

### CHALLENGE

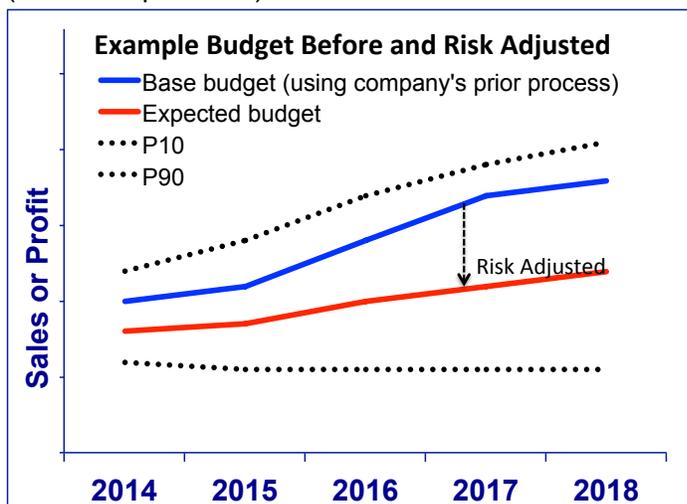
A global pharmaceutical company approached EpiX with a request to help them understand the company's long-term risks by incorporating risks and uncertainties into the company-wide 5-year budget. While the company's global planning team was already using tools such as Risk Heat Maps, they wanted to use more systematic methods to improve their evaluation, quantification and prioritization of risks and opportunities. By using this improved methodology, the team also aimed to improve the planning process by taking into account the impacts risks have on the long-term budget and the probability of achieving it.

### WHAT EPIX ANALYTICS DID

EpiX started by working with the company's global planning team to understand the scope of the risks to be included within the budget. EpiX then built a flexible and user-friendly template model that incorporated the risks identified. EpiX also helped build the IT and data framework that made inputting, executing and reporting of the risked-budget streamlined and straightforward.

While some of the inputs identified were available from existing data (e.g. past sales), many were not as they required estimates of future revenues, costs and risks. Therefore, EpiX held several workshops and working meetings with business unit representatives from all over the world to solicit their expert opinion. EpiX also worked with the representatives to develop potential business scenarios to evaluate. EpiX then completed a concise but comprehensive analysis of the budget taking into account all of the risks and opportunities identified.

The results were eye opening for the company. The probability of achieving the company's base 5-year budget was sometimes more but often less than 50% (see example chart).



It wasn't that the company wasn't taking risk into account in their budget estimates; rather, it is just difficult to determine the cumulative impacts of various risks without developing a well-thought out risked-model.

Of course, the next question to answer was what were the most important risks? What was driving the results? For this, EpiX provided a number of [tornado charts](#) that explained the influence that each risk had on the annual budget for individual business units as well as for the company worldwide. The results of the analysis provided management and the board of directors with valuable insight into the company's long-term risks and opportunities.

### TECHNIQUES & METHODS USED

- [Scenario/event Trees](#)
- [Expert elicitation techniques](#)
- [Monte Carlo simulation](#)
- [Various distributions](#), including the [Bernoulli](#) and [Pert](#)
- [Modeling relationships](#)
- Assessing [confidence levels](#)
- [Communication of risks and opportunities](#)

## BENEFITS TO THE CLIENT

The risked budget allowed senior management to get insight into a number of questions, including:

- How realistic was their current budget?
- What was their confidence that they would meet or exceed the budget?
- What uncertainties have the greatest possible impact on the budget?
- What risks, if any, could be mitigated to reduce their negative impact on the budget?
- What should the budget be set at given all the relevant uncertainties?

As a result of the project, the company has not only been able to increase the budget's accuracy but also, more importantly, the analysis serves as an instrumental tool in helping the team identify and focus their attention on the risks and opportunities that affect their budgets most significantly. In addition, by simply gathering their best minds from all over the world in one location to formally discuss the company's risk drivers and uncertainties, the team and business unit representatives gained deep knowledge into their risks and forged collaboration between the various business units.

## MORE INFORMATION

- ⇒ [Pharmaceuticals and Medical Products white paper](#)
- ⇒ [Improving Decision Making by Quantifying Uncertainty, American Association of Pharmaceutical Scientists, 2011](#)
- ⇒ [ModelAssist® for @Risk™](#)
- ⇒ [ModelAssist® for Crystal Ball®](#)
- ⇒ [Testimonials](#)

## ABOUT EPIX ANALYTICS

EpiX Analytics, LLC is a leading firm specialized in probabilistic modeling. Using our analytical expertise, we help private and public institutions worldwide to make decisions in the presence of uncertainty.



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