Introduction to HCM Processes and Forms

Abstract:

This paper outlines an important and growing aspect of SAP Human Capital Management (HCM) - HCM Processes and Forms (HCM P&F). Many of you reading this paper would be familiar with the old PCR (Personnel Change Requests) framework tied to ESS/MSS which is a combination of ISR (Internal Service Request) and Workflows. SAP has given this HCM P&F framework which is a combination of ISR, Workflow, and Adobe Forms.

Introduction:

Pre HCM P&F world:
PCR’s in SAP HCM have been lot efficient and cost effective processes, but they lack a key factor in delegation of requests. PCR is a MSS application and is intended for managers to begin all HR process requests. In many organizations, however, HR business partners are not only involved in reviewing the requests, but often initiate the request on a manager's behalf and the manager then approves the transaction request. In the PCR world, HR business partners have no portal role and cannot start the PCR request in MSS.

Current HCM P&F world:
HCMP&F is the next step in the evolution of PCR’s. HCM Processes and Forms framework is replacing PCR as the new SAP standard for form processing. It offers an efficient way to manage cross-role processes involving HR Master Data. It provides greater flexibility and features such as starting a request by an administrator, saving a draft and analytics. It is part of the HR administrative services (HRAS) component introduced in SAP ERP 6.0. It allows SAP customers to build and execute their own specific processes irrespective of data, process flow and roles involved.

HCM Processes & Forms framework is based on three components:

- Configuration based Customizing: Eliminates the need for major development of code.
- Adobe Interactive Forms: Integrates all business roles through a user-friendly forms-based interface
- SAP Business Workflow.

There are many improvements in using HCM P&F over PCR such as:

Capturing data at the source: Employee, Manager and HR Admin can all trigger different HR processes. For example, an employee can request a leave of absence, a manager can request a bonus for a particular employee, and an HR administrator can request a pay grade correction.

Increase accuracy of HR data: The quality of the submitted data can be significantly enhanced with input assistance, proposed values, and real type data validation against SAP business rules that are already configured for infotype processing.
**Automatic routing:** There is no second guessing involved regarding to whom to send the forms. The system automatically routes the form for verification, approval, or processing, based on the form type, its content, completion of previous steps, or other business rules also configured using Workflow.

**Tracking request status:** We can track electronic forms. We can quickly find out where the request is, who approved it, and who modified it last.

**Reducing data processing load:** Complete and error-free forms require minimal review and validation before processing. Many forms can be processed and completed automatically without involving the HR Administrator.

**Triggering other processes:** Upon completion of an HR request (e.g., transfer to different location), HCM Processes and Forms can trigger requests to different departments (e.g., new phone extension, ID card, or computer)

**Savings on paper handling:** Eliminate wasted paper for mailing or faxing paper forms. Processed forms can also be archived as PDF documents and attached to an employee’s DPF (Digital Personnel File), thus reducing paper archiving needs and resources.

**A typical HCM P&F scenario:**

In a typical HCM Forms scenario - A manager or HR admin on behalf of the manager, logs into the MSS portal and starts the process. On the next screen he/she would select the employee from a list of employees reporting to the manager. On the next screen for this employee, he/she would select the process and fill in the appropriate details. A review and submit screen would be shown. When the user clicks submit button the process is sent to the next approver if any based on workflow and settings. (The sample images below have been taken from one of our project implementation developments)

**Step1:**
The manager can select start of processes and then select an employee in MSS to start process as in figure 1.

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**Figure 1**
Step 2: The manager selects a process to be executed for the employee as in figure 2.

Figure 2

Step 3: Form that shows on portal for the initiator to edit an HR request form as in figure 3.
Step 4:
Review and Submit Screen before submission as in figure 4.
There can be many typical HR scenarios handled by HCM P&F like Promotion, Termination, Hire, Rehire, Leave of Absence, Pay Change, Employee relocation, Cost Center Change, Name Change, Transfer (Internal and External) and many more. But the overall picture and flow would
be similar. The complexity involved in each process will vary on the process and depends on the number of approvals, form fields, input field validations, helper values and infotypes to be modified.

**HCM P&F Framework:**

![Diagram of HCM P&F Framework]

Figure 5 provides a technical overview of the framework that HCM P&F uses.

- **Process**
  The process groups together the following elements: ISR scenario, form scenario, and workflow template. A process can include one or more form scenarios.

