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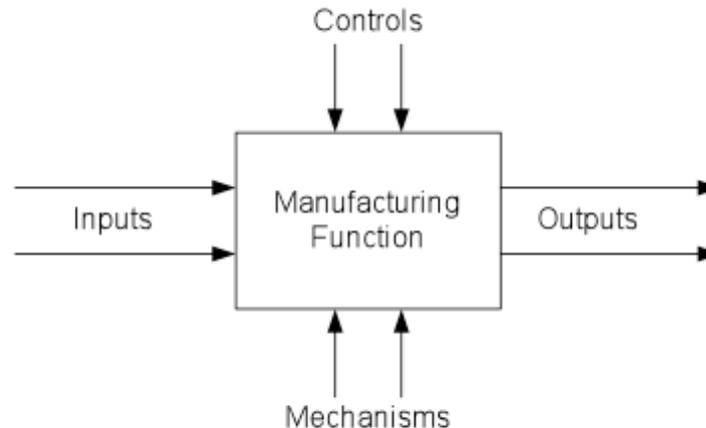
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## Scoping Processes

Too many process analysts talk as if flow diagrams, like BPMN, are the most important diagrams a business analyst can use. In fact, in most cases, a process analyst would be better advised to begin with a Scope Diagram, which will provide much more valuable information.

The Scope Diagram, also commonly referred to as an IGOE diagram, was developed almost a decade ago by Roger Burlton and is a key element of the BPTrends Associates BPM methodology. The Scope or IGOE diagram (Inputs, Guides, Outputs and Enablers) is ultimately derived from the much simpler IDEF0-1 which is pictured in Figure 1. [1]



**Figure 1. An IDEF0 model**

In essence, an IDEF0 model, like the one in Figure 1, shows a process. In early versions it showed a functional unit, but in recent versions, it becomes a process with inputs and outputs. In addition to this traditional flow, however, the diagram also provides vertical considerations – controls which are constraints that management puts on how a process operates, and mechanisms, which are capital resources used in the execution of the process. A manufacturing process would have raw materials as an input, but it would have employees (human labor), machines and IT software as mechanisms or capital resources that were used over and over again.

The Scope or IGOE diagram is shown in Figure 2. As with the later versions of IDEF0, we place a process at the center of the diagram. We show Inputs on the left and Outputs on the right. In the case of Inputs, we show where they come from (a customer, a functional unit or system, another process) and we label the nature of the inputs. We do the same for Outputs, for Guides (usually business rules or policies generated by management processes), and for Enablers, which generally include such elements as employees, facilities, IT and machinery.

After we identify all of the Inputs, Guides, Outputs and Enablers of a given process, we ask if the interaction



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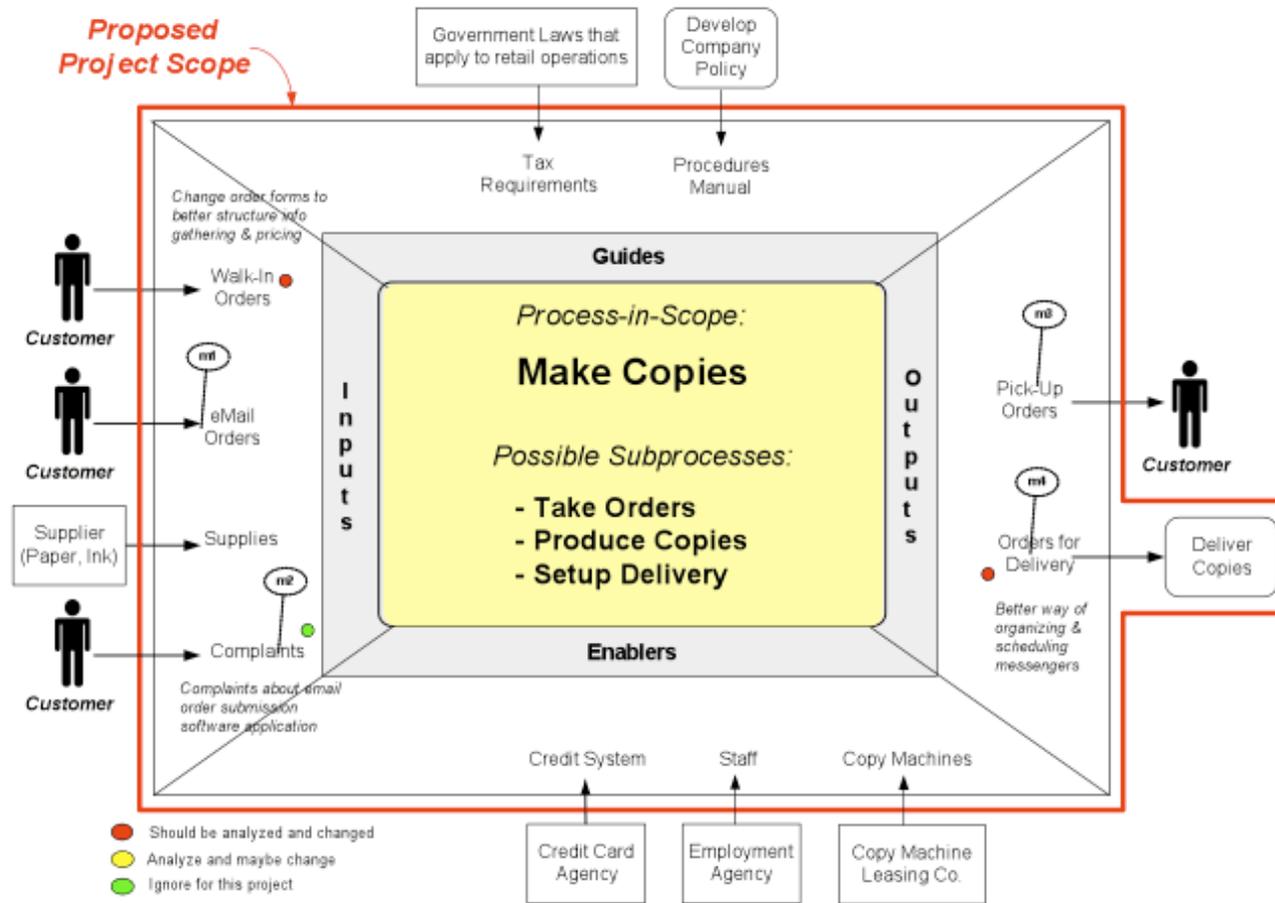
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currently works. If it does, we ignore it or put a green dot beside it. If there are problems, we either put a yellow dot (investigate further) or a red dot (analyze and change). In some cases, we identify specific measures that we can use to judge the transactions, and in those cases, we indicate a measurement in a dotted oval tied to the artifact involved.



