

The 4-Dimensional Swimlane: An expanded view of process modeling

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Representing processes in a manner that can be easily consumed by decision-makers remains one of the most challenging aspects of being a process improvement professional. Finding a way to communicate the challenges in people, process, tools, and data that make up a complex system is daunting. Scores of modeling tools and methodologies have been developed; all of which, successfully or not, attempt to address one or more aspects of these systems. However, these approaches still tend to fall at the extremes of the pragmatic spectrum.

One reason for this is that we, as process experts, are essentially translating the complexities of our trade to those who, while intelligent, are often not educated in process systems. This is no different than the challenges a physician faces when trying to translate the complexities of the human condition to a set of data points on which a lay person can make decisions. Therefore, the purpose of this model is to represent a fuller picture of a process system, without the complexity inherent in most models that makes them difficult to consume by non-process professionals.

If we are to be successful, designing a tool that can bridge this gap is paramount. As Johal (2016) states, one of the key aspects of process excellence is that the models are able to balance the syntactic, semantic, and pragmatic needs of the environment. That is, they are built and delivered in a manner that fits the context and content the client needs in order to make decisions. This pragmatism must always be paramount, since no matter how accurate our models are, if they cannot be consumed and used for decision-making, they are no more than academic dalliances to entertain bright minds.

Swimlane modeling has become one such tool which offers a more pragmatic representation of a process. Its popularity comes from its ease of use and its effectiveness at delivering information. The power and clarity of swimlanes is well illustrated in Sharp's (2011) BPTrends article "Models, not Modules – Keeping your Process Models 'Human-readable'." I have found swimlanes to be one of the few tools that non-process people can read and almost always grasp the key challenges in their processes. Swimlanes are very simple and easily understandable models that generally do a good job of depicting complex end-to-end processes.

However, if we step back and look at the totality, swimlanes do not describe all of the key aspects of a process system (process, people, tools, and data). There is still a gap between the swimlane representation of process and the conceptual data model with which that process interacts. These two perspectives of how organizations operate are important to bring together to provide a more complete picture. This offers up an opportunity to improve this model and bridge the gap between process and data. Now, we must be careful when meddling with the swimlane model. We certainly don't want to draw away from its simplicity and pragmatic value. Yet by adding one more layer of detail, we can represent an entire process system.

I call this model the 4-Dimensional (4D) swimlane, with each dimension representing one of the key aspects of a process system – process, people, tools, and data – thereby bringing together all the facets to help describe the totality of the process, while maintaining a simple representation.

I chose swimlane models as the basis for this new design because they already represent most of what needs to be communicated to clients about their process system. When we look at the classic model, we already see two of the dimensions represented. In the example of a procurement process (Figure 1), we see the steps of the process (A) and the people involved in delivering the process (B). Sharp & McDermott (2009) have evolved this to include tools (C) which aids in the execution of the process. The one thing missing is data.

