

CASE STUDY 10.1

Carl's Computers

There was no question about Carl's genius. Seven years ago he decided to enter the competitive nightmare that the personal computer business had become. Although on the surface that appeared to be a rather nongenius-like move, the genius came in the unique designs and features that he developed for his computer. He also figured a way to promise delivery in only two days for the local and regional market. Other computer makers also had rapid production and delivery, but they were national competitors, and the delivery time from distant locations generally made Carl able to outcompete them on delivery.

Carl soon had a loyal following, especially among the many small businesses in the area. Not only could Carl deliver quickly, but he also had very rapid service to deal with any technical problems. That service feature became critical for the local businesses whose very livelihood depended on the computers, and soon that rapid service capability became more important than the initial product delivery. Since most of these businesses were fairly small, they could not afford to have their own in-house computer experts, so they depended heavily on Carl.

The Current Situation

All was not totally rosy at Carl's Computers, however. Recently they had hired Rosa Chang for the newly developed position of Inventory Manager for Aftermarket Service. In the first week Rosa got a good idea of the challenges facing her after she interviewed several of the people at Carl's.

RANDY SMITH, CUSTOMER SERVICE MANAGER: "I'm not sure what you need to do, but whatever it is needs to be done fast! At this point our main competitive edge other than product delivery is service response, and I'm always hearing that we can't get a unit in the field serviced because some critical part is missing. Both the customers and the field service people are complaining about it. They make a service call, find out they need a certain part, but in many cases we're out of the part. The customers tend to be fairly loyal, but their patience is wearing thin—our policy is to provide at least a 98% customer service level, and we're not even close. That's not the only problem, though. Since our service is declining, the customers are looking more closely at our prices. I'd like to cut them a break, but our financial people tell us our margins are already too thin, and get this—one major reason is that our inventory and associated inventory costs are too high! It looks to me as if we have a very large amount of the wrong stuff here. I don't know that for sure, but I sure hope you can find a solution, and fast!"

ELLEN BEDROSIAN, CHIEF ENGINEER: "Boy, am I glad you're here! The inventory problems are killing us in engineering. Carl's has always been known for unique designs, and we've been trying hard to keep ahead of the competitive curve on that issue. The problem is that most of the time when we push hard to get a new design out, the inventory and financial people tell us we have to wait. It seems like they always have too much of the old design inventory around, and the financial 'hit' to make it immediately obsolete would be too severe. We're told that as soon as we announce a new design many of our customers would want it, so that tends to make most existing old design material—even for service—obsolete. We try to tell the service inventory people when we have a new design coming so they can use up the old material, but somehow it never seems to work out."

JIM HUGHES, PURCHASING MANAGER: "Well, Rosa, I wish you luck—you'll need it. I'm getting pressure from so many directions, sometimes I don't know how to respond. First, the financial people are always telling me to cut or control costs. The engineers then are always coming out with new designs, most of which represent purchased parts. A lot of our time is spent working with suppliers on the new designs, while trying to get them to have very rapid delivery with low prices. Although most can live with that, where we really jerk them around is with the changes in

- Critical parts are missing in service calls
- product cost one too high, which may be caused by inventory Associate cost one too high

Older inventory is not used to make way for newer design products that customers would prefer.

orders. One minute our field service people tell us they've run out of something and they need delivery immediately. In many cases they don't even have an order for that part on the books. The next thing you know they want us to cancel an order for something that only a day before they said was critical. Our buyers and suppliers are good, but they're not miracle workers and they can't do everything at once. Some of our suppliers are even threatening to refuse our business if we don't get our act together. We've tried to offer solutions for the field service people, but nothing seems to work. Maybe they just don't care."

