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Workbook goal

The Workflow Process Analysis (WPA) prepares an institution for the successful implementation of processes in conjunction with the implementation of SunGard Higher Education Workflow. The goal of this workbook is to help you with the analysis of business processes and enable you to create workflow models for them.

Intended audience

- Functional and technical staff interested in learning Workflow Process Analysis
- Functional staff familiar with the business processes to be discussed
- Technical staff who will assist with building workflow triggers or supporting procedures

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Workflow defined
The Workflow Management Coalition defines workflow as “an automation of a business process, in whole or in part, during which documents, information, or tasks are passed from one participant to another for action, according to a set of procedural rules.”

In a workflow situation, a participant performs a work-related activity. The results of that activity are passed automatically to the next participant, who responds and performs another activity. The results of that activity are then passed to the next participant. Business rules provide the routing logic. Because work moves automatically from participant to participant following rules, work is performed consistently across the organization.

SunGard Higher Education Workflow is a core component of SunGard Higher Education software that automates, simplifies, directs, and manages the flow of information throughout an entire organization. Workflow can pass electronic documents, information, and tasks from one role player to the next for action, according to your business rules.

Workflow benefits
The benefits of using SunGard Higher Education Workflow include

- improved communication
- consistent process implementation
- adherence to organizational procedures
- enhanced responsiveness to actions
- clear visibility of work progress
- ability to integrate SunGard Higher Education and third-party applications
- increased productivity.
Think big, but implement small
When beginning to implement Workflow, it is important that you think BIG, but implement small.

Thinking BIG means looking for Workflow candidate processes where:

1. Multiple people and departments are involved.
2. Structured processes revolve around information stored in Banner.
3. Automatic or manual updates are needed for Banner or other applications.

Note: You can automate these processes by having a business event automatically launch a Workflow.

Implementing small means, above all, KEEP IT SIMPLE. Workflow normal processes; don’t try to handle all the exceptions.

Consider the benefits of automating:

1. Notification-oriented processes (e.g., e-mail or manual activities).
2. Approval-oriented processes (e.g., Human Resources and Finance).
Overview
To make your business processes as effective and efficient as possible, you begin by asking questions such as

- How well does this process do the job?
- Are better results needed?
- Are there redundant steps that don't add value?
- Can the same, or even better, results be achieved cheaper?

In some cases, the goal may be to improve the quality of the process; in others to minimize the cost of achieving an appropriate outcome. In either case, the method is the same: weigh the value of the result against the costs of obtaining it.

Two types of process optimization
Before selecting processes for redesign, first determine the types of optimization that you may undertake:

- Process redesign (radical) – broken process.
- Process improvement (incremental) – flawed, but still functional, process.

Process redesign
The effort of redesign should not be wasted on trivial processes. Candidate processes for redesign should be processes that

- may be seriously broken
- have potential for dramatic improvement, such as significant decreases in cost or cycle time
- add value for your customers
- contribute to your organization’s goals.

Look at your goals and business objectives and then ask yourself the following questions as you review the various processes being considered for redesign.

- Where does this process fit within our overall objectives?
- Is it something that is a major contributor to pain for our customers or our organization in its ability to provide value to the customer?
Process redesign, continued
Use this table to diagnose whether you have ‘broken’ processes.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Disease</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extensive information exchange, data redundancy, and re-keying</td>
<td>Artificial fragmentation of a complete process</td>
<td>Multiple departments with multiple databases</td>
</tr>
<tr>
<td>Inventory, buffers, and other assets</td>
<td>System slack to cope with uncertainty</td>
<td>Designing for the one percent</td>
</tr>
<tr>
<td>High ratio of checking and control to value adding</td>
<td>Fragmentation</td>
<td>Too many reviews and approvals</td>
</tr>
<tr>
<td>Rework and iteration</td>
<td>Inadequate feedback along chains</td>
<td>Error corrections or communication gaps that send work back several steps in the process</td>
</tr>
<tr>
<td>Complexity, exceptions, and special cases</td>
<td>Expansion onto a simple base</td>
<td>Processes that grow more complex over time</td>
</tr>
</tbody>
</table>

When conducting business process analysis in conjunction with a software implementation, we generally do not recommend more redesign than is absolutely necessary, so as not to further strain resources needed for the implementation itself. More often, incremental improvements can be introduced during the implementation to streamline processes and improve communication.

