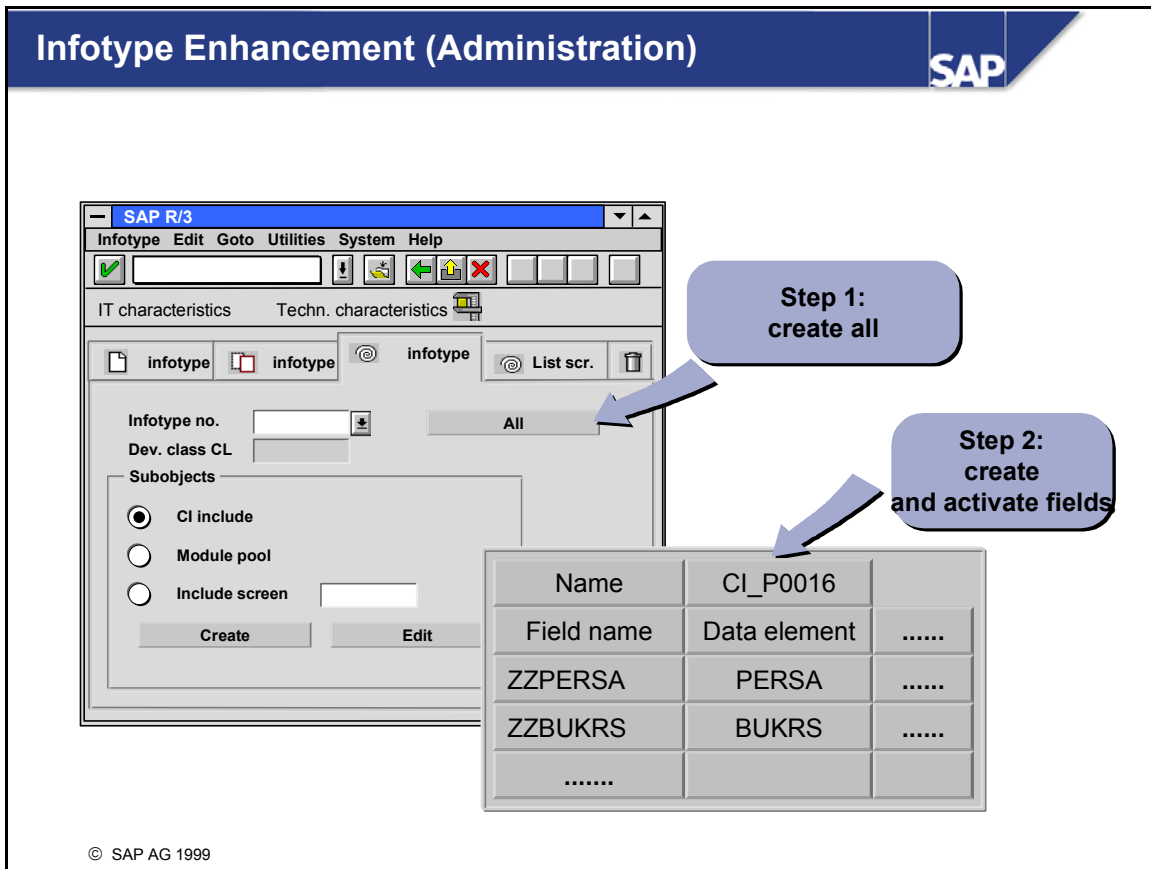


- To summarize, there are three steps to creating customer infotypes:
 - Defining infotype-specific fields in structures PS9nnn and HRI9nnn in the Dictionary.
 - Creating core infotype objects using transactions PM01 and PPCI (infotype copy programs for Personnel Administration and Personnel Planning).
 - Making customer-specific adjustments and controls.



© SAP AG 1999

- The enhancement concept for infotypes used in Personnel Administration, Recruitment, and Planning enables you to include any fields that you require in an infotype.
- If you include additional fields in an infotype, they are processed the same way as fields in the SAP standard program during reporting, when infotype logs are created, when dynamic actions are performed, and so on.
- Please note that enhancements are not the same as modifications. Enhancing an infotype in an SAP standard delivery system does not lead to problems when release upgrades are performed.
- The following infotypes are excluded from the enhancement concept:
 - Infotype 0000 Actions
 - Infotype 0302 Additional Actions
 - Infotypes used in Time Management (2nn)
 - Infotype 1000 Object
 - Infotype 1001 Relationships



© SAP AG 1999

- Start the infotype copy program for Personnel Administration (transaction code PM01). This takes you to the *Create Infotype* screen. Choose *Enhance IT*. In the *Infotype no.* field, enter the four-digit number of the infotype you want to enhance. When you enter the infotype number, remember to include the leading zeros.
- In the *Subobjects* box, select *CI include* and choose *Create*. This takes you to the following screen: *Dictionary: Initial Screen*.
- Create the CI include and choose *Activate*. If you want to include fields that are completely new, you must also create data elements. Go back to the *Enhance Infotypes* screen.
- Choose *Create all*.
- Result: you have included additional fields in the standard single screen of an infotype.

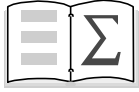
Internal Use SAP Partner Only

Internal Use SAP Partner Only

Name	CI_P1003	
Field name	Data element
ZZTEXT01	TEXT01
ZZTEST02	TEXT02
.....		

© SAP AG 1999

- Start the infotype copy program for Personnel Planning (transaction code PPCI). In the *Infotype* field, enter the four-digit number of the infotype you want to enhance. Choose *Enhance*.
- This takes you to the *Enhance* screen. Choose *Create all*. This takes you to the following screen: *Dictionary: Initial Screen*.
- Create the include and choose *Activate*. If you want to include fields that are completely new, you must also create data elements. Go back to the *Enhance Infotypes* screen.
- Result: you have included additional fields in the standard single screen of an infotype.
- Notes:
 - Infotypes 1000 (Object) and 1001 (Relationships) cannot be enhanced.
 - Before you enhance an infotype, find out whether it can be maintained directly (that is, using the detail maintenance transaction). If it can, there is no point in an enhancement.



- You have learned which technical elements constitute an infotype.
- You have learned how to create new infotypes.
- You have learned how to enhance infotypes included in the standard system by adding your own fields.

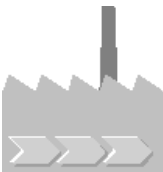


Unit: Customer Infotypes

Topic: Creating an Administration Infotype



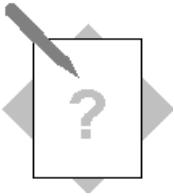
- Create and activate the PS9nnn structure with data elements
- Learn how to use transaction PM01
- Maintain table T582A
- Adapt the infotype single screen



The HR Department at your enterprise wants to enter home work center data in the system for individual employees.

- 1-1 Create an infotype “Home work center (##)” for Personnel Administration. Use infotype number 95##. (## = group number)
- 1-1-1 The infotype should include the following fields:
- Field 1: COMP (full-time), new data element: ZCOMP##, domain: CHAR1_X.
This field indicates whether the home work center is a full time one.
- Field 2: EQUI (equipment), new data element: ZEQUI##, domain: CHAR8. In this field you can store an abbreviation for possible equipment at the home work center.
- 1-1-2 Maintain the infotype characteristics (T582A). You can copy the characteristics of infotype 0002.
- 1-1-3 Use the *Screen Painter* to turn the "Full-time" field into a checkbox.
- 1-1-4 Use HR Master Data Maintenance (transaction PA30) to test your infotype.
- 1-2 (Optional) enhancement of the infotype’s structure logic for event PBO.
- 1-2-1 In the Data Dictionary, create two new, client-dependent database tables ZZEQUI## and ZZEQUIT##. ZZEQUI## is for storing possible values of the *Equipment* field in your new infotype. In ZZEQUIT## you can store the corresponding language-dependent descriptive texts. In the table characteristics, select *Table maintenance*.
- Use the following field names and data elements:
- Field EQUI Data element ZEQUI## for the equipment abbreviation
Field LANGU Data element LANGU for the language key
Field EQUITXT Data element TEXT40 for the descriptive text

- 1-2-2 Maintain all the required foreign key relationships in your new structures and tables.
 - 1-2-3 In the *Data Browser* (transaction SE16), create a few example entries for your new tables.
 - 1-2-4 Activate the foreign key check for the *Equipment* field on the detail screen of your new infotype.
 - 1-2-5 Change the detail screen of your new infotype so that not only the equipment field appears, but also the corresponding descriptive text.
 - 1-2-6 Test your enhancement in HR Master Data Maintenance.
- 1-3 (Optional) enhancement of the infotype's structure logic for event PAI.
- 1-3-1 Enhance the structure logic of your infotype's detail screen in such a way that particular home work center equipment can only be entered for employees of particular personnel subareas.
 - 1-3-2 Test your enhancement in HR Master Data Maintenance.

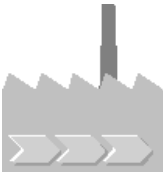


Unit: Customer Infotypes

Topic: Creating a Table Infotype



- Create and activate the necessary structures for Personnel Planning infotypes
- Learn how to use transaction PPCI
- Maintain tables T777I and T777Z



For work center planning you need data relating to the size of offices and the equipment in them. You must be able to store this data in the system.

- 2-1 Create an infotype “Office equipment ##” as a table infotype for Organizational Management. Use infotype number 96##. (## = group number)
- 2-1-1 The non-table part of the infotype should contain the following fields:
- Field 1: AREA, new data element: ZAREA##, data type DEC, length 8, 2 decimal places. In this field you should be able to store the size (area) of an office.
- Field 2: NWORK (number of work centers), new data element: ZNWORK##, data type DEC, length 5, no decimal places. This field is for storing the maximum number of work centers in one office.
- 2-1-2 The table part of the infotype should contain the following fields:
- Field 1: SNWRK (work center number), new data element: ZSNWRK##, data type DEC, length 5, no decimal places. This field contains a sequential number of work centers in an office.
- Field 2: EQUI (equipment), data element: ZEQUI## from the previous exercise. This field contains an abbreviation for a work center’s equipment.
- 2-1-3 Enhance the Organizational Management data model in such a way that you can maintain the new infotype for the object type ## (office ##) that you created in the exercise following the “Data Structures in HR” unit. If you did not create that object type, use object type O (organizational unit).
- 2-1-4 Test your new infotype in Expert Mode in Organizational Management.



Unit: Customer Infotypes

Topic: Creating an Administration Infotype

Notes:

- Create all development objects as *local objects*.
- You must activate the objects before you can test what you have created.

1-1 Access transaction PM01, and enter the number 95## in the *Infotype no.* field. (## = group number)

1-1-1 Select *PS structure* and choose *Create*. This takes you automatically to structure maintenance in the Data Dictionary. In the *Short text* field, enter the name of your infotype, for example *Home work center ##*. In the *Component* column, enter the field names. In the *Component type* column, enter the data element names.

Field 1: Name: COMP, data element: ZCOMP##

Field 2: Name EQUI, data element: ZEQUI##

Creating the data elements:

Double click on the data element names to access create mode for component types. A dialog box appears. Choose *Data element*.

Enter meaningful short texts for your data elements. Enter the name of the domain that is referenced – CHAR1_X or CHAR8. Maintain field labels, and documentation if required.

Save and activate both data elements.

Save and activate the structure.

Go back (Function *F3*) to the *Create Infotype* transaction, and choose *Create all*.

1-1-2 Maintain the infotype characteristics (T582A) by copying the characteristics of infotype 0002. In the copied entry, correct the name of the infotype and the time constraint. The correct time constraint for your infotype is 2.

1-1-3 Changing the *Full time* field to a checkbox: In the *Create infotype* transaction, under *Subobjects*, select *Screen* and enter the number 2000. Choose *Edit*. That takes you to the *Screen Painter*. Choose *Change* and then choose *Layout*. Use the graphical layout editor. You can choose it under *Utilities* → *Settings*. Select the field and field text for *COMP*, and choose *Edit* → *Convert* → *Checkbox* → *Left button*. Save and activate the screen.

- 1-1-4 Testing the new infotype: Access HR Master Data Maintenance (transaction PA30), enter any existing personnel number (for example 1000). In the *Infotype* field, enter the number of your infotype (95##) and choose *Create*. Create any data you like, save it, and test the various functions in HR Master Data Maintenance, for example *Change*, *Copy*, *Delimit*, *Delete*...
- 1-2 (Optional) enhancement of the infotype's structure logic for event PBO.

- 1-2-1 Creating the new database tables: Access the *ABAP Dictionary* either by entering transaction code SE11 or by following the SAP menu path: *Tools* → *ABAP Workbench* → *Development* → *ABAP Dictionary*. On the initial screen, select *Database table*, enter the name, and choose *Create*. Enter a short description. The delivery class is *C (customizing table)*. Select *Table maintenance allowed*. Choose *Technical Settings* and maintain the *Logical storage parameters*. In the *Data class* field, enter the value *APPL0*. In the *Size category* field, enter the value *0*. Leave the screen by choosing *Back (F3)*.

On the *Fields* tab page, in the *Fields* column, enter the field names. In the *Field type* column, enter the data element names. Select the *Key* column for key fields.

Table ZZEQUI##:

Field MANDT	Data element MANDT	Key field
Field EQUI	Data element ZEQUI##	Key field

Table ZZEQUIT##

Field MANDT	Data element MANDT	Key field
Field EQUI	Data element ZEQUI##	Key field
Field LANGU	Data element LANGU	Key field
Field EQUITXT	Data element TEXT40	

- 1-2-2 You can maintain the foreign key relationships for fields in structures and tables by choosing *Goto* → *Foreign key(s)*. Before you do that, select the row containing the field for which you want to store a foreign key.

The following foreign key relationships are required:

- 1-2-2 a) Structure ZZEQUI##, field MANDT:

Check table: T000

Check table	Check table field	Foreign key table	Foreign key field
T000	MANDT	ZZEQUI##	MANDT

1-2-2 b) Structure ZZEQUIT##, field MANDT:

Check table: T000

Check table	Check table field	Foreign key table	Foreign key field
T000	MANDT	ZZEQUIT##	MANDT

1-2-2 c) Structure ZZEQUIT##, field EQUI

Check table: ZZEQUI##

Check table	Check table field	Foreign key table	Foreign key field
ZZEQUI##	MANDT	ZZEQUIT##	MANDT
ZZEQUI##	EQUI	ZZEQUIT##	EQUI

1-2-2 d) Structure ZZEQUIT##, field EQUI

Check table: T002

Check table	Check table field	Foreign key table	Foreign key field
T002	SPRAS	ZZEQUIT##	LANGU

Under *Semantic attributes*, select *Key fields of a text table*.

1-2-2 e) Structure PS95##, field EQUI

Check table: ZZEQUI##

Check table	Check table field	Foreign key table	Foreign key field
ZZEQUI##	MANDT	SYST	MANDT
ZZEQUI##	EQUI	PS95##	EQUI

1-2-3 In the *Data Browser* (transaction SE16), create a few example entries for your new tables.1-2-4 Activate the foreign key check for the *Equipment* field on the detail screen of your new infotype.

To edit the screen, choose the *Object Navigator* of the *ABAP Development Workbench* (transaction SE80). The name of the program in which your screen was created is MP95##00. Select screen 2000 and choose *Layout* in change mode. Go to the *Element attributes* for field P9500-COMP, by choosing *Goto* → *Secondary window* → *Element list*, and select *Foreign key*.

1-2-5 Change the detail screen of your new infotype so that not only the equipment field appears, but also the corresponding descriptive text.

1-2-5 a) At the beginning of the PBO module P95##, insert the following lines of ABAP code:

```
select single * from zzequit## where equi = p9500-equi
                        and langu = sy-langu.
```

1-2-5 b) In Include MP95##10, insert the following lines of ABAP code:

```
tables zzequit##.
```

- 1-2-5 c) In the layout of screen 2000, insert the field ZZEQUIT##-EQUITXT. To do that, access the *Screen Painter* for the screen, go into the *Layout Editor*, and choose *Goto* → *Secondary window* → *Dict/Program fields*. Enter the table name ZZEQUIT##, choose *Get from Dictionary*, select the row with the EQUITXT field, and *Enter* the field *Without text*. You can now use the mouse to position the field on the screen.
- 1-3 (Optional) enhancement of the infotype's structure logic for event PAI.
- 1-3-1 Enhance the structure logic of your infotype's detail screen in such a way that particular home work center equipment can only be entered for employees of particular personnel subareas.
- 1-3-1 a) In the structure logic of screen 2000 for event PAI, insert the following lines after the PRE_INPUT_CHECKS module:

```
field p9500-equi module p95##_checks.
```

- 1-3-1 b) Double click on p95##_checks to create this new PAI module. Create it with the following lines of ABAP code in Include MP95##30:

```
MODULE p9500_checks INPUT.
  if p9500-equi = 'ABAKUS' and
     not ( psyst-werks = 'CABB' and
          psyst-btrtl = '0001').
     message e855(rp).
  endif.
ENDMODULE.
```

This coding specifies that equipment “ABAKUS” is only permitted for employees in personnel area “CABB” and personnel subarea “0001”. You can test this example data using personnel number 540991##. If you wish, you can use other example data instead.

