



Measuring IT & Training ROI



*Insights into how to measure
and maximize returns on IT
expenditures*

By:
Joseph W. Fisher, President
Affinity IT, LLC



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How to maximize returns on IT Expenditures

Introduction

Information Technology expenditures now account for about 3.66% of sales on average according to a recent article in Business Wire¹. In consequence, Chief Information Technology (CIO) Officers in large companies are under increasing pressure to justify their budgets and make positive contributions to sales and/or profits. In this document, we examine some of the challenges that IT Managers face in justifying budgets and demonstrating sufficient Return on Investment (ROI) and offer some insights into how efforts in this regard might be improved.

What Needs to be Measured

Return on Investment (ROI) is typically a measure of the benefits gained as the result of some expenditure during some period of time. For example, one commonly used definition of ROI used to measure overall company performance is a *ratio of Sales to the Total Assets* owned by the company.

$$\text{ROI} = \frac{\text{Sales}}{\text{Avg. Total}}$$

Since this formula calculates the ROI *for a given period of time*, and since Asset holdings change over time, an average value during the period is used for the latter. Note that as Sales rise in proportion to Assets, ROI increases. Thus, the more revenue generated with the least assets, the better ROI appears.

We wish to do the same with IT expenditure. That is, to measure the benefits to the company in direct proportion to the budget allocated for IT. As we shall see, however, the answer is not quite so straightforward.

What's Different About IT ?

One challenge that quickly becomes clear is that IT expenditure is not like "assets", which are purchased and depreciated over time. Some IT projects do not immediately yield benefits to the organization. In fact, some IT projects

¹ See: http://www.findarticles.com/p/articles/mi_m0EIN/is_2006_Jan_17/ai_n16005446



do not yield measurable benefits at all.² Simply comparing the aggregate IT budget to sales will not provide the insights we seek. We will need to look at IT expenses from several perspectives including the Project, Category, SBU, and corporate levels to gain meaningful insights. We will also need to consider the timeframes of the expenditures and their resulting benefits.

Classifying IT Expenditure³

In order to gain meaningful insight into the benefits yielded by IT expenditure we must analyze each Project or expenditure and determine:

- Does this expense relate to ongoing IT Infrastructure and Administration ?
- Do we anticipate that this expense will yield measurable value in terms of sales growth (or preservation) and/or profitability ?⁴

The first question is intended to identify those IT expenditures that are similar in nature to "plant and equipment". In other words, they represent IT's portion of the ongoing operations of the firm, and belong in a category we'll call IT Infrastructure and Administration.

These Projects and expenses can and should be compared to revenue and profitability in the current year, as they are *enablers of success* for the company. Without these expenditures, the company is hampered in its capabilities. IT expenditures in this category are like heat and electricity: you cannot expect operations to be carried out without them. Of course, this includes expenditures related to the replacement and upgrading of existing capabilities to remain current and effective.

The second question seeks to divide remaining projects according to their ability to yield measurable benefit. Projects that do not yield measurable benefit or for which measurement it is too difficult or expensive will be relegated to the first category: IT Infrastructure and Administration.

The remaining projects are those that are expected to yield measurable benefits. We'll call these Projects and expenditures: Strategic IT Initiatives.

As we seek to define the means to measure the ROI of Strategic IT Initiatives, we must consider each and ask: In what timeframe would it be reasonable to expect to enjoy benefits from the Project or expenditure ? In particular, we must account for:

- Projects expected to yield a one-time benefit in a particular timeframe.
- Projects that will, practically speaking, yield perpetual benefits to the firm once completed.
- Projects that yield different amounts of benefit over time. That is, those projects that yield rewards in a "curve" reminiscent of the Product Lifecycle: the benefits ramp up, stabilize, and eventually decline. Evaluation of such Projects or expenditures will require estimates of the yields and timeframes for the associated "benefits lifecycle".

² Upgrading desktop computers for example.

³ Note that this is not for accounting purposes, simply for determining IT ROI.

⁴ Or some other meaningful measure of economic benefit to the business.



The first step in achieving a solid accounting of IT ROI will be to categorize Projects and expenditures according to the above classification scheme. In Project Management terms⁵, the analysis for each should be completed during it's Project Initiation phase and documented within the associated Project Charter.

ROI Derivation

Clearly the reason for classifying IT Projects and expenditures is that each demands its own unique approach to ROI derivation.

IT Infrastructure and Administration

Expenses and projects related to the ongoing operations of the business *should be aggregated and compared to Revenue and Profitability* in the period in which the funds are expended or the projects completed.

