

Most organizations that have implemented SAP HCM are now looking for ways to improve their SAP-supported HR-processes in terms of usability and quality. This is not only triggered by the requirements of various audits but also a question of gaining a more efficient system and reducing the costs of HR-processes.

The experts of iProCon helped various customers to improve quality and usability with workshops, coaching, customizing, and custom development. This article provides valuable advice based on our experience.

Under the pressure of tight schedules and budgets many SAP HCM implementation projects end up with a system, that works *somehow* and in most cases produces the correct payroll results ... for the moment. However, most projects fail to provide an application that supports its users in the best possible way to ensure high quality of data, let alone procedures to support quality management for future changes, such as support packages, upgrades or new functional requirements.

So, the improvement of quality and usability should be subject to a project following the implementation itself. The good news is: This project can be spread over a longer period of time with low intensity. Once the framework and the objectives are established, the project can be decomposed into many small pieces of work, with each of them delivering some value of its own.

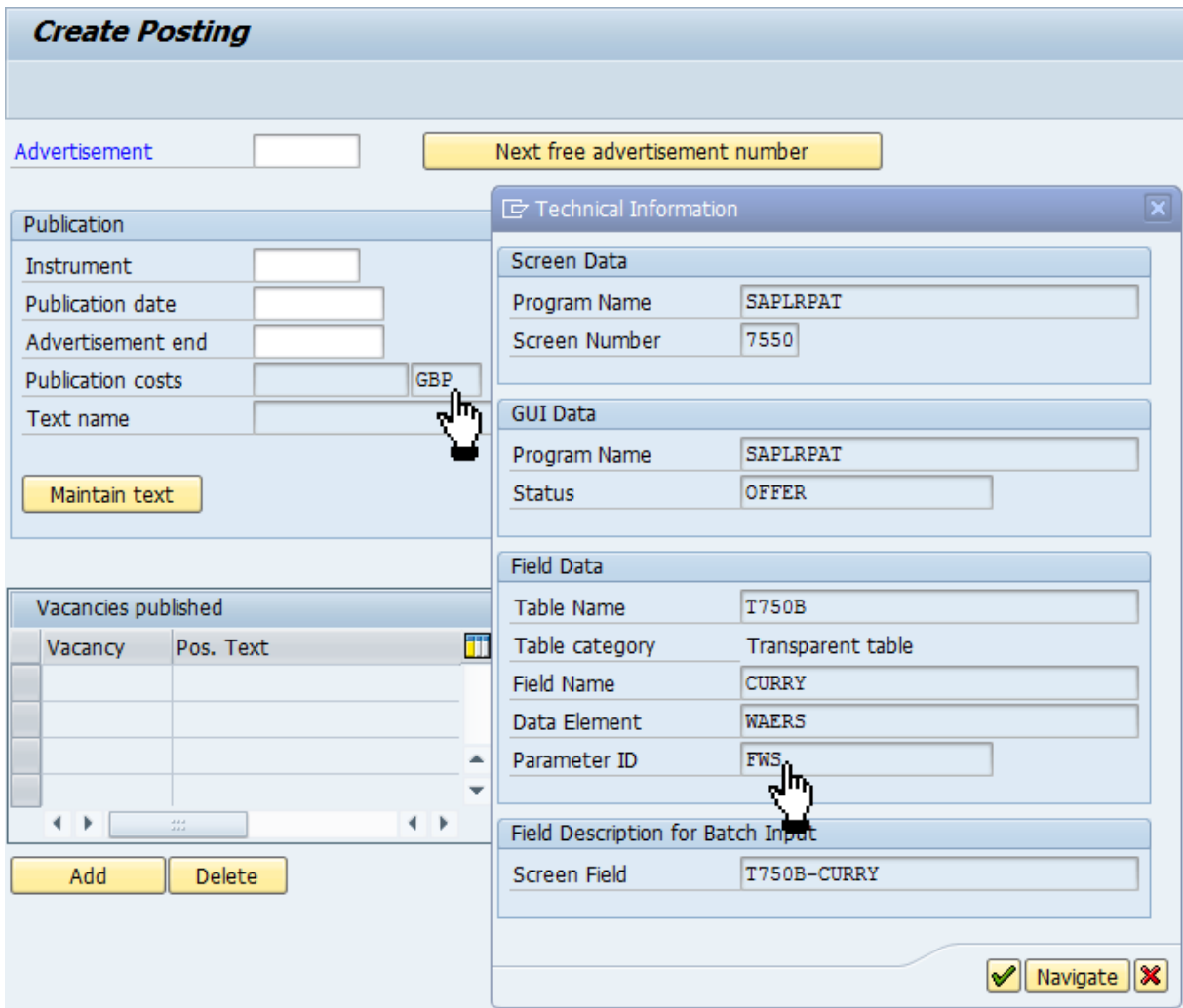
In this article we want to give you some ideas to include into your own quality initiative. All these activities have been implemented by the experts of iProCon in various projects and have proved to be highly beneficial. It always turned out that good usability improves both data quality and efficiency. We recommend building an action plan based on the ideas in the following list, assign priorities to each action and then implement one by one.