Note: This example was only written for the purpose of the exercise. In reality, it is not advisable to program a query involving concrete values (“ABAKUS”, “CABB”, “0001”), since if the values changed, you would also have to change the program. Instead, use variables that, for example, contain the check values read from the database. In the current example, you could use another database table, in which the permitted equipment for each personnel area and subarea is stored.



Unit: Customer Infotypes

Topic: Creating a Table Infotype

- 2-1 Create an infotype “Office equipment (##)” as a table infotype for Organizational Management. Use infotype number 96##. (## = group number)
- 2-1-1 Creating a structure for the non-table part of the infotype:
 Access the *Data Dictionary*, and create a new structure with the name HRI96##.
 Use the following field and data element names:
- | | |
|-------|--|
| AREA | Data element ZAREA##
Data type DEC, length 8, 2 decimal places. |
| NWORK | Data element ZNWORK##
Data type DEC, length 5, no decimal places. |
- Creating the data elements:
- Double click on the data element names to access create mode for component types. A dialog box appears. Choose *Data element*.
- Enter meaningful short texts and field labels for your data elements. In the data type information, choose *Built in type*, and use the above-mentioned entries.
- Save and activate both data elements.
- Save and activate the structure.
- 2-1-2 Creating a structure for the table part of the infotype:
 Access the *Data Dictionary*, and create a new structure with the name PT96##.
 Use the following field and data element names:
- | | |
|-------|---|
| SMWRK | Data element ZSNWRK##
Data type DEC, length 5, no decimal places. |
| EQUI | Data element ZEQUI##
already exists from the “Creating an Administration Infotype” |
- Create a data element ZSNWRK as described in 1-1-1.
- Save and activate the new data element.
- Save and activate the structure.
- Access transaction PPCI. Enter the infotype number 96##, and the name “Office Equipment ##”. Choose *Create*. On the next screen, in the *Infotype type* section, choose *Table infotype* and then *Create*.

- 2-1-3 Enhance the Organizational Management data model in such a way that you can maintain the new infotype for the object type ## (office ##) that you created in the exercise following the “Data Structures in HR” unit.

You have two alternatives: Access the tables either through the IMG, as described in the exercise following the “Data Structures in HR” unit, or from the generating transaction (PPCI). The second alternative is described below: Choose *Check*. A log appears. Position the cursor on line *T7771 ...* in the *Table entries* section, and choose *Change*. Access table maintenance, and for infotype 96## maintain a new *Time constraint* entry with the following values:

Object type: ##
Infotype: 96##
Subtype:
Time constraint: 2

In addition, maintain a new entry under *Infotypes per object type* with the following values:

Object type: ##
Infotyp: 96##

- 2-1-4 Test your new infotype in Expert Mode in Organizational Management. Access transaction PP01, or go to the SAP menu and choose *Human Resources* → *Organizational Management* → *Expert Mode* → *General*. Choose the plan version “Current plan” and the object type “Office (##)”. Select an object by choosing F4 help for the *Object ID* field, or create a new object. In the table of infotypes, choose your infotype “Office equipment ##”, and create an infotype record. Test further functions in this transaction.

Contents:

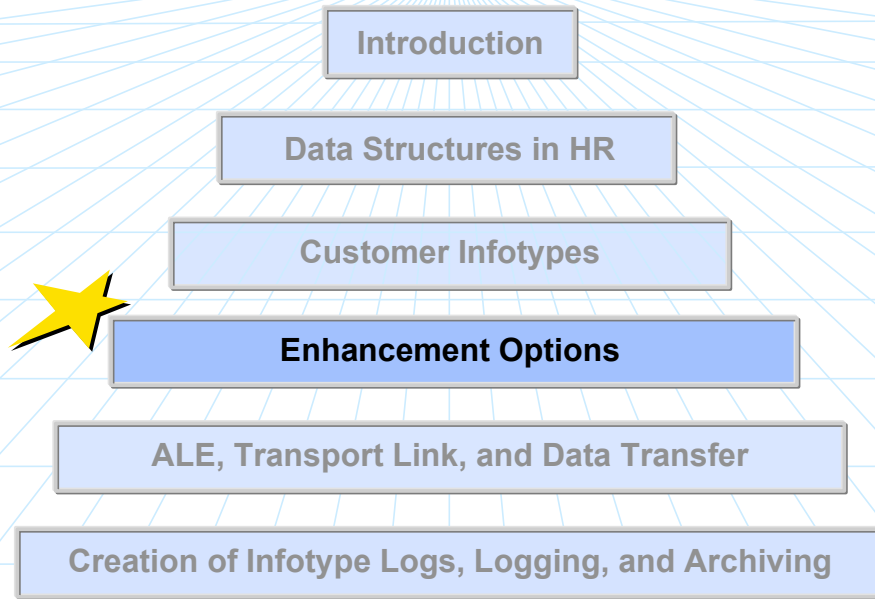
- **Enhancing the infotype maintenance dialog**
- **Displaying additional data in simple maintenance for the organizational plan**
- **Enhancing Manager's Desktop with customer-specific functions**
- **Workflow: triggering events when infotypes are updated**

© SAP AG 1999



At the conclusion of this unit, you will be able to:

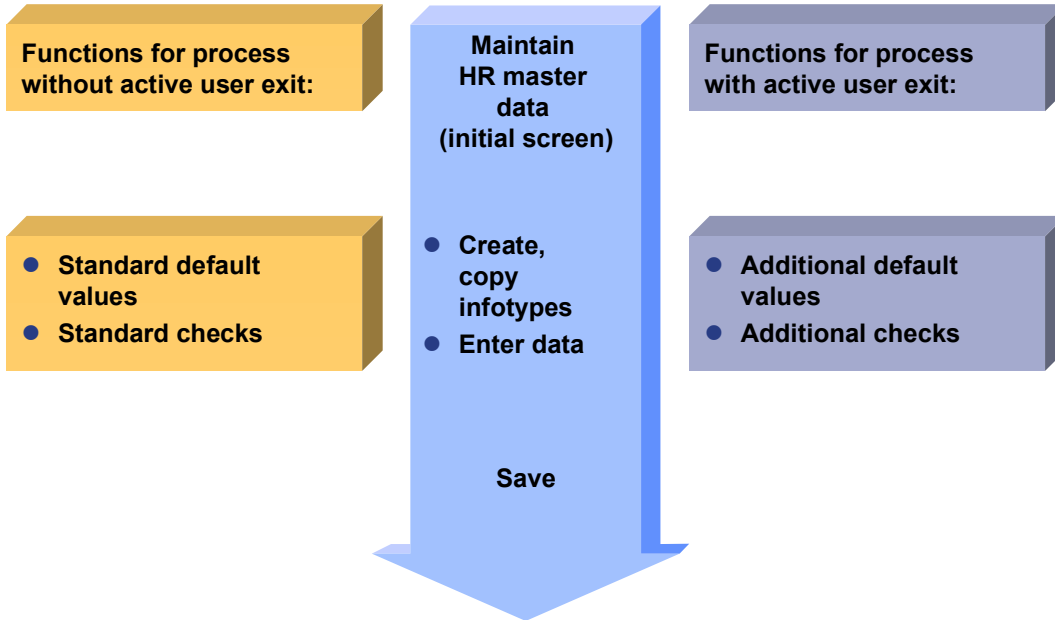
- **Describe the most important enhancement and configuration options used in Personnel Administration and Organizational Management.**



© SAP AG 1999

Internal Use SAP Partner Only

Internal Use SAP Partner Only

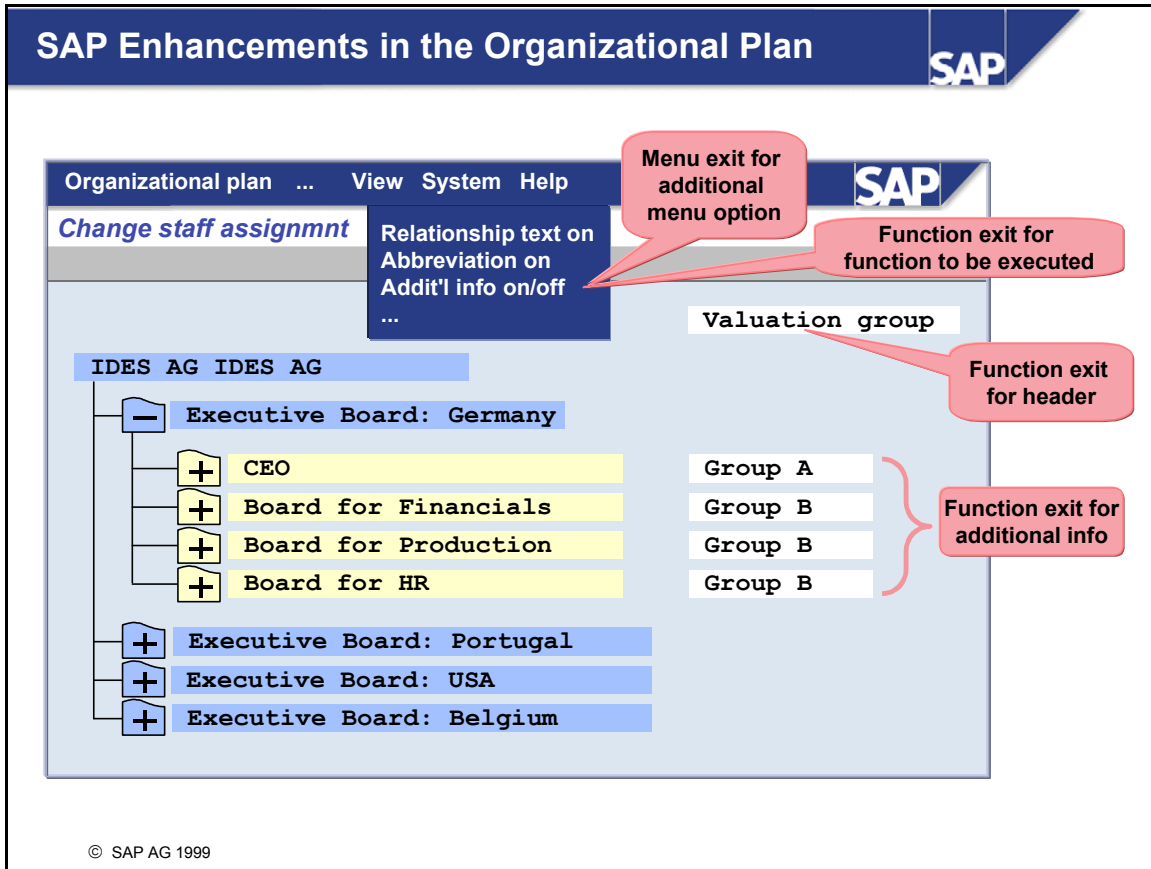


© SAP AG 1999

- The general SAP enhancement concept enables customers to enhance application logic, screens, and menus with their own elements.
- Function exits allow customers to implement additional logic in a transaction. The SAP application developer determines where function exits can be accessed within a transaction, and which data is transferred. He or she creates the appropriate function modules together with a short text, interface, and documentation.
- The general procedure for activating a function exit consists of the following steps:
 - Create enhancement project
 - Select SAP enhancement
 - Edit enhancement components (that is, enter customer-specific code)
 - Activate and transport project
- Enhancement PBAS0001 has two function exits.
 - Function exit EXIT_SAPFP50M_001 allows customer-specific defaults to be entered in a single screen when infotypes are created or copied.
 - Function exit EXIT_SAPF50M_002 allows an additional customer-specific check to be performed after data has been entered in a single screen and the fields have been validated.

Internal Use SAP Partner Only

Internal Use SAP Partner Only



Internal Use SAP Partner Only

Internal Use SAP Partner Only

- The structure maintenance screen in Organizational Management enables you to show additional information on each structure object.
- Simple maintenance of the organizational plan and reporting structure is supported by SAP enhancement RHGB0001. It consists of several components:
 - Two menu exits that enable you to show an additional menu option in the *View* menu of the maintenance screen for the organizational plan and reporting structure.
 - A function exit that is accessed when the user selects the new menu option. This function is normally used to hide or show additional information.
 - A function exit that is used to determine the text to be displayed for each structure object, and its format.
 - A function exit that is used to determine the header for additional information, and its format.
- SAP enhancement RHGP0001 is created in the same way as enhancement RHGB0001. This enhancement enables you to show additional information in *General Structure Maintenance*.
- SAP enhancement RHSI0001 enables you to show the additional information determined by enhancement RHGB0001 in the view for *Account Assignment* and *Further Characteristics*.

Helps managers to perform their administrative and planning tasks

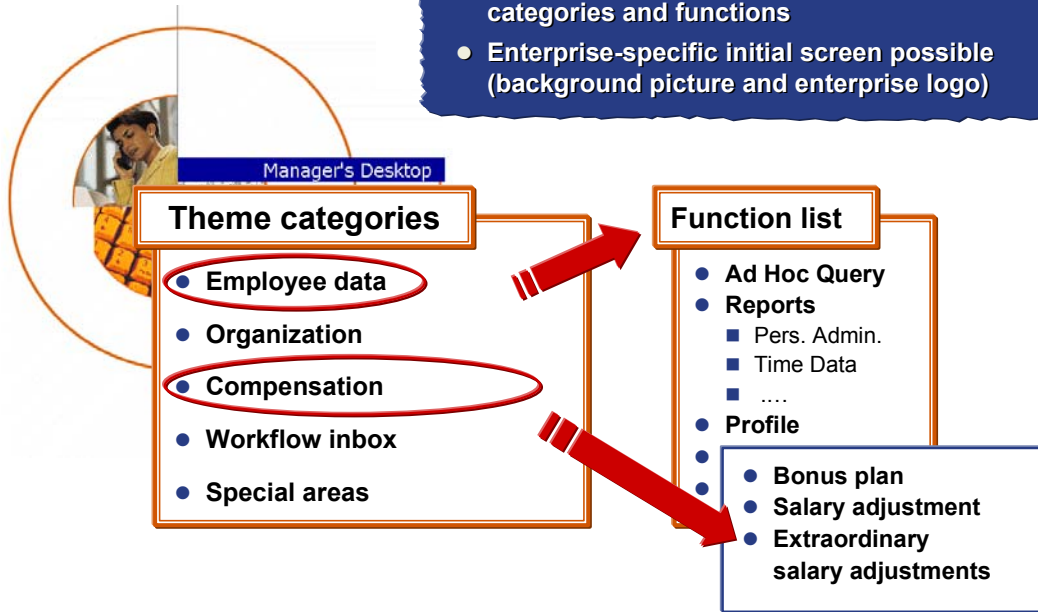


- **Broad range of functions specifically intended to help managers perform their tasks (for example, functions from various components, workflow inbox, Internet connection, etc.)**
- **User-friendly and intuitive**
- **Customizing steps and user-specific settings allow functions to be arranged exactly as required**
- **Customer reports can be included**

© SAP AG 1999

- *SAP Manager's Desktop* is tailored to the daily needs of managers - line managers, for example - by helping them to perform their administrative, organizational, and strategic tasks. The Manager's Desktop concept is to support the growing trend of decentralizing Human Resource tasks and responsibilities.
- Manager's Desktop helps managers to make Human Resource decisions and perform strategic planning activities by providing them with swift access to required HR data of directly and indirectly subordinate employees. It then enables them to report on this data.
- Managers can use Manager's Desktop to perform cross-application functions. For example, they can execute workflow tasks (work items), or use reports to access data stored in Accounting or Controlling. Manager's Desktop can be used to execute a wide range of standard reports from Human Resources and Controlling, as well as customer reports. Its web browser integration means that Manager's Desktop also enables managers to display intranet and Internet pages.
- New functions, such as *drag and drop*, make Manager's Desktop particularly easy to use.

- Adaptable theme and function catalog
- User-specific selection of theme categories and functions
- Enterprise-specific initial screen possible (background picture and enterprise logo)



© SAP AG 1999

- The initial screen provides an overview of the default main scenario in Manager's Desktop (MDT), which consists of the five theme categories listed above and their function lists. The function codes in Customizing can be used to put these categories into customer-specific hierarchies. The categories can also be enhanced with customer-specific functions.
- Furthermore, the user can deactivate unnecessary categories and functions on the initial screen and on the various screens of the different application components. It is always possible to switch between user settings and standard settings.
- The initial screen can be adapted to customer-specific requirements in Customizing. For example, it can be enhanced with an enterprise logo and/or background picture.

