Welcome— to Connie's Convenience Store!

Figure 1–1: Connie's Covenience Store.

IDENTIFYING SYSTEM PURPOSE AND FEATURES

Connie's Convenience Store needs a point-of-sale system. And you're going to build an object model for her.

You could call Connie a domain expert (well, perhaps not to her face; you might not want her to get a big head about all of this). Why? She knows the business. And she has working experience in that business, including experience using automated systems which (at times purportedly) support and help people run such a business. You see, Connie knows how things work in a convenience store. And she has some actual experience using an automated point-of-sale system.

Where do you begin?

Work together with Connie, to identify the purpose and features for the system under consideration.

Identify the purpose of the system

#2. "System Purpose" Strategy	identifying purpose and features
• Develop an overall purpose statement in 25 words or less. Why this system? Why now?	
• Keep the overall goal, the critical success factor, always before you.	
• "To support, to help, to facilitate, . . ."	

That large, numbered box with a single border is a strategy box. You'll see these boxes from time to time, just when you need them, within the application chapters. The number in the upper left corner is the strategy number; it's there for easy reference. This strategy is #2. In the application chapters, you'll learn and apply the strategies and patterns as you read them not (necessarily) in sequential order. Chapter 7 lists all strategies, #1 to #148, sequentially.

And now, back to Connie. Ask some purpose-setting questions:

(Peter) What would you like an automated system to do for you?
(Connie) Do all the work! Be my own personal cash machine!
(Peter) Dream on! Really, Connie. What capabilities would help you do a better job?
(Connie) How about if I sketch a "wish list" on the white board? Here it goes:

- scan items and automatically price them
- know whether an item is on sale
- automatically total the sale and calculate tax
- handle purchases and returns
- handle payment with cash, check, or charge
- authorize checks and cards
- calculate change, when working with cash or checks
- record all of the information about a customer transaction
- balance the cash in the drawer with the amount recorded by the point-of-sale system.

(Peter) Why do you want to do this? I'm asking why so I can better understand what you really want.

(Connie) I want these features for a variety of reasons. Mainly, though, I want to:

- speed up checkout time
- reduce the number of pricing errors
- reduce the labor required to ticket the items with a price, originally and when prices change.

(Peter) Okay. Let's see if we can work together to come up with a statement of the purpose of the system, in 25 words or less. How about:

> "To help each cashier work more effectively during checkout."

(Connie) Actually, it's more than that. Let's describe it this way:

> "To help each cashier work more effectively during checkout, and to keep good records of each sale."

(Peter) Actually, it's more than that. We'll want to assess the business results, too. How about:

> "To help each cashier work more effectively during checkout, to keep good records of each sale, and to support more efficient store operations."

(Connie) Very good.

Identify system features

#6. "Four Kinds of Features" Strategy	identifying purpose and features
• Be certain to include features that cover the following: 1. Log important information. 3. Analyze business results. 2. Conduct business. 4. Interact with other systems.	

Identify features for logging important information

Ask domain experts about information that the system needs to log for them.

(Peter) Now let's work out some features, ones that identify a sense of scope for the project under consideration. Let's begin with this question: what are some of the things that you'd like to keep track of?

(Connie) I need a lot of basic business information.

(Peter) Let's work together to identify some specific needs, stated as features of the system under consideration. For example: "to maintain what items we sell in a store."

(Connie) Easy enough. I'd include these "needed information" features:

- "needed information" features
  - to maintain prices, based upon UPC (universal product code)
  - to maintain tax categories (categories, rates, and effective dates)
  - to maintain the authorized cashiers
  - to maintain what items we sell in a store
  - to log the results of each sale in a store.

Identify features for conducting business

(Peter) So what happens when you put all of that needed information to work? How do you use it to conduct your business? What profitable use do you make of it?

(Connie) Hold on. You asked three questions. Let me give you one answer: I use it to keep track of what I sell.

(Peter) Could the system do some number crunching for you, putting all that information to more profitable use?

(Connie) Yes!

(Peter) What kinds of things could the system do to help you conduct your business?

(Connie) Oh, the day-to-day basics of running a convenience store:

- "conducting business" features
  - to price each item, based upon its universal product code (UPC)
  - to subtotal, calculate sales tax, and total
  - to accept payment by cash, check, or charge.

Identify features for analyzing business results

(Peter) What happens after the fact? What kind of analysis of business results would help you run your business more efficiently?

(Connie) Let's face it. Analyzing business results is the key to improving our operations. It's the only way I can measure how my business is doing and determine what actions I should take. This area really affects our bottom line. Can you help me here?

(Peter) Sure. Let's work on it together. How about something like this:

- "analyzing business results" features
  - to count how many of each item sold
  - to count how much we received in cash, check, or credit card sales
  - to assess how each cashier is performing
  - to assess how each store is performing.

Identify features for working with interacting systems

(Peter) Connie, what other systems do you work with?

(Connie) Other systems? Oh, the check and credit-authorization systems we use. Yes, our new point-of-sale system should automatically interact with whatever check and credit-authorization systems we might want to use.

(Peter) Let's put this into another objective. How about this?

- "interacting system" objective
  - to obtain authorization from one or more credit (or check) authorization systems.

(Connie) That sound fine.

An observation about system purpose and features

(Connie) Now that we have identified the purpose and features for my system, does that firmly identify the scope?

(Peter) It does identify scope—for now, not forever. Stuff happens: needs change, competitors change, governments change. And our understanding about what's really needed in this system will evolve over time, too.

(Peter) It's reasonable to assume that neither of us is omniscient. Right? So we'll use the system purpose and features to guide us in understanding what's within the responsibilities for the system under consideration.

(Peter) We'll learn more about what's really needed as we learn more about what this system is all about.

(Connie) Okay. Proceed!

SELECTING OBJECTS

It's time to start putting together an object model.

What objects do you need in your object model?

Where do you begin? Apply some strategies, then some patterns.

Use object model components to guide and organize your work

What kind of partitioning works well within an object model?

Use these model components:

- problem domain (PD)
  (classes relating to the business at hand)
- human interaction (HI)
  (windows and reports)
- data management (DM)
  (databases)
- system interaction (SI)
  (other systems)
- "not this time" (NT)
  (outside of scope for this system).