



# **Principles of successful time management configuration in SAP: Lessons for new and existing implementations**

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## In This Session

- We'll discuss lessons learned in the trenches of 19 years of time management configuration, most notably time schema, in SAP
- Whilst the lessons stem from time management schemas that have been used for some years, anybody planning a new implementation will take away valuable advice, too
- We will show:
  - ♦ Techniques to analyse an existing time schema
  - ♦ Some typical pitfalls and how to avoid them
  - ♦ Guidelines for schema documentation
- We will not:
  - ♦ Provide a comprehensive training session for time management configuration or discuss all tables, functions and operations available
- We'll have a quick glance at the future of time management in S/4HANA / SuccessFactors

## What We'll Cover

- Why would your time schema need a redesign?
- Typical pitfalls to watch out for
- Analysing your existing set-up
- Best practise for documentation
- A glimpse on the future of time management
- Wrap-up

## For Most Time Schemas There's a Redesign Moment

- **Root causes**
  - ♦ Most initial implementations didn't have long term ease of maintenance in mind
  - ♦ Documentation was often high volume, but low value
    - ▶ **Typical: a document with screenshots of all config steps**
    - ▶ **No overview of critical elements and no link to business requirements**
  - ♦ After the initial implementation, changes were made
    - ▶ **Without the big picture in mind**
    - ▶ **Without updating documentation**
- **So what?**
  - ♦ After several years of changes and with the initial consultant gone
    - ▶ **New changes become more and more risky**
    - ▶ **Errors in special cases keep popping up**

## Benefits of a Time Configuration Review

Reduced maintenance cost

Lower risk for ad-hoc changes

Clean basis for rollouts

Improved usability

- e.g. due to cleaned up dropdown lists

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## Hard Coded Numbers

Never put a number  
that could change  
into your schema

Use a constant  
from table T511K  
instead

Easier Maintenance  
and time  
dependancy

## Avoid Hard Coded Organisational Objects

### Not to use in your schema

- Personnel (sub)areas (PSA)
- Employee (sub)group (ESG)

### Use instead

- Personnel subarea groupings in V\_001P\_ALL
- Employee subgroup groupings in V\_503\_ALL
- Set modifiers in schema using function MOD



### Benefit

- When you copy a PSA or ESG, the copy works immediately
- When you create new ones you only have 1 or 2 places to check



## Modifiers in function MOD

**Edit Rule: ZODT ES Grouping 1 Wage Type/Time Type \*\*\*\***

Cmmnd

Line	Var.Key	CL	T	Operation	Operation	Operation	Operation	Operation	Operation	*
000010				MODIF W=01MODIF T=01MODIF A=01MODIF L=01						

- **Modifiers are set in a custom copy of rule MODT with operation MODIF**
  - ♦ **A: Absence valuation**
  - ♦ **D: Day grouping for T510S (only in day processing)**
  - ♦ **L: Time balance rule group (for function LIMIT)**
  - ♦ **Q: Quota selection rule group**
  - ♦ **S: type for dynamic work schedule assignment**
  - ♦ **T: time type determination (T555Z)**
  - ♦ **W: wagetype selection for T510S**

## Employee (Sub)groups go Across Countries

- **T503 is a table with far reaching impact, so this is dangerous**

- ♦ When making changes to this table, users are asked for the country, making many of them think they make changes for one country only
- ♦ However:



Field Name	Work Area
Country Grouping	08

Buttons: [Checkmark] Further select cond. Append [Red X]

- ▶ The entries in this table can refer to many countries
- ▶ The view only applies a filter for irrelevant entries
- ▶ Any change can affect many or all countries