IMG: Table T77MWBFC

Function codes for Manager's Desktop

Function code

Text

Type

Org. structure based

Object type specific

Transaction code

Function module

Program name

Variant name

WEB address (URL)

URL WEB address (URL)

URLW WEB address (URL) w/o navigation

FUNC Function module

REPO Report

RWRP RW report (cost accounting)

TCOD Transaction code

NODE Node that cannot be executed

HOME Root node

INBX Workflow inbox

COPL Cost center planning

BWRP BW-Reports (Web-Reporting)

BWEX BW-Reports (Excel)

© SAP AG 1999

- You can include additional functions in the Manager's Desktop menu.
- The functions can be of different *types* - this depends on how the accessed function works.
- You can access Internet and/or intranet pages, start reports and transactions, or access ABAP function modules.
- When reports that use HR logical databases (PNP, PCH, PAP) are accessed, they are provided automatically with the objects selected by the user. The selection screen is skipped.
- **Example:** You have included additional fields in the *Personal Data* infotype, and written a report on the basis of logical database PNP to report on these fields. You can offer this report as a function in Manager's Desktop. In staff assignments in Manager's Desktop, the user then chooses the people for whom the report is to be started. The report selection screen is not displayed.
- Entries of the type *HOME* and *NODE* are simply part of the structure of the menu tree, and do not provide any executable functions.
- You can see these settings in the SAP Implementation Guide, under *Personnel Management -> Manager's Desktop -> Enhancement of Function Codes*

MDT: Insert Function Module



Function code	Z_CUST1
Text	Customer function 1
Type	FUNC
Function module	Z_CUSTOMER_FUNCTION_1

IMG: Table T77MWBFCO

ABAP

```

FUNCTION Z_CUSTOMER_FUNCTION_1
***"Local interface:
**  IMPORTING
**    VALUE(ACT_FCODE) TYPE MWB_FCODE
**    VALUE(ACT_PLVAR) TYPE PLVAR
**    VALUE(ACT_OTYPE) TYPE OTYPE
**    VALUE(ACT_OBJID) TYPE REALO
**    VALUE(ACT_BEGDA) TYPE BEGDATUM DEFAULT SY-DATUM
**    VALUE(ACT_ENDDA) TYPE ENDDATUM DEFAULT '99991231'
**  EXPORTING
**    VALUE(ACT_PROGNAME) LIKE SY-REPID
**    VALUE(ACT_PROGNAME) LIKE SY-DYNR
**  TABLES
**    ACT_OBJECTS STRUCTURE HRSOBID
**  EXCEPTIONS **  "*"          FCODE_NOT_VALID FCENDE...
    
```

Function code for function triggered in MDT

Key of selected object

Selection period set in MDT

Screen to be accessed (optional)

Table with keys of selected objects

Internal Use SAP Partner Only

Internal Use SAP Partner Only

- Function type *FUNC* enables you to configure Manager's Desktop so that it can be used to access any functions that you developed. In this instance, you use Customizing to store the name of a function module that you created for the pertinent function code. When the user selects the function in Manager's Desktop, the function module is accessed.
- The interface for such function modules is determined by SAP. This interface provides you with the following information: the function code that was triggered, the object that is currently selected, and the objects that are currently flagged. Furthermore, the selection period specified in Manager's Desktop is transferred to the function module. Using the module's export parameters - *ACT_PROGNAM* and *ACT_SCREEN_NO* - you can specify that a screen is to be displayed in Manager's Desktop.

Successful workflow management means providing **employees** at the appropriate **time** with suitable **tasks** and relevant **information**



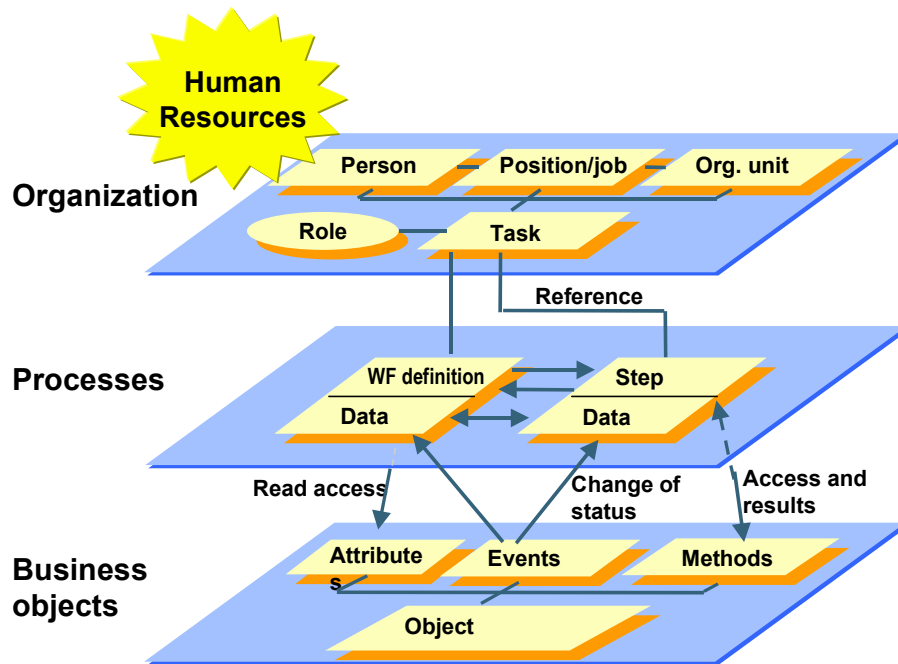
© SAP AG 1999

■ SAP Business Workflow relates the following four aspects of a process to each other:

- Organizational plan (Who?)
- Process structure (When? In what order? Under what conditions?)
- Function (What?)
- Information (Which data is used?)

This ensures that business processes are executed as efficiently as possible.

- The process to be represented as a workflow is stored in the system with parameter settings. A graphical definition tool is used to do this. When the workflow runs, the *workflow manager* - that is, the R/3 System - performs all of the tasks that could be anticipated when the process was defined. As a result, users are not required to perform avoidable organizational activities, and can concentrate on other aspects of their work instead.

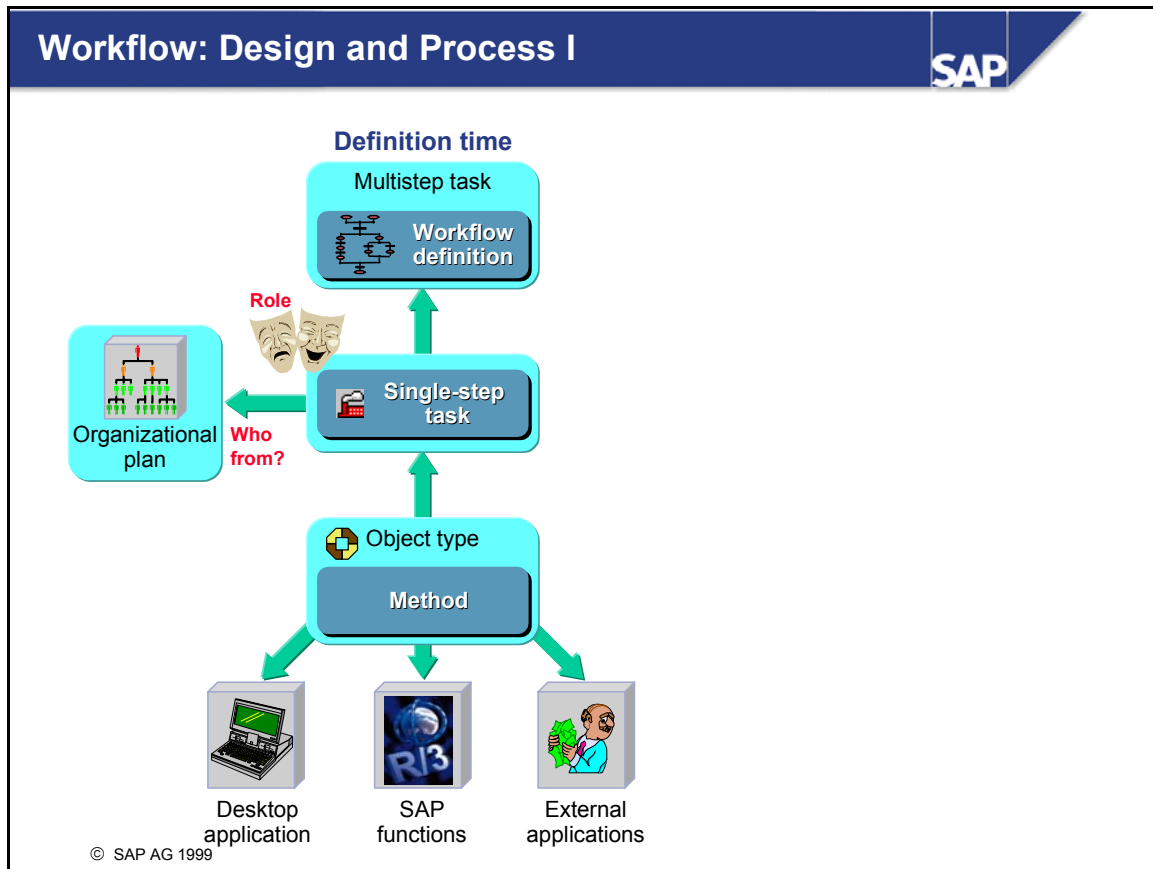


© SAP AG 1999

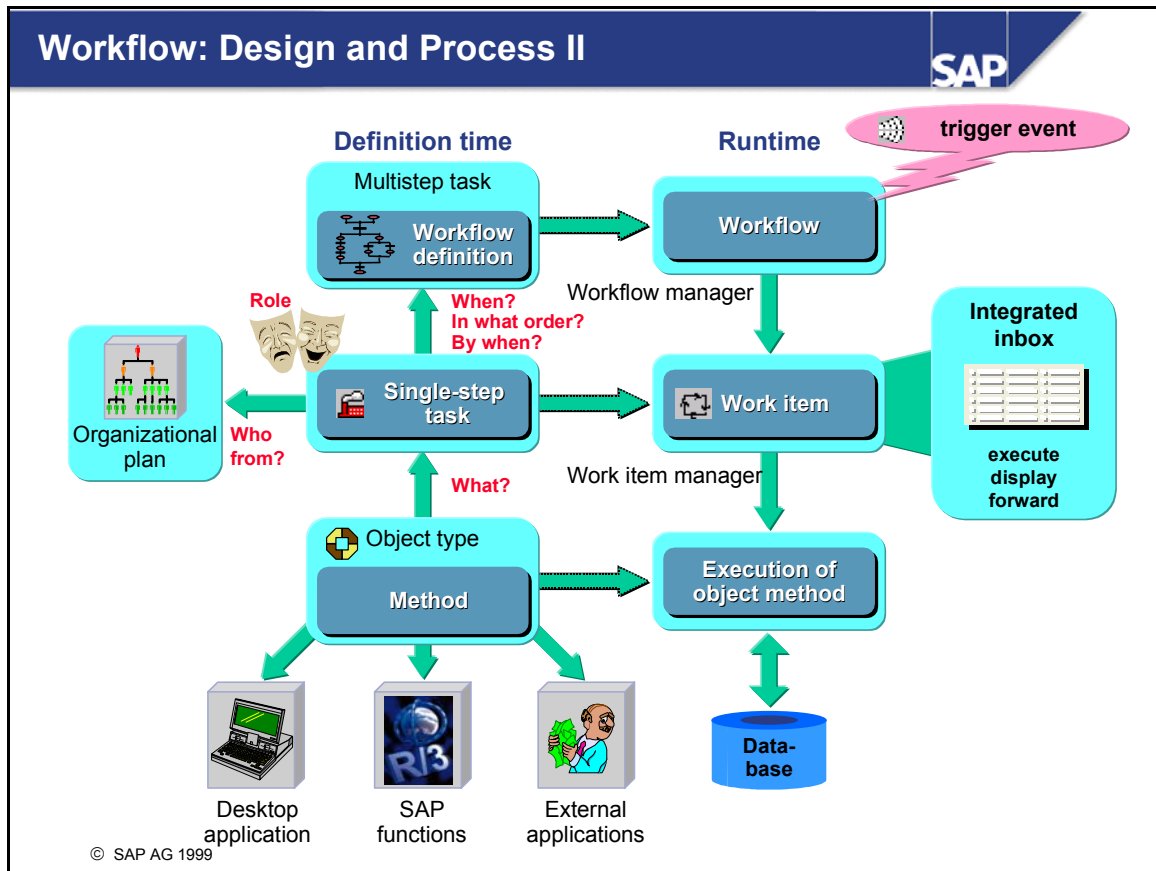
- SAP Business Workflow is characterized by its three-level architecture. The modular design of its components provides the basis required for a high degree of flexibility.
- The *Business Object Repository* is situated on the lowest level. It contains a definition of all of the business objects and their methods, attributes, and events that can be used in workflow definitions. R/3 functions, such as hiring employees, are accessible via business objects.
- The order in which tasks are executed, and the rules used to determine how tasks are executed, are defined on the process level. Each task is represented by a step in workflow. Object data and information added during the process are forwarded from step to step, or are available to agents during the entire workflow procedure. Process control facilitates the sequential, parallel, alternative, and hierarchically nested execution of steps.
- The organizational level provides information on responsibilities and the personnel structure of the enterprise. This ensures that tasks are forwarded to the right agents during runtime.

Internal Use SAP Partner Only

Internal Use SAP Partner Only



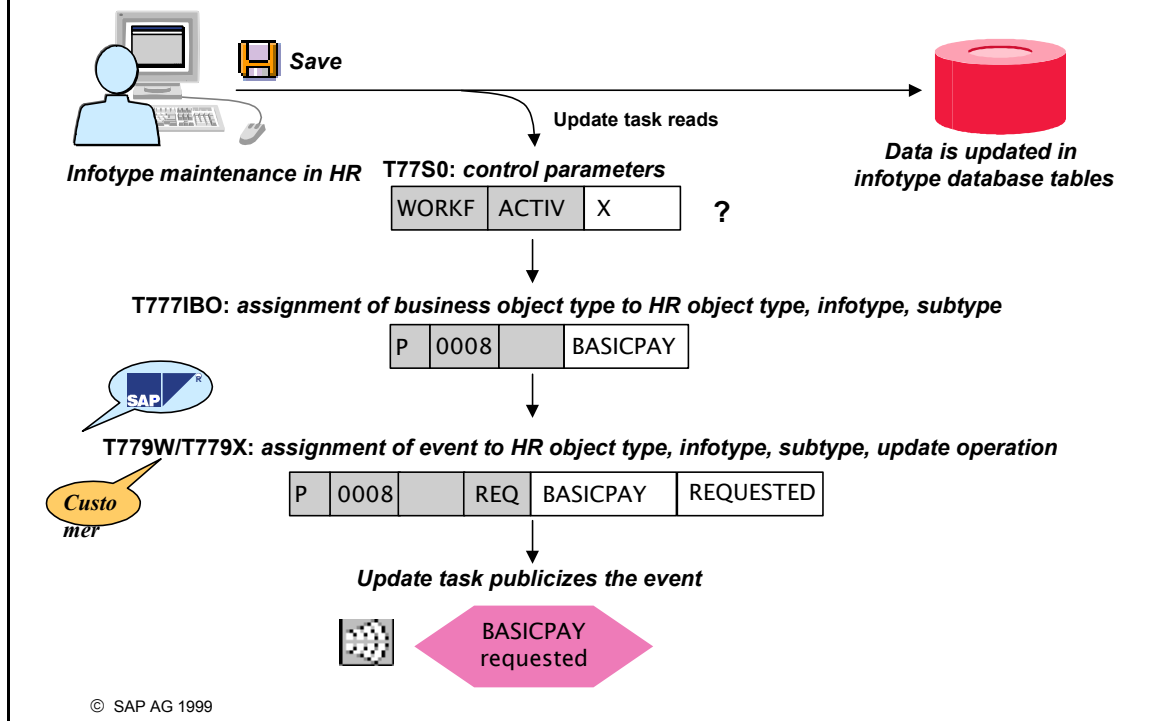
- The workflow definition contains the business process. The *event-driven process chain (EPC)* is used to describe it. Single-step tasks constitute the most important elements of the workflow definition.
- Single-step tasks
 - Represent SAP functions from a business perspective
 - Each one uses just one method
- SAP Business Workflow is based on object-oriented design. Objects are defined in the Object Repository, which is supplied by SAP. Object methods
 - Represent SAP functions from a business object perspective (technical view, such as create, delete, change)
 - Provide a standard, transparent interface for SAP functions (transactions, function module, report, ...)
 - Encapsulate functions
- The agents responsible for an activity in workflow are defined by an assignment to an object in the organizational plan, or by a *role*. Roles are used to determine responsible agents dynamically - that is, depending on the information that is first available during workflow runtime.