MARY SHOULTON, CHIEF FINANCIAL OFFICER: "If you can help us with this inventory problem, you'll be well worth your salary, and then some! Here we are being competitively crunched for price, delivery, and efficient service, and our service inventory costs seem to have gone completely out of control. The total inventory has climbed more than 200% in the last two years while our service revenues have only grown 15%. On top of that, we have had an increase in obsolete material write-off of 80% in that same two-year period. In addition, significant inventory-related costs have come from expediting. Premium freight shipments, such as flying in parts, caused by critical part shortages cost us over \$67,000 last year alone. Do you realize that represents almost 20% of our gross profit margin from the service business? With our interest rates, warehousing, and obsolete inventory costs, we recognize a 23% inventory holding cost. Given our huge inventory level, that takes another big bite out of profits. All this suggests to me we need to get control of the situation or we may find ourselves out of business!"

FRANKLIN KNOWLES, FIELD SERVICE SUPERVISOR: "Until they hired you, the other production supervisor and I had been in charge of inventory. I hate to discourage you, but it looks like an impossible job. The purchasing people bought a bunch of standard-size bins, and they told us that as soon as we had a week's average part usage for each part to order more—specifically, "enough to fill up the bin." Since most of their lead times were a week or less, it sure made sense. All the records were kept on computer, therefore the computer could be programmed to tell us when we had only the week's supply. It made great sense to me, but something kept going wrong. First, field service technicians seemed to frequently grab parts without filling out a transaction. That made our records go to pot. As a matter of fact, we had a complete physical inventory a couple of months ago, and it showed our records to be less than 30% accurate! I suspect our records are almost that bad again, and we don't have another physical inventory scheduled for another nine months.

"Second, with our records so bad the field service technicians can never tell if we really have the parts or not. Several of them have started to take large quantities of critical parts and are keeping their own inventory. When it comes time to replace their own "private stock," they take a bunch more. That has made the demand on the central inventory appear very erratic. One day we have plenty, and the next day we're out! You can imagine how happy purchasing is when the first time they see a purchase order it is requesting an immediate urgent shipment. We've made a policy that the technicians are only supposed to have a few specifically authorized parts with them, but I'm sure many of the technicians are violating that policy big time."

Quentin Bates, Field Service Technician: "Something is drastically wrong with our inventory, and it's driving me and the other techs crazy. We're not supposed to keep much inventory with us, only a few commonly used parts. If we have a field problem requiring a part, we're supposed to be getting it from the central inventory. Problem is, much of the time it's not there. We have to take time to pressure purchasing for it, and then have to try to calm our customers while we wait for delivery. In the meantime, the customers' systems are often unusable, and they're losing business. It doesn't take too long before they're really mad at us. I guess the people at purchasing don't care, since we have to take all the heat. Lately I've been taking and keeping a bunch of parts I'm not really supposed to have in my inventory, and I know the other field technicians do also. That's saved us a few times, but the situation seems to be getting worse."

Now that Rosa had some real information as to the nature of the problems, she needed to start developing solutions—and it appeared that it was important to come up with good solutions fast! The first thing she tried to do was take a couple of part numbers at random and see if she could improve on the ordering approach.

The first number she selected was the A233 circuit board. The average weekly usage was 32. The lead time was given as one week. The board cost \$18, and the cost to place an order was given as \$16. The quantity ordered to fill the bin was usually 64. The second number was the P656 power supply. It cost \$35, but since the supplier only required a fax to order the cost was only \$2 per order. Even with the fax the delivery lead time was two weeks. The average weekly demand for the power supply was 120. The company typically ordered 350 units at a time. Recently the supplier for the circuit board hinted that it might be able to give Carl's a price break of \$2 per board if Carl's would order 200 or more at a time.

Case Analysis

1. Using the data on the two part numbers given, provide a comprehensive evaluation of the ordering policies. Compare the present annual average cost with the cost of using a system such as EOQ, and discuss any other order policies as appropriate.
2. Should Carl's pursue the price break? Why or why not?
3. What do you think the sources of the other problems are? Be specific and analyze as completely as possible.
4. Develop a comprehensive plan to help Rosa get the inventory back under control.