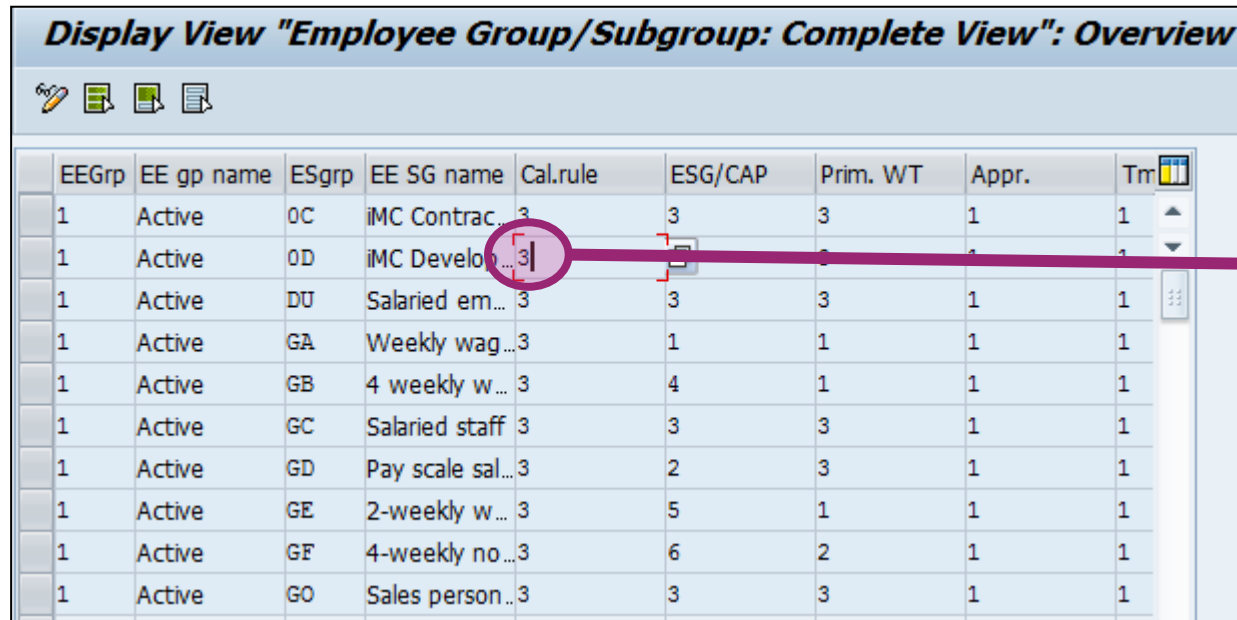
Caution

- **Solution**

- ♦ The configuration of Employee Subgroups and their groupings should always be a global responsibility, not done by local country teams
- ♦ Alternatively: use each Employee (Sub)group for one country only (works for limited number of countries)

# Make Good Use of Groupings for Personnel Calculation Rules

**Display View "Employee Group/Subgroup: Complete View": Overview**



EEGrp	EE gp name	ESgrp	EE SG name	Cal.rule	ESG/CAP	Prim. WT	Appr.	Tm
1	Active	OC	IMC Contrac...	3	3	3	1	1
1	Active	OD	IMC Develop...	3	3	3	1	1
1	Active	DU	Salaried em...	3	3	3	1	1
1	Active	GA	Weekly wag...	3	1	1	1	1
1	Active	GB	4 weekly w...	3	4	1	1	1
1	Active	GC	Salaried staff	3	3	3	1	1
1	Active	GD	Pay scale sal...	3	2	3	1	1
1	Active	GE	2-weekly w...	3	5	1	1	1
1	Active	GF	4-weekly no...	3	6	2	1	1
1	Active	GO	Sales person...	3	3	3	1	1

Rule  Determine groupings

Subobjects

☒ Source text

ESGrp grouping

Wage/time type

☐ Attribute

☐ Documentation

- It allows you to run different “variants” for each rule depending on this grouping
- An option often neglected leading to
  - ♦ Unnecessary large decision trees
  - ♦ Doing the same change several times rather than once