- Workflows are usually started by a *triggering event*. Events are used to publicize changes to the status of objects in the system. Like methods, they are defined in the Object Repository for each object type. An event is triggered in an application.
- Example: The workflow used to approve an absence is started when the act of saving an absence notification triggers the *requested* event of the *absence* object type.
- Work items are the runtime representation of a single-step task. They are assigned by the workflow manager to the agents responsible.
- When an agent accepts a work item for processing, it disappears from the inboxes of other agents.
- When a work item is executed, its object method is accessed.

Workflow: Creating Events When Infotypes Are Updated

SAP



- Events used to publicize changes in the status of HR infotypes are created when infotypes are updated.
- The prerequisite is that event creation has been activated in control table T77S0 (entry WORKF ACTIV = X).
- Table T779W (SAP) or T779X (customer) contains the event to be created. Table T777IBO contains the assignment of business object type to HR object type, infotype, and subtype.
- By specifying a function module, you can ensure that additional checks are performed before an event is created. The triggering event can be determined dynamically.
- You can maintain these tables by performing activities in the Implementation Guide. To access these activities, choose *Personnel Management -> Personnel Administration -> Tools -> Business Workflow events*.

Function module template for Administration infotypes

`HR_EVENT_RULES_PA0001`

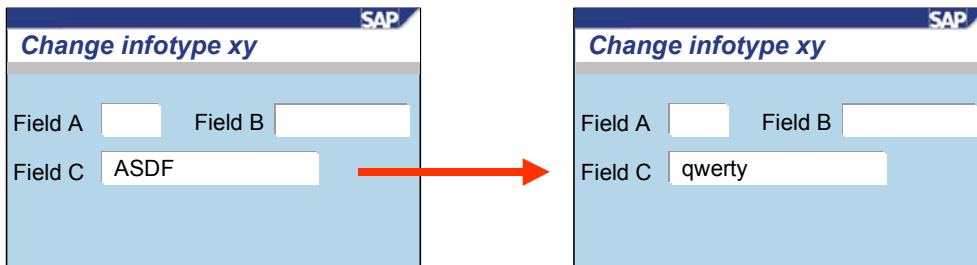
Function module template for Planning infotypes

`HR_EVENT_OT_NNNN_UUUU_TEMPLATE`

Comparison of changes made to an infotype record:

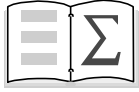
`BEFORE_IMAGE`

`AFTER_IMAGE`



© SAP AG 1999

- You can determine that events are created dynamically, that is, at runtime. To do so, enter a function module that you programmed in table T779X, instead of an event. This function module is accessed by the update task, can perform additional checks, and then returns the triggering event to the update task.
- SAP provides you with function module templates, one for infotypes in Personnel Administration and one for infotypes in Personnel Planning. Copy the template to your namespace, and use the new function module to store the checks you want to perform.
- The function module interface provides you with the `BEFORE_IMAGE` and `AFTER_IMAGE` parameters. They contain infotype data before and after it is processed by a user in infotype maintenance. By comparing these two parameters, you can determine - for example - that an event is only triggered if the data stored in a particular field is changed.



- You have learned how to include additional default values and checks in infotype maintenance.
- You have learned how to display additional data in simple maintenance.
- You have learned how to include additional functions in Manager's Desktop.
- You have learned how events are triggered in HR for SAP Business Workflow.

© SAP AG 1999



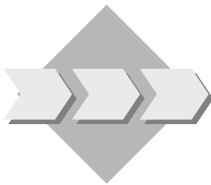
Unit: Enhancement Options

Topic: Manager's Desktop



At the conclusion of these exercises, you will be able to:

- Include additional functions in Manager's Desktop.



You want to include additional functions in Manager's Desktop for the managers at your company.

- 1-1 Select any report from Personnel Administration, and make it available in Manager's Desktop. The corresponding function must appear in a separate branch. In the same branch, provide your head of department with a link to a website of your choice. Test whether your settings provide the intended result.
- 1-2 (Optional) In the same branch in Manager's Desktop, provide a new function that allows the user to display personnel time data (transaction PA51) for a selected person. Set the function so that it is only possible if a person has been selected.

With which function type must the new function code be created?

If you want to program a function module, you must also create a function group. You can use the following naming conventions:

Function group: ZHR530_##

Function module: ZHR530_##_MDT

Tip: You need the ABAP command SET PARAMETER ID. The user parameter for personnel numbers is PER.



Unit: Enhancement Options

Topic: Manager's Desktop

1-1 Including additional functions in Manager's Desktop.

- 1-1-1 a) Access the SAP Implementation Guide by choosing *Tools* → *AcceleratedSAP* → *Customizing* → *Project Management* → *SAP Reference IMG*. In the IMG, choose *Human Resources* → *Manager's Desktop* → *Enhancement of Function Codes* → *Wizard for Defining Function Codes*.

Execute the individual steps in the wizard. Create the new function codes in the "Special Areas" theme category. Name the function codes, for example,

Z_##N for the subcategory
 Z_##R for calling a report, and
 Z_##U for a Web address.

is your two-digit group number.

For function code Z_##R, choose the function type Report, and enter the name of any Personnel Administration report, such as *RPLMIT00*, in the *Program name* field. For function code Z_##U, use the navigation buttons to choose function type WWW address, and enter the name of any page in the World Wide Web, such as *www.sap.com*, in the *WEB address (URL)* field.

- 1-1-2 Testing the settings: Assign your user to the chief position of any organizational unit, or maintain infotype *0105 Communication, subtype 0001* for a person who has a chief position. Access Manager's Desktop. Have your functions been included? Do they provide you with the result that you require?

1-2 Calling up personnel time data from Manager's Desktop.

- 1-2-1 Bad solution: In Manager's Desktop you include a new function that you define with the function type *Transaction*. Enter PA51 as the transaction code. The disadvantage of this solution is that the personnel number of the selected person is not transferred to the transaction, but must be entered separately.
- 1-2-2 Good solution: In Manager's Desktop you include a new function that you define with the function type *Function Module*. You can call this function code Z_##F, for example. Use the wizard again.
 Before you do that, you must create a new function group, and within it a function module with the interface determined by SAP, which takes data from Manager's Desktop and calls transaction PA51. The personnel number is transferred to the transaction via the SET/GET parameter PER.

- 1-2-3 a) Create a new function group, Z_HR530##. To do this, call the *Object Manager* of the ABAP Development Workbench (transaction SE80). At the top left of the screen, choose *Function group*, and enter Z_HR530_## in the field underneath. Choose enter. You can now create the function group.
- 1-2-3 b) Create a new function module by positioning the cursor on the object name of the function group (Z_HR530_##), holding down the right mouse button and choosing *Create* → *Function module*. Enter the name Z_HR530_##_MDT and a short text.
Maintain import, export, and table parameters, and the source text as shown in the following ABAP lines:

```

FUNCTION Z_HR530_00_MDT.
*"-----
----
*"*"Local interface:
*"  IMPORTING
*"    VALUE (ACT_FCODE) TYPE  MWB_FCODE
*"    VALUE (ACT_PLVAR) TYPE  PLVAR
*"    VALUE (ACT_OTYPE) TYPE  OTYPE
*"    VALUE (ACT_OBJID) TYPE  REALO
*"    VALUE (ACT_BEGDA) TYPE  BEGDATUM DEFAULT SY-DATUM
*"    VALUE (ACT_ENDDA) TYPE  ENDDATUM DEFAULT '99991231'
*"  EXPORTING
*"    VALUE (ACT_PROGNAME) LIKE SY-REPID
*"    VALUE (ACT_PROGNAME) LIKE SY-DYNNR
*"  TABLES
*"    ACT_OBJECTS STRUCTURE HRSOBID
*"-----
----

  IF act_objid IS INITIAL.
    READ TABLE act_objects WITH KEY otype = act_otype.
    IF sy-subrc = 0.
      act_objid = act_objects-sobid.
    ENDIF.
  ENDIF.

  SET PARAMETER ID 'PER' FIELD act_objid.
  CALL TRANSACTION 'PA51'.

ENDFUNCTION.

```

© SAP AG 1999

Internal Use SAP Partner Only

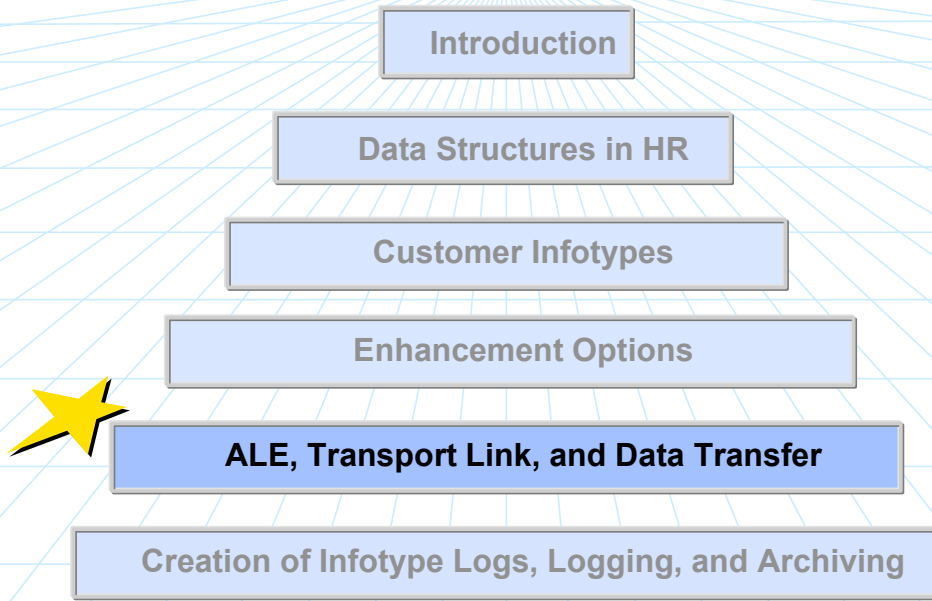
Internal Use SAP Partner Only



At the conclusion of this unit, you will be able to

- **Define the basics of ALE distribution in HR.**
- **Use the transport link for Planning infotypes.**
- **Apply the techniques used to transfer data to the HR System.**
- **Perform steps and apply utilities that ensure the consistency of your data after transfers and transports.**

