ELITE ELECTRONICS

Management at Elite Electronics is faced with a golden opportunity—or is it only fool's gold? Six months ago, marketing research indicated a potential market of 10,000 oscilloscopes per year, if Elite's selling price could be brought down to $1,000 per unit. (Elite's lowest-priced model, the EE2Ol, currently sells for $1,485.)

Engineering had been working day and night to develop a new model whose variable production cost would be no more than $700. Supply management had been working with present and potential suppliers to lower the total cost of purchased material. Recently, supply management learned of the possibility of a breakthrough on material costs for the new oscilloscope. Camma Conglomerates, working on the development of an analog-to-digital (ADC) module for three years, developed a revolutionary new process that allowed it to produce 1,000 modules a month. In order to guarantee the amortization of its research and development and setup costs, Gamma offered a price of $90 per unit F.O.B. the Elite plant if Elite would agree to purchase all of its ADCs for the new oscilloscope from Camma for a period of five years. Full-scale production could begin in three months.

Incorporation of the new ADC would allow the elimination of four modules required in the present model EE2O1 oscilloscope with only a slight loss of resolution. This would result in a system whose variable production cost would be between $650 and $700, including $200 for assembly and testing. Allocations for fixed general, administrative, and marketing expenses would add approximately $200 per unit. Five prototype oscilloscopes incorporating the new A.DC were built and tested. The new system was an engineering success!

Both engineering and marketing were very enthusiastic about the new system. Supply management, manufacturing, and quality control shared their enthusiasm, but with some reservations. Supply management was concerned that Gamma Conglomerates would be the sole source of supply for the ADC. Supply management, quality control, and production shared another concern: the quality of incoming materials. Production already had experienced unpleasant situations with new "state-of-the-art" materials. Many electronics items and the systems that incorporate them are extremely complex and interdependent. It is not always possible to detect defective items until they are incorporated into larger modules or even the complete system. This is an inherent aspect of the sophisticated state-of-the-art production processes used to produce modern electronics components. Things go along fine for a while, and then for no apparent reason defects get completely out of control. It often takes ten to fourteen months to stabilize new production processes and eliminate the problems.

Great amounts of test and rework time may be required of Elite's production department to locate and correct this type of problem. For example, Elite currently is experiencing just such a situation on a new premium-quality oscilloscope. Test, rework, and assembly time is running at 400 percent of the work hours budgeted for the new oscilloscope. Based on his experience with previous state-of-the-art materials, Elite's production manager estimates that there are two chances in five of such a situation occurring with the new low-cost model if it incorporates Gamma's new ADC. The high cost of such test and rework time can have disastrous implications for a firm like Elite. Items projected to make a profit contribution can wind up as losses. And, in some ways even more damaging to such a firm, promised delivery dates might not be met. As a result, current sales, customer goodwill, and future business all can suffer.

In many industries, the first firm to market a new product successfully is able to build and maintain a much stronger market position than firms that enter the market later. Elite believes that its likely market would be 10,000 units of the new low-priced oscilloscope for the first year of production and 6,000 per year for the following four years *if* it is the first firm to market such a low-priced oscilloscope. However, *if* the introduction is not successful (for quality or manufacturing reasons), the negative impact would reduce likely sales to 4,000 units for each of the five years. Production estimates

that it would take approximately one year to clear up the problem. Accordingly, it appears realistic to assume that some 4,000 units would require excessive test, rework, and assembly time. The unit variable cost of the 4,000 units would be an estimated $1,275. Marketing believes that likely sales would be 6,000 units per year for four years if Elite were to wait for the ADC production process to stabilize or if a less risky approach became available in approximately ten to fourteen months. Supply management is confident that alternatives to the ADC will be available at that time. These alternatives will use proven technology and cost approximately $45, lowering variable production costs to about $630 per unit.

Management at Elite truly is in a predicament. Should it grab the new ADC and run for the pot of gold, or should it play things safe and wait for more proven technology and competitive sources.

1. Should Elite proceed with the new low-cost oscilloscope incorporating the new analog-to-digital module (ADC)?
2. Who should be involved in the decision-making process? Who has the final responsibility for the decision?
3. What other issues related to this problem should be of concern to supply management?