Business Process Modeling with BPMN From Anti Patterns to Best Practices

INTRODUCTION

BPMN is already acknowledged as a de facto standard for business process modeling. However, it still takes a long journey to raise the maturity of business process modeling practice. Many business process modelers still do a lot of fundamental mistakes that make their BPMN models overly complex, difficult to understand and maintain. According to the old saying, it is stupid to not learn from your own mistakes; it is wise to learn from mistakes by others. Therefore, it is important to understand the most common mistakes, which we will call anti patterns, and explore how they can be avoided by applying best practices. Practitioners learn best in an example-driven approach. In this short article, we will learn a few best practices by presenting a business process model in BPMN, which reflects a specific anti-pattern, and demonstrating how applying a best practice helps to improve the business process model.

BEST PRACTICE #1: CONSISTENT NAMING

The first fundamental thing that needs to be reviewed in BPMN models is consistency of elements’ naming. It is quite typical that modelers use nouns for naming activities or use different naming style for the elements of the same type in different places. Inconsistent naming style typically indicates that there is no solid understanding when to use which element while capturing business processes in BPMN. Table 1 examines anti-patterns in naming and suggests corresponding best practices for consistent naming.

<table>
<thead>
<tr>
<th>Anti Pattern</th>
<th>Best Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noun based activity name</td>
<td>Strong verb + domain specific noun</td>
</tr>
<tr>
<td>Gateway named as activity</td>
<td>Unnamed gateway</td>
</tr>
<tr>
<td>Words and/or in activity name</td>
<td>No conjunctions in names</td>
</tr>
<tr>
<td>Long activity name</td>
<td>Short name + documentation</td>
</tr>
</tbody>
</table>

Table 1. Some Naming Anti Patterns and Best Practices

In my consulting practice, I face inconsistent naming issues in almost every organization that adopts BPMN as a standard for specifying business processes. An example of a business process model with inconsistent naming and its refactored version compliant with consistent naming rules is shown in the figure below.

![Figure 1. Business process Make Loan Proposal with inconsistent naming and its refactored version compliant with naming best practices/patterns](http://www.irmuk.co.uk/usefulinfo/enewsletter.cfm)
We analyzed only a few common naming issues – in practice, you will also face problems with inconsistent naming of events, data objects, participants, messages, etc. For organizations adopting BPMN as a standard, it is highly recommended to establish naming conventions and perform regular reviews of BPMN models to ensure that these conventions are followed.

**BEST PRACTICE #2: MULTIPLE LEVELS OF DETAIL**

The second fundamental thing that needs to be reviewed in BPMN models is the complexity of process diagrams. While BPMN supports modeling processes in multiple levels of detail, many practitioners are used to “everything in one page” style, which impairs overview and makes it difficult to understand and analyze the process. Psychologists have determined that the best number of visual elements to focus on in one diagram is 5±2. In practice, this rule is rarely followed. It is quite practical to increase this number to 7±4, but consulting various organizations on business process modeling, I have seen extreme cases of business process diagrams with up to 450 (!) tasks. Such large diagrams are very difficult to analyze and improve – the value of visualization is lost.

In Figure 2, the presented example of a large diagram contains a number of inconsistency issues such as lack of Confirm Seminar activity that is symmetric to existing Cancel Seminar activity, a non-ending loop for registering participants after Decision Deadline, unequal levels of detail for announcing seminar (the first four tasks) and canceling it (one compressed subprocess), no clear distinction of early and late registration, and others. However, it is rather difficult to spot such issues if you are analyzing a large and complex business process diagram – you are happy that you have managed to read and understand it. A refactored version presented in Figure 3, uses subprocesses with additional diagrams assigned for each of them.
BEST PRACTICE #3: PROPER DIAGRAM LAYOUT

Last, but not least, I frequently face issues with BPMN diagram layout. You can spot different sizes of similar type elements, un-even spaces between elements, long, bended and crossing lines, etc. All of these layout issues do not change the content of the business process but they do make a diagram more difficult to read. Figure 4 represents a typical layout, which contains many of these issues and which can be refactored to a good layout that has already been presented in Figure 3. One very important issue in Figure 4 is so called “slalom” – a lack of consistent direction of flow, which among other things makes it very difficult to differentiate the main and alternative scenarios.

In Western culture, a typical flow should be oriented either top down or from left to the right. We prefer top down direction because it enables to balance use of space as the activity names’ text naturally flows from left to the right, and the sequence flows then progress in a top down direction. Missing a clear direction of flow also indicates that the modeler probably specified all the details at once, while a best practice is to focus on the primary ‘happy day’ scenario first and add alternative scenarios only afterwards.

SUMMARY

We have reviewed three best practices for efficient business process modeling with BPMN by presenting initial business process samples representing anti patterns and refactoring them into better quality business process models compliant with the best practices – consistent naming, multiple levels of detail, and proper diagram layout. We will explore further best practices in upcoming articles.

Figure 4. An example of a poor layout diagram for a business process Organize Seminar containing multiple layout issues – slalom, different symbol sizes, uneven spacing and bending lines (see Figure 3 for a refactored version)