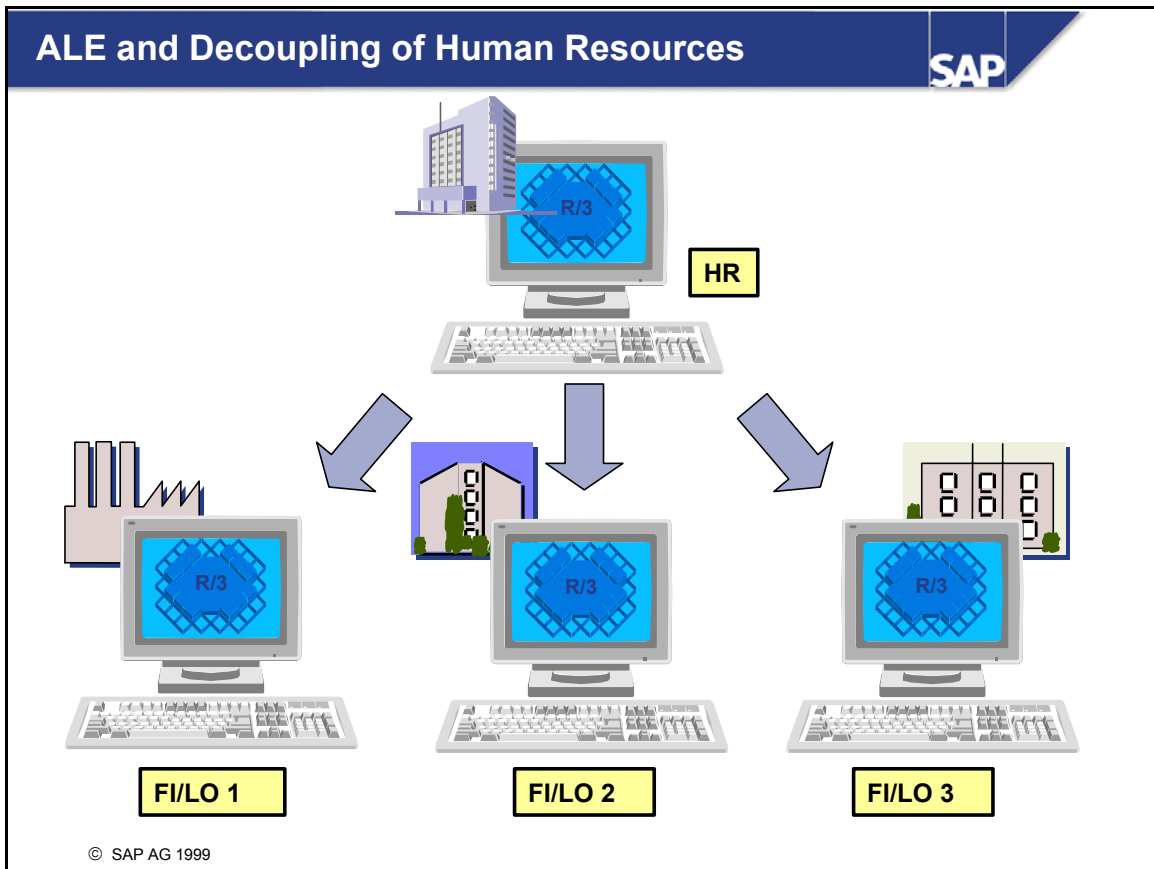
© SAP AG 1999



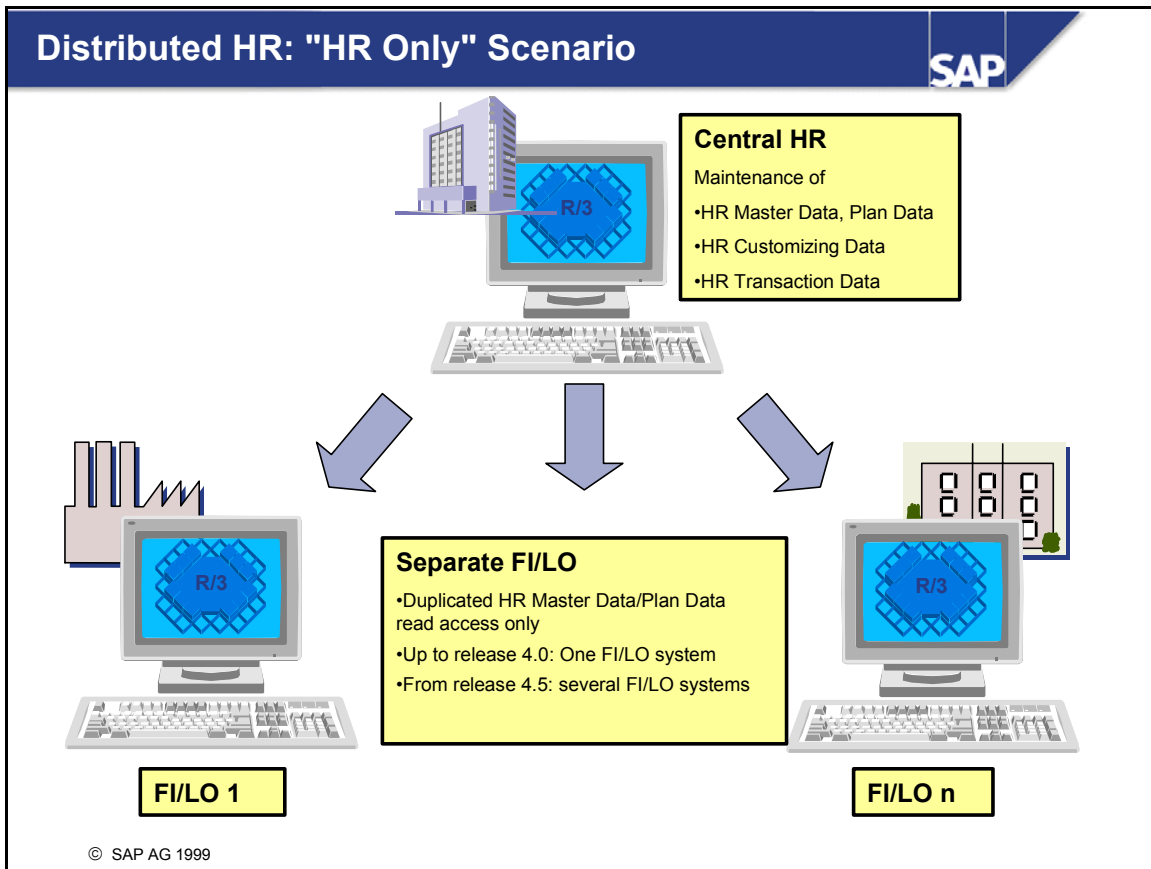
© SAP AG 1999

Internal Use SAP Partner Only

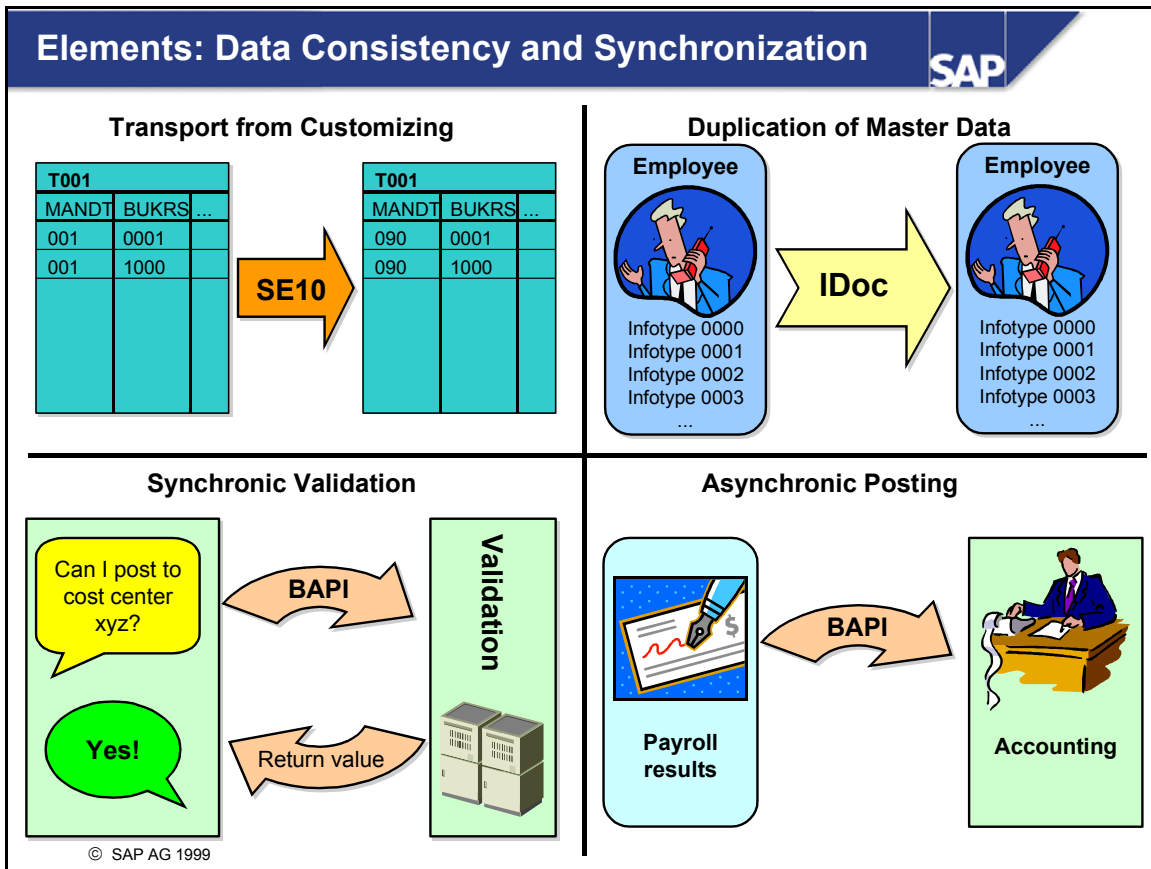
Internal Use SAP Partner Only



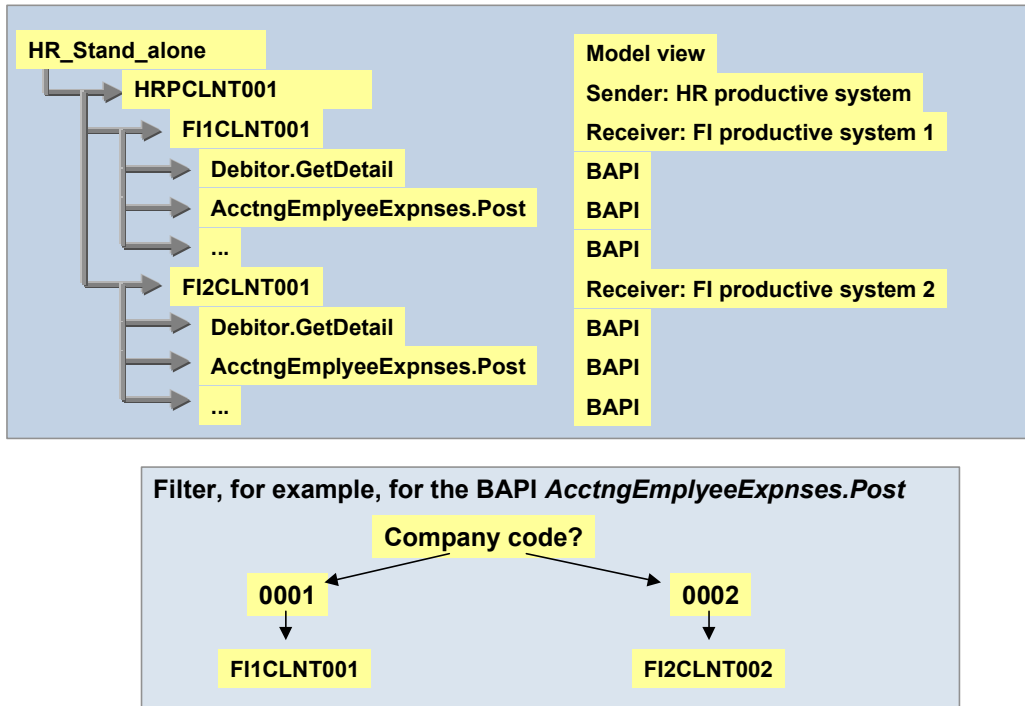
- ALE is the abbreviation for *Application Link Enabling*:
- ALE is a technology that allows you to integrate business processes across system boundaries.
- That means that while ALE itself does not bring any new functions to HR, it allows SAP HR to run in a separate - that is, decoupled - system. Certain defined interfaces are provided to allow communication with the other R/3 components.



- Decoupling of HR is possible in a limited way from release 3.1H, almost completely from release 4.0B, and completely from release 4.5B. In addition, from 4.5B it is possible to couple an HR system with several Accounting/Logistics systems.
- When the HR system is coupled with several Accounting/Logistics systems, the receiver system is determined by filtering according to company code.
- Scenarios supported (selection):
 - From release 3.1: Duplication of HR master data and plan data, personnel cost planning, sales personnel, posting of payroll results, posting of travel expense results, confirmations from PP/PI/PM/SM/PS
 - From release 4.0: Third party remittance, activity allocation Training and Event Management, Training and Event Management, activity allocation Time Management, capacity planning
 - From release 4.5: Wages in the construction industry, time sheet (CATS), link to external time management / time recording systems
 - When different releases are involved, the lowest release determines which scenarios are possible.



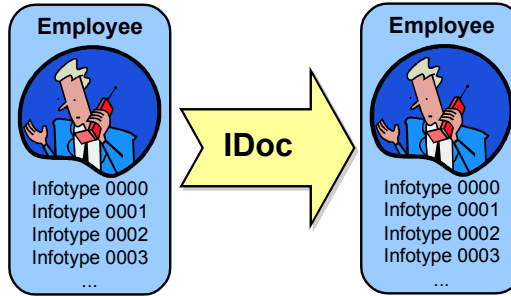
- Transport of Customizing data
 - Prerequisite for ALE: Identical Customizing in all systems involved
- Duplication of master data using IDocs: For example HR Master Data, Organizational Plan, cost centers
 - IDoc = intermediate document
 - IDocs function as data containers, which are transferred by tRFC (transactional remote function call)
 - Initial distribution and distribution of data changes
 - Message type for each scenario
- Synchronic coupling through BAPIs: For example reading the existence validation (for non-duplicated data)
 - BAPI = Business Application Programming Interface
 - Special function modules that are called by RFC
 - If necessary, receiver determination by company code, controlling area
 - Object method for each scenario
- Asynchronous coupling through BAPIs: For example, posting an HR Payroll result to Accounting
 - Automatic generation of IDocs in the background
 - Accessing the function module in the receiver system



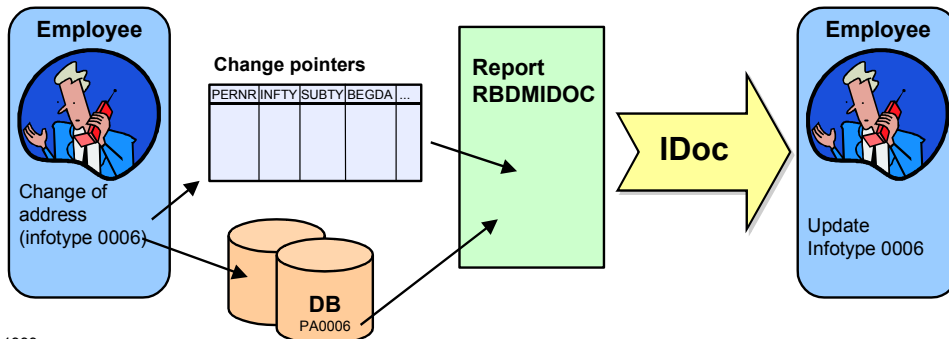
© SAP AG 1999

- The distribution model defines which systems communicate with each other, and which ALE scenarios are applied.
- So-called *Model views* group together parts of the distribution model that belong together for business or technical reasons, and that contain the settings for one or more ALE scenarios.
- For each model view, the following are determined:
 - Logical sender and receiver system (*logical system* means the respective system / client combinations)
 - Message types and object methods (BAPIs) required for the ALE scenario being set up. (For more information, see the IMG documentation for the individual scenarios)
 - Data filtering and receiver determination
- For ALE scenarios in HR, the program RHALEACU is available to automatically set up the distribution model
- As an example, the model view above shows BAPIS and a possible filter definition for the *Posting Payroll Results to Accounting* scenario.

Initial distribution: Report RHALEINI



Master Data Changes



© SAP AG 1999

- Initial distribution takes place via the program RHALEINI (transaction PFAL). You must select insert mode as your transfer mode. Update mode enables you to dispatch individual infotypes (see the information on change pointers).
- After initial distribution, you must ensure that subsequent changes to master data remain consistent in all systems. If you change a master data object, and the changed infotypes are specified as relevant to ALE, the system writes a change pointer.
 - Change pointers are read using report RBDMIDOC, which is usually scheduled as a background job so that IDocs are created periodically (once a day, for example).
 - ALE does not write the actual changes. Instead, it writes information about the infotypes that were changed. Different changes to the same object are grouped together.
 - To display the change pointers, run report RHALEPCS. It also shows you which infotype was changed.
- Filtering:
 - SAP strongly recommends data filtering (network load, access protection for data)
 - You can filter according to object, infotype, or subtype
 - In the standard, it is not possible to filter according to other criteria such as company code. This can be achieved by using user exits

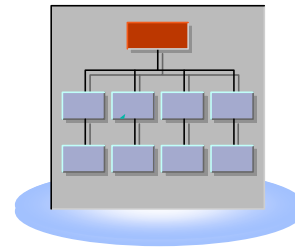


Person infotypes, from 4.6C also applicant infotypes

- 0000, 0001, 0002, 0003 (HR mini master; required)
- 0006, 0009, 0017, 0105, 0900
- 0050, 0222, 0283 (from 4.0A)
- 0315 (from 4.5A)
- Many more infotypes from 4.6C (for complete list, see transaction WE30)

Organizational Management

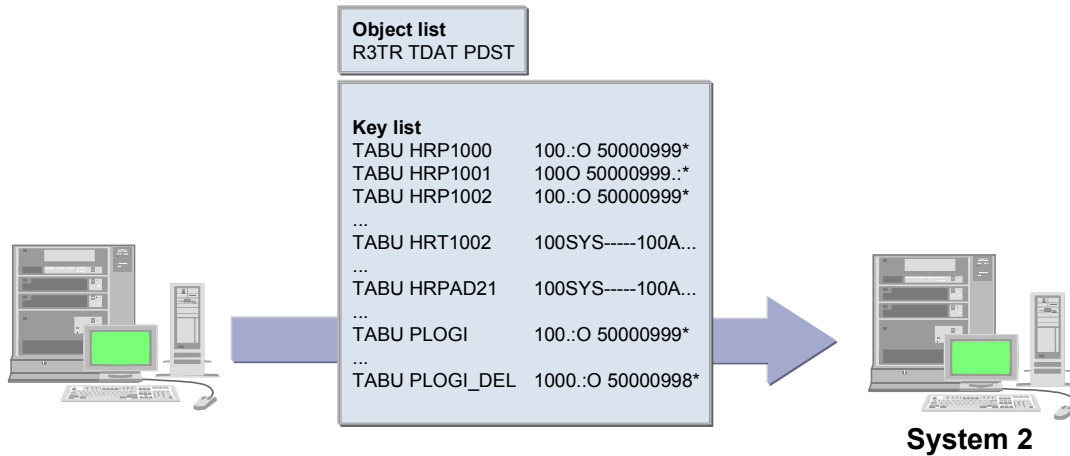
- All infotypes (10**)
- All objects apart from activity groups, workflow, and responsibilities, that is, object types X*, TS, T, WF, WS, RY
- Only within the same (active) plan version
- Tasks are not distributed, but their relationships are.



© SAP AG 1999

- Support of other infotypes (also customer infotypes)
- For further information on ALE and HR, see note 200066

- Which types of transport link exist?

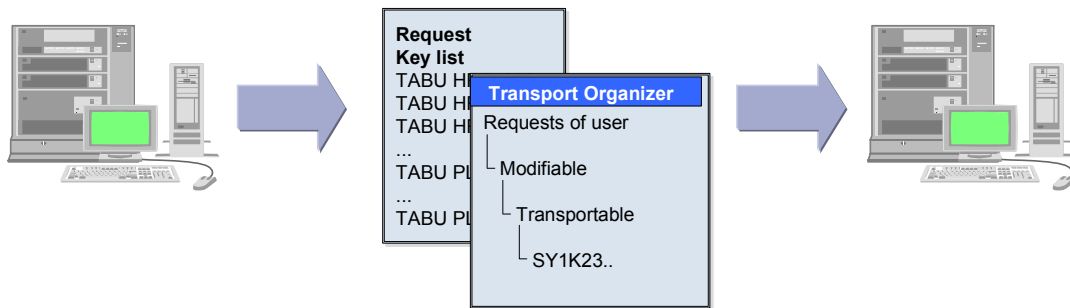


- Automatic Transport Link
- Manual Transport Link
- Transport Using Object Lock

© SAP AG 1999

- Unlike data transfers, transport links mean the techniques for transporting data between different R/3 Systems.
- There are three ways of transporting Planning infotypes:
 - Automatic transport
 - Manual transport
 - Transport using object lock
- You can select a transport link in Customizing. IMG path: *Personnel Management -> Organizational Management -> Transport*.
- Irrespective of the type of transport, data is always transported on an object-by-object basis. This means that all of the infotype records for the object to be transported are always written to the change request, or transported. You can also set an import lock in the target system to prevent specific objects from being overwritten by transported infotype records by mistake.

- **Transport procedure for an automatic transport link**



If Planning infotypes are created, changed, or deleted, objects must be assigned to a change request.

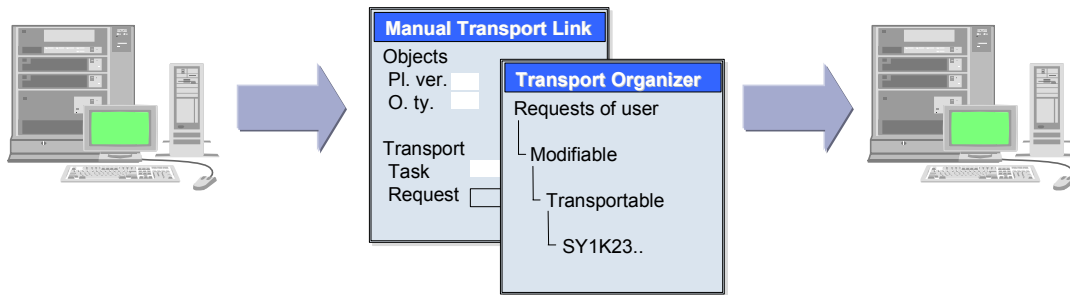
Edited objects are assigned to a change request and released from the Transport Organizer.

Import all objects from the change request.
Exception:
Objects locked for import.

© SAP AG 1999

- The prerequisite for automatic transport links is that the automatic recording requirement has been activated in the source client.
- Procedure:
 1. When Planning objects are saved in the active plan version, a window is displayed automatically in which you can enter a change request, and you assign the objects to a change request. If a change request has not been assigned, data is not saved.
 2. You use the Transport Organizer (transaction SE10) to release the change request.
 3. All of the objects from the change request are imported into the target system.
- If you want to use this type of transport, you must perform the *Set Up Transport Connection* customizing activity to select the *automatic transport connection is activated* option. To do so, enter the value ' ' (SPACE) (TRSP CORR = ' ').