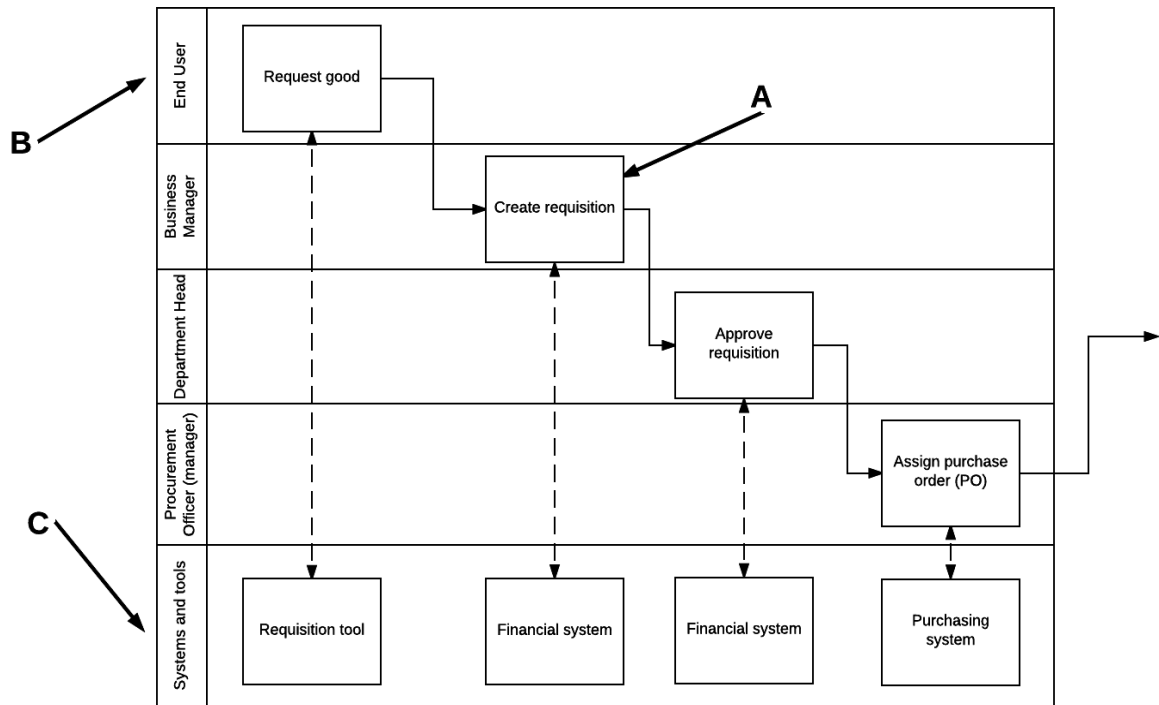


Figure 1: The traditional 3D swimlane

Inserting data as an element will not only allow the model to more accurately represent reality, it will also aid in the transition from analysis, to solutions development, to implementation. If we think about processes as the veins of a body, then data is the blood bringing chemicals to be manipulated and consumed by the organs (people and tools). Without representing the data, our models are missing a key facet of the process system.

Now, this does not mean that we are going to overlay a detailed, physical database diagram on top of our swimlane. Doing so would destroy not only the pragmatic aspect of the model and make it far too complex for most to read, but it would also make this quick analysis effort a data modeling one, which should come later.

Instead, this should be done at a business-friendly level and represent a conceptual model. The conceptual level should represent the major “nouns” which define the “things of interest” to the organization (Sharp, 2009, p. 352). By keeping it at this level we can add value to the swimlane without overcomplicating it or detracting from the balance between the four aspects of a process systems. We are, in a sense, transcribing the high-level conceptual data model onto a lane of the swimlane to indicate how the people, process, and systems are interacting with the

conceptual data model of the organization. In this example (Figure 2) we see a small piece of a simplified conceptual data model for a purchasing process.

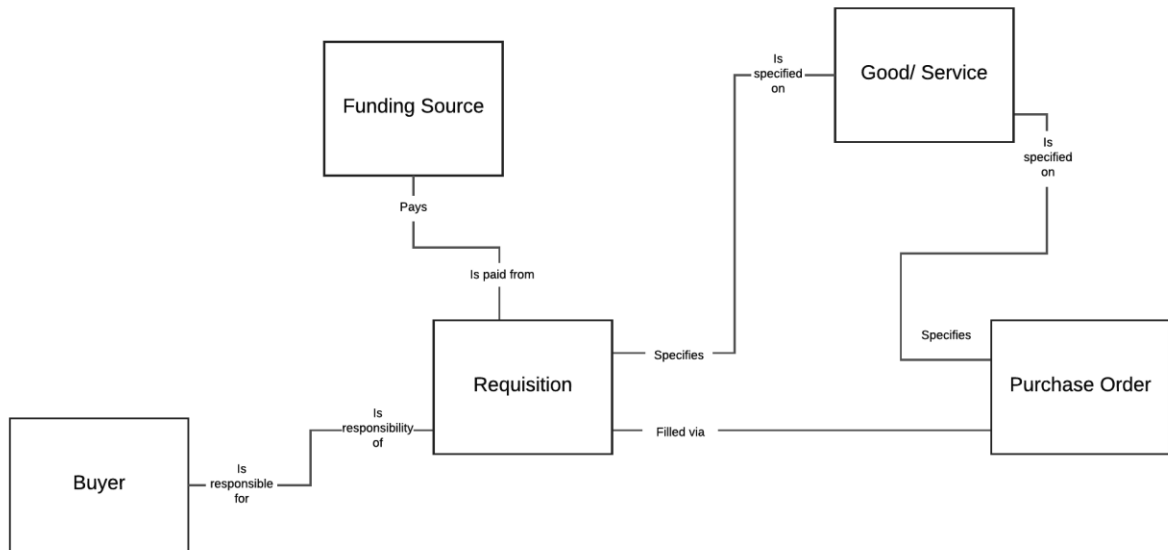


Figure 2: A simplified conceptual data model related to a purchasing process

In the 4D model, each data concept is depicted similarly to another actor or tool. In this case, each time a process interacts with a person or tool, it is usually going to also have a second interaction point with one of the concepts. Now, in our example (Figure 3), we see where the Requisition, Purchase Order, and other concepts interact with the process, people, and tools of the swimlane. Again, this is high level; it does not depict the table or field or data type. It simply states that when the financial system creates a requisition, it is interacting with the requisition and the funding source. To show this representation, we draw a dotted line from the actor(s) (persons and/or tools) to the appropriate concept(s). Most diagramming tools would let you put this fourth dimension in a separate layer that could be toggled "off" if you choose not to show it for a particular audience.