Process improvement
For each business process there is, both theoretically and practically, a more cost-effective solution. This is the solution that uses the minimum number of steps needed to accomplish the task. Additional steps increase the time and cost to complete the transaction. Anyone advocating adding a step to a process, such as obtaining a second approval signature, should prove that the incremental benefits of the step exceed the incremental costs. Otherwise, an organization may waste money and time that it could allocate to more productive ends.
Process improvement, continued

Once you have documented your business processes, you can apply, in the following order, the four core steps of systematic process improvement (Andersen 1999, pp. 146-148):

- Eliminating activities that do not add value.
- Simplifying the activities that remain.
- Integrating jobs or groups, thereby eliminating interfaces between areas of responsibility.
- Automating selected activities.

These techniques can be applied using only the data from your own process model.
Steps
Once the candidate process has been identified, optimized, and modeled using the BPA methodology, then the analyst proceeds to record information about the workflow by applying the following steps. Activity sheets are provided in the next section so that you can track the work completed for each of these steps.

Step 1: Describe the business process to be modeled
Describe the business process that will be modeled in Workflow. Include whether or not this is the entire process or if this is a piece of a much larger process. State the business goals for the business process. For example, “Our objective is to automate computer account creation for new employees and this is just a piece of our new hire process.”

Describe the start and end of the process that is to be modeled. Be very specific in the descriptions. For example, “The starting point is after a new employee is entered into Banner on a specific form.” The ending point is after the new computer accounts are created and the new employee is notified with the account information.

Determine who will own the functional and technical aspects of the business process. The functional owner will be the point of contact for the goals of the business process and will have a deep understanding of the steps that need to be completed in the process at a functional level. The technical owner of the business process will be the person(s) who will handle any run time issues with the workflow after it is modeled.

Identify what is working and not working with the current business process. This will be used later to ensure that the resulting workflow improves what you currently have in place. For example, “Currently, our new employees have to wait a few weeks until after they are hired to get the access they need.” and/or “Currently, the IT department does a good job at getting the accounts created in a timely manner after receiving the information they require.”

Identify who the key role players are within the business process. Certain in the above examples, IT and the new employee would be role players!
Step 1: Describe the business process to be modeled, continued
Identify some metrics information. This can be used later to notify role players of lagging work that needs their attention, to generate a cost benefit analysis report for the workflow, or even if we need to prepare the workflow server to handle added work load for specified periods. Be sure to consider how many instances of the workflow will be run over a specified period of time. Also note if there are peak times the workflows will be generated. For example, registration related workflows will probably be run during specific weeks out of the year. Finally, note any time lapses that role players need to be notified of overdue work.

Step 2: Sketch the model
Sketch the model of the business process. This sketch will be constantly revised as the WPA process progresses. Use the completed swim lane model as your starting point.

As you sketch your model, consider sequential processing versus parallel processing. There are some activities that must happen in a specific order (e.g., one activity is required before going to the next). However, there are times when multiple activities can happen at the same time.

Also consider all the logic in the model. There are times when indicators or context parameter values determine the path of the process.

Finally, be sure to consider business process specific questions. For example, “How does the IT staff know to which applications a new employee will require access?” and “Are there approvals required for that access?”

Step 3: Type each activity in the model
Determine the type for each activity in the sketched model. The following list describes the activity types supported in Workflow and what they will look like at runtime to the end users.

Note: In this step, you are simply determining each activity’s type. The detail about the activity will come later (Step 5).
Step 3: Type each activity in the model, continued

- **Email activity** – An email activity is used when it is necessary for workflow to automatically notify a person(s) via email with some information. At runtime, workflow will send the email and move on to the next activity when successful. If the email is not successful, there are options on how to handle the failed email. Options include:
  - Ignore – Ignore the failure and continue to the next activity. Note that even though workflow moved on to the next activity, there are log files that will note the failed email for future reference.
  - Warn – An alert will be raised for each failed recipient but workflow will automatically continue to the next activity.
  - Stop – An alert will be raised and the workflow will be halted.
Step 3: Type each activity in the model, continued

- **Custom activity** – A custom activity should be used when you need an end user to be able to enter data directly into the workflow application.

