CASE

Wilton Toy Company

In May 1971, Mr. Brian Cunningham, president of Wilton Toy Company, was evaluating two new product proposals to determine which one his company should accept. After the two proposals had each reached the final planning stages, Mr. Cunningham reviewed the company's financial position and decided that only one new product could be undertaken at that time. He wanted to select the most profitable venture, but he hoped to avoid incurring a great deal of risk.

Wilton had just experienced two years of declining profit. Since accepting the top position at Wilton after Mr. Art Wilton's death in

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December 1970, Mr. Cunningham had continued to operate the business based on the policies and procedures formed by his predecessor, but he was beginning to reexamine existing practices in order to reverse the downward profit trend. With the exception of a few standard products, most toys had a limited product life cycle. The first few years were extremely important since the company that produced an innovative idea often was able to make substantial profits before the competition became too keen. In the past, Wilton had competed successfully because it had introduced many popular new products. In recent years, however, Wilton had shown a decline in new product introductions. The problem was compounded by disappointing sales levels for a remote control battery-operated model car that was introduced for the 1970 Christmas season.

In the past, Wilton Toys had always calculated the before-tax return on investment that could be expected for a new venture. When two or more proposals were in the final planning stages and were competing for the same funds, the ROI was used as the determining factor. The two proposals being considered in May recommended that Wilton produce a toy pistol and a plastic minimotorcycle replica. The toy pistol suggestion had been submitted by the new product design team which was formed by management personnel. The team believed the toy should be modeled after the U.S. Army pistols used in Vietnam. Sales estimates for the gun were made with considerable confidence since the market potential was well known for this type of product. The sales manager believed that 30,000 guns could be sold at Wilton's price of $4. The project would require an investment of about $110,000 and would incur $4,000 in fixed costs and $3 per gun in variable costs.

Wilton had always attempted to utilize the potential of its work force by encouraging company employees to submit new product ideas. The motorcycle proposal was the direct result of a suggestion by Mr. Larry Bradshaw, a production foreman. Mr. Bradshaw believed a small replica of the minimotorcycle would be very popular and could be produced economically. The sales manager, however, experienced considerable difficulty in making a sales estimate due to the novelty and the uniqueness of the toy. After considerable discussion and deliberation, the sales manager set the best estimate for motorcycle sales at 6,000 units for Wilton's $11.50 selling price. The required investment would be $116,000, while the fixed costs would be $5,000 and the variable cost would be $6 per cycle.

Mr. Cunningham realized the ROI forecast for the motorcycle proposal was 24.1 percent, compared to 23.6 percent for the gun suggestion, but the small spread combined with the uncertainty of the motorcycle sales volume concerned him. These doubts prompted Mr. Cunningham to hire Mr. Julian Davis on a consulting basis. Mr. Cunningham asked Mr. Davis to examine the ROI calculation for each proposal and to make some sound recommendations suggesting how the uncertainty should be handled.

Mr. Davis spent some time studying the background of the selection problem. Then he confronted the men responsible for making the forecasts used in the ROI calculations. He learned that the selling price and the fixed costs could be accurately predetermined. The sales volume, the variable cost, and the investment expense, on the other hand, were the best estimates of the sales manager, the production manager, and the vice president, respectively. All three men admitted that there could be considerable variation from their forecast values.

When Mr. Davis returned to the sales manager, he had little difficulty in extracting a sales range for each project. Using the sales range for the upper and lower limits, Mr. Davis asked at what sales estimate there

EXHIBIT 1 Wilton Toy Company Sales Forecasts

Toy Pistol		*Motorcycle*	
Estimate (units)	Probability Actual Less than Estimate	Estimate (units)	Probability Actual Less than Estimate
24,000	5%	2,500	5%
28,000	30	3,500	30
30,000	50	6,000	50
31,000	75	7,500	80
33,000	95	9,000	95
36,000	100	11,000	100

would be a 75 percent chance that actual pistol sales would be less than the estimate. The sales manager figured that there was a 75 percent chance that pistol sales would be less than 31,000 units. Continuing in this manner, Mr. Davis and the sales manager were able to set the odds for sales being equal to or less than six specific volumes for each project (Exhibit 1). Mr. Davis noted that the sales volume for the motorcycle proposal might vary over 90 percent from the figure used in the original ROI calculations.

Mr. Davis used the same technique when he met again with the production manager and the vice president. The production manager was initially quite reluctant to make cost estimates for specific probabilities. Mr. Davis asked him what the greatest possible variable cost would be. Next he asked what chance existed that the production manager's original forecast to Mr. Cunningham might be exceeded. By graphing the estimates, Mr. Davis was able to ask about intermediate values between these forecasts. As the distribution began to take shape, the production manager's confidence developed and Mr. Davis was fi-

EXHIBIT 2 Wilton Toy Company Investment and Variable Cost Distributions

Estimate	Toy Pistol Probability Actual Less than Estimate	Estimate	Motorcycle Probability Actual Less than Estimate
Investment			
$106,000	5%	$113,000	5%
108,000	15	115,000	25
109,000	30	116,000	50
110,000	50	118,000	70
112,000	80	120,000	90
115,000	100	123,000	100
Variable cost			
$2.94	5	$5.85	5
2.96	25	5.90	20
2.98	40	5.95	40
3.00	50	6.00	50
3.02	70	6.05	75
3.04	90	6.10	90
3.07	100	6.15	100

nally able to draw a representative curve for the possible outcomes.

Mr. Davis planned to calculate the expected value for each variable for both alternatives from the forecasts he had received (Exhibits 1 and 2). The expected values could be used to determine an ROI figure for both proposals. All possible results would then have an effect on the ROI figures, rather than just the most likely value. Mr. Davis hoped to illustrate the risk by revealing the spread of possible outcomes for each proposal. He planned to run a computer simulation to calculate the ROIs for both alternatives. The simulation results could be plotted to show the frequency distributions which would reveal the possibilities of all levels of return for each project.