1. How to improve the usability and quality of you SAP HCM application

1.1 Improvement of the user interface

- Make sure, that there are no fields or buttons on the screen, which the users don't need. This can be achieved by various customizing options (such as table T555m for infotypes), screen variants or the GUIXT-technology.
- The F4-help in any field should not contain any entries, which are no longer used. In most cases it is just a matter of discipline to delimit entries in customizing tables, which are no longer used. Especially in larger applications, it may be difficult to decide which entries are still in use. From time to time, this should be checked out for items that notoriously tend to get out of hand. E.g., we use a tool to check the usage of work schedule rules automatically.
- To make the usage of the F4-help efficient, there should be a reasonable rule in place, which determines how the keys and names of the corresponding customizing entries are composed (e.g.: part time work schedules start with a "P" followed by the number weekly working hours).
- Wherever possible, data entry fields should contain reasonable default values, so that the user doesn't need to enter data manually that can be automatically determined in a particular case.
 - In many cases, the defaults can be determined via customizing, often using features. One popular and simple example is infotype 0008 (basic pay). If wage type "1510" must be entered there for each piece rate worker, than this could as well be done automatically by the system. In this particular case, the specific IMG-customizing for infotype 0008 allows such a configuration easily.

- If there is no customizing option for a specific case, screen variants are always an option for straight-forward default values.
- In the case of infotypes the BADI HRPAD00INFTY or the function exit PBAS0001 allow very flexible defaults by adding your custom ABAP coding. Further function exits and BADIs are in place for other cases.
- For some widely used fields, you can determine default values for each user individually via the user parameters. You can maintain them either via transaction SU01 or each user can maintain his or her own parameters via transaction SU3. To find out, whether a particular field can be filled by a user parameter, position the cursor into the field, press F1 and then click the button "technical information". If there is a user parameter corresponding with this field, then it is shown in the field "Parameter ID". The following picture shows, how the currency field of a job posting is filled by the user parameter "FWS".



The screenshot shows the 'Create Posting' screen in SAP. The 'Publication' section includes fields for Instrument, Publication date, Advertisement end, Publication costs (with a currency dropdown set to GBP), and Text name. A 'Maintain text' button is below. The 'Vacancies published' section has a table with columns 'Vacancy' and 'Pos. Text'. The 'Technical Information' dialog is open, showing details for the 'CURRY' field. It includes sections for Screen Data, GUI Data, Field Data, and Field Description for Batch Input. The 'Parameter ID' field in the Field Data section is highlighted with a mouse cursor, showing the value 'FWS'.

