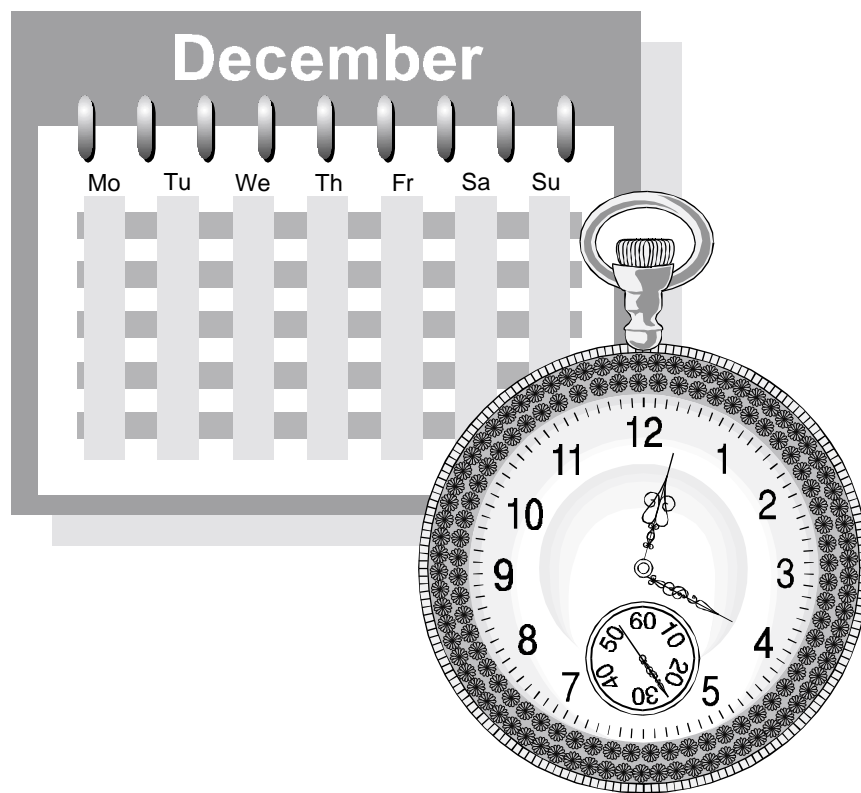


# R/3<sup>®</sup> System

## Cross Application Time Sheet (CATS)



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## Contents

<b>1. General</b> .....	<b>3</b>
1.1 Introduction .....	3
<b>2. Time recording today (Release 3.0D)</b> .....	<b>4</b>
2.1 PM/PP/PS -> CO/MM.....	4
2.2 PM/PS -> CO/HR/MM .....	4
2.3 HR -> CO/MM-SRV .....	5
2.4 PDC -> CO/HR/MM/PM/PP/PS .....	6
2.5 CO -> Activity allocation .....	6
<b>3. A description of the CATS process</b> .....	<b>7</b>
<b>4. The functionality in detail</b> .....	<b>8</b>
4.1 General .....	8
4.2 Example screens.....	10
4.3. Authorization checks .....	14
4.4. Customizing .....	14
4.5. Approval procedures .....	15
4.6. Reporting.....	15
4.7. Determining actual costs .....	15
<b>5. Transferring data to the target applications</b> .....	<b>16</b>

# 1. General

Chapter 1 contains general information about CATS

Chapter 2 describes the time recording functionality that is currently implemented. Readers who are interested only in CATS can skip this chapter.

Chapter 3 presents a business-oriented view of the process model on which the CATS system is based.

Chapter 4 describes how the process model presented in chapter 3 will be realized in the system.

Chapter 5 describes how the recorded data will be transferred to the target applications.

## 1.1 Introduction

A cross-application transaction for recording the actual times of individual employees in the form of a time sheet is being implemented as an add-on of the R/3 System. It will be available from 31.12.1996.

