



Chapter 7: Structuring System Process Requirements

Jim and Sanjay chatted in Jim's office while they waited for Sally to arrive.

"Good work on researching those alternatives," Jim said.

"Thanks," replied Sanjay. "There are a lot of alternatives out there. I think we found the best three, considering what we are able to pay."

Just then Sally walked in. "Sorry I'm late. Things are getting really busy in Marketing right now. I've been putting out fires all morning."

Sally sat down at the table across from Jim.

"I understand," Jim said. "But to stay on schedule, we need to start focusing on the specifics of what we want our system to do. Remember when you wanted more details on what the system would do? Well, now we start to spend some serious energy on getting that done."

"Awesome," replied Sally, as she pulled a Red Bull out of her oversized bag and popped it open.

"I've got a list here of four core functions the system must perform," said Sanjay, pulling copies of a list from a folder on the table (PE Table 7-1). "Let's look at these."

After reviewing the list Sanjay had given them, Jim said, "Nice job, Sanjay. But we need to put this in graphical format, so that everyone can see what the inputs and outputs are for each function and how they are related to each other. We also need to see how the new system fits in with our existing data sources. We need. . ."

"Some data flow diagrams," Sanjay interrupted.

"Exactly," said Jim.

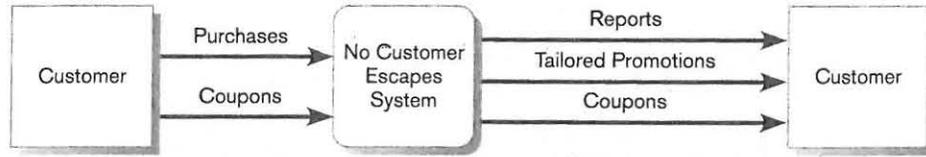
"They are already done," replied Sanjay, handing diagrams to both Jim and Sally. "I've already created a first draft of the context diagram (PE Figure 7-1) and a level-1 diagram (PE Figure 7-2). You can see how I've defined the boundaries of our system, and I've included our existing product and marketing databases."

"What can I say?" Jim said. "Again, a nice job on your part. These diagrams are both good places for us to start. Let's get copies of all of this to the team."

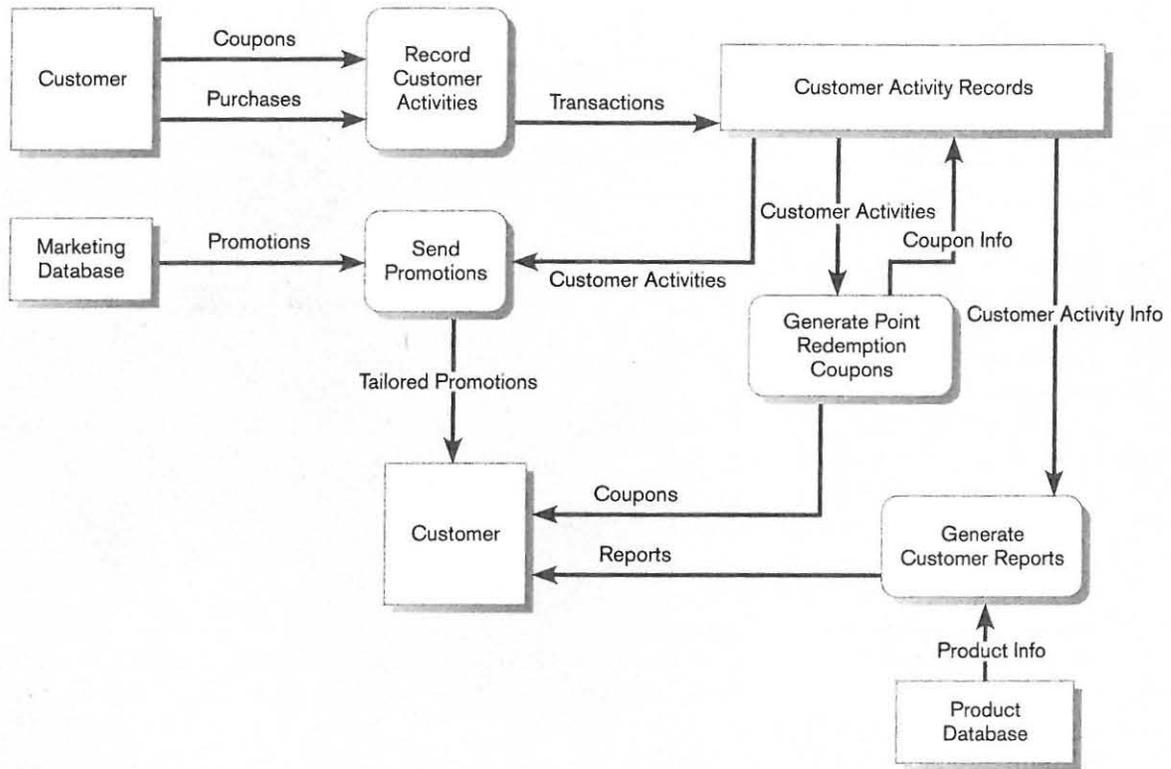
"I'll be right back," Sally said, standing up. "I need to get some coffee."

PE TABLE 7-1 Four Core Functions of Petrie's Customer Loyalty System

Function	Description
Record customer activities	When a customer makes a purchase, the transaction must be recorded in the customer loyalty system, as the rewards the system generates are driven by purchases. Similarly, when a customer uses a coupon generated by the system, it must also be recorded, so that the customer activity records can be updated to show that the coupon has been used and is now invalid.
Send promotions	Data about customer activities provide information about what types of products customers tend to buy and in what quantities. This information helps determine what sales promotion materials are best targeted at what customers. Customers who buy lots of video games should receive promotions about games, game platforms, and HD TVs, for example.
Generate point redemption coupons	Data about customer activities is used to generate coupons for future purchases. Those coupons must be made available to customers, either as paper coupons sent in the mail, or they should be made available online, in the customer's private account area. Once created, the customer activity database needs to be updated to show the creation of the coupon. The loyalty points needed to create the coupon must be deducted from the customer's total points.
Generate customer reports	From time to time, either in the mail or electronically, customers need to be send account reports that show their recent purchases, the coupons they have been issued that have not yet been redeemed, and the total points they have amassed from their purchases.



PE FIGURE 7-1
Context diagram



PE FIGURE 7-2 Level-1 DFD

Case Questions

1. Are the DFDs in PE Figures 7-1 and 7-2 balanced? Show that they are, or are not. If they are not balanced, how can they be fixed?
2. Decompose each of the core processes in PE Figure 7-2 and draw a new DFD for each core process.
3. Has the team overlooked any core processes in the system that should be in PE Table 7-1 and PE Figure 7-2? What would they be? Add them to PE Table 7-1 and PE Figure 7-2.
4. Redesign PE Figures 7-1 and 7-2 so that they are clearer and more efficient and more comprehensive.
5. Why is it important for the team to create DFDs if they are not going to write the actual system code themselves?