Technical Information	
Screen Data	
Program Name	SAPLRPAT
Screen Number	7550
GUI Data	
Program Name	SAPLRPAT
Status	OFFER
Field Data	
Table Name	T750B
Table category	Transparent table
Field Name	CURRY
Data Element	WAERS
Parameter ID	FWS
Field Description for Batch Input	
Screen Field	T750B-CURRY

Note: the value coming from the user parameter can be overruled by other default values determined from customizing settings.

- A very effective way to improve data quality and save a lot of time with error-handling is the implementation of plausibility checks. In many cases the system can determine that the data entered in a particular context must contain some mistake and produce an error message. Alternatively, if a special combination of data is unlikely or potentially

dangerous but in rare cases possible, the system can submit a warning message so that the user will think again. There are various ways to perform plausibility checks:

- The customizing provides specific configuration options for many cases such as collision of different time infotypes, limited budgets in compensation planning, collisions of a seminar attendance with a planned holiday, permissibility of wage types for employee subgroups, personnel subareas or infotypes, etc.
- The above mentioned BAdI HRPAD00INFTY and the function exit PBAS0001 allow very sophisticated checks with small effort. E.g.: "have more than two employees the same bank details in infotype 0009?"
- Using infotype 130 you can avoid a defined group of data to be changed too far into the past.

1.2 Other ways to improve data quality

- You can create your own ABAP reports to do certain checks, which cannot be performed during the process of data entry. E.g.: a list that compares the gross or net pay of the current period with the last one for each employee and shows all employees where the difference exceeds a certain percentage.
- The payroll run itself can perform various checks. You are very flexible, when using a custom function (created via transaction PE04) to perform your own checks and stop the payroll for a particular person, if any inconsistencies are found. We call this an "emergency brake" as it prevents wrong data to enter into payroll at the very last minute.
- Authorizations and roles are very important to prevent users from entering data they are not supposed to. This does not only aim at illegal actions but also helps to reduce the number of mistakes. Of course, the whole area of authorizations is crucial for quality, security and audits. However, let's focus here on one specific aspect that can avoid many mistakes: provide your users with a role-specific menu where you include all transactions and reports they need to perform and exclude all others. This allows you to block transaction SA38 completely for normal users thus preventing them from using wrong or outdated reports.

2. Process automation and reporting

2.1 Process automation

Where processes can be standardized to a certain degree, their quality will generally be higher, if the HR system actively supports the process flow. This might require a stronger **commitment to standardized processes** than your organization has shown in the past. In most cases however, this slight pressure from the IT-side towards standardization of administrative activities has proved healthy rather than restrictive. The good news is that such measures do not only improve quality but also efficiency. We want to show you some of the options you have:

- The most obvious technology here is **workflow**. SAP offers many **preconfigured templates** that represent the flow of tasks and information for business processes such as leave requests or the approval of budgets. Workflow (or Webflow) can be used within the R/3 or ECC as well as in portal applications. It is certainly a powerful tool to guarantee that the process flow reaches the employees, who are supposed to work with it. This is particularly true, if there are many possible persons who could perform a certain task. In this case the person available first can grab the task out of a common pool.
- We cannot go into details about workflow here as this would mean to write a book. But to smooth up your processes, it is worth considering this tool. First of all check, whether

there is a workflow template from SAP you can use – otherwise a workflow expert can build a custom one from scratch.

- However, adapting SAP templates or building new workflows can be a large effort. There are other options we want to discuss in the following paragraphs.
- You probably know the concept of **personnel actions** to perform processes like hiring or retirement. They basically represent a number of infotypes to be processed in a predefined order. However, many companies do not fully use this concept.
 - It is possible to define **variations of personnel actions**. The customizing of the so called infogroup defines which infotypes are processed in which order. This can be configured flexible so that different infotypes are processed depending on
 - Some organizational characteristics of the employee to be processed (defined via the feature IGMOD)
 - The HR User group of the user performing the action (user parameter UGR)

Accordingly, you can have one set of infotypes when hiring a white collar employee and another one when hiring a shop floor worker.

