



Hewlett-Packard Company: Managing Product End of Life

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Abstract. Hewlett-Packard Company, a computer manufacturer, finds that its obsolescence charges are significant and growing. This case presents a specific end-of-life task that arises when a supplier discontinues production of a part used by HP's production forcing a "life-time buy." This lifetime buy is set in the backdrop of various other issues that arise at product end of life. The case presents end-of-life issues from the perspective of various players in the organization, presenting the contradictory and conflicting objectives that arise in the management of the problem.

Keywords: lifetime buys, managing product end of life, newsvendor problem, product obsolescence.

1. Introduction

Benton Christensen swiveled away from his computer screen and sighed. An e-mail announcement had just arrived heralding yet another new product the Computing Systems group was launching. The product was the first in Hewlett-Packard's (HP) new product platform IA-64, jointly developed with Intel over the past several years. There would be a press conference, an ad campaign, a meeting with sweet rolls and coffee, and internal and external publicity for this product, all coordinated by and featuring the smiling face of Linda Vasquez, the manager of the new product development group for Unix servers. Benton and Linda had joined HP at about the same time several years ago, but Linda seemed to get all the good PR. Her star was clearly rising.

Benton's own star seemed locked on a different trajectory. In contrast to the potential energy of new product development, Benton's role was steeped in the realism and known limits of product end of life. His operations job responsibilities for product end of life included the less-than-glamorous responsibility for addressing his group's spiraling obsolescence charges. Products that had been launched with fanfare in past quarters eventually receded from view until they were no longer new products to promote but now older products to clear out in preparation for the next round of new products. Somewhere in that process, these products passed from Linda's group to the current products group until finally, they seemed to appear quietly on Benton's desk. His job was to make them disappear altogether. The fanfare that

accompanied his job was the bellyaching of the management staff when reports of inventory costs were published.

New Product Development (NPD) groups created the products that form the lifeblood of future sales, but profits and margins could evaporate in the product end of life. Over the past few quarters, Benton and his team had worked hard to take more initiative for managing product end-of-life issues at earlier and earlier times in the product life cycle. Benton had read reports that more than 50% of the costs of Medicare dollars were spent on the last two months of life; he wondered what the percentage was for computers.

2. Background

Hewlett-Packard Company was founded in 1939 by William Hewlett and David Packard. By 2001, HP was a leading global provider of computing, Internet and intranet solutions, services and communications products, all recognized for excellence in quality and support. The company's headquarters were in Palo Alto, California. Packard and Hewlett decided upon the order in which their names would appear in the company title through the flip of a coin.

Hewlett and Packard led the company well into the 1980s and remained involved at varying levels even beyond their retirements. They remained icons in the company and in Silicon Valley. Employees joined the Packard and Hewlett families in mourning the founders' deaths in 1996 and 2001.

President and Chief Executive Officer of HP, Carleton (Carly) S. Fiorina took reins of the company in July 1999 as the first outsider to lead the company. Prior to joining HP, Carly spent a total of nearly 20 years at AT&T and Lucent. She focused on leading HP to achieve improved growth in revenue and profitability; greater innovation and inventiveness; the best total customer experience; and widespread recognition of HP as the company that makes the Internet work for customers. Carly recently had reorganized the company to make it more customer oriented. Every business was expected to be #1 or #2 in its market – or HP would exit the business.

In July 2000, after spinning off its test and measurement business to form a new company (Agilent Technologies), HP had 86,000 employees worldwide. Exhibit 1 shows HP's fiscal year 1999 and 2000 financial results.

Hewlett-Packard was organized into four groups: The Consumer Business Organization (CBO) focused on solutions for consumers; this group produced desktops and laptops as well as Personal Digital Assistants (PDAs). The Business Customer Organization (BCO) focused on delivering complete solutions to business customers by combining products from the other groups as well as consulting solutions to meet the needs of HP's business customers. The Imaging & Printing Systems group (IPS) produced HP's popular laser and inkjet printers and scanners. The Computing Systems group (CS) produced

HP's most powerful computers: single and multi-user systems that ran UNIX and other operating systems, as well as the storage devices typically coupled with the systems to complete a customer order. Benton was part of CS.