In other words, the ratio of total IT expenditure for Infrastructure and Administration to Revenue, Costs, and Profitability are meaningful metrics:

$\text{ROI}_{\text{I\&A(S)}} = \frac{\text{Sales}}{\text{Sales}}$	$\text{ROI}_{\text{I\&A(C)}} = \frac{\text{COGS}}{\text{COGS}}$	$\text{ROI}_{\text{I\&A(P)}} = \frac{\text{Profit}}{\text{Profit}}$
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Where:

- **ROI_{I&A(S)}**: Return on Investment of IT Infrastructure & Administration expenditure as compared to Sales during the same period.
- **ROI_{I&A(C)}**: Return on Investment of IT Infrastructure & Administration expenditure as compared to Cost of Goods Sold during the same period.
- **ROI_{I&A(P)}**: Return on Investment of IT Infrastructure & Administration expenditure as compared to Profits during the same period.
- **IT_{I&A}**: Total IT expenditure for Infrastructure and Administration during a given period.
- **Sales**: Revenue due to sales during a given period.
- **COGS**: Cost of Goods Sold. The aggregate cost of producing products or services sold during a given period.
- **Profit**: Gross Profit. The difference between Sales and COGS realized during a given period.

One or more of these is sure to be of relevance to any given industry. The calculations provide insight into total IT I&A expense and corporate performance in the same timeframe.

Over time, a "range" of reasonable expenditure level can be found that is "right" for the firm. The "right" level of IT I&A expense should enable the implementation of Business Strategies by the firm without wasting money.

⁵ A Guide to the Project Management Body of Knowledge, Project Management Institute, 1-930699-45-X



The Value of Historical Context

Taken by themselves however, *these metrics can be dangerous and even misleading* indicators as to how effectively IT expenditures have been managed. Consider that a drastic reduction in IT budget could temporarily raise ROI_{I&A} by a significant percentage. This could represent a change that might look good in the short term, but produce damaging consequences later.

A complementary calculation that can be used to smooth over short term fluctuations in IT I&A would be one that used the aggregate value of the previous three years of Sales, COGS, Profit, and IT I&A expense data to calculate the metrics. These additional metrics would also provide an historical context for the current period calculations.

Strategic IT Initiatives Yielding One-Time Benefits

The ROI for this category of IT expenditure is also straightforward to analyze, as it too seeks to compare expenses with the associated benefits. *The fundamental difference lies in the timeframes being compared.* That is, it is not meaningful to compare expenditures and performance in the same timeframe since the benefits do not appear until the project is completed. Given this, it is reasonable to aggregate projects that are carried out within the same time and whose benefits will be realized in later but similar timeframes. To reduce the overhead necessary to do so, we might look to do this yearly or semi-annually, and further endeavor to loosely group benefit timeframes together so that the maximum number of projects can be aggregated into a minimal number of groups.

$ROI_{SI(S)} = \frac{\text{Sales}}{\text{Sales}}$	$ROI_{SI(C)} = \frac{\text{COGS}}{\text{COGS}}$	$ROI_{SI(P)} = \frac{\text{Profit}}{\text{Profit}}$
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Where:

- **ROI_{SI(S)}**: Return on Investment for expenditures on Strategic Initiatives sharing similar expense and benefit timeframes as compared to Sales generated during the benefit timeframe.
- **ROI_{SI(C)}**: Return on Investment for expenditures on Strategic Initiatives sharing similar expense and benefit timeframes as compared to Cost of Goods Sold during the benefit timeframe.
- **ROI_{SI(P)}**: Return on Investment for expenditures on Strategic Initiatives sharing similar expense and benefit timeframes as compared to Profits produced during the benefit timeframe.
- **IT_{Sp}**: Aggregated IT expenditures for Strategic Initiatives sharing similar expense and benefit timeframes.
- **Sales**: Revenue due to sales during the benefit timeframe.
- **COGS**: Cost of Goods Sold. The aggregate cost of producing products or services sold during the benefit timeframe.
- **Profit**: Gross Profit. The difference between Sales and COGS realized during the benefit timeframe.



Ideally, the above formulas provide a means by which the efficiency of aggregate discretionary expenses can be measured. Note that this method does not account for expenditures that are uncompleted at reporting time.

Strategic Initiatives Yielding Perpetual Benefits

The underlying assumption in this category is that the benefits returned by the project or expense will be relatively uniform and ongoing.

This category of expenditure can be handled in one of two ways at the discretion organization involved:

- Since their effects will be ongoing and permanently alter performance (presumably for the better), they can be bundled together with IT Infrastructure and Administration expenditures. Benefits should be also calculated at the individual project level, to insure there will be no information loss.
- Instead of, or in addition to the above, such Projects and expenditures can be bundled into their own group within *Strategic Initiatives Yielding a One-Time Benefit*, to gain insight into the aggregate benefits produced during a given timeframe.

Strategic Initiatives Yielding a Benefit Curve

ROI calculations for this category are more complicated, as they seek to measure benefits over multiple reporting periods.