We generally recommend using the first way to control the set of infotypes. If it is strictly defined which users are allowed to maintain data for which types of employees, the second alternative may be applicable too.

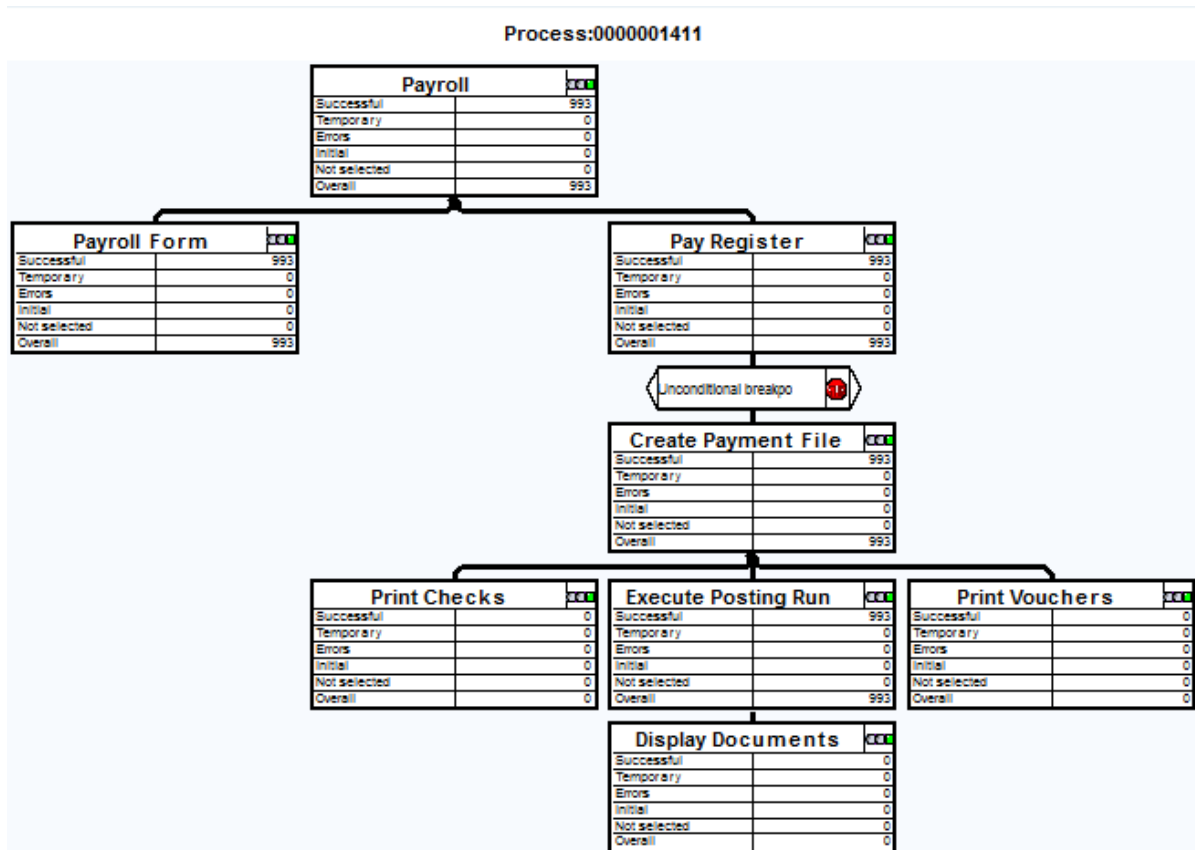
- Actions are generally saved in infotype 0000. However, this infotype doesn't allow to save two actions at the same day. That's why SAP introduced infotype 0302 ("**additional actions**"). All actions that do not change the status of an employee can be kept in this infotype. There is no difference in how the actions are performed. The customizing of actions determines which actions can be saved in infotype 0302. Many organizations have not yet activated this new infotype and lose some information when working with personnel actions. Note that this concept unfortunately is not available for applicant data (infotype 4000).
- If infotype 0302 is used, it is a common mistake to use infotype 0000 only when **reporting on actions**, thus ignoring those actions that are saved in infotype 302 only. To have one point to get all actions from in queries or custom reports, we recommend to save all actions in infotype 302 – and to save those who change a status additionally in infotype 0000. This makes reporting much easier, as you can get all data except the status from one source.
- Some organizations never have had a **redesign of their personnel actions**. Make sure to check with the users that the actions contain exactly the infotypes that are required and that the menu of personnel actions (transaction PA40) contains exactly the actions required and that they are properly labeled.
- **Dynamic actions** are an even more flexible concept. They can perform a certain action depending on the data just maintained in an infotype. This concept is extensively used for applicant data but also in employee data. Here are some examples and issues to observe:
 - Depending on the content of a certain field, a **new infotype** can pop up. E.g.: if infotype 0007 is saved with the flag for time recording set, infotype 0050 is automatically performed to maintain the time recording ID number.
 - When a new infotype pops up as described above, some fields can have default values depending on the values of particular fields of infotype 0001 or the infotype just saved.
 - A function with custom ABAP coding can be performed.

