IDENTIFYING SYSTEM PURPOSE AND FEATURES

Take a walk around Wally's warehouse

Take a walk on the wild side. (Well, maybe not; have you ever listened carefully to the lyrics of that song?)

Anyway, go for a walk around Wally's warehouse, listening carefully as he describes his business to you.

#3. "Field Trips, Pictures, and Examples" Strategy	identifying purpose and features
• Work with domain experts, ones well-versed in the business.	
• Ask for a guided tour; ask for a picture; ask for lots of examples.	

[At Wally's office]

(Peter) Wally, let's go for a walk around the warehouse. As we walk, just talk with me about how the operation works (or doesn't work). Let your surroundings prompt you for what's really important to your business.

(Wally) Let's go upstairs, then. I want to show you a bird's-eye view of the entire operation.

(Peter) That sounds promising.

[Upstairs]

(Wally) Check it out. My warehouse is organized into aisles. Each aisle is organized with bins. From up here, it looks like a grid of aisles and bins.

(Peter) How do you identify a particular aisle-and-bin combination?

(Wally) With a pair of numbers. For example, 12–10, meaning aisle 12, bin 10.

(Peter) That reminds me of a city map. Each location has an address. In this case, it's just a pair of numbers. And you use that number to identify a specific aisle-and-bin location. Good. Now the things that are stored at an aisle-and-bin location: where do they come from?

(Wally) Look over to your left. That area is the receiving dock.

(Peter) Is that the beginning point for items in your warehouse?

(Wally) Yes.

(Peter) Let's go downstairs and walk through the path that an item takes as it journeys through the warehouse.

[At the receiving dock]

(Peter) Okay, so items arrive here. What does your team do when items arrive at the receiving dock?

(Wally) Far too often, take a break. I think profit-sharing might help that problem, though. Anyway, a shipment of items arrives, we make sure we have a corresponding purchase order, mark it off, and then put the items away.

(Peter) You put away each item?

(Wally) We take a pallet, walk it through the warehouse, and unload each kind of item. It's really a time-consuming task.

(Peter) Do you just have one kind of item on a pallet? Or many kinds of items on a pallet?

(Wally) Many kinds of items on a pallet.

(Peter) What do you do when you put away a pallet of items?

(Wally) For each kind of item on a pallet, we look for an existing bin of those items, or an empty bin, and "put away" the items into a bin.

(Peter) So, there is usually only one kind of item in a bin?

(Wally) Yes, that's kind of how we know where things are.

(Peter) How do you choose a bin?

(Wally) You know, that's where we could use some help. My team puts them in locations that are close to the loading dock. Yet for pallets with lots of individual items, we'd save ourselves a lot of work by putting those pallets near the pickers, the ones who grab items for a shipment from the warehouse. Most of the time, my team knows where we usually keep a certain kind of item, and do their best to keep them close together—in the same bin or in nearby bins.

(Peter) Let me summarize:

Your team receives pallets of items.

Your team finds the corresponding purchase order and marks off the items.

Your team "puts away" a pallet of items. For each kind of item, your team looks for:

- a "not yet full" bin of those items
- an empty bin

and then they "put away" the items of that kind into the bin.

(Wally) Hey, you're catching on.

(Peter) Thanks. Let's continue our walk alongside the items, as they make their way through the warehouse.

(Wally) That means it's time to take you to an aisle-and-bin location.

[Aisle-and-bin location]

(Peter) So the items come to rest here, at an aisle-and-bin location.

(Wally) Yes, you're right, they do come to rest here. But not for very long! I've got to keep my investment in inventory down, as low as I can and yet fill my orders nearly all of the time (called my "fill rate"). It's a very delicate balance; done right, my profits improve; done poorly, and I go out of business.

(Peter) Fill rate? Sounds very important. What things do you do to improve your fill rate?

(Wally) In principle, it's simple: keep track of how many item I have and order just what I need. In practice, it is a real pain: walk down an aisle; count the items in each bin; tally results; place orders; and hope for the best.

