The Difference Between a Diagram and a Model – and Why this Matters for BPMN

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Abstract

The terms 'diagram' and 'model' are often used interchangeably, yet there is actually an important difference between them. It can be useful to reflect on these differences when undertaking process analysis, management or improvement—and it can be particularly important when utilizing the BPMN approach to modelling.

This article explores the difference, and also reflects on what this means for the tools that a process modeler might choose.

It is often said that 'a picture paints a thousand words', and this is definitely true when it comes to process modeling. A well-drawn process model can concisely and precisely depict a rich breadth of information which can be used to operate, manage and run a process. It is often much easier to convey this information visually, rather than relying on hundreds of paragraphs of text. Imagine trying to convey all of the steps required to make a cup of tea (and what to do if the kettle doesn't boil). After just a few moments of analysis, we'd find there are far more steps than we initially thought, and a textural description would become extremely wordy. A visual representation would be far cleaner, more concise and easier to follow. This focus on visualization of a process leads us to an important discussion point: the difference between a diagram and a model.

It is often the case that in day-to-day usage, the words 'diagram' and 'model' are used interchangeably, almost as if they were synonymous. This is understandable, but to business process analysts the two terms imply slightly different things. In fact, the nuanced differences between the two terms can have implications for our work. So how does a diagram differ from a model?

Reflecting on the Differences

There are many formal definitions out there, but for practical purposes when considering process modeling we could consider that:

- A diagram is a snapshot, visualization or a view of a process. It shows some information, but it does not necessarily show everything that is available.
- A model represents all the relevant underlying information that we choose to record about the process. It can be represented in multiple ways, depending on what we want to depict.

In this context, a diagram is a view on the underlying model, it is like looking at the model through a lens. We can zoom in, zoom out, turn elements on or off and show just what is relevant for the situation. This is extremely relevant for process modeling and BPMN in particular. A common misnomer is to refer to BPMN as 'Business Process Modeling Notation'; however its correct title is 'Business Process Model and Notation'. This important distinction implies that the notation is logically separate from the model, in that the model could be visualized in lots of different ways. Indeed, BPMN's visual notation is only one way of articulating a model—a valid executable BPMN model can also be represented as XML!

What This Means for Business Process Analysis and Management

One of the advantages of using BPMN as a modeling approach is the ability to have a single model that can be viewed from different perspectives. A very senior manager may want to see a high-level 'black box' collaboration diagram. Those involved with the process may need to understand every activity, and may need to see a very detailed private internal process diagram. With a shared BPMN model, these views are connected; they are 'lenses' on the underlying model, and therefore any changes we make are represented in all diagrams. We can zoom in, zoom out, and all of the pieces are connected.

This is very different from creating a set of disconnected diagrams. Drawing packages are often very useful as they are flexible—you can draw anything that you want—yet the moment you have different 'views' on the same process, difficulties can start to emerge. Since each disconnected diagram is static, a change in one area is not reflected in any of the others. Maintenance of all of the artefacts can become a laborious job, and there is a risk that different diagrams will become misaligned.

Considering these factors before we embark on a process management or improvement initiative can ensure that we choose the right tools for the job. In some circumstances, a drawing package might work just fine. In others, a more formal modeling tool may be appropriate. Either way, it is crucial that we consider the types of 'view' that our stakeholders will need, and that we find ways of visualizing the model that are as useful as possible for our audiences. This will be time well spent!