- An **e-mail can be generated** from the data maintained in an infotype. E.g.: if a person is hired, an e-mail to announce this can be sent to the technical department so that they know they must provide a telephone and e-mail address.
- The e-mail function is particularly interesting. Usually there are many persons that have to be informed if certain personnel data changes occur. If your HR system is configured to send **e-mails to other systems** (such as MS Exchange / Outlook or Lotus Notes) this can save you a lot of work and guarantee proper information. We recommend, maintaining no personal e-mail addresses in your customizing of dynamic actions but **distribution lists** (even if they contain just one address). This is much more flexible because these lists are easier to change than the customizing in tables and features.
- In most cases it is no problem to send e-mails from your HR system to the outside world. With release 4.7 SAP supports the **SMTP protocol**, in earlier versions you need to install a special connector (please contact us if you want us to refer you to an expert in this field).
- When using the mail function within your SAP system, you can even attach an infotype to be processed to the message. E.g.: the personnel officer performs a hiring action and when infotype 0007 is maintained, a message to maintain infotype 0050 accordingly is sent to the time administrator. The time administrator only has to click on the respective button in his message to have infotype 0050 popping up.
- **Other automated e-mails**
 - The e-mail function of dynamic actions has some restrictions:
 - You cannot easily influence *when* the e-mail is sent. It is generated just in the moment the respective infotype is saved. As some data is maintained far into the future, this is not always convenient.
 - Messages can only be generated based on infotypes, but not on other data such as errors in time evaluation or travel data.
 - The content is restricted to fixed texts and some variables from the infotype just maintained and organizational data.
 - One alternative is to use **workflow** to generate e-mails. This is more flexible, but may sometimes be difficult to configure and much effort for small effects.
 - Another alternative may seem to cause even more effort at first sight but in reality proved to be very efficient, if used reasonably: It is possible to create a **custom report that generates e-mails** based on various kinds of data such as:
 - Errors in time management
 - Special dates such as birthdays or anniversaries
 - Business trips
 - Deadlines from infotype 0019 ("monitoring of tasks")
 - Etc.

A straightforward scenario can be implemented in as little as one or two days and provide a reasonable return on investment through time savings and higher quality of information processes. If there are many standardized e-mails sent manually by your HR staff, it may be worth asking your IT department or consultants for a custom solution to generate them automatically, if dynamic actions don't suit your requirements.

- Other examples of process automation we will not discuss deeper here are:
 - Job management to guarantee that individual reports or sequences of reports run in the background at predefined times or at predefined events. In many organizations, the definition of these jobs and particularly their monitoring could do with a redesign.

- The HR process workbench is designed to define and control the process of the payroll run and all other reports involved in it.