The functionality of this new component will enable time recording to be performed in the following applications:

- CO: internal activity allocation
- HR: attendance, absences
- MM-SRV: service
- PM/PS/SM: completion confirmation
- Travel expenses (by calling a transaction and referring to a trip number)
- Withdrawals of materials (by calling a transaction and referring to a material document)

The data entry screens and the dialogs should make the recording of the time data as simple as possible, in order that the functionality of the system be available for a broad group of users (not just for experienced R/3 System and PC users, but also for those who only use the system for time recording).

A large degree of flexibility will be permitted in the design of the screens, including the use of default values and the ability to tailor screens to individual needs, so as to cater for different

kinds of data entry personnel (for example, internal and external employees, service technicians, engineers, consultants,...).

Employee-specific work lists and copy functions should help further simplify the operation of the application.

After time recording is complete, an approval procedure can be executed to check the data entered before it is copied to the target application.

Individual and collective approval procedures will be implemented for this purpose.

## 2. Time recording today (Release 3.0D)

This chapter describes the time recording functionality that has been implemented in the Release 3.0D standard. The integration of the various applications with each other is described.

### 2.1 PM/PP/PS -> CO/MM

When completion confirmations are entered in PM/PP/PS applications, then the determination of the actual costs involves calculating the actual costs using the activity prices of the activity types, followed by posting these actual costs synchronously in CO when the completion confirmation is saved.

Also, if materials are withdrawn at the time of the completion confirmation (whether retrograde, non-retrograde or unplanned), these are immediately posted in MM (inventory management).

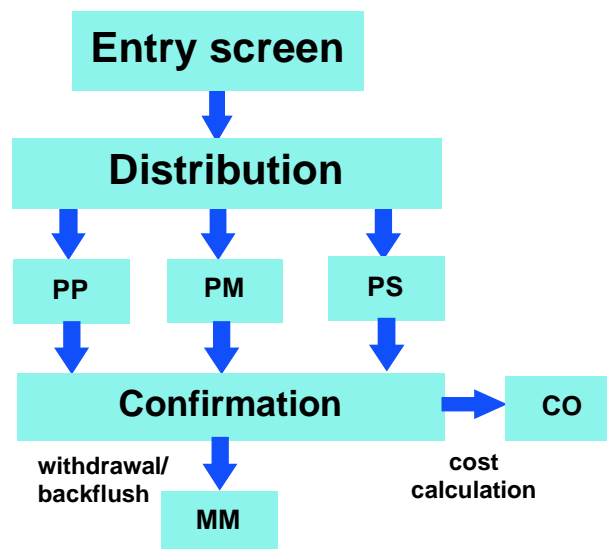


Fig. 1: Status today: PM/PP/PS -> CO/MM

### 2.2 PM/PS -> CO/HR/MM

If a personnel number is also entered with the completion confirmation, then in releases from 3.0C onward an interface table will be filled in for HR (AFRUHR) in addition to the procedure described in section 2.1.

This interface table can be used in HR to asynchronously generate data for the incentive wages (Rel. 3.0C) or for the time management (Rel. 3.0E). The time leveling and (from 3.0E onward) the time evaluation take account of the data created in HR and this data becomes part of the input to the payroll accounting.

A further feature available in Release 3.0D onward is that it is possible to jump directly from the PM/PS completion confirmation to record attendances and absences with cost allocation in HR.