## Special tip for Groupings for Personnel Calculation Rules

- Within a custom rule, you can switch to a different grouping for personnel calculation rules
  - ♦ e.g. to process the same coding for 2 different groupings without writing the coding twice
  - ♦ You do this using operation PAYTP
- If your don't have enough space in one rule you have 2 options:
  - ♦ using a subrule
  - ♦ Or a different grouping for personnel calculation rules, which is not otherwise used (usually letters rather than numbers)

000140	N Y		D	VARSTABSWD	FULL DAY ABSENCE?
000150	N Y N		D	VARSTDAYTY	DAY TYPE
000160	N Y N *				
000170	N Y N 1			COLER08 ADDDB0600TGENTG	GENERATE PAIR
000180	N Y N 2		Z	PAYTP M	FURTHER DECISIONS

## Differentiate Between Day Processing and Month End Processing

Day processing fills TES (day balances)

CUMBT transfers this into SALD (monthly balances)

Using ADDDB after CUMBT or ADDMB before CUMBT leads to erratic results

**This may well be the most ignored crucial rule in SAP Time Management documentation:**

### Recommendation

You should only use operation ADDMB in period end processing under IF EOM. If you use the operation in day processing (between BDAY and EDAY), it may cause errors if there is a recalculation.

**Note: reading monthly balances during day processing is ok.**

## Time Dependency in the Schema




It is normal practice to use IF statements to have certain parts of the schema processed before or after certain dates only

However, this can make the schema chaotic over time

- Try to define definite cut off dates, e.g. 2 years in the past
- Don't allow retro before that and delete obsolete schema parts
- Keep them safe somewhere, so they can be restored just in case.

Avoid using year and month in the schema directly

- Use a “switch” instead: a constant in T511k, set to “1” for the period the special logic is to be processed
- This way, there's only one place to change

Constant	Info	Payroll constant	Start Date	End Date	Value
ZZBH1		Bank hours calculation V1	01.01.1900	31.03.2011	
			01.04.2011	31.12.2013	1.00
			01.01.2014	31.12.9999	

# Daily Maximum Working Time

## Daily maximum in SAP standard schema

- Value from daily work schedule configuration
- Constant TGMAX,

## Custom amendments

- Custom rules for the daily maximum are often required
- Usually the cut off happens in function LIMIT, where custom limits are given in configuration tables

## Problem

- Function DEFTP is hardcoded to use standard sources mentioned above

## Solutions

- Enhance coding in function module RPTMAS02\_GET\_TGMAX
- Set TGMAX to 99 and add custom logic later

## Paying Overtime in Arrears: Cost Assignment Issue

- **Paying overtime and other time wagetype only in the following period is not unusual**
  - ♦ This is usually done in the payroll schema, by importing table ZL (time wage types) from the previous month
- **However, what few people are aware of:**
  - ♦ The original cost assignment gets lost
  - ♦ Instead of this, the first cost assignment of the payment period is used
- **Solution**
  - ♦ Ideally, you decide you can live with that and just need to be aware in case of questions
  - ♦ A technical solution is possible, but can be complex and involves
    - ▶ **Forcing an explicit cost assignment for each wagetype in time management**
    - ▶ **Enhancing SAP standard coding in payroll (form import\_c2\_zl in RPCZA100)**



## Observe Documentation and Descriptions, When Copying

### Copy standard rules

- You often copy standard rules and then amend the logic
- If documentation is not amended as well, it can be very confusing
- Check for all relevant languages!

### Copy table entries like time types

- You need to check all relevant languages
- E.g. you copy a time type called “on-call weekday” to create “on-call weekend”
- If you change the text in English only, but it is used in French as well, this can create confusion
- Even, if you use separate time type groupings per country:
  - Someone from corporate HR may still report on local data in different language
  - Some countries like Switzerland use several languages
- Make sure it is clear, which languages are set up properly and can therefore be used by end-users