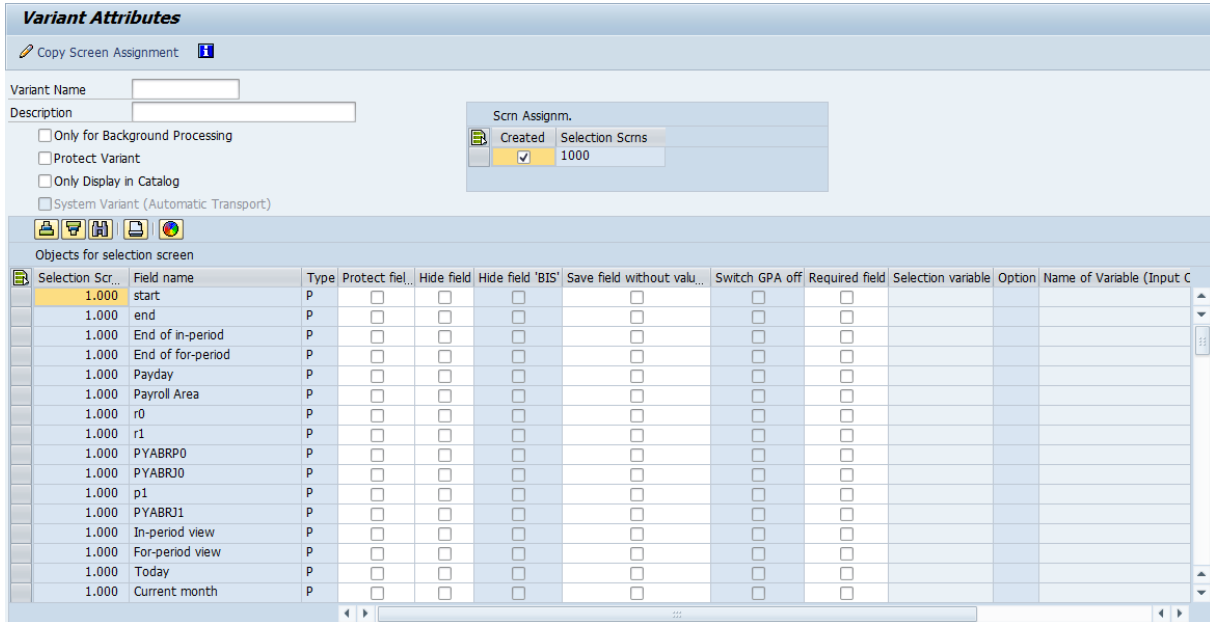


- And many more...

2.2 Effective reporting

- When people talk about quality in an IT system, the focus is mostly on the input of data. While it is certainly true that poor quality of reporting is mostly due to poor data quality (following the well known “scrap in – scrap out” principle), the **proper use or reports** is also an issue.
- Typical problems occurring in the usage of standard or custom reports in HR are:
 - Users choose the wrong report or do not find the report they need, because they can freely select reports from the complete SAP menu or – even worse – via transaction **SA38**. It is strongly recommended to define clearly which reports should be used for which purpose and to include only these reports in the user menu. Transaction SA38 mustn't be accessible for functional users.
 - Many users do not know how to use and create **variants**. However, using variants is a very important means to make sure that lists distributed on a regular basis are created in the same way every time.
 - Only few users fully exploit the possibilities of variants. When saving the variants (see picture) you can
 - Include variables – especially for dates
 - Make sure that a particular field no value is saved

- Make a field mandatory
- ...



The screenshot shows the 'Variant Attributes' screen in SAP. It includes fields for 'Variant Name' and 'Description'. There are checkboxes for 'Only for Background Processing', 'Protect Variant', 'Only Display in Catalog', and 'System Variant (Automatic Transport)'. A 'Scrn Assignm.' table shows 'Created' and 'Selection Scrms' with a value of '1000'. Below is a table for 'Objects for selection screen' with columns: Selection Scr., Field name, Type, Protect fiel., Hide field, Hide field 'BIS', Save field without valu..., Switch GPA off, Required field, Selection variable, Option, and Name of Variable (Input C).