- **Transport procedure for a manual transport link**



If Planning infotypes are created, changed, or deleted, the system does not require a change request.

RHMOVE30:

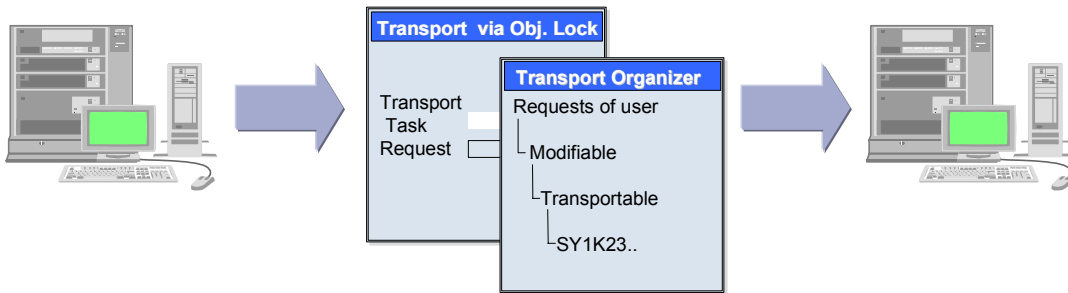
- Select objects
- Assignment to request; release through Transport Organizer

Import all objects from the change request.
Exception: Objects locked for import.

© SAP AG 1999

- Procedure:
 - You edit Planning objects, but a change request is not required when you save.
 - You start report RHMOVE30 (= manual transport).
 - You select all of the objects that need to be transported.
 - You assign the objects to a change request.
 - You use the Transport Organizer (SE10) to release the change request.
 - All of the objects from the change request are imported into the target system.
- If you want to use this type of transport, you must perform the *Set Up Transport Connection* customizing activity to select the *no automatic transport connection* option. To do so, enter the value 'X' (TRSP CORR = X).
- You can start report RHMOVE30 (Manual Transport Connection) directly, or by executing the *Manual Transport* customizing activity
- Note: A request created with report RHMOVE30 must be released immediately using transaction SE10. There is no recording requirement, so releasing the request immediately ensures that it is not changed in the period between its creation and its release.

- Transport procedure for a transport link using an object lock



If Planning infotypes are edited, the system does not require a change request but does require a repair flag to be set for the object.

RHMOVE50:

- Select objects using a repair flag
- Assignment to request; release through Transport Organizer

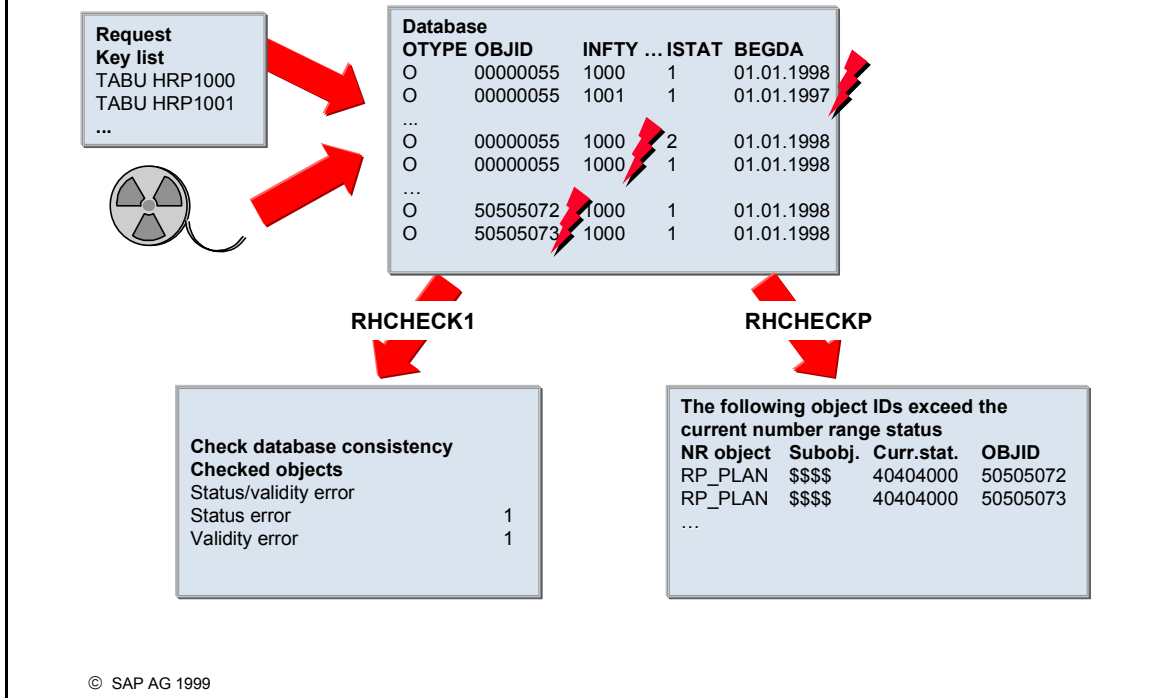
Import all objects from the change request.
Exception:
Objects locked for import.

© SAP AG 1999

■ Procedure:

1. You edit Planning objects, but a change request is not required when you save. Instead, a setting is made for the changed object in table PLOGI or PLOGI_DEL (for deletions).
2. You start report RHMOVE50 (= Transport of Objects Using Object Lock).
3. You select a change request. All of the changed or deleted objects (in other words, all of the objects for which a repair flag has been set in the PLOGI or PLOGI_DEL tables) are written to this request. At the same time, the repair indicator in the PLOGI or PLOGI_DEL tables is reset for these objects.
4. You use the Transport Organizer (transaction SE10) to release the change request.
5. All of the objects from the change request are imported into the target system.

- If you want to use this type of transport, you must perform the *Set Up Transport Connection* customizing activity to select the *transport using object lock* option. To do so, enter the value 'T' (TRSP CORR = T).
- If you want to transport objects to a number of systems, use report RHMOVE60 *Transport Planning Objects Into Next System*. This report enables all of the objects included in an "arriving" request to be transferred to a "departing" request.



- After you have transferred data or performed a transport, you can use the following reports to check consistency:
- Report RHCHECK1 checks the consistency of Planning data records:
 - Infotype validity within object validity
 - Infotype status versus object status
 - Existence of an inverse relationship
If you need to create missing inverse relationships, use report RHCHECKV
- Report RHCHECKP performs the following checks:
 - Consistency and uniqueness checks for table and additional data pointers
 - Number range checks: if the number range check highlights inconsistencies, you must update the number range statuses
- You can also start the following reports to check consistency:
 - RHCHECKV to check that inverse relationships are complete
 - RHCTIMCO to check that time constraints are consistent

Subgroup	Int. number range	Ext. number range
\$\$\$\$	IN	EX
01\$\$	IN	EX
020	IN	EX
...		

Interval maintenance

Number range object RP Plan
Subgroup\$\$\$\$

No	From no.	To no.	No. status	Ext
EX	50000000	99999999		
IN	00000001	49999999	40404000	X

The following object IDs exceed the current number range status T

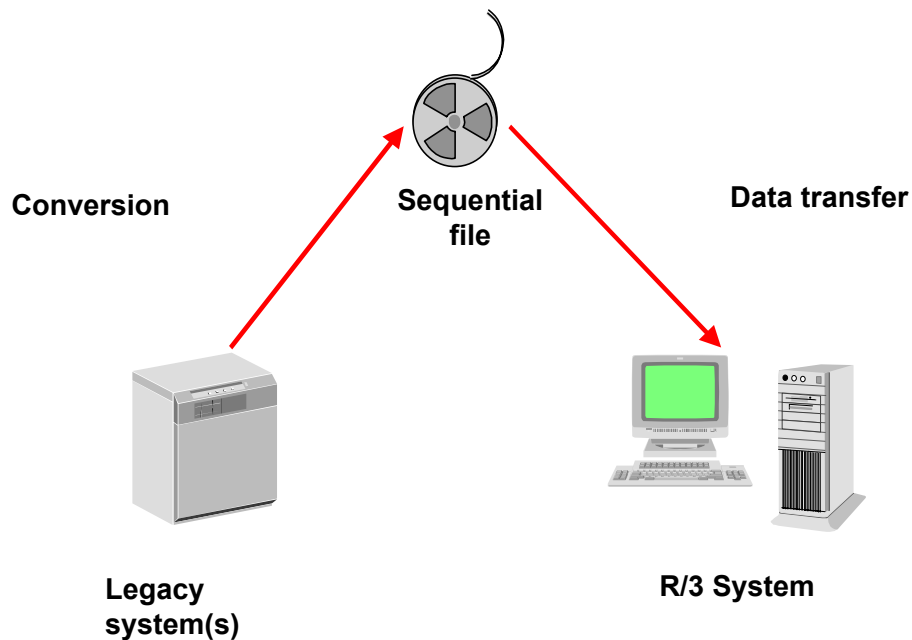
Object	Subobj.	Curr.stat.	OBJID
PLAN	\$\$\$\$	40404000	50505072
PLAN	\$\$\$\$	40404000	50505073

© SAP AG 1999

- Data transfers and transports can lead to inconsistent number range statuses, which means the system contains object IDs that exceed the current number range status of an internal number range. If this is the case, you must update the current number range status in the intervals concerned.
- To update number range statuses, choose the following path in the Implementation Guide: *Personnel Management -> Organizational Management -> Basic settings -> Number range maintenance -> Maintain number ranges.*

Internal Use SAP Partner Only

Internal Use SAP Partner Only



© SAP AG 1999

- In this unit, "data transfer" means transferring data from a non-SAP or legacy system to the SAP System.
- When data transfer objects are transferred, data stored in the legacy system is converted to a sequential file and then transferred to the R/3 System using specific transfer programs. The data transfer file must contain the data in a specific format that is suitable for SAP. Converting the data with a correct format is a prerequisite for transferring data successfully.
- The first step - that is, mapping and converting structures in the customer system to the structures of the SAP System - is supported by the **LSM Workbench** as a mapping tool.
- The second step is supported by the **Data Transfer Workbench**.

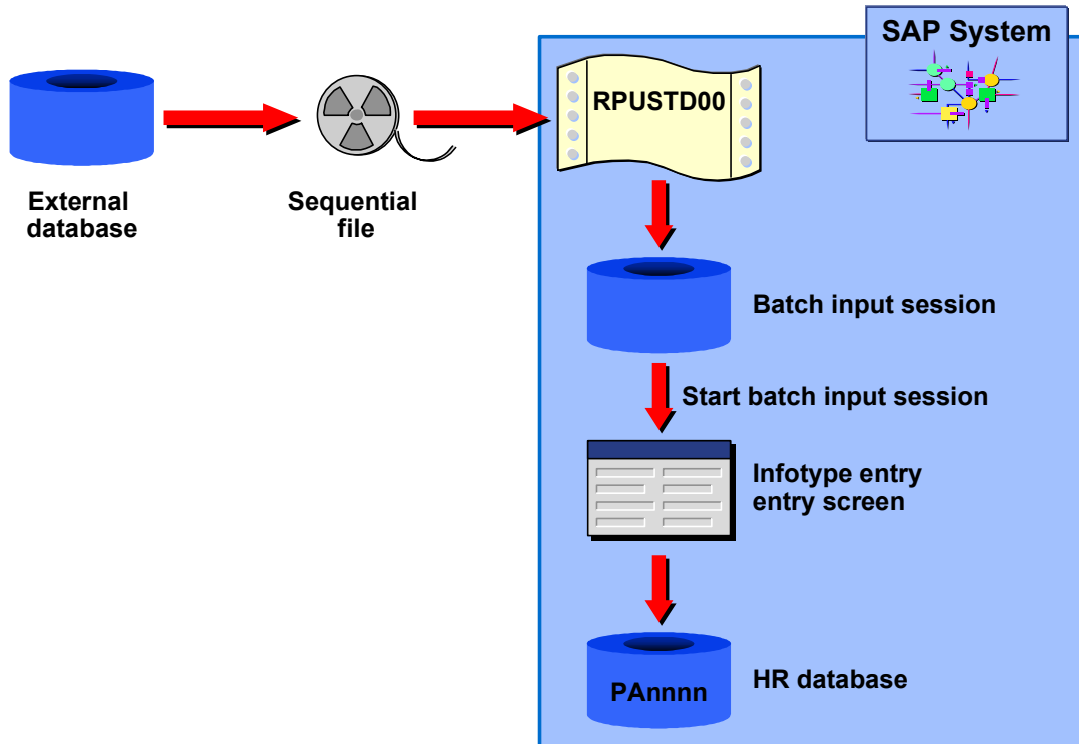
- **Data transfer programs are available for the following HR components/object types:**
 - **Personnel Administration/BUS1065 (employees):**
 - **Transfer infotype records in Personnel Administration**
 - **Personnel Planning/PDOTYPES (PD object types):**
 - **Transfer infotype records in Personnel Planning**
 - **Payroll/BUS7023 (manager for transferring payroll accounts):**
 - **Transfer payroll accounts**

© SAP AG 1999

- The data transfer programs for Personnel Administration, Personnel Planning, and Payroll are integrated with the Data Transfer Workbench. Start transaction SXDA and define data transfer projects for the following object types:
 - BUS1065 Employees (Personnel Administration)
 - PDOTYPES PD object types (Personnel Planning)
 - BUS7023 Manager for transferring payroll accounts (Payroll)
- The Data Transfer Workbench facilitates central access of all data transfer activities for a data transfer object. By choosing *Goto* → *Analyze files and data structures*, you can access functions for
 - Creating, changing, and displaying initial files according to the transfer structures
 - Generating model files with correct formats on the basis of existing SAP data
 - Accessing the appropriate transfer programs

Data Transfers in Personnel Administration: Overview

SAP



■ Procedure:

- The data to be transferred is written to a sequential file.
- Model report RPUSTD00 imports the data from the sequential file, and prepares it as a batch input session.
- When the batch input session is started, the infotype entry screens of the "Transfer (EDP)" personnel action are filled, and the data is stored on the HR database.
- The prerequisite for transferring data is a configured, tested system.

Name: HRDATASET (structure)

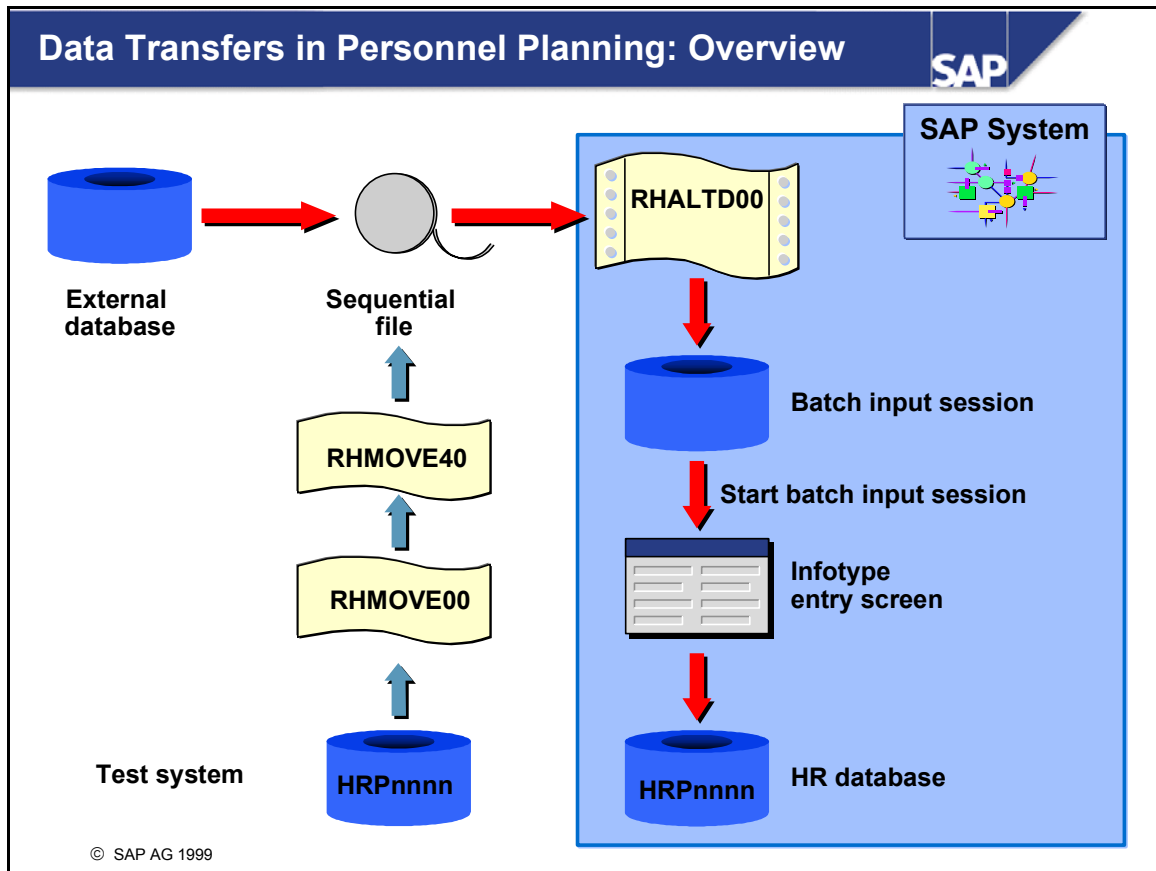
Field name	Data element	Short text
PERNR	PERNR_D	Personnel no.
BEGDA	BEGDAE	Start date
WERKS	PERSA	Personnel area
PERSG	PERSG	Employee group
ANREX	ANREX	Form of address text
.....		
.....		
.....		
.....		
.....		
.....		
.....		
.....		
.INCLUDE	CI_HRDATAS	

© SAP AG 1999

- The structure of the record is determined by reconciling the data fields in the legacy system with the data fields in the infotypes.
- In the standard system, the HRDATASET structure contains the data definition of a sequential file record.
- Additional fields can be included in customer include structure CI_HRDATAS.
- In this case, report RPUSTD00 and the transfer action must be adjusted accordingly.

