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I recently had the pleasure of participating in an extended Q&A session with about 400 data warehousing professionals at the Orlando Data Warehousing Institute conference. The attendees and moderators Richard Rist and Wayne Eckerson asked the questions while Pieter Mimno, Bob Craig, Ken Rudin, Michael Haisten, Ralph Kimball, Claudia Imhoff, the irrepressible duo of Neil Raden and Herb Edelstein, and I provided the responses. While the range of topics covered was very diverse, I found one quite striking, the topic of measuring Return On Investment (ROI) from data warehouse systems.

The initial question related to establishing ROI to justify a data warehouse/data mart system, which is the traditional place and time for this topic to arise. As a follow up to the question, Richard Rist conducted an impromptu survey of the audience and found that around twenty had attempted to project an ROI before they built their systems. Remarkably, no more than a handful had attempted to measure the actual ROI of their systems once they were up and running.

There has been some questioning of using ROI as a measurement by the theorist community, with no less than Bill Inmon weighing in with the opinion that ROI is not a valid measurement of data warehouse success in a keynote speech a few months ago. In Bill's view, using ROI as a metric isn't valid because you "can't measure it until the data warehouse is complete." This being a room and panel full of practitioners, I didn't hear anyone echo Bill's unique opinion. We all knew, all too well, that a data warehouse system is never "complete," and most businesses consider some form of financial analysis of real-world multi-million dollar investments a viable and necessary evaluation criteria.

From the "in the trenches" perspective, the audience and panel brought up some key thoughts to ponder regarding projecting and/or measuring the ROI of your data warehouse/data mart system:

1. First, if you're going to base the justification of your system on a financial measurement like ROI, you'd better be building something measurable. A data mart built to improve customer satisfaction will be hard pressed to measure a finite ROI, whereas a data mart built to support a Sales Force Automation (SFA) application stands a reasonable chance of capturing discrete metrics that can be turned into a meaningful financial analysis.
2. Secondly, there is the problem of how you are going to actually construct your ROI formula. Many IT practitioners consider ROI a single, one time expense, and a single, aggregate return of increased revenue or decreased costs. The worlds of data warehousing and financial analysis are much more complex than this simple vision. Data warehouse systems, as the panel was quick to point out, are never-ending investments. This brings the challenge of how to project the ongoing outflows related to system maintenance and growth. How do you calculate the Net Present Value (NPV) of something that you can't begin to predict the volatility of in the first place? Couple this with a very irregular return, instead of the steady, even inflows of a more common income stream, and the basic financial calculation becomes

much more complex than the typical IT analysis. You are best to hook up with a qualified financial analyst and delve deep into the financial functions of your favorite spreadsheet.

3. The panel also brought to light several corollary measurements to ROI, such as the opportunity cost of investing in the data warehouse/data mart system in the first place. In your ROI calculations, you must also present the calculation of what the return would have been had the funds not been invested in your project, but invested in other opportunities. An associated measure is the cost of doing nothing at all. While you're not building a data warehouse system, what is the cost associated with the fact that all of your competitors are?
4. Another metric to ponder is the "Functional ROI." This relates to the functions and processes that are altered and enabled by a data warehouse/data mart system. What functions and processes will exist in the enterprise that did not or could not exist before? What is the economic or competitive value of these functions and processes? What is the value of being able to tell good business from bad business, of knowing the exact inventory turn related to promotions, or of understanding the relationships between training programs and accident rates?

While many well meaning data warehousing teams are quick to quote industry studies that proclaim 400-500% ROI for data warehousing systems, you would be well advised to tread carefully on that thin ice. The sample sets were self-selective and the methodology flawed (be sure to read the footnotes). In the end, I believe that a valid "ROI" measurement for data warehouse systems consists of several measures: pure financial ROI, opportunity cost, "do nothing" cost and a "Functional ROI." In the real world, your financial ROI may be 0%, but the overall return of all the measures can easily be well over 100%. Taken together, these measures will allow your enterprise to make an informed decision on the investment in, or the ongoing value of your data warehouse/data mart system.

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