3. A Life-Time Buy

The chimes of Benton's e-mail recalled him to his computer screen. E-mail from a semiconductor supplier. The supplier reminded Benton that part 2534-9437, a key component of the aging computer system product 2534A, could no longer be ordered after June 1, 2001, and he requested HP's final order. Benton checked his calendar. April 3, 2001 already? He reviewed his e-mail to find the supplier's original announcement. It was April of last year. Now, less than two months remained to finalize the analysis.

While semiconductor manufacturers typically provided a year's warning for such discontinuances, the headache lasted much longer. Requests for a lifetime buy such as this one were becoming quite commonplace at CS. Dozens of such requests had arisen in the last quarter alone for the computer chips used for their product line in addition to the hundreds of other requests for final buys of the printed circuit assemblies that were the next level up in the bill of materials. 2534A was on Benton's list of products near end of life but still on the corporate price list. Benton and his team would be forced to buy enough of part 2534-9437 to cover demand during the unpredictable ramp-down of the product as well as for a stock of inventory to cover the product's five-year support life.

Upon receiving a discontinuance notice for a part or assembly used by HP, Benton's first task was to determine what was driving the request. He made every effort to avoid or delay a "lifetime buy". Was the volume so low that setups were becoming expensive? Perhaps fewer builds per year, each with more units per build, could be run. Was the low volume making the allocated overhead too expensive? Or, did the supplier need the line for an alternate part or one with a higher margin? HP might be willing to pay a higher unit cost. Was the dedicated equipment becoming aged and costly to maintain? HP might be willing to take ownership. Could HP procure the part elsewhere? Could an engineering change obviate the need for the part? Such actions might increase the average cost of the part, but would likely be cheaper than the results of a lifetime buy.

When all alternatives were exhausted, and if the supplier mandated that a final build was in fact required, Benton had to determine the final lifetime buy quantity – after he tried to negotiate as long a delay as possible for the final buy. For part 2534-9437, the supplier had worked with Benton to demonstrate his company's case for the lifetime buy. Benton had negotiated an extra three months beyond the supplier's preferred deadline. Now, Benton had two

months to pull together his best guess for the optimal lifetime buy quantity based on the results of an arduous task of gathering cost and demand data. He had to generate a forecast for expected demands, along with possible upside and downside deviations, working with the marketing group and the Support Material Division, the division that handles demand for spare parts through the support life.

Nonetheless, Benton had no way of knowing exactly how many 2534-9437 parts would be needed to complete existing orders, support current products, and handle necessary replacements for existing customers.

On a longer-term basis, Benton hoped to improve the process for lifetime buys by working to manage demand – in effect, lowering the standard deviation of the projected demand.

Benton also realized the importance of working with suppliers to reduce the number of lifetime buys that occurred. Unfortunately, the incentives were high for a supplier to require such buys. Not only would a build-out free the supplier's lines to build other (potentially higher margin, more profitable) parts, but the supplier received through the lifetime buy a larger quantity purchase than it would otherwise receive (since the buyer had to hedge for uncertainty). Additionally, the supplier received payment earlier rather than later. Only the supplier's interest in maintaining customer goodwill prevented it from requiring even more such buys.

4. Fallout from a Life-Time Buy from Last Year

More chimes. An e-mail from Benton's boss indicated that she had heard about a shortage of a part needed to build a computer system, 7617J, that was very near its end of life. Benton recognized the part as one that was purchased as a lifetime buy in the previous year. Benton felt the knot in his stomach as he thought, "Have we already consumed our entire supply of the part? We apparently underestimated demand." Benton knew that it would be impossible to procure more of the parts needed to build the product. According to the e-mail, Marketing was burning up the phone lines insisting that CS expedite a number of orders for the product. Availability had slipped significantly in the last month as Benton's group consciously worked with suppliers to reduce supply chain inventory levels for all the material to build the product. And now, CS apparently was unable to build any units of the product due to the specific part shortage. Benton's boss wanted to know what course of action he would propose. Benton knew that none of the alternatives would be attractive to her.

Benton would deal with the recommendation later. He stood up, walked over to the soft drink machine, and decided to go see what things looked like in other parts of the HP world. Management by Walking Around (MBWA)