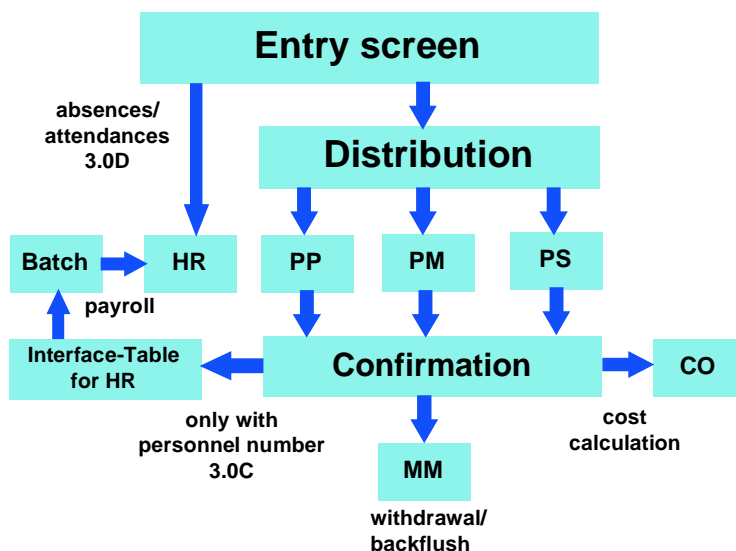


Fig. 2: Status today: PM/PS -> CO/HR/MM

## 2.3 HR -> CO/MM-SRV

When attendance and absence records are being maintained in HR, it is possible for CO account assignment objects to be entered. These are written together with the number of hours in an interface table.

The interface table can be used to generate data in CO for the activity allocation (transaction KB21).

An interface table is also filled in for the MM-SRV whenever a reference is made to a service order.

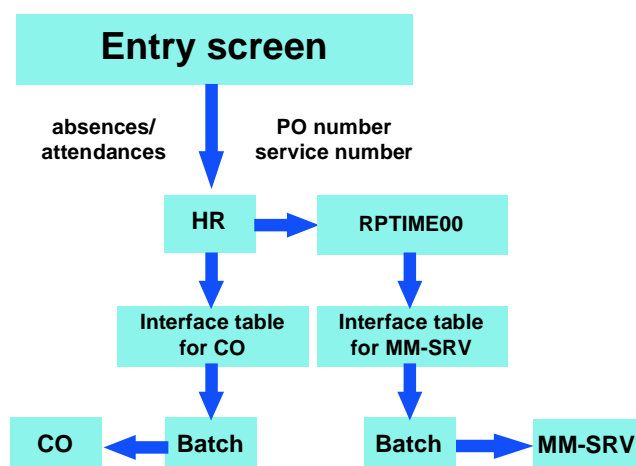


Fig. 3: Status today: HR -> CO/MM-SRV



### 3. A description of the CATS process

One of the most important resources in a company is the work completed by its employees, both internal and external. Information on which employee did which work and when and for whom can be important for several different areas of the company: for the personnel management, the logistics and the accounting department.

If the hours worked can be recorded in a standardized way, this will greatly simplify the operational procedures. Assigning external employees a personnel number will allow their work to be recorded in this system too.

Consequently both the internal and external employees record the hours that they work either directly in the system or in a time recording sheet which is then passed to a data entry office for subsequent entry into the system.

Support is provided for inexperienced system users in the form of default values, planned working hours, work lists and various auxiliary functions for data entry.

In particular, work lists can be formed as follows:

- Activities for which the employee is planned (capacity splits)
- Activities on which the employee has already worked (CATS data)
- Pools of confirmations (similar to PM/PS completion confirmations in Release 3.0)
- Customized work lists