(Peter) Please tell me more about counting: who does it, how often it's done, and the problems you face.

(Wally) A couple of my team members manually count the inventory, aisle-by-aisle, usually one aisle per day. It's a tough job. It's hard to find all the bins that hold a particular kind of item. Yet we must manually count, so we know how much we really have (the industry euphemism for missing items is called "shrinkage.") Accurate counts are another important part of achieving a better fill rate.

(Peter) Please tell me more about ordering.

(Wally) We order based upon a lot of factors: reorder levels, sales rate, replenishment time, and the like. That's something we could pursue in the future—not this time.

(Peter) Let's continue following items through your business. What's next?

(Wally) We get an order. Then someone on my team picks the order.

(Peter) What does a team member do, when picking an order? Better yet, walk me through an example.

[Order desk]

(Wally) First, I get an order from the order desk. My job is to pick the order.

[Aisle-and-bin locations]

(Wally) Next, I walk around the warehouse, looking for the items on my list.

(Peter) Oh, just like walking through an unfamiliar grocery store, looking for items on a shopping list. Now I understand some of the frustrations of this job.

(Wally) Good. Remember that feeling.

(Peter) So how do you find a kind of item? Wandering aimlessly?

(Wally) That's pretty much the case for new "pickers." After a while, it's more like walking through a grocery store that you are already familiar with. I know the basic areas to look in. Yet more often than I like, I waste time looking for an item I'm not familiar with. And get this: if none of us can find an item, it's lost—and orders for that item may go unfilled (and that affects our bottom line).

(Peter) So what happens when you find a bin with items that you need?

(Wally) I put the items into my tote.

(Peter) Yes, the grocery cart.

[Back at the order desk]

(Wally) And then I bring the tote back to the order desk (kind of like a checkout counter, I think).

(Peter) Right.

(Wally) Someone else packages the items and puts them on a truck.

(Peter) Really? So someone "bags the groceries" and takes them out to a "car."

(Wally) I think you've got it.

Identify the purpose of the system

What's the purpose of the system?

(Peter) Let's work on a statement of purpose.

> To improve warehouse profitability by helping team members put away and pick items more efficiently.

(Wally) It's more than that. How about this:

> To improve warehouse profitability by helping team members put away and pick items more efficiently . . . by keeping more accurate inventory counts, and by increasing fill rate.

IDENTIFY SYSTEM FEATURES

#8. "Best and Worst Features" Strategy	identifying purpose and features
• Ask users: What are the best features of the current system? Of competitive systems? What are the worst problems of the current system? Of competitive systems? What are the unneeded features of the current system? Of competitive systems?	

Identify the worst features of the current system.

For Wally's Warehouse, several "worst features" are time wasters:

The time it takes to put away items.
The time it takes to pick items.
The time it takes to count items.

For Wally's Warehouse, another "worst feature" is a missed opportunity:

Unfilled orders, ones that should be filled, but aren't, because an item couldn't be found.

Use these "worst features" to develop a key features list.

– to give put-away instructions
– to give picking instructions
– to maintain quantity for each kind of item, for each bin holding that kind of item
– to calculate fill rate, to assess efficiency.

SELECTING PROBLEM-DOMAIN OBJECTS
Select actors and participants

An actor, inside of Wally's Warehouse, is a person.

Think back to your walking tour of Wally's Warehouse. How did people participate? Consider the roles played by Wally's team:

– "put away-er"
– picker
– counter.

Are these participants within the system's responsibilities? The answer is yes, if (1) the system keeps track of who does what, or (2) if the system assesses performance for any of these roles played.

(Peter) Do you need to keep track of who does what? Or would you like to assess the performance of individual team members?

(Wally) No, at least not this time.

(Peter) In the future, we'll add them to the model, so we can keep track of them and assess their performance. (Meanwhile, we'll still study what these people do to other