Transcript for "Data Flow Diagrams" Presentation

Section 1: Intro to Data Flow Diagrams

In this module, I want to take a look at another visual tool that the business analyst can use to unearth requirements. It's called the data flow diagram. It's a really effective tool when exploring situations in which either you the analyst or your stakeholders have a high level of uncertainty. Let me give you an example. Have you ever run across a situation in which when you ask people what are all the steps? Where is beginning and end and what is the flow through this system? How does this process work? They just raise their hands in frustration and say you know I'm not exactly sure; you're the analyst you figure it out for me. Data flow diagrams are great in these situations. Whenever you're uncertain about either current or future state, I like to use data flow diagrams. Whenever you're not certain about what are all of the steps in this the system, you know, you're not certain about process flow, you're going to find in just a minute I like to use data flow diagrams right on the fly when I'm interviewing stakeholders in which they state something I think might be important but I'm still unclear about it's a great visual way to create clarity about what's going on and one of the things I like a lot about data flow diagram is that they really help understand the jobs that the stakeholder needs to perform with the system and the outcomes that they're expecting from the system and research has shown that if you have a good understanding of jobs and outcomes those are what real business requirements should have and by articulating those in the diagram and then documenting them and providing them to your developers you can be more certain that the future state solution is going to meet that stakeholder ends needs and that's really the great thing about data flow diagrams.

Section 2: Elements of a DFD

Let's take a look at the elements of a data flow diagram. They are actually very simple images. Some people just say, well, they're just modified versions of mind mapping and I wouldn't disagree with that description. At the center of your image you're going to have either your process or what I'll often do is describe it as the solution or I'll describe it as the system. Around the system then I identify different stakeholders. Now the stakeholders could be people, they could be departments, they could be external IT systems or other processes that interact with the solution that you're working on. That's the great thing about data flow diagrams. They're very versatile and very flexible. Let's take a look now at how we convert this theoretical construct into something that actually was in use.

So, in this example, we're taking a look at trying to create a data flow diagram for an admission's systems on campus. You can see at the center here that's the solution or the system itself where we're trying to explore what does a future state admission system need and then the black boxes are just different stakeholders. We've got the student stakeholder group, we've got the dean and administrator stakeholders, faculty members and the registrar's office. Now, the beautiful part about the data flow diagram is in the arrows. They're not so much flow arrows like in a process map; they're really describing what are the jobs and outcomes that that particular entity or stakeholder group is trying to interact with the system. So in this example, students perform the job of entering class requests. That's the job that they perform in interacting with the system. The outcome, one of the outcomes that they're expecting to see from the admission system is their schedule.

Sometimes you can have just outcomes, you know, just a situation where in this case the admission system provides a class list for the faculty member but in many cases you'll have multiple inputs or multiple jobs that are performed as is the case in the registrar's group.

Section 3: DFDs on the fly

One of the things that I like about data flow diagrams is that they're so darn easy to create. I'll actually use them on the fly in stakeholder interviews if during the interview the stakeholder identifies something that I'm not really clear about, they're having a difficult time describing, I'll often draw one of these data flow diagrams and it really helps us explore what the real needs are. So, for example, let's say that we are interviewing a stakeholder called the, you know, a student stakeholder and we're working on trying to build a new admission system and I'm getting feedback from the student but I'm uncertain about what they're describing and they're having a difficult time describing how they interact in the system. I'll start with a blank sheet of paper like what we've got right in front of us and I'll say, okay, here's our admission's system, that's the solution that we're trying to work on, and there are all sorts of stakeholders that interact with the admission system whether it's the registrar's office or the faculty or you the student.

Now help me understand you the student how you interact. What are some of the things that you provide to the admission system? What are some of the jobs that you perform when interacting with the admission system? On the flip side, help me better understand what you hope to see the admission's system provide you. What are some of the outputs or outcomes that you're hoping to see from the admission system and then we'll focus on filling in those arrows. Those arrows are the real business requirements that we're looking for both in what's currently in place in the current state system and what those needs are for future states.

Section 2: Job and Outcome Based DFDs

In this example, we flushed out further a data flow diagram and you can see at the center is the system or the solution that we're trying to work at and then outside of that center circle are all of the different stakeholders. Again, you can see how some stakeholders like the inventory system here is not a technical stakeholder group; it's more of an actor that interacts with the office supply system, but again, that's why I love data flow diagrams; they're very free flowing, they do a great job of allowing the analyst to help identify all of the different characters, all of the different activities that are taking place. You can also see how the flow arrows describe job and outcomes; not so much process flow, more situation of what are the activities that the system needs to do for that stakeholder group, what are the inputs that that stakeholder group needs to provide for the system.

Section 4: Complex DFDs

So part of the flexibility of a data flow diagram is that they're easy to create and they can be quite simple in their output but you can also create very complex data flow diagrams in which you've got multiple symbols that are used for a variety of notations. We're going to explore this complex data flow diagram in front of you but I do want to reference there's a great text-based resource online that can help you in creating both simple and complex data flow diagrams. It's from **yourdon.com**. I provide the link at the bottom of the slide here. Just a great text resource and it's actually where I pull this image

from. In this image, we've used different notation and, again, that's the flexibility of data flow diagrams. There's no specific description for what a particular shape means.

In this example, the stakeholders are squares, the processes or systems that they interact with are circles and then the databases or storage containers that hold data are in elliptical oval complex data flow diagrams.

Section 5: Complex DFDs & Layering

So what do you do when you've got a complex data flow diagram that you know isn't just going to be able to fit on one page. The solution is not what you see here. You don't want to just jam as much as you can onto a single page and turn it into an ichart [phonetic]. The solution is really in layering. Let me give you an example of a layered data flow diagram. In this example, we've got a high level data flow diagram and then we break out particular elements. We break out elements of the system, we also break out elements of the actors or stakeholders or different systems that interact with our future state solution.

Section 6: Summary

Data flow diagrams I think are really valuable tool to have in the business analysis toolkit for a number of reasons. They're really easy to create and I can actually create them on the fly with stakeholders. They're really straightforward to interpret and that makes is a useful tool then not only for the analyst themselves but as the analyst communicates out to other stakeholder groups like sponsors and customers themselves. In the end, it really helps both the analyst and all the different stakeholders better understand what current state looks like and what's going to be needed in a future state solution and that's really the goal of business analysis.