**Figure 2. A typical IGOE diagram.**

The diagram in Figure 2 is rather simple. In a real analysis there can easily be 50 interactions. In this case, rather than putting notes about problems on the diagram, we collect them on a separate worksheet. The important thing is that when we are done with this diagram, we have a clear picture of all of the entities a given process interacts with and where the problems lie. We often end this effort by drawing a red line around the process box, extending it, where necessary, to include something outside the process box. This is what we have done in Figure 2 where we incorporate *Delivery* within the red line. In essence, we are saying that if we want to fix the *Make Copies* process, we will also need to look at the *Delivery* process, which is currently being considered as a separate process. The term Scope Diagram refers to the way this diagram allows us make good decisions about the scope of our process redesign effort.

Obviously, we have not yet looked “inside” the *Make Copies* process. We haven’t created a flow diagram to show how the various inputs are processed, where constraints are applied, where employees have roles, or any of the things we would determine if we were to do a BPMN diagram of *Make Copies* and we haven’t applied any

of the techniques that most Lean and Six Sigma practitioners consider the essence of their approach. In most cases, a redesign team begins by creating a Scope Diagram and determines all of the interactions between a given process and its external elements. Then, once the Scope Diagram is done, the team moves on and creates a flow diagram – usually a BPMN diagram – to examine how the *Make Copies* process deals with Inputs and Outputs we are interested in changing. This approach avoids the need to develop very complex flow diagrams by starting with a good idea of where the problems lie and focusing on subprocesses that are involved in the problems. [2]

Obviously, if you are a systems person, you could see Scope diagrams as appropriate for super system concerns, and flow diagrams as appropriate for subsystem concerns. Similarly, you could easily imagine doing all this with flow diagrams. If you were to consider doing it with flow diagrams, however, you would find yourself creating a variety of very complex flow diagrams. Using the Scope diagram approach, you focus on one process – in our case, *Make Copies* – and then only look at the other processes that actually touch *Make Copies*. At the same time, by considering Guides (constraints) you focus on how business policies and rules are used by the process, something much harder to do in a flow diagram. Similarly, you identify a variety of Enablers (mechanisms) that are needed to facilitate the actual execution of the process.

By beginning by looking at how the process-in-scope interacts with the outside environment, and capturing measurement information about the interactions, one assures a measurement system based on the results that the process generates, and that motivates the team to look for a much more meaningful set of metrics for their redesign effort.

A business process redesign project can be complex and costly. Avoiding unnecessary expense ought to be one of the goals of any smart process improvement effort. The development of flow diagrams is one of the major time sinks in many projects. In the worst cases, the redesign team gets involved in “analysis paralysis” and keeps trying to develop more and more comprehensive flow diagrams of the process. The goal of the project, however, is not the development of a complete diagram of the process. It is to solve a business problem - to improve the effectiveness and efficiency of the process. Scope diagrams begin by focusing the team on the goal: where are the problems and what difference do they make. A good Scope diagram limits the flow diagramming effort by focusing it on the specific areas where the process needs an improvement.

I continue to be amazed that so many process analysts talk about flow diagrams and BPMN as if they were the most important tools in our kit. In my experience, Scope diagrams are much more powerful. A one page Scope diagram can be developed by a team in a day and provides more useful information than a dozen pages of flow diagrams developed over the course of several days. Don't get me wrong: I am not advocating avoiding the use of flow diagrams – they are usually essential in understanding exactly why the process isn't functioning as it should. But they are not the place to start. You start by figuring out how the process is currently functioning. And then, you drill down with flow diagrams into specific problems to see exactly what is wrong.

If I could recommend one thing to improve the ways business analysts, Lean, IT and Six Sigma practitioners approach process change projects – it would be the use of Scope diagrams. If you don't already know about them, you owe it to yourself to learn about them.

Till next time,

Paul Harmon

Notes:

[1] If you want to read a detailed review of the IDEF0 model and some other derivatives, see the April 28, 2009 Advisor, [Deming, ITand BPM](#).

[2] For an in-depth description of the Scope diagram, see my book *Business Process Change*, 2nd Ed. (Wiley

2007). Another good introduction to Scope diagrams can be found in Artie Mahal's book, *How Work Gets Done* (Technics, 2010).

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