- **ISR Scenario**
  The ISR scenario is used to select the form and to define the form layout.

- **Form scenario**
  The form scenario answers the following questions regarding the following properties:
  - Which fields are used in a form?
  - How are these fields linked with the infotype fields in the backend system?
  - Which scenario steps exist?
  - Which types of attachments can be uploaded?
  - Which services are used?
  The services determine the logic used to process form fields in the backend system. The following types of service are available:
  - PA Service (enables Personnel Administration infotypes to be created, changed, and deleted)
PT Service (enables Time Management infotypes to be created, changed, and deleted)
PD Service (enables Org Management infotypes to be created, changed, and deleted)
Generic Services Framework enables us to provide help values, perform input validations.
Advanced Generic Services Framework enables us to modify infotypes not supported by SAP backend services.

Each form scenario has exactly one ISR scenario.

- Workflow template
  You use a workflow template to define the process flow, define agent determination, and to control the form application in a process.
  For each process there is a workflow template that defines the process flow.

- Process Object
  The process object represents the persistence layer of runtime data that results from the execution of a form-based process.
  The system creates a process object if the user triggers the process in the start application.
  The system saves the following data and elements in this process object:
  - Data that a user entered in the form (for each process step)
  - Attachments that a user included in the process while the process was being executed

- Start Application
  The start application enables processes to be started. Depending on the portal role, the start application can be structured differently. It displays the processes to be executed and the steps required to start a process.

- Form Application
  The form application enables forms to be called in different scenario steps that are modeled in the workflow template.

- Digital Personnel File (DPF)
  You can use the DPF together with *HCM Processes and Forms*. If you integrate the personnel file, the system automatically saves any forms and attachments in the employee’s Digital Personnel File that are created when the process is executed.

### Configuration of HCM Processes and Forms consists of the following steps:

These are the typical steps to create a new process in HCM Processes and Forms, which is described in greater detail on the SAP Service Marketplace:

1. Defining of Process Scenario, ISR scenario, Form fields and mapped to backend infotypes, Scenario steps and Attachment types.
2. Integrating workflow template and adobe form.
3. Implementing SAP backend services such as SAP_PA for Personnel Administration Infotypes, SAP_PT for Time management infotypes, SAP_PD for Organization Management.
4. Implementing SAP generic services for business rules validation for the form.
5. Implementing SAP advanced generic services for Org Management infotypes not supported in SAP_PD.
6. Defined security authorizations for process.
7. Case Management for defining the process number range.
8) Defining the process administrator for error handling
9) Activating SAP standard workflow for process error handling
10) Configured required settings in the Digital Personnel File for storing the executed form.

Configuration:

Prior to SAP ECC 6.0 Enhancement Pack 2, all HCM Processes and Forms configuration tasks were performed through configuration in the IMG. With SAP ECC 6.0 Enhancement Pack 2, SAP introduced a workbench similar to se80 transaction code called Design Time which enables us to do most of the configuration needed for HCM P&F forms through a transaction code HRASR_DT as in figure 6.

![Design Time for Processes and Forms](image)

Figure 6

We can configure within the process, various settings as whether a process can be called multiple times in parallel, collision check- During the collision check, the system checks whether the process is allowed to start after a different process was started for the same object, authorizations, number range for our processes, person responsible for process as in figure 7.
We can configure within the process, various settings like (See figure 8 below):

1. How to react when errors are encountered:
   - Write data to application database- The data is saved in the application database. Error messages that are the result of incorrect or missing data must first be processed. The form is sent.
   - Tolerate Error Messages-The data is not saved in the application database, but rather in the relevant process object. Error messages that are the result of incorrect or missing data do not need to be processed. The form is still sent. The errors can be corrected in the following process step by the subsequent processor. This setting is of interest to occasional users or managers, for example, who only enter incomplete data that is then further processed by another processor in a later process step.
   - Do Not Tolerate Error Messages-The data is not saved in the application database, but rather in the relevant process object. Error messages that are the result of incorrect or missing data must first be processed. The form is sent.

2. Process Start:
   - Whether the process requires a start object like a personnel number or is it a start object without a start object or is it a mass process that requires no object.
3. **Start Object Type** depending on above step.
4. **Application Type** – Application Type Representing Type of Object-like PA or PD.