  **Note:** At runtime, after the data is entered, it will ONLY be saved to the Workflow database.

- **Manual activity** – A manual activity should be used when you want to notify a person within the Workflow application and you do not want Workflow to continue until that person acknowledges that notification.
Step 3: Type each activity in the model, continued

- **Approval activity** — An approval activity should be used to have a workflow user approve the work done in a prior workflow activity. They will have the option to Approve, Reject, or Return for rework. You get to determine what happens when each of those is selected (in Step 5). At runtime, the approver will also be able to review the work done in the prior activity.
Step 3: Type each activity in the model, continued

- **Launch application activity** – A launch application activity is used to launch any application from Workflow at runtime. Some examples are launching desktop applications such as MS Word or MS Excel or launching workflow-aware applications, such as Banner forms.

- **Internal Activity** – An internal activity should be used for activities that Workflow can do without any user interaction. The most common examples are running SQL queries and executing SQL procedures.

```sql
select spriden_first_name || ' ' || spriden_last_name into @FULLNAME from spriden
where spriden_change_ind is null and spriden_id = @ID
```
Step 4: Identify all data elements
On your sketch, list the data elements going into each piece of logic and into and out of each activity. It is helpful to use one color for data elements going into each activity and another color for data elements coming out of an activity.

Each data element must have a source for its value (i.e., passed into model, returned from an activity either from a Banner form, a Workflow custom form, or an internal query/procedure). List each data element here and its value source.

This step may result in additional activities being added to your sketch as you start to uncover data elements that did not have a value source.

Step 5: Identify activity details
Complete the detailed information for each and every activity in your sketch. This information may result in new activities being added to the model. The following describes the information necessary for each activity.

Email activity
Activity Name, Purpose, Recipient(s), Copied Recipient(s), Blind Copied Recipient(s), Sender(s), Attachment(s), Footer, Subject Line, Body, Action on failures. See the Email Activity Worksheet in Appendix A for more details.

Custom activity
Activity Name, Purpose, Performer, Data Elements, Data Validation, Sketch, Metrics Information. See the Custom Activity Worksheet in Appendix A for more details.

Manual activity
Activity Name, Purpose, Performer, Content, Metrics Information. See the Manual Activity Worksheet in Appendix A for more details.

Approval activity
Activity Name, Purpose, Performer, Activity to be Approved, Approver Message, Approval Actions, Metrics Information. See the Approval Activity Worksheet in Appendix A for more details.
Step 5: Identify activity details, continued

Launch application activity
Activity Name, Purpose, Performer, Application, Data Elements, Metrics Information. See the Launch Application Activity Worksheet in Appendix A for more details.

Internal Activity
Activity Name, Purpose, SQL Query Information, SQL Procedure Information. See the Internal Activity Worksheet in Appendix A for more details.

A worksheet for each activity type is provided for you in Appendix A. It is important to complete ALL the information on these worksheets as they will help you to uncover any issues with your sketch as well as simplify the development process later.

Step 6: Walk through the final sketch
This is the time to walk through your final sketch to uncover any issues. Be sure to follow all paths of the workflow and consider ALL possible (within reason) data values for the logic. Consider whether this sketched model will correct any of the issues you are having with your current process. Most importantly, consider whether this modeled sketch will meet your business goals.

Now is the time to make any necessary adjustments. Changes made here will be virtually free! On the flip side, if you wait to make changes due to issues after the workflow is modeled and/or in production, you will no doubt face unwanted re-work!
Appendix A: Worksheets

Lesson: Overview

Introduction
In this section you will find a worksheet for each step in the Workflow Process Analysis. You will also find activity worksheets for each type of activity.