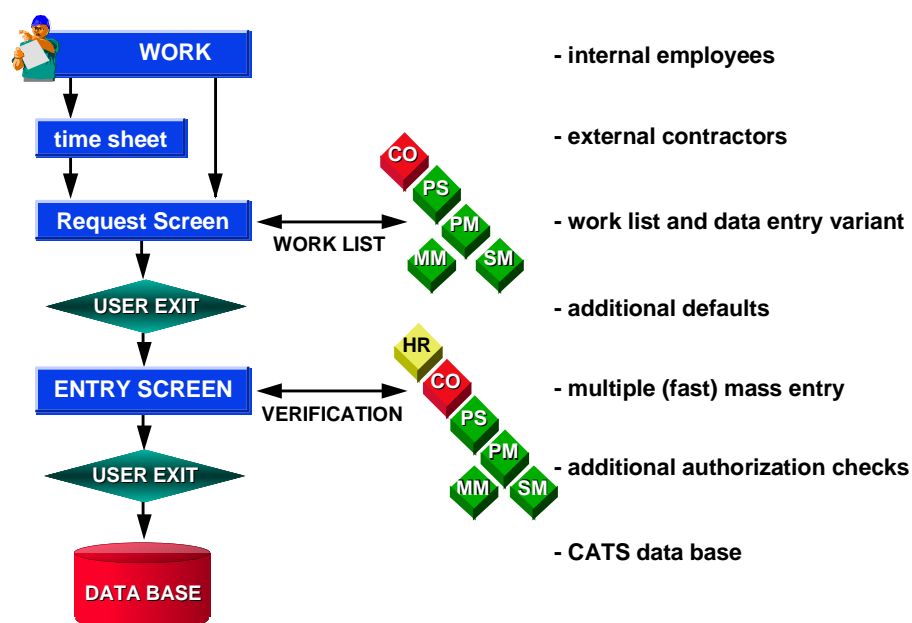


Fig. 6: CATS: Business scenario - process flow I.

The data that is entered is initially stored in a (new) database table.

Depending on the Customizing, either an approval procedure will now be executed (see section 4.5) or the data will be forwarded directly to the target applications without approval. Data is transferred to the target application (see section 5) asynchronously to the data recording. The data transfer should take place periodically and should offer the option of data compression. Interface tables are set up to supply the target applications with data.

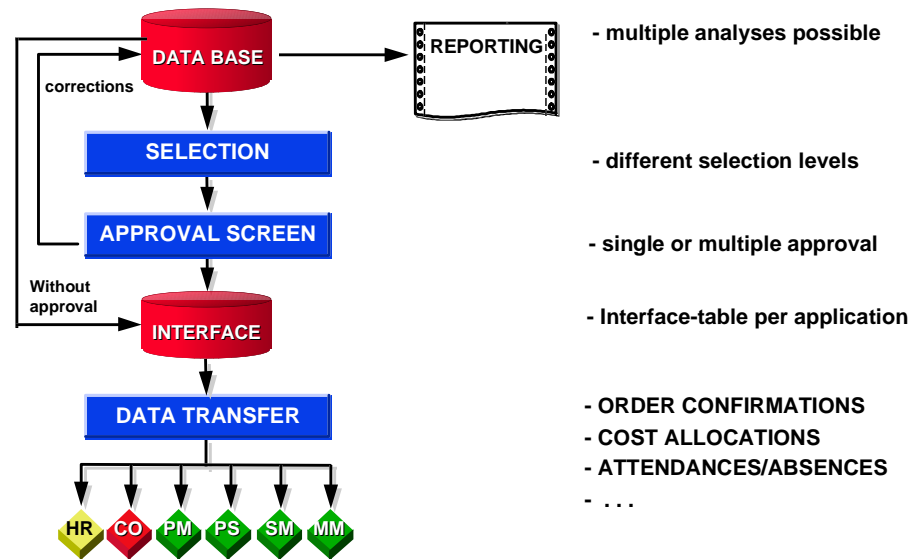


Fig. 7: CATS: Business scenario - process flow II.

Based on the data in the CATS table, analyses can be implemented as required (see section 4.6).

The CATS system offers the following advantages:

- standardized cross-application data entry screens for entering the actual times of individual employees
- simple operation even for inexperienced users
- default field values and data entry templates
- integrated approval procedures
- corrections are possible
- USER Exits allow a flexible approach to authorization checks, validations and default values

## 4. The functionality in detail

### 4.1 General

In the CATS system data is always entered for individual employees. Thus a personnel number must be entered either in the initial screen or, in the case of fast entry (several personnel numbers in one operation), in the data entry screen. Therefore all users of CATS must be assigned a company personnel number.

Two different forms of data entry will be supported:

- ❑ Data entry for a single personnel number. This variant will be used for the scenario in which the employees enter their own hours into the system.
- ❑ Data entry for a list of several personnel numbers. The main use of this variant will be the scenario in which the actual times are entered centrally.