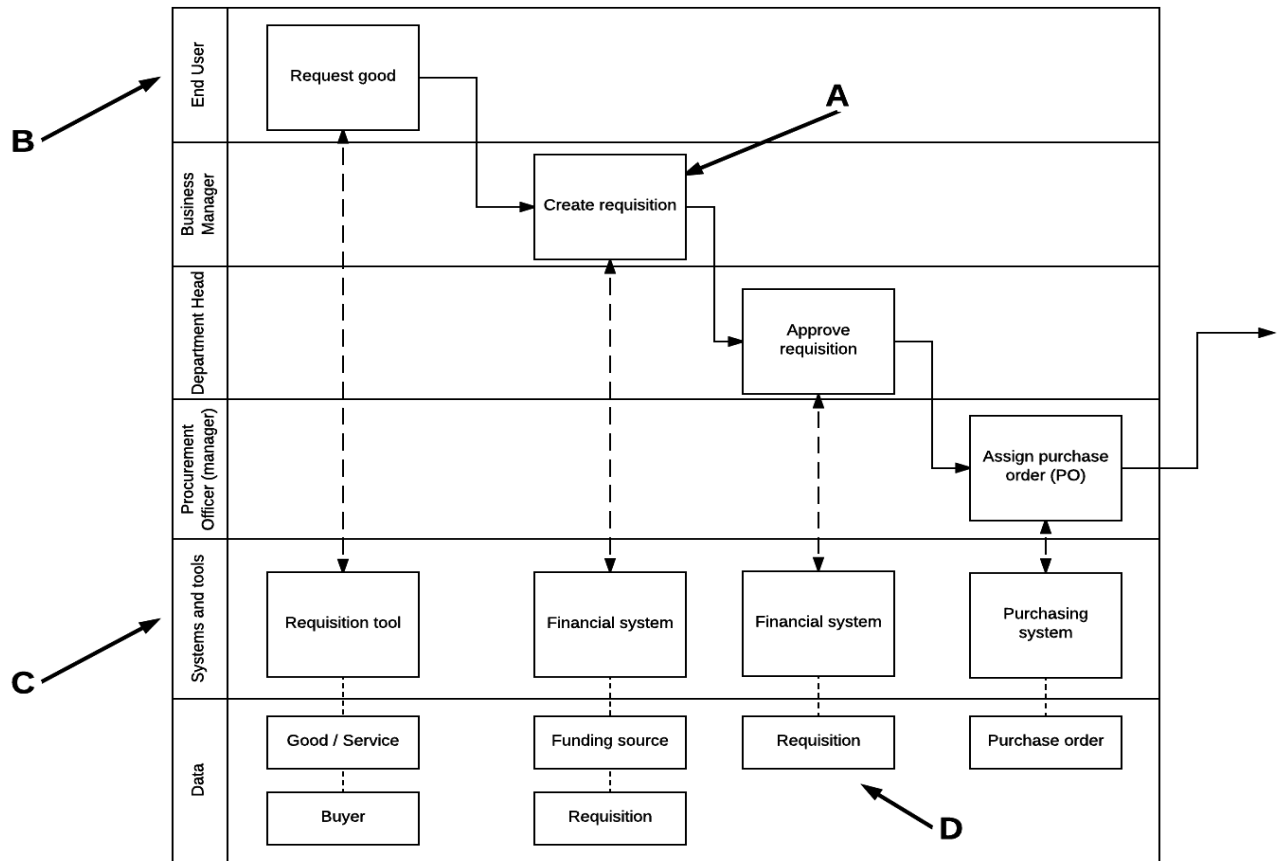


Figure 3: The expanded 4D swimlane

By adding this one additional component, we are able to vastly expand the effectiveness of the swimlane model with relatively little impact to the pragmatic value. This allows for a complete horizontal (end-to-end) and vertical (process, people, tools, and data) representation of a process system. This helps highlight additional process challenges as it makes clearer where data is being interacted with and identify any redundancy or areas where data could simplify the process if interacted with sooner. As a bonus, there is now an additional tool for bridging between the conceptual data model, which is often not understood by lay persons, and the swimlane model, which is. This allows for the model that brings an additional stakeholder group into the discussion. I encourage you to try adding this additional dimension into the next swimlane you design.

The more we can bring process concepts to the forefront of our client interactions in a pragmatic manner, the better we help their understanding. Making critical business decisions is difficult enough without having a complex set of models to learn and decipher. In this approach, we are able to parallel two critical models (swimlane and concept model) into a single illustration which better describes how people, process, tools, and data all interact within a process system. I hope this approach will prompt additional ideas how we can best present data to our audiences who, more and more, are not familiar with the syntax of process models.

References

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Before coming to Maryland, he was a Sr. Project Manager responsible for the industry-leading eCommerce platform at Long & Foster. He also worked as a consultant at the Constella Group (now part of SRA), a principal consultant at Prism Consulting Services, and Manager at Invitrogen (now part of Thermo Fisher Scientific). After, Dr. Drasin was a consultant and project manager at Business Intelligence, a boutique executive strategic consulting firm. He was able to help public and private organizations better plan and execute large scale organizational change. In his current role at the University of Maryland, he leads efforts to publish a set of free methodologies and tools for process improvement and facilitation.

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