OBJECTIVE INSIGHTS

Business Analysis for the Health Care Industry

Decide To Profit

Executives in the healthcare industry regularly face multi-million dollar decisions that affect the profitability, and often the very survival, of their companies. While the judgment and insight of an experienced executive are invaluable, based on our experience, most decisions can benefit from proven analytical techniques. A minimal investment in time and resources may uncover a decision alternative that offers a potential return millions of dollars greater than previously considered options.

A new decision alternative that can lead to millions of dollars of incremental profit is a common result of a thorough decision analysis. The decision analysis process provides many other benefits as well:

- Executives feel more confident in the decision-making process
- Decisions are defended more easily
- Decisions are made more quickly
- Decisions are more permanent; there is less subsequent reconsideration
- There is more buy-in among affected parties
- Communication increases among employees
- Expertise is shared
- Less time is wasted exploring unimportant, yet potentially divisive issues
- Resources are applied only where needed
- The process of structuring a decision fosters understanding and insight
- Negotiating positions are strengthened

Despite these benefits, decisions are regularly made without these techniques because executives are unsure how to proceed. Based on work we have completed with our clients, we will present an example problem from BioProfit, Inc., a hypothetical company.

BioProfit is in an enviable position. BioProfit is, in all likelihood, on a collision course with success. Their prolific scientists keep developing new, exciting products. But to bridge the gap between this product pipeline and eventual success, their products must be marketed.

BioProfit is satisfied with their strategy in the U.S., however, they have a decision to make regarding Europe. BioProfit has no presence in Europe, yet they believe that there is potential for their products in this market. With a cautious attitude because of their burn rate and their focus on the U.S., they are leaning towards licensing their products to a more established company. Licensing is easy, involves little up-front investment, has relatively low risk, and would not dilute management's efforts. In addition, BioProfit is sure that an established partner would sell more product than they could. Besides, they can be very successful in the U.S. alone, and treat their European royalties as supplemental income. Despite their strong inclinations towards licensing, BioProfit still wanted to explore other options.

Before showing how we helped BioProfit analyze this decision, a brief discussion of decision analysis will be helpful.

14500 Big Basin Way, Suite L • Saratoga • California 95070 • Phone (408) 741-4927 • FAX (408) 741-5631

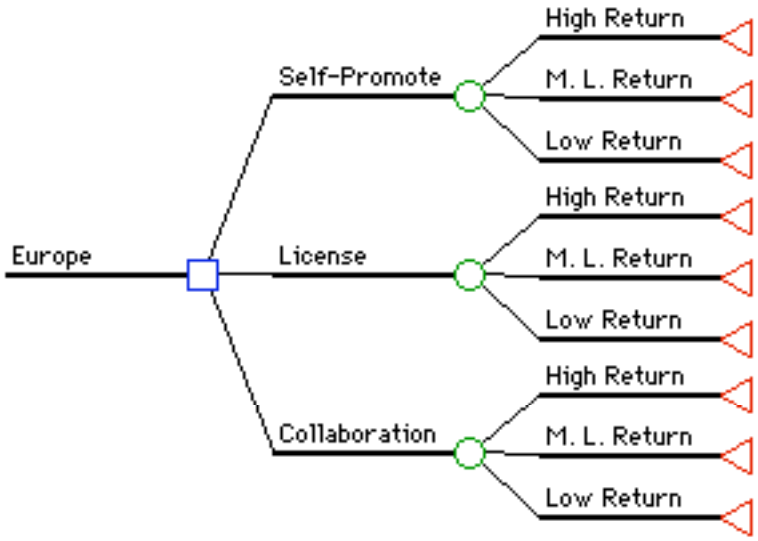
Decision analysis is a method for selecting the best course of action within an environment of risk and uncertainty. The courses of action are called alternatives and the goal is to select the best one. An alternative may look very attractive in an absolute sense, when viewed alone, and yet there may be other relatively better alternatives. We want the best alternative. The risk comes from uncertainty; outside events may lead to better or worse outcomes. The uncertainty results from a lack of information. Perfect information will always be impossible. For instance, how could everything be known about every outside event? Even good information costs money to acquire; decision analysis can tell us if it is worth the cost.

We helped BioProfit evaluate three alternatives: setting up a full marketing and sales organization in Europe to promote their products themselves (*Self-Promote*), licensing their products to an established company (*License*), and a collaboration with a partner (*Collaboration*). For each of these three viable and attractive alternatives, we identified the components that will determine BioProfit's return:

- *Self-Promote*: Gross profits = revenues X the gross margin rate (to account for the cost of goods sold) — the costs of setting up a sales organization
- *License*: Gross profits = revenues X the royalty rate. However, an established, successful partner should be able to generate higher revenues than BioProfit would.
- *Collaboration*: Gross profits = 1/2 the revenues X the gross margin rate — the costs of setting up a sales organization + 1/2 the revenues X the royalty rate. Again, these revenues should be bigger than what either company could have done alone.

Next, we generated reasonable ranges for each variable. We used a range to reflect our degree of uncertainty, or our lack of precise information. We specified three levels for each variable: the most-likely (our best estimate), the low, and the high. Without hard data, the technique we used to set the low and high was to ask management for a level that would surprise them. For example, they would be surprised if BioProfit were able to negotiate a royalty rate higher than 20%.

Next, we put our three alternatives and their corresponding variable ranges into a decision tree model. A simplified decision tree is shown below.



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We found the following results:

- BioProfit can expect $220 million from alternative *Self-Promote*, $160 million from *Collaborate* and $80 million from *License*.

Alternatives	Low Return	Most Likely	High Return
Self-Promote	$92	$220	$360
Collaborate	$78	$160	$290
License	$45	$80	$110

- *License* is the least risky (variable) alternative, however the best that *License* can do is only slightly better than the worst result from *Self-Promote*. Put differently, *License* is lower risk but it is almost guaranteed to be the worst alternative.

- BioProfit was leaning towards *License*. However, BioProfit found that it could expect $80 million more by choosing *Collaborate* and $140 million more by choosing *Self-Promote*.

If BioProfit wants to be more certain before making this decision, they can improve their information and then re-run the model. A sensitivity analysis can be used before acquiring any new data to identify which variables to focus on and which ones require no further attention. In this example, sales revenues really drive the model while fixed annual costs can effectively be ignored. The model can also quantify the value of acquiring additional information.

Management was happy with these results, however, profits were only one parameter of this decision. Cash flow was a major concern for BioProfit. In many ways, cash flow is really a constraint; the best alternative is not desirable if the company goes broke in the process. However, there are many ways to raise money. A $140 million reward can make this effort possible and worthwhile.

In addition to cash flow, timing can also be an important consideration. For instance, a potential partner may want a reply quickly. If a sales forecast is available, the whole analysis shown in this example can be completed within two days. More complicated problems might take weeks or months to analyze. In this case, however, it is hard to imagine many other ways that a BioProfit executive can create $140 million in two days. Decision analysis allows this kind of leverage.

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