The data entry screen itself rather resembles a time recording sheet with a horizontal time axis. Depending on the settings made in Customizing, the screen may show the employee's planned hours (as laid down in the work schedule).

There is a specially marked off section of the data entry screen in which a work list can be displayed, again depending on the Customizing (see also section 3 in this connection). Copy functions can be used to supply the time recording module with data from this work list.

The time axis can be split into flexible periods for entering the data. The length of these periods can vary from one day to one month. It will be possible to enter data as a number of hours per day, and also to distribute a specified number of hours over a given period of time using a distribution function. Another feature will allow the work schedule data (target times) to be used directly as the actual times. It will also be possible to enter data for time periods that lie in the future.

It will be possible not just to enter numbers of hours but also actual times of day (these can be used in conjunction with the work schedule to calculate a number of hours). This form of data entry can be selected on the time sheet for any given day either by positioning the cursor appropriately or by pick-up.

The form of data entry used will determine the exact appearance of the data entry screen – various screen fields can be hidden or displayed as required – but the basic constituents of this screen are always the same.

Furthermore, each user can alter the layout of the data entry screen to suit his own requirements (table control).



All time data entered can be used as attendance or absence data for input to HR and is all entered on the same screen. Entries can also be made without a reference object and are then relevant to HR only.

It is possible to navigate from here to the travel expense data entry screen. The original HR functionality is available here too (a transaction call). The CATS data can include references to trip numbers (for reporting purposes). The approval procedures already mentioned do not, however, cover approval for business travel, since there is a separate approval procedure for this (there are different areas of responsibility involved: in the one case, the superior; in the other, the expenses department).

It is also possible to navigate to the goods issue. The original MM functionality is available here (a transaction call).

The CATS system can also be used without HR. In this case the following functions will not be available:

- Displaying the work schedule
- Using the work schedule to provide default values for the actual times
- Automatic calculation of work breaks when calculating the actual hours, based on the times of day that were entered
- Entering time data without a reference object (pure attendance and absence data)
- Navigating to the travel expenses

## 4.2 Example screens

### 4.2.1 The initial screen

As well as allowing the entry of a personnel number, the initial screen allows the desired data entry profile to be specified. This will determine the appearance of the data entry screens that follow, and it allows these screens to be customized for different types of employee.

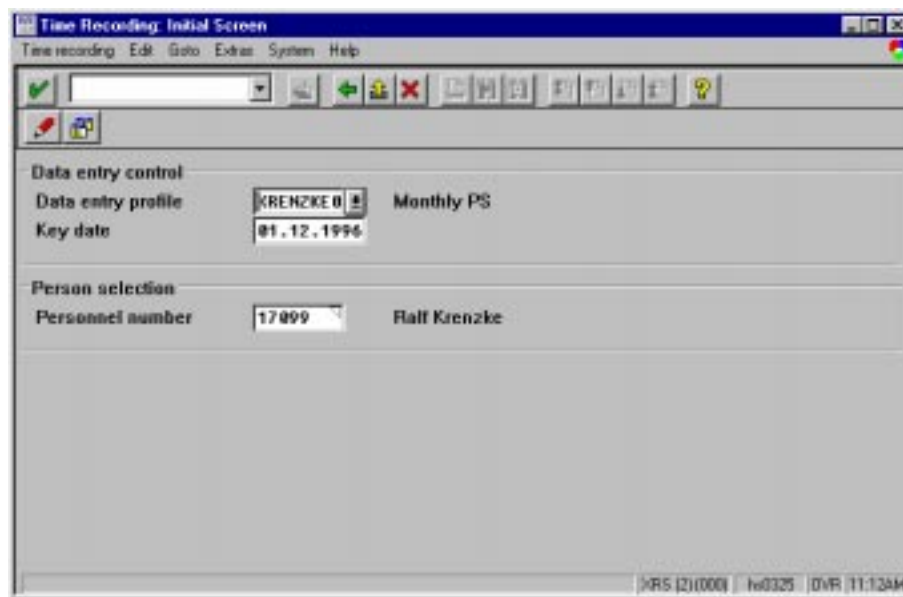


Fig. 8: Example for initial screen

## 4.2.2 Data entry screens

As well as allowing the times worked each day to be entered, the data entry screen can be used for the specification of various target objects (receiver). These can include the following:

- cost center
- order/network
- activity/activity element/split
- WBS element
- sales order

The following objects are valid senders:

- cost center/activity type
- purchase order number purchase order item service number

The following data can also be entered:

- hours per day
- begin time
- end time
- activity type/activity price
- final confirmation indicator
- remaining work
- text
- type of attendance or absence
- trip number

Administrative data such as details of who entered or changed the data together with the date are supplied by the system.

Auxiliary functions that perform the following tasks help make the system easier to use:

- copying from a work list to a data entry line
- copying from a data entry line to another data entry line
- copying from a period to another period
- scrolling along the time axis with function keys
- scrolling along the time axis by entering a date or a week number

Time Recording: Data Entry View

Time recording Edit Goto Extras Environment System Help

Personnel number: 17009 Ralf Krenzke Cost ctr.: DAT\_RRPW01  
 Data entry period: 02.12.1996 - 08.12.1996 Week: 49.1996

Network	Act.	Description	Total	MO	TU	WD	TH	FR	SA	SU
901104	0020	Dynamic calculations	20,0	4,00	4,00	4,00	4,00	4,00		
901104	0030	Static calculations	5,0			2,50	2,50			
901104	0050	Mechanical engineering	2,0					2,00		
901104	0010	Electrical engineering	4,0		2,00	2,00	2,00			
			0,0							

LX	Send.CCtr	Network	Act.	AJA t	Total	MO	TU	WD	TH	FR	SA	SU
					36,00	8,00	8,00	8,00	8,00	4,00	0,00	0,00
					35,75	7,50	7,00	8,75	8,00	4,50	0,00	0,00
	DAT_RRPW01	900813	0020	0900	3,00	1,00	1,00	1,00				
	000	901104	0020		11,00	4,00		4,00	3,00			
	DAT_RRPW01	901104	0030		7,00		3,00	2,50	1,50			
	DAT_RRPW01	901001	0050		11,75	2,00	2,50	1,25	2,50	3,50		
			0000		0,00	0,50	0,50		1,00	1,00		
					0,00							
					0,00							

Data entry view Release view Variable view Entry 1 Fra 7

0915 (1) 000 | h0025 | D:\M | 04-03PM

Fig. 9: Example 1 for Time sheet

Time Recording: Data Entry View

Time recording Edit Goto Extras Environment System Help

Personnel number: 17009 Ralf Krenzke Cost ctr.: DAT\_RRPW01  
 Data entry period: 26.05.1997 - 01.06.1997 Week: 22.1997

Send.CCtr	Receiver WBS element	AJA t	Total	26.05	From	To	27.05	From	To
			0,00						
			0,00						
			0,00						
			0,00						
			0,00						
			0,00						
			0,00						
			0,00						
			0,00						

Data entry view Release view Variable view Entry 1 Fra 0

0915 (1) 000 | h0025 | D:\M | 04-03PM

Fig. 10: Example 2 for Time sheet (variant 0002)

