White Paper

Five Rules for Effective Architecture Models

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Modeling is stock in trade for architects. We use modeling for a variety of different purposes: to help analyze problems, to conceptualize solutions, to formalize specifications, and to communicate concepts and solutions, just to name a few. And today's modeling tools make the job of creating models faster and easier. Yet too often, we pour our heart and effort into creating 'great' models, only to find that they sit in a binder on a shelf somewhere and don't get used.

So how do we know if the model is successful, correct or complete? What are the tricks to creating effective architectural models? Here are five basic rules about models and modeling to guide you.

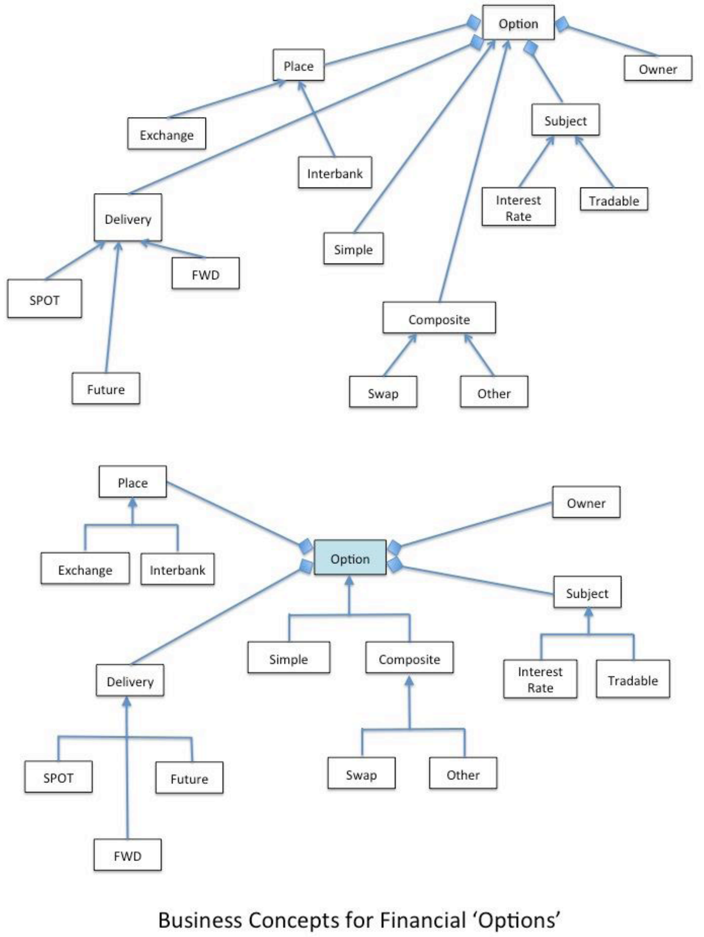
Five Rules of Effective Modeling

1. The first rule of modeling. Your first model is always wrong!

Modeling is an iterative activity. You constantly learn more about the problem as you progress with your analysis. New details emerge and cause you to rethink and change what you've done before until you've iterated through the model a few times and reached a point of completeness and correctness. The first model will always represent your early and incomplete thought process. But that's okay; it's all part of the process. See rule number 2.

2. It’s more important to be clear than correct!

Because you know that the first few models won’t be complete or correct, you need to facilitate the steps of getting them there. In order to do that, you will need to get feedback and input on the model. The most important thing (initially) is that the model is easy to understand by your subject matter experts. That will allow them to tell you what about the model is wrong and what is correct. You’ll find that if the model can be easily understood, people will be more than happy to tell you where it’s wrong. But, if the model isn’t clear and easy to understand, it doesn’t matter how correct it is, because nobody will use it. Again, this is part of the normal process, but one of the most important concepts to grasp.



Business Concepts for Financial ‘Options’

Figure 1 - Two versions of the same model - Which is clearer?

One aspect of a clear model is that it be visually pleasing. This means that it is well laid out and well organized. For example, if the model is an elaboration of a central concept, then that concept should be positioned in the center of the model. If there are a few levels of detail, then typically the higher-level concepts would appear at the top, and moving down the model would show increasing elaboration. Similar things should be similarly sized and shaped, and line up neatly (if it makes sense). A consistent line style should be used. Crossed relationship lines should be minimized. Colors can add additional clarity and imply categorization. Labels, titles, and other drawing elements can be added.

The figure above shows two different versions of the same model regarding business concepts for financial options. Which one would you rather see? There are many different ways to make the model visually pleasing, but essentially you’re looking for neat, uncluttered, and consistent. So, on to rule number 3.