Selection Scr.	Field name	Type	Protect fiel.	Hide field	Hide field 'BIS'	Save field without valu...	Switch GPA off	Required field	Selection variable	Option	Name of Variable (Input C
1.000	start	P	☐	☐	☐	☐	☐	☐			
1.000	end	P	☐	☐	☐	☐	☐	☐			
1.000	End of in-period	P	☐	☐	☐	☐	☐	☐			
1.000	End of for-period	P	☐	☐	☐	☐	☐	☐			
1.000	Payday	P	☐	☐	☐	☐	☐	☐			
1.000	Payroll Area	P	☐	☐	☐	☐	☐	☐			
1.000	r0	P	☐	☐	☐	☐	☐	☐			
1.000	r1	P	☐	☐	☐	☐	☐	☐			
1.000	PYABRP0	P	☐	☐	☐	☐	☐	☐			
1.000	PYABRJ0	P	☐	☐	☐	☐	☐	☐			
1.000	p1	P	☐	☐	☐	☐	☐	☐			
1.000	PYABRJ1	P	☐	☐	☐	☐	☐	☐			
1.000	In-period view	P	☐	☐	☐	☐	☐	☐			
1.000	For-period view	P	☐	☐	☐	☐	☐	☐			
1.000	Today	P	☐	☐	☐	☐	☐	☐			
1.000	Current month	P	☐	☐	☐	☐	☐	☐			

- Some users do not even know that each report has got **documentation**. It can be accessed via the “i” – button: . Make sure that custom reports provide reasonable documentation for the users.
- Generally, users are not properly trained in the usage of reports. The selection screen, the content, and working with the output list are areas where a few hours of training will pay off quickly.
- This last point is particularly true for the **Query**. However, in most cases it's not only the functional side but also the IT department that doesn't know much about it. Some companies do not use it at all, because its possibilities are undervalued. In this article, we only ask you to consider this instrument to give your users a flexible reporting tool which also can help them to check the quality of the data maintained. As it is not possible to get any deeper into the subject here, we want to mention some major points here, we consider worth further thoughts:
 - Queries are based on **infosets**. Make sure these exactly match the requirements and do not contain unnecessary or poorly labeled fields.
 - Decide on what should be done in the development system. We recommend building the infosets there while the queries themselves may be done by the users in the production system.
 - You can maintain **documentation** for queries. Do this for any query which is not used temporarily only.

3. From Error detection to an Internal Control System (ICS)

In this article we want to give you some ideas to include into your own quality initiative. Similar measures have been implemented by the experts of iProCon in various projects and have proved to be highly beneficial.

3.1 Testing procedures and test automation

Testing is a very time consuming and often ill-defined task, which tends to be passed to and from between HR and IT departments. To reach higher levels of security and efficiency

- systematisation,
- automation and
- a proper test environment

are necessary.

Who's got to do it?

To achieve a clear task sharing between HR and IT is already a large step forward. In most cases, both departments will play some role in testing. How exactly tasks are distributed depends on the distribution of other SAP-related tasks (e.g.: who does the customizing?) and knowledge. A common definition is this one:

- IT-department checks, whether the process can be performed at all without error messages.
- HR tests for the correctness of the outcome – such as payroll results.
- When necessary, acceptance tests may have to be added, ensuring user friendliness. This may be done by the HR department or outsourced to an ergonomics testing lab.

When to test what?