## Do You Need Authorisation for Infotype 0008 and 0004?

- In some cases you may need information from infotype 0008 (basic pay) or 0004 (challenge), because
  - ♦ wagetype generation is based on payscale data or
  - ♦ leave quota calculation is based on challenge percentage
- To have access to that data, you need to use function CHECK to make it available
  - ♦ CHECK BP for infotype 0008
  - ♦ CHECK CHAL for infotype 0004
- However, in that case users running time evaluation need read access to the respective infotypes. If you want to avoid this you can
  - ♦ Assign these rights only for a non-existing employee group
  - ♦ Assign authorisation object P\_ABAP with report RPTIME00 and degree of simplification “1”
  - ♦ Then time evaluation will work, but no direct access to these infotype is given

## Merging Two Time Schemas

Using several schemas  
can be difficult to  
manage



Idea: create one schema  
only with different  
subschemas called for  
different populations



To observe: sub-  
schemas need to be  
split between day and  
month-end processing

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## Tools for Analysing Your Time Configuration

### Standard tools

- Schema comparison custom vs. standard
- Report RPDASC00: fully expanded schema
- Report RPUCCOSE: search in rules
- Report RPUCTC00: list coding for selected rules
- Transaction SE16: Search in features

### Often used custom tools

- Unused work schedules
- Unused time types
- Extended schema comparison
- Extended schema search

## Expanding the Whole Schema

*Formatting Schemas and Cycles...*

Schema

Schemas to be exploded ☐ \* to

☒ Expand calculation rules

☒ Expand subordinate PC rules

calc. rules to be expanded ☐ \* to

EE Subgroup Grouping for PCR  to

Language

Program class

## Report RPDASC00

- Can be used for Time Management as well as Payroll Schemas
- When used for analysis, you'd usually want to expand all subschemas and rules
- The use text search in the result list, e.g.
  - ♦ ADDMB to see, whether it occurs in day processing
  - ♦ OUTWPPLANT to see, whether the personnel area is read directly without groupings

## Standard Tool RPUCCOSE: Search in Rules

**Source text search in PC rules**

Personnel Calc.Rule

Search strings

Free Entry

Operations that are useful in certain cases

Select all

<input type="checkbox"/> *MULTI ANN*	<input type="checkbox"/> *DIVID ANN*
<input type="checkbox"/> *MULTI RNN*	<input type="checkbox"/> *DIVID RNN*
<input type="checkbox"/> *MULTI NAN*	<input type="checkbox"/> *DIVID NAN*
<input type="checkbox"/> *MULTI NRN*	<input type="checkbox"/> *DIVID NRN*
<input type="checkbox"/> *MULTI ARA*	<input type="checkbox"/> *DIVID ARA*
<input type="checkbox"/> *MULTI RAA*	<input type="checkbox"/> *DIVID ARR*
<input type="checkbox"/> *MULTI ARR*	
<input type="checkbox"/> *MULTI RAR*	

Operations that are not useful

Select all

<input type="checkbox"/> *MULTI ARN*
<input type="checkbox"/> *MULTI RAN*
<input type="checkbox"/> *DIVID MAA*

Allows for pattern search in specified rules, but not in full schemas.  
Can be usefull in some cases, but RPDASC00 is usually more helpful, because it provides the context.

Relevant for Payroll

## Using the Data Browser

- Transactions SE16, SE17 or SE16N can all be used for this purpose
- Idea: schemas, rules and features are also stored in tables and whilst schemas and rules have other tools for analysis, checking the tables directly can be very useful for features
- The relevant table is T549C
  - ♦ This example shows how to find features using employee subareas in the decision tree

Number of Entries

NAMEN

FUNCO

	MANDT	NAMEN	KENID	VARGU	SEQNO	FUNCO
<input type="checkbox"/>	100	ABKRS	S	82	2	DPERSK
<input type="checkbox"/>	100	ABKRS	S	87	2	DPERSK
<input type="checkbox"/>	100	ABKRS	S	90	2	DPERSK " AUSTRALIA
<input type="checkbox"/>	100	ABKRS	S	95	2	DPERSK " MALAYSIA
<input type="checkbox"/>	100	ABKRS	S	99	2	DPERSK " ITALY
<input type="checkbox"/>	100	ABKRS	S	102	2	DPERSK " SOUTH AFRICA
<input type="checkbox"/>	100	ABKRS	S	107	2	DPERSK " VENEZUELA
<input type="checkbox"/>	100	ABKRS	S	119	2	DPERSK " PORTUGAL
<input type="checkbox"/>	100	ABKRS	S	121	2	DPERSK " NORWAY
<input type="checkbox"/>	100	ABKRS	S	127	2	DPERSK " JAPAN