3. Be Consistent

Another important aspect of being clear and understandable is consistency. A model needs to be both internally consistent, and consistent in terms of content. This means that all of the concepts represented in the model need to be at the same level of abstraction. (One exception to the rule is that you might have a few higher level elements in the model, which are elaborated by the bulk of the model). Naming of elements needs to be clear and consistent. The notation used should consistently represent the same kind of concepts and relationships, and conversely, the same notation should not be used to represent multiple concepts.

4. Model with a Purpose (aka. Know your Audience)

The model must not only be clear, but it must be appropriate for the intended audience and the intended use. Are you creating a model for the business sponsors? If so, what do you think would resonate with them? Well, maybe a value stream, context model or business process model, but probably not a UML component model. What will they use the model for? What decisions are you trying to influence? Are you creating a reference model for the application architects and developers? Then, probably yes a UML model for them. Should it be presented as a formal pattern? No single format is appropriate for all, so make sure you're using the right one for the important stakeholders. Maybe more than one view of the same model will be required to support multiple stakeholders. That's okay too. Remember, a good modeling tool will allow you to present the same concepts in multiple different views. The technical superiority of one model format over another is irrelevant if the model is incorrect because it didn't communicate effectively. We'll discuss modeling with a purpose more a little later. In the meantime, review rule number 2 again.

5. Good Enough is Good Enough!

This one is important. You could easily iterate through the modeling process 10 or more times trying to get it perfect and complete. In general, assume that the model will never be perfect. It needs to be good enough for your purposes. If the purpose is for understanding the problem and identifying the requirements, you should usually be able to get there in 2-3 iterations. The remaining details will emerge during detailed design. One exception to this is when the model is intended to be compiled, such as an executable BPMN model. In that case, good enough means 100% complete and correct.

Modeling with a Purpose

While you're creating your model, it's a good idea to keep in mind what the model is intended for. This is another aspect of modeling with a purpose. I think fundamentally, the purpose of architecture and models is to create a context that influences decisions. Those might be technology selection decisions, or solution design decisions, or project selections / portfolio management decision, or business transformation execution decisions, just to name a few. Clearly, each of these decisions requires a different context and different information to influence the different people who make those decisions.

Too often, architects rely on governance and other processes to force architecture into the decision-making, especially when it comes to design and implementation. We all know the outcome of this. In the best case, when the importance of architecture is understood, and the organization is mature and disciplined, it works sometimes. In the worse case, architecture is simply ignored and sits on a shelf in a fancy binder and eventually gets cancelled. Somewhere in between, governance exceptions get fought over and granted.

Here is another axiom of successful modeling. I call it the formula for architectural success:

"If you make it easier for someone to do their job using your architecture, they will. If you make it harder for them, they will fight against it."

The formula on the left is really quite simple. It seems so obvious, but as we know, achieving the success is another matter altogether. So, it might behoove us to ask, how could we make someone's job easier? Obviously, the answer to this depends on the person, their skills, their job, and how they go about it. I use the following set of questions in determining the specific models to develop for architecture:

1. What decisions are we trying to influence?
2. Who makes those decisions?
3. What processes do they use while making them?
4. Where are the opportunities within those processes to influence their decisions?
5. What structure of model would be useful:
   - At that point in the process
   - For that individual
   - From their perspective, tools, and skill set
   - And consistent with architectural principles and best practices!

Also keep in mind that there are typically two different types of architectural models:

Conceptual – Designed for communication and to convey specific concepts and messages. Clarity and simplicity is especially important with these models.

Specification – Designed to be actionable / implementable. These models convey specific detail that can be followed and verified. They are typically more detailed and formal, and requiring more iteration to develop.

So the next problem an architect has is figuring out how to answer those questions. One of the best approaches is to ask the decision makers themselves. Who knows their processes and needs better? And, if they are involved in the design of the models, perhaps they will also feel some ownership and be more likely to use them.

The importance of understanding the purpose of your models should not be underestimated. If you don't know how your model will be used and what your model is intended to influence, then chances are it won't be used. And nobody wants to waste their time producing useless models.

Conclusion

Remember that the output of your architectural efforts – models in this case - should be the input to something else. And if you want the output to be useful and successful, you need to understand what it will be the input to. In addition, is it clear and easy to understand? Have the stakeholders been engaged in its iterations? Is it internally consistent? Does it firmly address the needs and concerns of the intended purpose and audience? Have you spent the right amount of time on it?

Any model that is the end result in itself, with no clearly identified consumer, should be evaluated for its potential value and likelihood of success. And, to improve the chances for success, make sure that you can answer yes to all of the above questions. How will your models be used? Will they make someone's job easier?

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