

**TITLE: "THE ELEMENTS OF COST/BENEFIT ANALYSIS"**

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Since 1971: "Software for the finest computer - the Mind"

*"It is important that both costs and benefits be thoroughly defined and scrutinized. After all, there is little point in throwing good money after bad."*  
- Bryce's Law

**INTRODUCTION**

I recently met with some college students who asked me about "PRIDE" Information Resource Management, and, specifically about Project Management. They were all somewhat familiar with concepts relating to Work Break-down Structures, estimating and scheduling, but all were at a loss when I started to talk about the preparation of a Cost/Benefit Analysis. Evidently, this was not part of their curriculum. I described to them the importance of Cost/Benefit Analysis and how it was a critical part of Project Management in terms of determining whether to proceed with a systems development project or not. Perhaps it is time for a refresher course on this subject.

First, a Cost/Benefit Analysis is an analysis of the costs or expenses incurred by a project in comparison to the benefits derived from implementing the project. Its preparation begins with an estimate for an overall project (an Order-of-Magnitude Estimate), as described in "PRIDE" Special Subject Bulletin #17 ("Taking the Mystery out of Estimating"):  
<http://www.phmainstreet.com/mba/ss050328.pdf>

Based on this, consideration is given to the one-time costs associated with the project (those costs incurred by the project). It is also customary to include the following items:

- \* Determine on-going staffing costs - an analysis of the operating costs (actual versus proposed). This is based on the rough design of the planned system and its anticipated impact on the company.
- \* Estimated savings and expenses by user department

areas (e.g., Manufacturing, Marketing, etc.). This describes the on-going costs associated with the system, as well as the anticipated savings.

\* Itemized benefits - both tangible and intangible. In the systems world, the biggest benefits are typically intangible in nature. A benefit is typically written beginning with a transitive verb, such as "improve," "maximize," "minimize," etc. Substantiate your claim; do not simply say "Improved cash flow"; instead, say something like, "Improved cash flow through tighter control over inventory and faster response from Production."

\* Break Even point - the calculated point in time where cost savings match accumulated development expenses. It is normally calculated as:

Break Even Point = Investment / Average Annual Savings

For example, where the project Investment was \$49,215 and the Average Annual Savings was \$22,861, the Break Even Point is 2.15 years (26 months)

\* Calculate Return On Investment (ROI) - the ratio of projected cost savings versus amount invested. It is typically calculated as:

ROI = (Average Annual Savings / Investment) X 100

Using the figures from above, the ROI is 46.4%

For Break Even Points and ROI, some organizations may have in-house standards for developing these figures and include considerations for inflation, interest, depreciation, amortization, etc.

Other than the project estimate and schedule, the Cost/Benefit Analysis becomes the focal point from which management will make a decision to proceed with a project. I have also seen companies establish standards in this regard. For example, some companies will not touch a project if it doesn't show a minimum of 200% ROI or a break even point of five years or more (after all, they might have better things to do with their money than wait for a system to reap dividends).

To assist in the preparation of a Cost/Analysis, we offer the following worksheet:

<http://www.phmainstreet.com/mba/pride/iw021.jpg>

For a sample of a completed worksheet, see page 2.  
(continued on page 3)

SAMPLE COST/BENEFIT ANALYSIS WORKSHEET

**PRIDE**®

COST/BENEFIT ANALYSIS  
WORKSHEET

PD - 00178  
PROJECT NUMBER

T.1  
IRM CONTROL NUMBER

TITLE: ORDER PROCESSING SYSTEM

PREPARED BY Borg DATE 3/19/05 APPROVED BY Arnold DATE 3/20/05

STAFFING ANALYSIS LIST DEPARTMENTS BELOW	CURRENT STAFFING	PROJECTED STAFFING	DIFFERENCE
<i>Customer Service</i>	<i>42</i>	<i>37</i>	<i>(11)</i>
<i>Sales</i>	<i>15</i>	<i>15</i>	<i>0</i>
<i>Marketing</i>	<i>10</i>	<i>10</i>	<i>0</i>
ANNUAL SAVINGS/EXPENSES LIST DEPARTMENTS BELOW	ANNUAL SAVINGS	ANNUAL EXPENSES	NET
<i>Customer Service</i>	<i>\$22,357</i>	<i>\$15,938</i>	<i>\$6,479</i>
<i>Sales</i>	<i>3,829</i>	<i>0</i>	<i>3,829</i>
<i>Marketing</i>	<i>9863</i>	<i>0</i>	<i>9,863</i>
	<i>\$38,799</i>	<i>\$15,938</i>	<i>\$22,861</i>
ONE-TIME SAVINGS/EXPENSES LIST DEPARTMENTS BELOW	ANNUAL SAVINGS	PROJECT EXPENSES	NET
<i>Customer Service</i>		<i>\$5,000</i>	<i>\$(5,000)</i>
<i>Systems Development</i>		<i>44,215</i>	<i>(44,215)</i>
		<i>\$49,215</i>	<i>\$(49,215)</i>

INTANGIBLE BENEFITS

- 1. More accurate and less redundant data due to system integration of orders with credit, billing, inventory, and shipping.*
- 2. Improved customer service with fewer clerks.*
- 3. Improved corporate image and market share through more productive and quality service.*

INVESTMENT EVALUATION

BREAK EVEN POINT =  $\$29,215 / 22,861 = 2.15 \text{ years (26 months)}$

ANNUAL RETURN ON INVESTMENT (R.O.I.) = 46.4 %

*(continued from page 1)*

## **CONCLUSION**

Performing a Cost/Benefit Analysis is critical to the continuation of a development product. Superficial attention to its development may result in erroneous conclusions which will lead a company down a path to disaster. It is important that both costs and benefits be thoroughly defined and scrutinized. After all, there is little point in throwing good money after bad. I have seen too many system development projects turn into mega-disasters simply because companies didn't take the time to study the basics as herein described. Because of this, the preparation of a Cost/Benefit Analysis requires someone who can accurately calculate figures, writes effectively, pays attention to detail, and possesses a sense of "salesmanship." The type of person performing this work is typically a senior project manager or senior analyst, and not a software engineer or programmer. The worksheet mentioned above is helpful for recording calculations and benefits, but the final Cost/Benefit Analysis should be carefully packaged and explained, both as an executive summary, and in detail.

Bottom-line, the purpose for the preparation of a Cost/Benefit Analysis is to allow a company to "Look before you leap."

For additional information on "PRIDE" Project Management, see:

<http://www.phmainstreet.com/mba/pride/pm.htm>

**END**

*"PRIDE" Special Subject Bulletins can be found at the "PRIDE Methodologies for IRM Discussion Group" at:*

<http://groups.yahoo.com/group/mbapride/>

*You are welcome to join this group if you are so inclined.*

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<http://www.phmainstreet.com/mba/pride/pride.htm>

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