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Appendix A: Worksheets

Step 1: Describe the Business Process

Instructions
Determine the name of the business process to be automated. Describe the objective of automating this process and include information on how the workflow starts and ends.

Business process name
Identify the name of the business process to be automated.

Objective
Describe the business process that has been identified as a good candidate for workflow. Identify whether it is a ‘standalone’ process or part of a larger business process.
Appendix A: Worksheets

Step 1: Describe the Business Process (Continued)

Start
Describe what starts or initiates the business process. Be very specific.

Examples: “When a new user is created on the SPAPERS form,” or, “When a student drops a class using a self service form.”

End
Describe when the business process has successfully been completed.

Examples: “When the financial aid department gets notified via an email,” or, “When the new employee is notified via email of their parking permit information and new email address.”

Administrator
Identify who will own the technical side of the business process. This person or group of people will investigate any run time errors, email failures, etc.

OWNER
Identify who will own the functional side of the business process. This person or group of people will be the general point of contact for functional questions about the business process.
Current issues
List issues associated with the business process currently. This information will be used later to ensure the new process addresses current issues.

Current likings
Identify what works well with the business process as it exists today.

Roles
List the roles that will be included throughout the business process.

Note: You may need to start sketching your model and continue adding roles as they become apparent.

Metrics
Identify approximately how many times this business process will occur in a week’s time.

Example: A registration process may result in 1,000 instances per week during peak registration periods. A new hire process may result in only 10 instances per week.

Identify any peak periods for this business process.

Identify how long it takes for each instance of the current process.

If there are a specific number of hours in which each instance of the business process should be completed, estimate those hours here.
Appendix A:  Worksheets

Step 2:  Sketch the Model

Instructions
Sketch a model of the business process. This sketch will be revised continually throughout the WPA process. Use the completed BPA swim lane model as your starting point. Be sure to consider sequential versus parallel processing, decision points, and any business process-related questions.
Appendix A: Worksheets

Step 2: Sketch the Model (Continued)
Appendix A: Worksheets

Step 2: Sketch the Model (Continued)
### Instructions

Using the following table, determine the type for each activity in your model.

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Email</td>
<td>Activity performed automatically by Workflow. Used when predefined email notification needs to be sent to a person(s).</td>
</tr>
<tr>
<td>Custom</td>
<td>Activity appears on a person’s worklist for completion. Used when data needs to be entered directly from Workflow.</td>
</tr>
<tr>
<td>Manual</td>
<td>Activity appears on a person’s worklist for completion. Used when Workflow user notification needs to be sent to a person(s).</td>
</tr>
<tr>
<td>Approval</td>
<td>Activity appears on a person’s worklist for completion. Used when an approval is necessary before moving on to the next activity.</td>
</tr>
<tr>
<td>Launch Application</td>
<td>Activity appears on a person’s worklist for completion. Used to launch a Banner form or desktop application from the worklist.</td>
</tr>
<tr>
<td>Internal</td>
<td>Activity performed automatically by Workflow. Used to retrieve data from a database (e.g., Banner) or run a pre-defined script from Workflow.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Activity Type</th>
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Appendix A: Worksheets

Step 4: Identify All Data Elements

Instructions
On your sketch, list the data elements going into each piece of logic and into and out of each activity. It is helpful to use one color for data elements going into each activity and another color for data elements coming out of an activity.

Each data element must have a value source (e.g., passed into model, returned from an activity on a Banner form, a Workflow custom form, or an internal query/procedure). List each data element here and its value source.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Value Source</th>
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</table>
Appendix A: Worksheets

Step 5: Identify Activity Details

Instructions

Complete the appropriate activity worksheet for each activity type in your sketch. Activity worksheets are provided at the end of this document for your convenience.
Appendix A: Worksheets

Step 6: Walk Through Final Sketch

Instructions
Walk through your final sketch. Be sure to review all the different possible decision point values so that all paths are visited. Answer the following questions.

1. Does the model that you sketched address the issues with your current business process? Refer to the issues you listed in Step 1: Describe the Business Process.