Data Transfers in Personnel Planning: Overview

SAP



■ Procedure:

- Create the transfer file:
- Report RHMOVE00 transports Planning data records from the R/3 System to a sequential file. It is used as a model report for creating sequential datasets with the correct format.
- Edit the transfer file:
This sequential dataset can be displayed and edited using report RHMOVE40.
- Perform the data transfer:
- Report RHALTD00 uses a sequential dataset to create a batch input session, which can then be processed.
- The prerequisite for transferring data is a configured, tested system.

Name: E1Pnnnn (structure)

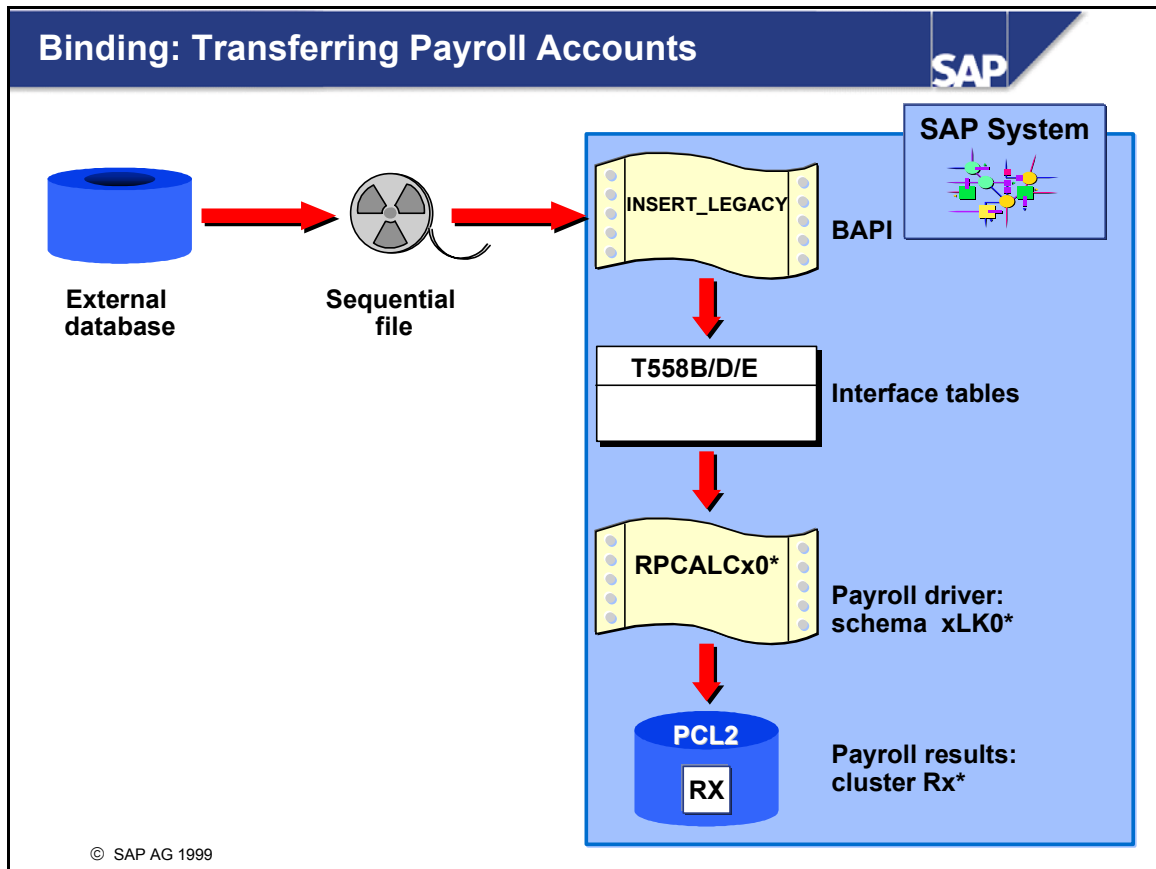
Field name	...	Short text
MANDT	...	Client
PLVAR	...	Plan version
OTYPE	...	Object type
OBJID	...	Object ID
INFTY	...	infotype
SUBTY	...	
ISTAT		
PRIOX		
...		
...		
...		
...		
...		

© SAP AG 1999

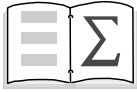
- The structure of the sequential file is determined as follows:
Structure E1Pnnn must be used for records of infotype Pnnnn. This is the IDoc segment structure of the infotype, whose only difference from logical structure Pnnnn is that all of the packed fields are replaced by fields in an appropriate character format. This means that data is only transferred on the basis of CHAR fields.
- Structure E1Pnnnn is *expanded* for table infotypes - that is, it contains the primary record and the table division of the table infotype.
- Structure E1PADnn must be used for relationships with additional data of structure PADnn. For the assignment, see table T77AD.

Binding: Transferring Payroll Accounts

SAP



- Procedure:
- The payroll results to be transferred are written to a sequential file with the following structures:
 - E1BP7023_PAYPERIODS or BAPI7023_PAYPERIODS (payroll periods)
 - E1BP7023_WAGETYPES or BAPI7023_WAGETYPES (wage types)
- The Data Transfer Workbench uses this file to generate an IDoc segment.
- The INSERT_LEGACY BAPI processes this IDoc segment, and fills interface tables T558B, T558D, and T558E for legacy data transfers of payroll results.
- The payroll driver uses schema xLK0* "transfer/payroll account" to read interface tables T558A, T558D, and T558E, and then prepares them as a payroll result. The result is stored in cluster Rx* of database table PCL2 (*x = country indicator).



- **This unit has given you an overview of the techniques used to transfer data to the HR System.**
- **You have learned how the transport link functions for Planning infotypes.**
- **You have learned about steps and utilities that ensure the consistency of your data after it has been transferred and transported.**
- **You have learned the basics of ALE distribution in HR.**

Exercises

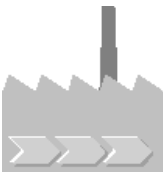


Unit: ALE, Transport Link, and Data Transfer

Topic: Transport Link for Planning Infotypes



- Outline the manual transport link
- Outline transports using an object lock



You want to transport the organizational structure from an SAP system to a different system.

1-1 Create a transport request for the following example structure in plan version 01 using a manual transport link.

- Plan version = '01'
- Object type = 'O'
- Object ID = '00000001'
- Evaluation path = 'ORGEH'
- Display depth = '2'

Use transaction SE10 to check the request.

1-2 In Organizational Management, create an example organizational structure with one organizational unit and three positions. Create a transport request with this structure using an object lock. Which value is required by the transport switch in transaction OCCR?

Once again, use transaction SE10 to check the request. If necessary, search for your objects in the requests created by other groups.



Unit: ALE, Transport Link, and Data Transfer

Topic: Transport Link for Planning Infotypes

1-1 Start report RHMOVE30 for the following structure:

- Plan version = '01'
- Object type = 'O'
- Object ID = '00000001'
- Evaluation path = 'ORGEH'
- Display depth = '2'
- Test = ' '

Use transaction SE10 to check the request.

1-2 To perform a transport with object lock, the value of the transport switch in transaction OOCR must be 'T'.

After you have created the example structure in plan version 01, start report RHMOVE50 with the Test parameter set to ' '. One group's objects could appear in the requests of other groups, depending on when a particular group finishes maintaining the structure and starts report RHMOVE50. If you need to perform a search, use transaction SE10 → *Transport Organizer Tools*.

© SAP AG 1999

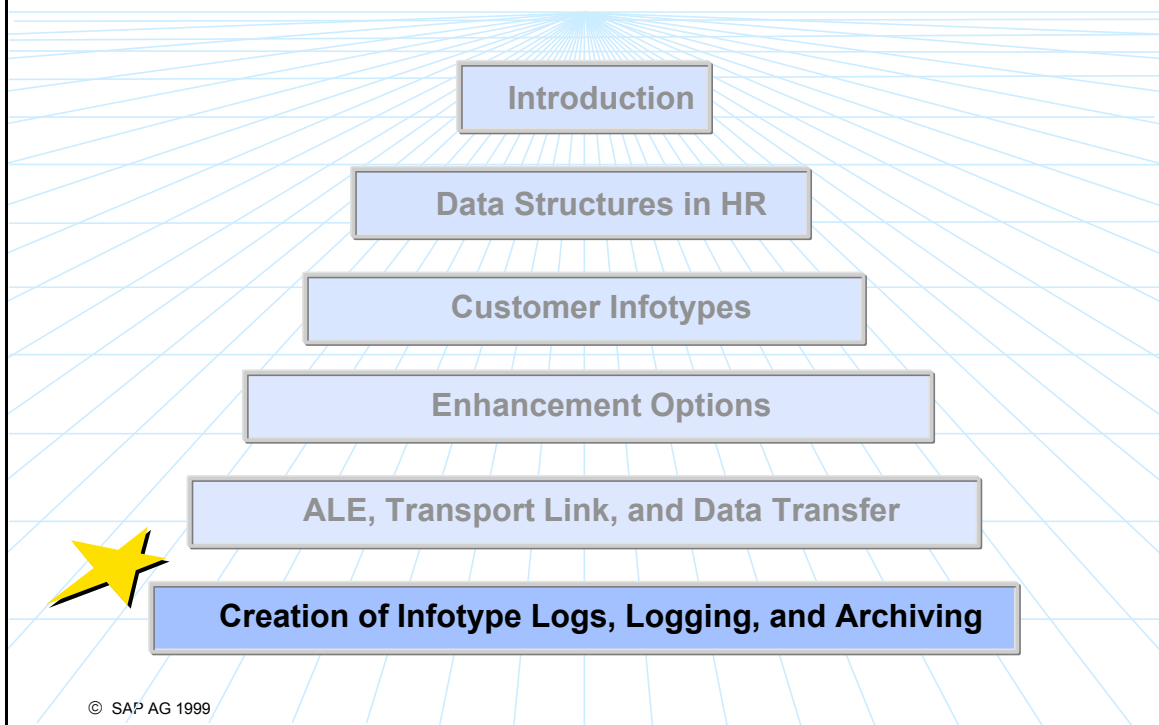
Internal Use SAP Partner Only

Internal Use SAP Partner Only



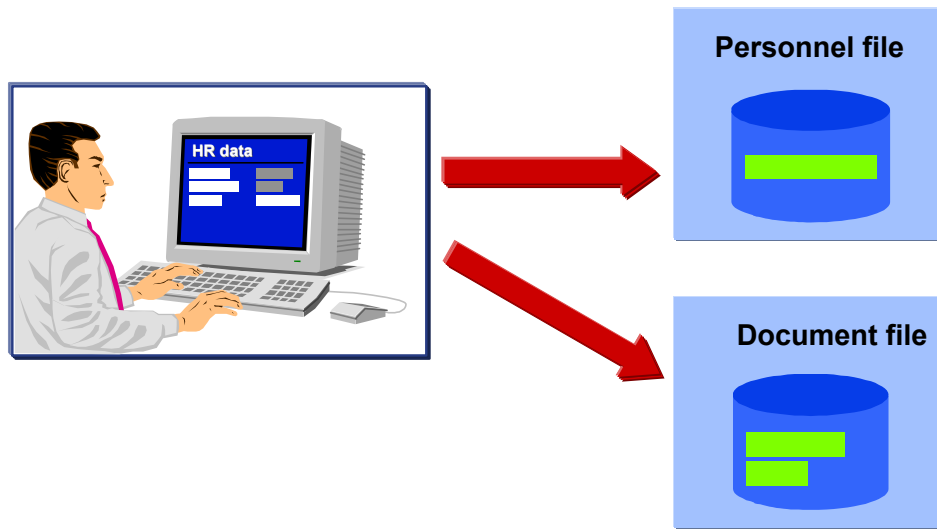
At the conclusion of this unit, you will be able to:

- **Ensure that logs are created automatically for personnel data and applicant data, and when reports are started.**
- **Use archiving functions to remove data that is no longer required from the database, and store it so that you can still report on it.**
- **Scan in and archive original documents using the document archiving functions of SAP ArchiveLink.**



Internal Use SAP Partner Only

Internal Use SAP Partner Only



© SAP AG 1999

- When personnel or applicant data is processed, the R/3 System creates a personnel or applicant master record for infotypes to be logged. At the same time, it stores a log document in the document file.
- You can display the documents using report **RPUAUD00**.
- You can also log report starts.
- Reports **RPUPROTD** and **RPUPROTU** enable you to display logs, or delete them from the database.

Infotypes to be logged	
Transaction class	Infotype
A	0002 Personal Data
B	4000 Applicant Actions

Field group definition		
Infotype	Field group	Field name
0002	01	NACHN
0002	01	VORNA
4000	01	*

Field group characteristics				
Transaction class	Infotype	DFG	Doc.type	SFG
A	0002	01	L	00
B	4000	01	L	02

© SAP AG 1999

- You set up change documents in **Customizing**. To do so, you determine which infotypes must be logged. The following options are open to you:
 - The changes within an infotype are logged for specific fields. You decide which fields are logged.
 - You can group infotype fields together to create "field groups", which are always logged as a unit. Even if just one field in the group is changed, all of the fields in the group are logged.
 - You can define dependencies between field groups. In other words, you can specify a "supplementary field group" for each field group, which is always logged as well.
- Customizing the function for creating infotype logs involves three steps:
 1. **Determine Infotypes to be Logged**
 2. **Define Field Groups**
 3. **Determine Characteristics of Field Groups**

Step 1: Determine Infotypes to be Logged

SAP

Infotypes to be logged

Transaction class	Infotype
A	0002 Personal Data
B	4000 Applicant Actions

© SAP AG 1999

- If you change an infotype that must be logged, the function for creating an infotype log is triggered. If infotypes do not need to be logged, the function for creating an infotype log is not triggered.
- Transaction class "A" applies to the creation of infotype logs for HR master data. Transaction class "B" applies to the creation of infotype logs for applicant data.

Internal Use SAP Partner Only

Internal Use SAP Partner Only

Field group definition		
Infotype	Field group	Field name
0002	01	NACHN
0002	01	VORNA
4000	01	*

© SAP AG 1999

- You must specify all of the fields within an infotype that need to be logged.
- The input help function enables you to display and immediately select all of the fields within an infotype.
- You can also group fields within an infotype together to create "field groups". When an infotype log is created, all of the fields in a field group are regarded as a single unit and logged together, even if just one field has been maintained.

Field group characteristics				
Transaction class	Infotype	DFG	Doc.type	SFG
A	0002	01	L	00
B	4000	01	L	02

© SAP AG 1999

- In this step, you specify which field groups need to be logged.
- You can also specify "supplementary field groups" (SFG) for each field group. Supplementary field groups are always logged if a field changes in the "trigger" field group (DFG).
- Furthermore, this step enables you to specify whether the document is entered as a long-term (L) or short-term (S) document. The "short-term document" type is not supported at this time.

Logged Changes

Read documents from database

Long-term documents

Short-term documents

Selection

Transaction class Master data Appl. data All

Personnel no. to

Infotype to

Changed on to

Changed by to

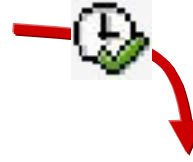
Output options

Direct output of docs New page per doc.