- ♦ You can search for
  - ▶ WERKS (Personnel Area), BTRTL (Personnel Subarea)
  - ▶ PERSG (Employee Group), PERSK (Employee Subgroup)



# Avoid Duplicate Work Schedules

Personnel No 90000008 Name Mark Smith  
 EE group 1 Active Pers.area IM08 IMC UK  
 EE subgroup 0C IMC Contractors  
 Start 01.12.2013 To 31.12.9999 Chg. 11.10.2013 EXT\_KRISHNA

Work schedule rule  
 Work schedule rule 40-WK  
 Time Mgmt status 0 0 - No time evaluation  
☐ Part-time

Working time  
 Employment  
 Daily working  
 Weekly work  
 Monthly work  
 Annual work  
 Weekly work

DEV(3)/100 Work Schedule Rule Finder

WSR Finder

Filter Criteria for Search

Expand/Collapse	Week	Weekday	Work Start	Start +/-	End of work	End +/-	Planned working hrs
	Week 1	Monday					
		Tuesday					
		Wednesday					
		Thursday					
		Friday					
		Saturday					
		Sunday					

- Whilst not exactly an analysis tool, the Work Schedule Rule Finder fits into this context very well.
- It allows users to use various search criteria to find existing work schedules
- This often helps to avoid the creation of new work schedules, although an existing one could be used
- For implementation, check SAP note 1795844

## Custom Tools

It is often usefull to build custom tools, e.g.

- Find obsolete entries like time types of work schedules
- Find breaches of rules/conventions in schemas easier than with the standard tools

Some tools are quick to build for a developer, but

- ...require a good understanding of time management data and configuration
- ...your consulting partner may have tools available already

## Life Demo for Anylysis tools



# Demo

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## Components of a Time Management Documentation

Time sheet with time types

Overview of time types and time wagetypes with explanation when they are created

Naming conventions for schemas, rules and config tables

Overview of and absence/attendance types with definition, when to use

Overview of variables used in the Schema

Calculation flow of selected time types

Logic for overtime approval

## Time Sheet with Time Types

Errors are usually  
spotted on the time sheet  
first

Then you need to find  
out, which time type is  
wrong

You need a document,  
where you see, which  
time types / wagetypes /  
sums are printed on the  
time sheet

## Variables Used in the Schema

Variables can be used for temporary results in the time schema

- Stored with operation ADDVS
- Variables have a key, but unlike time types no description

Using variables makes it difficult

- To understand the schema
- To interpret the time evaluation log

Provide overview of all variables used

- Find them using full text search for ADDVS in output of report RPDASC00
- Capture and explain them in a separate list