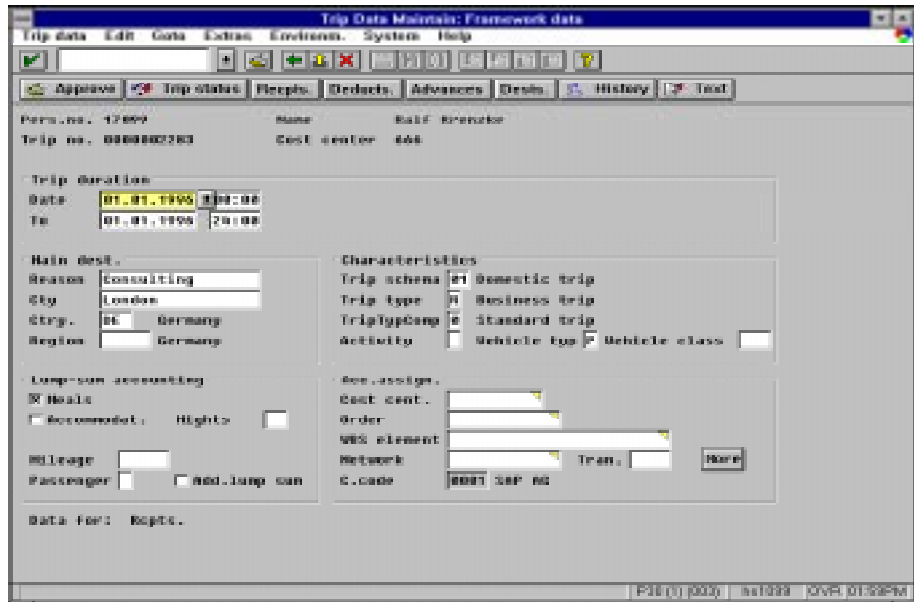


Fig. 11: Example for Travel expenses

Pers.no.	Date	Hours	Send.CCtr	ActyT	Att.ab.ty.	Network	Oper
17099	03.12.1996	0,50			0800		
17099	02.12.1996	0,50			0800		
17099	02.01.1997	0,00			0800		
17099	07.01.1997	0,00			0800		
* Total		13,00					
17099	02.12.1996	4,00	666	PER		901104	0020
* Total		4,00	666				
17099	02.01.1997	1,00		DAT_EXP01	PER	901001	0020
17099	02.01.1997	2,00		DAT_EXP01	PER	901001	0020
17099	12.12.1996	1,00		DAT_EXP01	PER	901104	0030
17099	02.12.1996	2,00		DAT_EXP01	TEST01	901001	0050
17099	02.12.1996	1,00		DAT_EXP01	PER	900813	0020
17099	02.12.1996	3,00		DAT_EXP01	PER	900813	0020
17099	03.12.1996	2,50		DAT_EXP01	TEST01	901001	0050
17099	11.12.1996	1,00		DAT_EXP01	PER	901104	0030
* Total		13,50		DAT_EXP01			
** Total		30,50					

Fig. 12: Example for Approval

## 4.3. Authorization checks

The authorization checks distinguish between two different kinds of user:

- Employees who enter time data
- Employees who approve the data that was entered

### Entering time data:

Employees wanting to enter data must first of all have the transaction authorization for CATS. They will also need the authorization for the target applications needed for entering the actual times. Additional customer-specific authorization checks can be implemented using user exits.

### Approving the data:

An employee who approves the entered data must also have the transaction authorization. The authorization that determines the group of employees for whom he can issue approval is derived from the organizational structure, which can be stored in the organizational model

(for example, authorization for all employees in a given cost center).

Authorizations can also be assigned in an object-specific fashion (approval for a certain order type only, for example). These authorizations can also be extended as required by individual customers using user exits.

## 4.4. Customizing

The following settings can be made in the Customizing:

### Screen layout

Depending on the data entry profile being used, the following settings can be changed:

- field selection
- checks
- functions (e.g., branching to travel expenses, branching to materials issue)
- displaying the work list
- displaying the work schedule
- receiver for workflow (see section 4.5)

### Procedures

The approval procedures can be activated and deactivated.

## Data transfer

The previous versions of changed records can be stored in a special table for auditing purposes (see explanation in chapter 5).

## 4.5. Approval procedures

The authorization checks for the approval are performed via the organizational structure (see section 4.3).

The granularity of the approval can be set to one of the following:

- single values for an individual employee
- values for a given period for an individual employee
- values for a given period for an organizational unit (e.g., department).

When a change is being approved, both the original document and the change are displayed.