Output program selections

Sort order Time Personnel no. Infotype User

Default currency



Infotype key			Activity
Field name	Old	New	
Last name	Walter	Thomas	U
First name	Thomas	Walter	

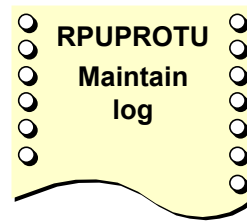
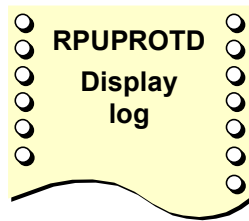
© SAP AG 1999

- Revision program **RPUAUD00** enables you to display all of the changes in personnel data or applicant data for a specific period of time.
- Document records can be sorted by date and time, personnel or applicant number, infotype, or user name.
- You can also search for specific long-term or short-term documents, as well as documents for HR master data or applicant data.
- The *Default currency* field enables you to enter a default currency. If a log record for an amount field does not contain a currency, the system tries to determine one by using the organizational assignment of HR master data or applicant data. If this does not succeed in finding a currency, processing continues using the currency specified in the *Default currency* field.
- The log list includes the field name, old and new field contents, and the activity that has been performed - that is, whether data has been added (I), changed (U), or deleted (D).

Internal Use SAP Partner Only

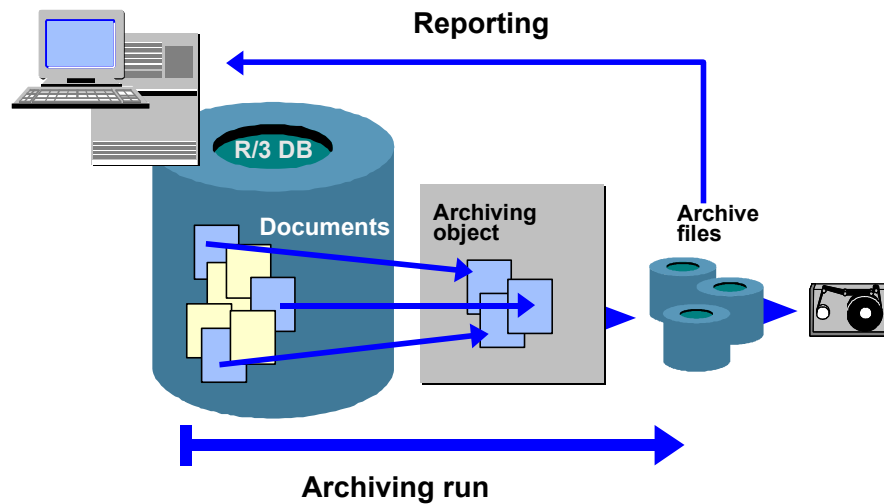
Internal Use SAP Partner Only

Programs	Online log	Batch log
RPLMIT00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RPLPAY00	<input checked="" type="checkbox"/>	<input type="checkbox"/>



© SAP AG 1999

- Logs for report starts, just like infotype logs, are created for revision purposes.
- If you activate this function, each execution of the selected report is recorded on the database. You can determine for each report whether this logging function is used for online starts, background starts, or both.
- The following data is included in the log for each report start:
 - Report name
 - Changed by
 - Date of report start
 - Time of report start
 - Report parameters and select options
- Reports **RPUPROTD** and **RPUPROTU** enable you to display this information, or delete it from the database.



© SAP AG 1999

- Archiving is used to delete data from the database that is no longer required in the system, but which must be stored elsewhere so that you can still report on it (to meet statutory requirements, for example). **Archiving objects** are used to write documents to archive files, which can be stored elsewhere using other media. The archiving object determines what is archived, and how archiving is performed.
- The **archiving procedure** can be divided into two basic steps:
 - *Create archive files*: When archiving is performed, the data to be archived is written sequentially to a new file. These archive files can be transferred to an archiving system using SAP ArchiveLink, for example.
 - *Start deletion program*: On the basis of the archive files that you have created, the deletion program deletes data from the database.
- A distinction is made in HR between **archiving change documents**, and **archiving data (payroll results, time evaluation results, and trip data)**.

- **Archiving object:**
 - **PA_LDOC is used to archive long-term documents that are the result of creating infotype logs**
- **Archiving (SARA)**

© SAP AG 1999

- To enable you to archive long-term documents that result from the creation of infotype logs, the *long-term documents* (PA_LDOC) archiving object has been defined.
- The "long-term documents" type is only used for revision purposes. This means that changes are logged in a separate table, and stored there until they are deleted. These long-term documents can be for personnel or applicant numbers.
- You can archive documents from any period. The function for creating infotype logs is optional, which means you can even archive documents from the current week. The period for which data is archived depends to a great extent on whether data from the recent past, for example, is still required on a frequent basis. If this is the case, the data must remain in the system. If data is hardly ever required, it can be archived, even if it is very recent.
- The PA_LDOC archiving object is archived by the *Archive Management* transaction (SARA).
- Report **RPUAUD00** enables you to display archived long-term documents.

- **Archiving objects:**
 - PA_CALC for archiving payroll results
 - PA_TIME for archiving time evaluation results
 - PA_TRAVEL for archiving trip data
- **Archiving using archiving group (PU22 + SARA):**
 - Prepare archiving (PU22)
 - Archive (SARA)
- **Archiving data is stored in infotype 0283 Archived Objects for every personnel number.**

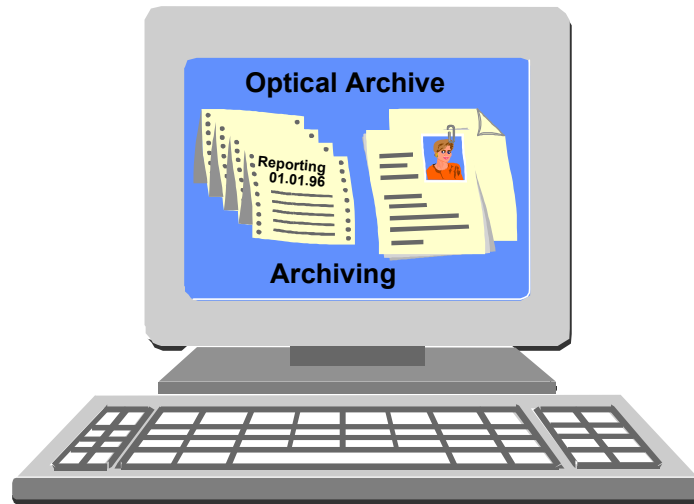
© SAP AG 1999

- The archiving group is a special structure for archiving data. It enables you to combine the archiving objects of the *Payroll*, *Time Management*, and *Travel Management* components, provided that these components are integrated. The archiving group makes it easy for you to group personnel numbers together whose data must be archived (for example, all of the employees at an international subsidiary, or all of the employees who have left the enterprise).
- After you have prepared data for archiving using transaction PU22 *HR Archiving*, archiving objects PA_CALC, PA_TIME, and PA_TRAVEL are archived using transaction SARA *Archive Management*:
 - Prepare archiving (PU22): Time is not a critical factor.
 - Determine the archiving group and archiving date.
 - Assign the required personnel numbers to the archiving group.
 - Check these personnel numbers to ensure that the data can be archived.
 - Remove data on the specified personnel numbers from the system. From the payroll perspective, for example, data is regarded as archived up to the archiving date.
 - Archive (SARA): Time is a critical factor.
 - Archive each prepared archiving object separately on an external data carrier.

- **Cross-application customizing**
- **HR-specific customizing:**
 - PA_LDOC
 - PA_CALC
 - PA_TIME
 - PA_TRAVEL

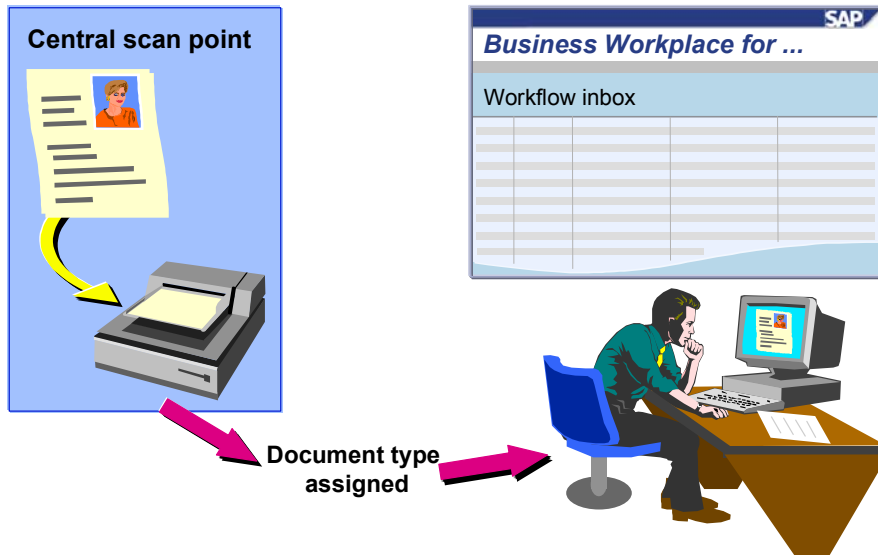
© SAP AG 1999

- Data archiving is a cross-application function. For this reason, Customizing for data archiving is divided into general cross-application customizing, and HR-specific customizing.
- In **cross-application customizing**, you determine technical values for the archiving run, such as the name, path, and maximum size of the archive file, and settings for the deletion program.
- In **HR-specific customizing**, you set parameters that only apply to the respective archiving object. Customizing settings are not required for the PA_LDOC, PA_CALC, PA_TIME, and PA_TRAVEL archiving objects.



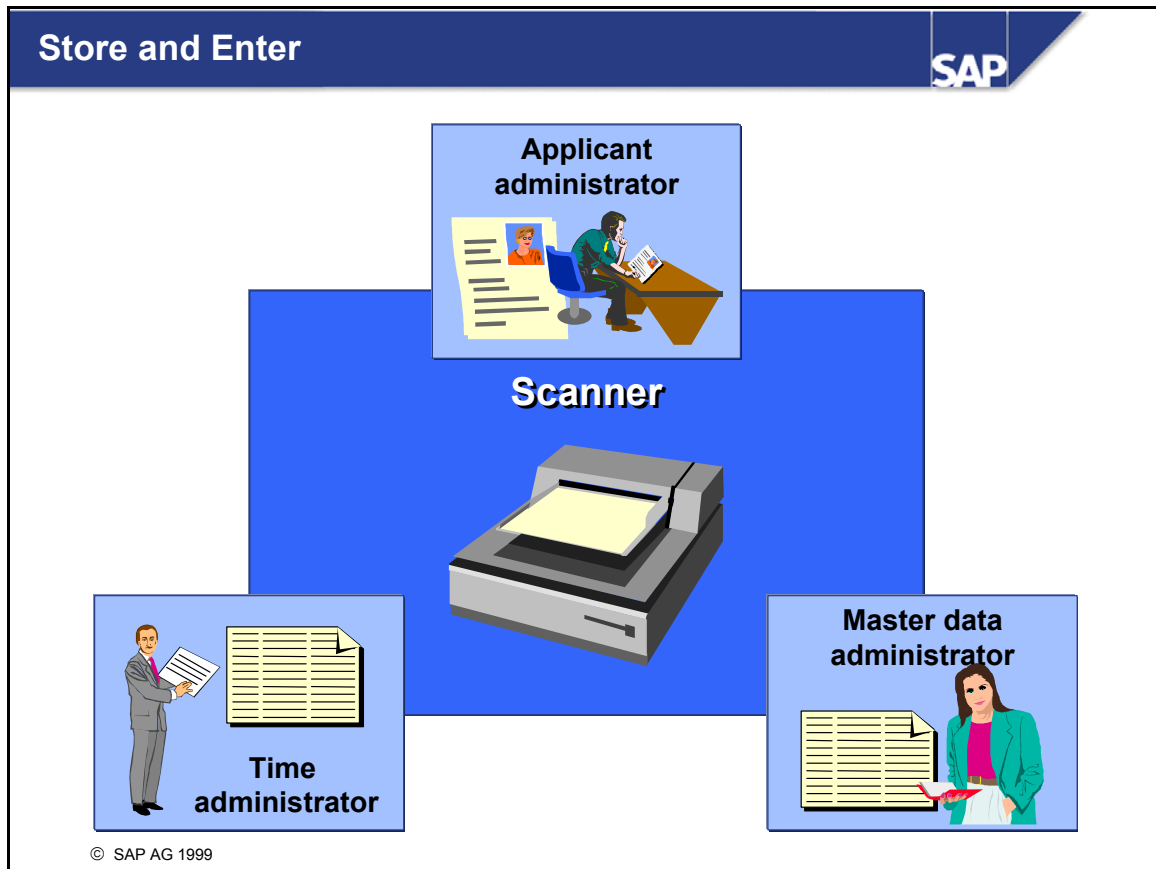
© SAP AG 1999

- By using SAP ArchiveLink in Personnel Administration, you can store copies of incoming documents - such as employment contracts, appraisals, and employee photos - in external storage systems. The personnel file expands over time due to a constant increase in the number of paper documents that it contains. The HR Department can save time and money by managing it centrally.
- The original written documents are imported into the system using an external scan program. The scan program communicates with **SAP ArchiveLink**. Individual documents are related directly to an infotype and an employee/applicant (using the personnel or applicant number), or they are generally assigned to the employee/applicant using the personnel or applicant number. This relationship is established using **document types**.

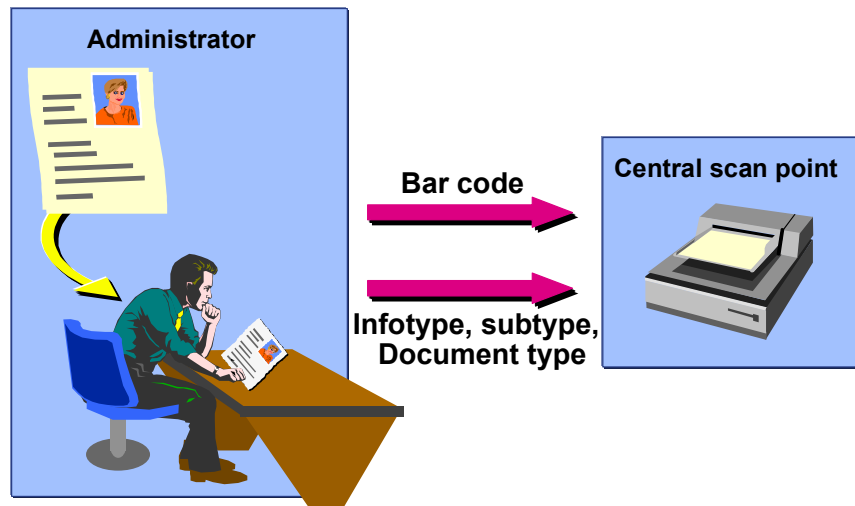


© SAP AG 1999

- If the *Storing for Subsequent Entry* storage scenario is performed, incoming original documents for the employee/applicant are entered centrally (typically in the mail department at the enterprise), classified by document type, and archived. Using **SAP Business Workflow**, the scanned document is then forwarded to the inbox of the appropriate personnel administrator. After the personnel administrator has made a final decision on the assignment to a document type, he or she can conclude the archiving procedure by processing the appropriate infotype and relating the document to this data record, or send the document to another administrator for further processing.



- The only difference between the *Store and Enter* and *Storing for Subsequent Entry* storage scenarios is that the former requires the administrator in the HR Department to scan the incoming document into the system. The inbox is not used.



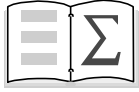
© SAP AG 1999

- If the *Late Storing With Bar Codes* storage scenario is performed, the incoming document is received by the appropriate HR administrator. He or she sticks a bar code label onto the document, and then uses HR master data maintenance to assign the bar code to a personnel number and, if necessary, a special infotype.
- The document is then forwarded to the scan point for scanning. When employee documents are scanned later, the system can use the bar code to assign them to the employee automatically.
- If you decide not to use bar codes, the information required for correct archiving and for assigning the document to an infotype must be made available to the scan point in some other way. Such information includes the infotype, subtype, personnel or applicant number, and document type. This storage scenario is called *Assign Then Store*.

Object type	Document type	Text	Infotype	Subtype	Object ID	Date	Authorization
PREL	HRITAXCARD	Tax card	0012	-	-	+	x
PAPL ...	HRIRESUAPL	Resume of applicant		-	-	+	

© SAP AG 1999

- Document archiving is a cross-application function. Therefore, customizing for document archiving is divided into general cross-application customizing, and HR-specific customizing.
- To perform **cross-application customizing**, access the Implementation Guide and choose *Basis Components* → *Basis Services* → *SAP ArchiveLink*.
- To perform **HR-specific customizing**, access the Implementation Guide and choose *Personnel Management* → *Personnel Administration* → *Tools* → *Optical Archiving*. At this point, you set up the document types. To do so, you assign an infotype, subtype, and object ID to different document types as necessary. Furthermore, you can determine whether the original document's date of origin is displayed as a required or optional field. Depending on the document type, you specify whether the employee must be authorized for the infotype in question if he or she wants to enter a particular document and then assign it to a document type.



- Describe how to set up *change documents* in Customizing.
- Name the HR-specific *archiving objects*.
- Explain the three *document archiving* methods, and name the required activities in Customizing.

© SAP AG 1999