This question is more difficult to answer – and often testing is performed more or less randomly depending on the time available. There is certainly no such thing as a 100% waterproof test. However, the level of security you want to achieve and the effort you want to invest to achieve it should be decided upon by the management. This decision then leads to appropriate testing procedures which must be documented once and serve as the guideline for the future:

- Which events trigger testing activities? e.g.: support packages, changes in customizing, periodically,...
- What has to be tested at each of these events? e.g.: check payroll results, perform user-interactive processes such as personnel actions, check authorisations
- How to document test results? Auditors may demand that all or certain tests are documented with the signature of the person who performed the test.

How can you make your life easier?

For payroll and time evaluation in particular, automating tests is easily possible. After having defined a reference result, a test tool can compare new results with this reference after any change in the system in a batch run. This allows you to check the whole test data every time you make even a small change in the configuration with only little effort. This leads to a much higher level of security than just picking individual cases to test manually. It particularly avoids the effect that correcting one error leads to a problem in a different case you don't even think of. Tools for automating tests are available from several providers at different packages and prices.

iProCon offers a template based custom solution which generally can be implemented and explained in one day.

Interactive processes are much more difficult to test automatically. In some cases, the SAP CATT tool can help – but only to a limited extend.

Test environment

The availability of a proper test environment is crucial for any test. This may be a copy from the life system done in regular intervals or a targeted approach to set up an anonymous and documented test population to cover all relevant cases. Both cases have their pros and cons, depending on the technical and organisational requirements of your organisation.

Here are some criteria for a good test environment:

- Cover all relevant cases
- Data for all processes – not just payroll and time management
- The system should be identical to the life system as far as possible (except for the changes yet to be tested)
- An appropriate amount of data to test reports
- Availability of all relevant variants, queries and infosets
- Availability of all relevant forms (e.g. for correspondence in recruitment)
- Possibility to test processes with the same roles they are performed in the life system
- Possibility to test the interfaces – particularly ALE

3.2 Integrating procedures beyond SAP

Up to now, this little series on quality management has only dealt with elements within SAP HCM. After all, this is our main focus. However, be aware that an IT-system can never be the single answer to questions about process quality. A clear definition and documentation of processes, no matter whether performed manually or IT-based, is an indispensable prerequisite for high-quality processes.

We want to mention only a few not SAP-related elements that have to be included into a quality system:

- Designing simple and lean processes
- Clear definition and communication of these processes
- Check lists
- Well defined leeway to deal with exceptions
- Responsibilities
- Tools outside SAP HCM
- Traceability, particularly for auditing purposes

3.3 Bringing it all together: the ICS

This series covered the better part of the elements necessary to build an Internal Control System (ICS). Before setting up your ICS, you should be crystal clear about its objectives. The term “ICS” is used very often with very different concepts in mind. So you should ask yourself some questions before you start:

- Is the whole system just a response to an auditors' report?
- Does it aim at reducing errors in payroll?

How to improve usability and quality within your SAP HCM application



- Do you want to target real business risks evolving from HR processes? In this case, payroll may not be a big issue at all but other processes such as recruiting and succession planning become much more important.

Based on these objectives, a central document should be created to capture the important elements of your ICS:

- Which processes are included in the ICS?
- With which methodology and tools and to which level of detail must the processes be described?
- What are the rules for exception handling?
- How do IT systems help to ensure the quality of the processes?
- What are the procedures for system changes?
- How do we describe testing procedures?
- How must tests and other events with relevance for auditing be documented?
- Which checks and monitoring tasks have to be performed regularly?
- Where is all the detailed documentation to be found?

It is recommended to keep this central document as lean as possible and refer to more detailed documentation elsewhere. This allows for a better structure and better maintainability and enhancement. If the system is not constantly adapted to changing requirements, employees will start working around the rules and the whole system collapses.

There are two principles you should always have in mind:

- It must be feasible to follow the procedures within the time available. If you use IT, checklists and documentation intelligently, then it should make daily work more efficient in the long run – not more complicated.
- The system must be maintainable. Are the rules fixed on a too detailed level, than you have to change it much too often.

If you want our experts to help you with any issues concerning quality and usability or internal control system, contact us via e-mail: info@iprocon.com