If the entered data is not approved, an explanation of the reason for the rejection can be attached to the data. If data is rejected, either the person who entered the data, or the employee for whom the data was entered, is informed via workflow.

## 4.6. Reporting

There are no standard reports produced by the system. Once the data has been copied to the target applications, the information systems provided in the standard there can be used.

## 4.7. Determining actual costs

There will be three different methods available for determining the actual costs:

- The actual costs can be worked out from the activity price of the activity type. This corresponds to the procedure contained in the current standard.
- A pay scale (hourly) can be entered and the actual hours can be costed using this pay scale. Any differences are noted separately in the costing document (cost line items).
- The pay scale (hourly) can be determined via a user exit and the actual hours can then be costed on the basis of this pay scale. Any differences are noted separately in the costing document (cost line items). This technique allows the data to be obtained in a way that depends on the user exit, for example from the payroll accounting, or to be determined from a customer's individual formulas.

If a given number of hours worked has to be divided between two pay scales (for example, 8 hours of normal work and 1 hour of overtime), this requires two lines to be filled out in the time sheet and the appropriate pay scale must be applied to each (either through user data entry or a user exit). Alternatively, two different activity types with different associated pay scales could be used.

## 5. Transferring data to the target applications

When data is first entered, it is simply stored in the CATS database without being approved. As long as the data has not been approved, any changes required can be made, and these will be reflected in the CATS database.

After the data has been approved, changes may still be made, but these will cause a new non-approved entry to be created in the CATS database.

This new entry will subsequently have to undergo the approval procedure, and then both sets of data will be transferred to the target application.

The approval procedure results in data being written to interface tables for each of the applications involved. This data is subsequently fetched by the applications at time intervals that depend on the application. Depending on the settings made in Customizing, the data from the CATS database may also be copied into a second CATS database for historical data records.

Once the data has been transferred to the target applications, the entries are deleted from the interface tables. This operation is performed by a REORG program.

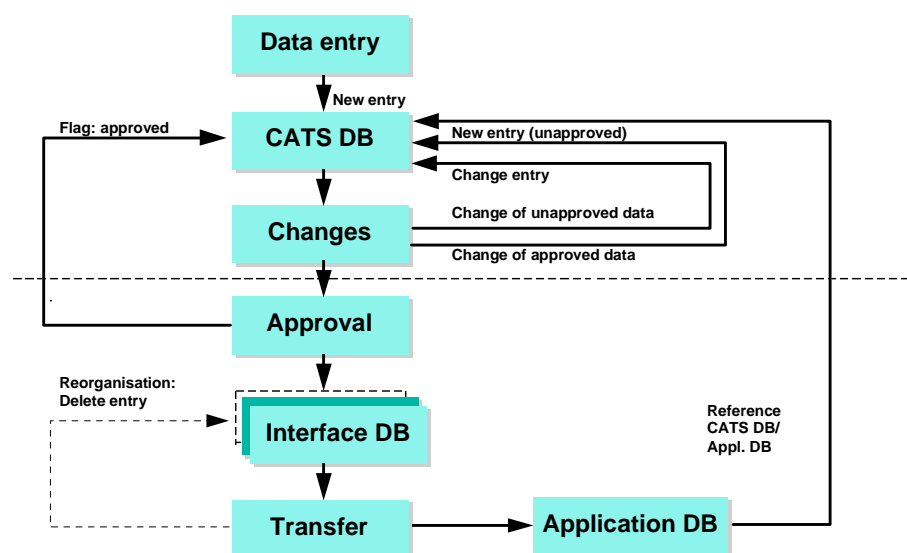


Fig. 13: Cross-Application Time Sheet



The target applications are supplied with data according to the following rules:

- An operation number or an element number is entered
  - a completion confirmation is created and the CO data is written indirectly
- A receiver is entered without an operation number or an element number
  - internal activity allocation - the CO data is written directly
- A purchase order number or a purchase order item and a service number are entered
  - MM-SRV and the CO data is written indirectly
- Only the type of attendance or absence is entered
  - only HR data is written