## Keep the Log of Time Evaluation Helpful

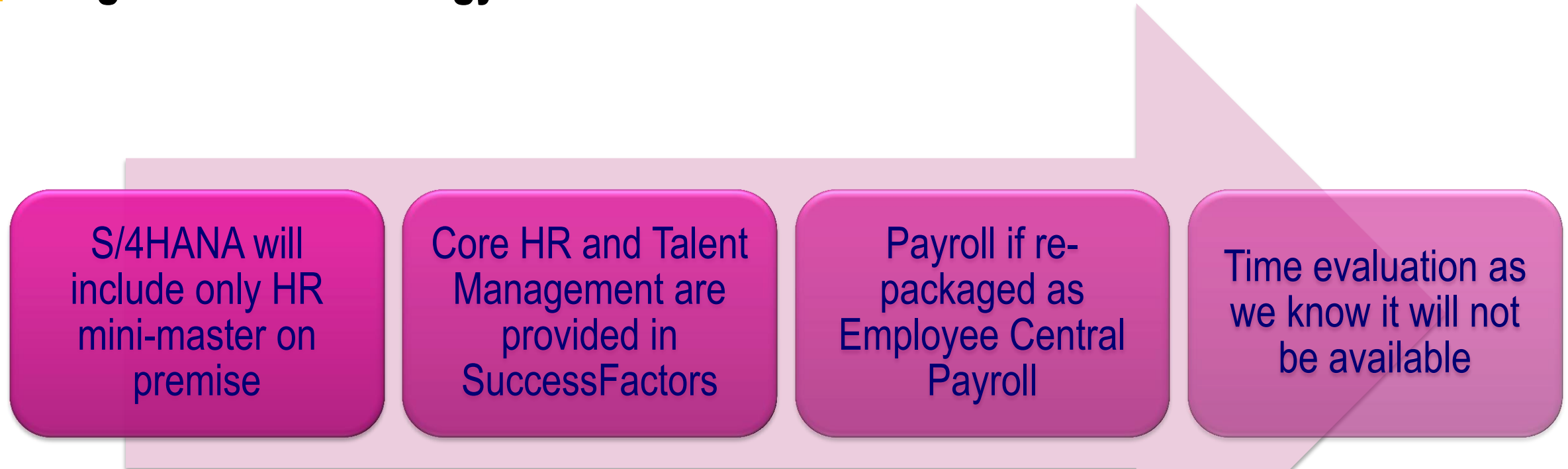
- **The log of time evaluation is an important tool to**
  - ♦ Understand the logic of time evaluation
  - ♦ Find causes for errors in the schema
- **In order to make the log as helpful as possible**
  - ♦ Keep your custom rules short. If there is a choice, rather split the processing into two rules than create one very large rule (including sub-rules)
  - ♦ Use the PRINT function generously
  - ♦ If you create custom functions or operations, make sure they provide relevant information for the log



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## Long Term SAP Strategy as we Understand it