2. Are the current likings listed in Step 1 still maintained?

3. Does this model help to meet your institution’s business goals?
### Appendix A: Worksheets

#### Activity Type: Email Activity

1. **Email Activity Name:**

2. **What is the purpose of the email notification?**

3. **Complete the following sender/recipient email information.**

   **From:**
   
   **To:**
   
   **cc:**
   
   **bcc:**

4. **What, if any, attachments need to be included in the email?**

5. **Is there a common footer for emails coming from Workflow?**

6. **What should the email subject line contain?**

7. **What should Workflow do if the email fails to reach a recipient?**

   - **Ignore**
     
     Ignore failure and continue with the next activity in the workflow.
   
   - **Warn**
     
     The workflow will continue to progress to the next activity, but an alert will be raised for each failed recipient.
   
   - **Stop**
     
     Stop the workflow from progressing. An alert will be raised and the workflow can be re-started after the issue is handled.

8. **What should the email body contain? What data from Workflow and/or third-party applications (e.g., Banner, Banner Xtender Solutions) should be included in the email body?**
Appendix A: Worksheets

Activity Type: Custom Activity

1. Custom Activity Name:

2. What is the purpose of the custom activity?

3. Who will be performing this activity?

4. Use the following table to describe all of the input and output data.

<table>
<thead>
<tr>
<th>Label</th>
<th>Type*</th>
<th>Size</th>
<th>I/O</th>
<th>Editable</th>
<th>Required</th>
<th>Additional**</th>
</tr>
</thead>
</table>

* Valid types are Text, Numeric, Boolean, or Date.
** Indicate whether additional information will be specified in the next section.

Make note of any additional information for the data above. For example, if using a radio box, indicate the correct values for each radio. Or, if using a drop-down list, note the drop-down values.

5. Does any of the data need to be verified after it is entered? If so, list the data and how to verify?

6. On the back of this worksheet (or on a separate sheet of paper) sketch the custom form.

7. If tracking metrics for this activity, complete the following information.

   **Allotted Time**
   **Lagging Alerts (Percentage)**
   **Workflow Tracking Hours**
Appendix A: Worksheets

Activity Type: Manual Activity

1. Manual Activity Name:

2. What is the purpose of the manual activity?

3. Who will be performing this activity?

4. What should be in the content of this activity? What data from Workflow and third-party applications (e.g., Banner, Banner Xtender Solutions) needs to be included in the content?

5. If tracking metrics for this activity, complete the following information.

   Allotted Time:
   Lagging Alerts (Percentage):
   Workflow Tracking Hours:
Appendix A: Worksheets

Activity Type: Approval Activity

1. Approval Activity Name:

2. Who will be performing this activity?

3. What is the name of the activity to be approved?

4. Is there a message you want the approver to see in workflow?

5. If tracking metrics for this activity, complete the following information.

   Allotted Time:
   
   Lagging Alerts (Percentage):
   
   Workflow Tracking Hours:
## Appendix A: Worksheets

### Activity Type: Launch Application Activity

1. **Launch Application Activity Name:**

2. **What is the purpose of the activity?**

3. **Who will be performing this activity?**

4. **What is the name of the application to be launched (e.g., Banner, MS Word, MS Excel)? If launching Banner, what Banner form will be populated?**

5. **List the data to be passed into the application. If launching a Banner form, list the block name and field name.**

6. **List the data that will be brought back to Workflow (for Workflow-aware applications only). If launching a Banner form, list the block name and field name.**

7. **If tracking metrics for this activity, complete the following information.**

   **Allotted Time:**
   **Lagging Alerts (Percentage):**
   **Workflow Tracking Hours:**
Appendix A: Worksheets

Activity Type: Internal Activity

1. Internal Activity Name:

2. What is the purpose of the activity?

3. What database will be accessed by this activity (Banner or otherwise)?

4. Will this activity be running a Query (Select Statement) or a Procedure?

   If running a Select Statement, complete the following.

   **System / Field Name**

   **Data to Select**

   **Constraint(s)**

   If executing a procedure, complete the following.

   **Data to pass into procedure**

   **Data coming back from procedure**

   **Description of what will be handled in the procedure**
This workbook was last updated on 10/14/2007.