If the benefit period is short enough, this category of expenditure is better treated as a *Strategic Initiative Yielding a One-Time Benefit* because the additional overhead needed to track multiple benefit periods is neither valuable nor justified. On the other hand, if the benefits lifecycle is protracted, then ROI must be measured in increments throughout the benefit lifecycle.

The first step would be to choose a reporting interval. The second step would be to “amortize” the total expenditure over the resulting reporting periods. The final steps would be to calculate the ROI based on the amortized expense for each period as Revenue, Cost, and Profit data becomes available.

Projects and expenditures in this category can be aggregated as long as they share reporting periods.

Figure 1 illustrates this by showing two projects with different benefit yield curves and staggered timeframes. In addition to being measured individually, Project A and B can be aggregated together for those reporting intervals in which they are both producing benefits such A2/B1 and A3/B2.

Consider the ROI (as compared to Sales) for Projects A and B is:

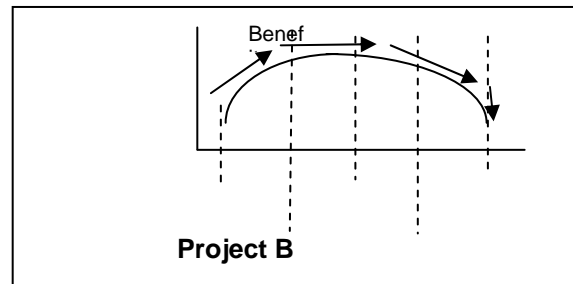
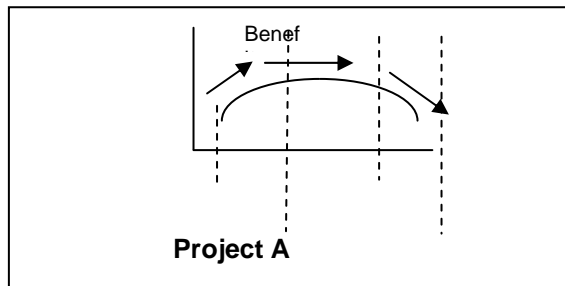
$$ROI_{SI(S)} = \frac{Sales_{A2B1}}{(BAC_A / 3) +}$$



where:

- **BAC_A**: Is the “Budget at Completion” for Project A. That is, the total expenditure for the initiative. This is divided by 3, the number of reporting intervals for Project A.
- **BAC_B**: Is the “Budget at Completion” for Project B. That is, the total expenditure for the initiative. This is divided by 4, the number of reporting intervals for Project B.
- **Sales_{A2B1}**: Revenue due to sales during the period of common benefit (i.e. the reporting interval).

Figure 1: Projects exhibiting benefits curves with overlapping timeframes.



Measuring Training ROI

Training, and IT Training in particular, is often accomplished in response to a Project related need. Should Training expenditures be considered “people maintenance” or “people enhancement” ?

We are of the opinion that “it depends”. If the training is geared towards maintaining a competent workforce by periodically providing job-related activities to augment, improve, or otherwise maintain productivity and effectiveness, then that expenditure should be considered part of IT I&A and measured accordingly. This is “people maintenance”.

On the other hand, if the training associated with a specific project, and represents the acquisition of skills necessary to productively complete Project related activities, it should be considered part of the cost of that Project and measured accordingly. This is project specific “people enhancement”.



Aggregation of Data

Good Project Management methodology will lead us to define and measure Project Success Factors for each Project as a normal course of events. These measurements should include the appropriate⁶ measures of ROI whenever possible so that the benefits of each project can be evaluated individually.

In addition to this, we believe that it is also valuable to evaluate *aggregate IT expenditure at various levels* such as the Strategic Business Unit (SBU) and corporate levels. The previous discussions of ROI calculations should provide you with some strategies and insights for accomplishing this within your company.

Conclusion

As IT has evolved to become an indispensable enabling factor of modern business, the tools used to measure the effectiveness of IT expenditure have not kept pace. New frameworks for the classification and measurement of projects and expenditures are required.

Different classification and measurement criteria have been examined in this document that allow the effectiveness of IT Projects and expenditures to be evaluated and compared at different levels of aggregation.

While no “out of the box” solution is likely to suffice for any particular company, we hope the ideas presented can be taken and adapted to best meet the various needs of different organizations.

Affinity IT, LLC

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More information about our products and services can be found at www.affinity-it.com.

About The Author

Joe Fisher is the President of Affinity IT, LLC. Mr. Fisher holds Undergraduate and Graduate Degrees in Computer Science. As a “hands-on” practitioner, when he is not Instructing he can typically be found designing and implementing Web Applications or authoring Training Materials. Joe can be reached at: jwfisher@affinity-it.com.

⁶ As we have elaborated in this document.