

## *Case 25*

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# *Raster Blaster*

*by*

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Mr. Hy Eyeque is an electronics expert who has an extensive workshop in his home for “tinkering.” Hy has been working recently to develop a “black box” that will convert video output into TV signals, but with a 100% increase in the number of vertical lines per “raster” scan. In his work on this project he has been attempting to use off-the-shelf components as much as possible, both to speed eventual production and to hold down the costs.

Thus far, Hy has succeeded in producing two prototypes or breadboards that work, but they are far too large and produce too much heat to commercialize. To date, Hy’s out-of-pocket expenses total \$15,550, plus Hy’s own labor and wear and tear on his tools.

Over the past few months Hy has been calling on manufacturing firms in the area (Hauppauge, Reno Electronics, Ryan) to try and interest one or more of them in completing the development of a commercial model of his Raster Blaster box. He has also contacted electronics distributors (Arrow Electronics, EMZ Electronics, Bilco) and retailers (Best Buy, Sears, Circuit City) about distributing/selling such a product.

The most serious interest to date has come from Ryan Integrated Products of Long Island City. Ryan currently produces sound and video boards for a variety of brand name companies (3Com, ATI, Matrox, Creative Labs) and makes some of the chips for these in house. Their development, assembly, testing, and packaging capabilities, plus contacts with companies further along in the distribution chain, make them a prime candidate for Hy’s product.

In a recent meeting concerning the Raster Blaster at Ryan, Anne Whyte, Ryan’s market research manager, indicated that a study had been conducted by Kirby & Shaw, a well-known

market research firm, for which Ryan paid the fee of \$100,000. The study results showed that there would be a market potential of *at least* 100,000 Raster Blaster units annually nationwide, if the product were appropriately promoted. The management of Ryan were quite excited at this finding. First, they negotiated an annual license fee of \$150,000 with Hy. Then they promptly set up a project team to take the development through the next step: model and documentation development. Tom Cable from the model shop was asked to make thirty models of the Raster Blaster, using production parts as much as possible, but using model-shop production methods, which meant building the units by hand. Fred Mertz of manufacturing engineering was asked to draw up specifications, parts lists/numbers, and production methods for the product, should Ryan decide to go into production.

Costs for these pre-production activities are shown in Table 25-1.

**Table 25-1 Pre-production Activities**

<u>Item</u>	<u>Materials</u>	<u>Labor</u>	<u>Outside Services</u>	<u>Total</u>
Documents		\$975	\$125	\$1,100
30 Demo units	\$1,200	\$9,500	\$450	\$11,150

To support the further development of his idea, Hy also worked in a consulting role on the model production. He spent two man-weeks at Ryan.

Once the models were completed and were placed in test locations under the observation of Kirby and Shaw, focus shifted to the market forecasts and marketing plan.

Bill Kimble, marketing consultant, had developed a plan by which Ryan could produce the Raster Blaster and distribute it through the wholesale channel (to firms such as Arrow Electronics, EMZ Electronics, and Ryco) where the marketing costs would be minimal. These firms would, in turn, place the Raster Blasters with retailers, with a typical distributor mark-up of about 33%. The retailers would offer the product through their stores with a mark-up of some 22%. End user prices were estimated in the range of \$83.55 to \$106.55.

At these prices, Bill estimated that sales would likely start at 30,000 units the first year, with annual unit growth of 100% per year thereafter. Factory prices are expected to decrease 20% for third-year sales, 25% for fourth-year sales, and 35% for fifth-year sales. (Bill billed

Ryan \$85,000 for the study, which included art work and packaging design for the new product.)

Results from the testing of the models proved encouraging, as the reliability was excellent and the higher detail of the picture on ordinary TV sets was receiving kudos galore from all of the testers.

Roger Pedaktor, Ryan's CEO, decided to go full speed ahead, and requested an immediate five-year economic analysis using Bill Kimble's sales estimates, including a \$60,000 promotion budget for the first year of sales which will increase proportionally with sales volume, and asked Fred Mertz to provide production cost estimates for the analysis.

Fred estimated that, for the production units:

- Labor would cost 95% less than for the models.
- Material would cost 90% less than for the models

These estimates assume the purchase of \$75,000 in production and packaging fixtures and an additional \$225,000 in test equipment and software.

Use a MARR of 12%.

## Questions

1. Find the fixed capital cost for starting the business.
2. Calculate the unit production cost, unit contribution margin, and breakeven volumes for the worst case from the company's point of view (the low selling price) and for the best case (the high selling price).
3. Calculate the annual demand, selling prices, and profits through the planning horizon at both low and high prices.
4. Determine the range (depending on selling price) for the project's present value.
5. Recommend whether to "go" with the idea or not. Calculate the breakeven value at the low price of the data item that you consider most likely to be unreliable.