Form scenario configuration (See figure 9). Form scenario represents a set of configurations that determine what fields are used in a form and how these forms are linked with the infotype fields in the back-end system. The form scenario is the most basic and critical part of HCM process development because it determines the input and output of a form.
First determine which HR infotypes are going to be affected in a form scenario and configure as appropriate in figure 10.
Now when we click the service field button as in figure 11, we get the fields associated with the infotypes specified in above step. Select the fields that we wish to map for our form fields.
Adobe Form Design:
You need to use Adobe Live Cycle Designer to create and design a form template. Adobe Life Cycle Designer allows you to view and print your forms in a PDF format for easy viewing. When you specify the form name as in figure 12 and double click on it opens the form in Adobe Life Cycle Designer, you see that all the fields defined previously in the form scenario configuration have been transferred (Figure 13). The form scenario provides a context interface through which the actual fields on an Adobe form are linked to the back-end services.

One important design task is data binding, which links UI elements to SAP back-end services through the context interface. Data binding can either be executed automatically by Adobe Live Cycle Designer if an item is dragged directly from the Data View palette to the design view page, or performed manually under the Binding tab of the Object tab.
SAP Back-End Services (see figure 14):

SAP back-end services are the core of the HCM Processes and Forms framework. Back-end services provide the business logic to support default values, input helps, data validations, and other functionalities used on a form. One example is the drop-down box on the form. The values in the dropdown box are supplied by the back-end service. Another example is that the employee information section (employee name, position, and organization unit) is automatically populated by the back-end service when the request form is displayed. Most importantly, at the end of a process, back-end services update the SAP database with data from the form.

In ECC 6.0, SAP offers two categories of standard back-end services in HCM:

- **SAP_PA** enables you to create, change, or delete Personnel Administration infotypes.
- **SAP_PT** enables you to create, change, or delete Time Management infotypes.
- **SAP_PD** enables you to create, change, or delete Org Management infotypes.
Figure 14

Rules (see figure 15): Rules is one feature of HCM P&F which gives us more control over fields, we can use it to return Boolean information, using which will help us to decide any navigations.

Example: You wish to delimit a particular Infotype based on some other Infotype value. Then we need to configure both these infotypes and specify the operations, for the second infotype mention the rule name you just created next to the operation. Configure a rule to check the existence of first infotype and you can pass back Boolean value for a flag. Based on this value, the operation is triggered.

When defining a form scenario to control the back-end services you can use rules to:
- only access a back-end service under certain conditions
- only access an operation of a back-end service under certain conditions
Workflow:
SAP Business Workflow is the central component for HCM Processes and Forms to depict and structure the HR processes. The special architecture of the workflow objects provided and their relation to the other HCM Processes and Forms components enable you to set up process variants and new processes quickly and easily.

Workflow Template
You use workflow templates and form scenarios to map your processes in Personnel Administration. In addition to sample form scenarios, predefined demo workflow templates are also provided for the most important Personnel Administration processes, such as hiring, organizational reassignment, and leaving. These are closely linked to the processes and form scenarios also provided in the standard system.

In addition to the demo workflow templates depicting business processes in the enterprise and the agents involved, there are also workflow templates that you can use to control technical processes such as handling errors or automatically saving data.

- Standard Tasks
  Specific standard tasks for HCM Processes and Forms are available to map the individual business or technical steps in the workflow. You can use them to control the work performed in the form application and the functions that are available in each process step.

- Agent Assignment
With the agent assignment rules specific to HCM Process and Forms, you can determine the appropriate user for each process step.

The agent determination rules specify how the system is to determine the agent (processor) of a workflow step. These agents then receive a work item in their Universal Worklist.

We can configure the workflow to be used for a process (See figure 16 and figure 17 below). Status of Event Type Linkage for Workflow Template can be set by clicking the white/red wheel in figure 16.
Figure 17

Conclusion:

Customers can achieve significant savings and improve process efficiencies with HR service requests by implementing HCM Processes and Forms. This flexible framework allows the automation of virtually any HR request process in an organization that requires a follow-up action, such as review, approval, or adding additional data to the original request. HCM Processes and Forms adds many useful features that aren't available in PCR, such as saving a draft, handling attachments, error tolerance, and the participation of the HR Administrator in all steps of the process.

References:
- SAP Service Marketplace @ http://service.sap.com/erp
- SAP Help website @ http://help.sap.com/saphelp_erp60_sp/helpdata/en/82/b6b94278560c31e10000000a1550b0/frameset.htm
- HR Expert Online Vol6 Number 3 @ http://www.hrexpertonline.com