Systems: Lesson 4

Commercial System

# Notes:

1. In 2012 this most successful lesson but in 2013 the least successful
2. Need to better communicate why desired outcome is NOT
   1. a flow chart
   2. a linear narrative
3. Help students understand the difference between observing an instance and thinking about the system it represents
   1. observe the events
   2. need to think about the patterns
   3. to get to the structure (object model)
4. Must emphasize more clearly a focus on currency, boundary and using pictures of sub systems to build the picture of the entire system
5. In most cases, a literal map of the system will not yield a good outcome for this exercise20

# Introduction

Perhaps the most essential skill of system analysis is the ability to convert observations of a given environment into a simple model for the purpose of discussion and analysis. Doing this well requires a focus on simplicity, ruthless pursuit of the essential and humble acceptance that “all models are wrong, but some are useful. (Box, 1987)”

Once the model is developed, the next challenge is to express it in a form that is consumable by others. Words are important, but can be made more effective if paired with an illustration to allow others to see, quite literally, the model you have made. Another benefit of working to render the model visually is that this process is naturally iterative and so, as iterations always do, results in a further refinement and simplification of the model itself.

# Objective

The objective of this lesson is to create a diagram that explains the workings of a particular commercial operation in terms of purpose, objects, relationships and information moving through time within a defined boundary.

The commercial operation you choose can be of any sort as long as it is one you can visit and observe in person. Food-oriented businesses are one possibility, but so would be a printer, wood shop or commercial laundry. In any case, you are free to follow your interests.

Your are not expected to diagram every process you observe, but you need to provide enough detail to distinguish the aspects of the operation that make it unique. In addition to the primary activity (e.g. a printer prints things) try to capture indirect processes (e.g. ordering paper stock) and feedback loops (e.g. answering customer service enquiries) that are part of the system that falls within the boundaries you have defined.

The format of the diagram is open to your interpretation but you must communicate:

* the objects in the system
* the relationships between those objects
* the boundaries of the system
* the currency moving within the system
* the currency entering or leaving the system
* the feedback loops, including sources of delay

# Discussion

This lesson really has three parts:

1. Observe a complex system
2. Develop a model for that system
3. Express that model visually

## Observing

As you observe the operation, here are some questions to ponder:

1. What makes the operation you observed different from others like it?
2. What makes it similar to other operations like it?
3. What opportunities do you see for improving the process?
4. Within the context of this process, what makes for a good or bad experience? Where is the variability the greatest?
5. If you consider different levels of scale, say moving from the experience of one participant in the process to that of many customers, or moving physically within the environment where the operation takes place do you see the same systems at work, or different ones?
6. How much of the process experience is embedded in the process, and how much in the employees?
7. How does the behavior or needs of different consumers of the process output influence their experience of the system?

## Modeling

Your first decision, after your initial observation, will be to identify the perspective you will use to model what you have observed. Here are several possibilities:

1. the materials consumed or produced by the process
2. the technology used to execute the process
3. the business model for the process
4. the management and accounting systems used to maintain the process
5. the architecture of physical space in which the process is occurs

Compelling presentations can come from comparing or contrasting multiple perspectives, but be cautious about making your model too complicated.

## Expressing

There is no standard format for visualizing process, but a great place for you to start will be to consult Chapter 6, Flowcharts, in Dan Brown’s Communicating Design.

In general, keep it simple, spare and focused on communicating the dynamic nature of what you have observed. Boxes and arrows are fine as is black and white.

# Submission

On the day the lesson is due, in addition to the electronic submission, bring an output of your diagram at whatever size you think best and be prepared to spend 5 minutes explaining it to the class.

**Be sure that your diagram contains a title, your name, the lesson name and the date.**

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# Grading Rubric

| Quality | Poor (1) | Good (2 - 3) | Excellent (4) | Weight (%) |
| --- | --- | --- | --- | --- |
| Aesthetics | Is difficult to parse visually, does not use layout, scale or position effectively to enhance communication, or lacks aesthetic sense | Has a pleasing appearance, use of typography supports meaning, uses layout, scale and position to enhance meaning, and communicates well the process entities, relationships and flow | Is particularly attractive, uses graphic techniques to communicate layers of meaning, develops a clear visual language | 20% |
| Organization | The diagram is disorganized, it is difficult to understand the differences and hierarchy of importance between the represented entities and relationships | The diagram is well-organized with a clear structure; system entities and relationships are clearly communicated; complex relationships are shown, the conceptual model is apparent | The choice of elements and their arrangement on the page communicates meaning that exists in the system but is not at all obvious to a casual observer, the architecture draws focus on the essential elements of the complex system | 30% |
| Utility | Diagram does not communicate a system clearly, does not show process, does not represent a clear model or has no narrative flow | The diagram expresses a clear model of the system and how the represented entities and relationships are part of the model, the important inputs/outputs, feedback, and flows are easily discerned | The model represented in the diagram is particularly elegant, and clarifies how the system changes over time, or in the face of other variations in input or environment; cause and effect can be understood as well as sources of error or risk | 50% |