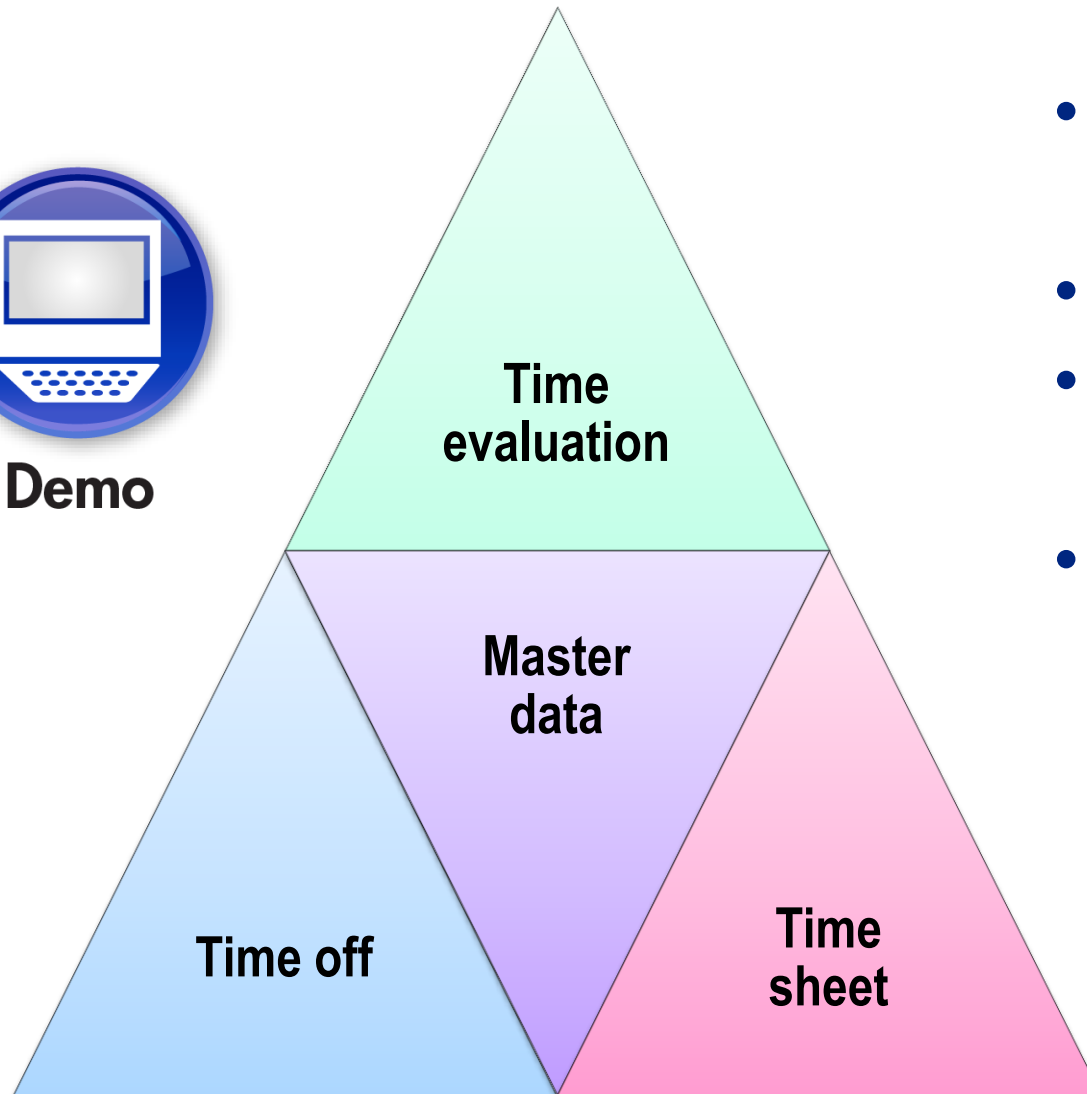


- **S/4HANA is already available, but will completely replace the current on-premise solution by 2025**
- **Until then, the “old” time evaluation is available**

## Time Management in Employee Central



Demo



- Time off already a quite mature solution
- Time sheet is quite new
- Time evaluation planned
- Alternative: integration of partner solutions

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## Where to Find More Information

- [www.iprocon.com/nl-en](http://www.iprocon.com/nl-en)
  - ♦ Newsletter on SAP HCM, SuccessFactors, and HRIS strategy, including SaaS vs. On premise
- <https://www.iprocon.com/changing-daily-working-time-maximum-in-time-evaluation-deftp/?lang=en>
  - ♦ Blog article: “Changing daily working time maximum in time evaluation (DEFTP)”, Sven Ringling
- <http://scn.sap.com/community/erp/hcm/blog/2015/05/11/rptime-to-say-good-bye>
  - ♦ SCN article: “(RP)TIME to Say Good Bye”, Sven Ringling
- <https://www.iprocon.com/enhanced-workschedule-finder-in-infotype-0007-2/?lang=en>
  - ♦ Blog article: “Enhanced Workschedule Finder in Infotype 0007”, Sven Ringling

## 7 Key Points to Take Home

- Most time evaluation schemas need a review after some years
- Use groupings instead of hard coded personnel (sub)areas and employee (sub)groups in the schema
- Use constants instead of hard coded numbers in the schema
- Just taking screenshots of all settings is not a helpful documentation. Explain the process flow and keep overview lists of critical elements
- Make sure you amend documentation and texts in all relevant languages, when you copy entries
- Use standard and custom tools to find critical lines in your schema and obsolete elements
- Time evaluation as we know it will go away with S/4HANA, but we expect a new solution in Employee Central to work with Time Off and Timesheet

**Your Turn!**



**Questions?**

How to contact me:  
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**Please remember to complete your session evaluation**

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