

Evaluating Strategic IT Investments: Everything is measurable

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Abstract

In this short paper, the profitability problem of IT investments is being analyzed by the purpose they serve: strategic and operative. One of the most problematic questions for businesses and governments has been how to measure the profitability of IT investments. When dealing with operative IT investments, popular methods like TCO should be used. However, when evaluating strategic IT investments, the Return on Investment, instead of cost savings, should be calculated. In this paper, the author focuses on the problem of handling “immeasurable” values in IT investment projects. These so-called “soft” benefits have to be identified and quantified. The paper serves as an introduction to author’s further doctoral study.

Keywords: IT investments, ROI, profitability

1. Introduction

During the past years, there has been a noticeable change in the decision makers' attitude towards IT projects. There are growingly more investments done into the area of computing technology and that not with the goal to save in costs, but with the goal to create new benefits. [7] A portion of these benefits can be measured or their amount estimated in numbers. Another portion, however, cannot be measured in these terms at a first glance. This in fact is the main problem: how to conduct financial analysis of IT investments when there are no tangible starting indicators.

It becomes evident that the main wish of entrepreneurs and the government is to improve the level of customer service, the quality of products, competitiveness etc. through IT [1]. Most recent research indicates that the decision makers’ need to be able to tangibly measure the profitability of IT investments is a very current problem today [7]. This fact is also supported by research, where the goal has been to determine the correlation between IT capital expenditures on one side, and the increase of productivity, improvement of business results and of client satisfaction on the other side. It has been shown that whereas IT investments have a positive effect on productivity and can increase client satisfaction, they do not affect a company's general business performance [5].

Unlike in determining the value of “usual” investments, there has emerged no commonly accepted methodology for measuring the tangible value of IT projects. According to research conducted by META Group, none of the questioned 6000 companies attempted to calculate the profitability of planned IT investments (into e-commerce) [8].

The classical corporate finance theory gives direct directions for calculating the value of an investment, but it does not describe how to proceed when the goals of the project are not tangible [2,4]

2. Nature of the IT investment

Based on its nature, IT expenditures could be divided into two categories: operative and strategic. Capital expenditures with operative goals are those IT purchases through which routine, compulsory or business specifics related functions are filled. ERP systems, internal communication, etc. could be among those tasks. Strategic IT projects, according to the author, are

projects with the goal to improve company's position on the market or to create new benefits: to increase productivity and business performance, customer satisfaction, competitiveness and so on.

In the decision making process for IT projects with operative goals, one should, according to the author, choose the most optimal economical alternative: to invest into such information technology solutions which are in accordance with the previously set demands and where the costs of implementation during the exploratory period are the lowest.

Many methods have been developed for analyzing the combined costs of IT solutions, the most known of which is the TCO (Total Cost of Ownership).

This paper examines more closely the measurement problem of strategic IT investments. According to the author, one can and should evaluate and compare strategic IT investments with one another in a way that it is done in the case of "usual" capital expenditures, calculating the profitability values like ROI (Return of In Investment) or NPV (Net Present Value). Difficulty could arise from the fact that the inputs for calculating ROI or NPV are strictly tangible values: cash flows, project lifetime and discount rates. When dealing with the profitability of IT investments, our task is to convert intangible values into numbers before we can use methods similar to calculating ROI or NPV.

3. Everything must be measurable

The decision makers in the IT field often state the following: "We cannot determine the profitability of the investment because we cannot measure the effect we have set as the goal." However, is it possible at all to approve the fact that IT investments are fundamentally something else than other investments where the evaluation of profitability is possible (and usually compulsory)? Let's take a closer look at the problem of immeasurability. The following could be determined:

1. The measured or evaluated profitability has not been clearly identified as an **object**.
2. The actual **concept** of measurement has not been understood [6].

3.1 The object

In order to understand the object of measurement when dealing with "immeasurable" values, one has to be specific. When we use terms like employee empowerment, customer relations, or strategic alignment - do we really know what we mean? The truth is that often we do not. [6] It is easier to classify those values as "immeasurable" and declare the measuring of the project's profitability impossible.

For example, let's presume that the purpose of an IT investment is to improve the speed and availability of information. In this context, it means that the availability of information improves, and that is a value, which at first seemed impossible to measure. Perhaps it means that people now spend less working time looking for information. That, in fact, is a measurable quantity for which we can calculate an economic value. Or perhaps it means that information is lost less often. That is also measurable; if this information affects a routine business decision, then we can find the economic value by measuring the effect that not losing that information has on reducing costly errors. Perhaps it really means that losing information causes extra work to re-create data. To be brief, whatever is meant by "information availability" can be boiled down to something more concrete and therefore be measurable.

Lets take a value like "competitiveness" for an example. This has become an especially urgent issue in relation to various web projects – trying to secure the company's presence in the Internet. Presumably, every manager can evaluate the "absence" costs of not being in Internet. Does this mean cutback in turnover, loss of customers or loss of working time due to ineffective communication? It surely can be estimated and avoiding such costs can be viewed as "savings", leading us to the economic value of a Web project.

There is also another way to understand the logic of quantifying “soft” benefits. Let us use company “A” for an example, where the purpose of an IT project is to improve customer service. Now let’s clone company “B” from “A”, in which the IT project is not been planned. Then, after some time, can we assume there is a difference between the two companies? If in case they are different in a way that is relevant, then the difference must be economically observable. Once you have identified an observable consequence, determining a way to measure it is not difficult. [6]

3.2 The concept

Measurement can be a widely misunderstood concept. It is often mistaken for a process that produces an exact number. If you are told that some values or benefits cannot be measured because there is no way to put an exact number on it, then perhaps the problem is misunderstanding the concept of measurement. However, measurement is only the reduction of uncertainty about a quantity through observation. Reduction of uncertainty does not necessarily mean (in fact, almost never) the elimination of uncertainty. If a process produces an exact number (such as an accounting formula), then it is a good indication that the process is not a measurement at all, rather just a calculation. Measurements are pragmatic observations and observation never eliminates uncertainty. This is why all realistic measurements in economics are expressed as " probability distributions." If you can reduce the range of possible values by a bit, you still have a measurement [6].

The above-mentioned logic is suitable for evaluating strategic IT investments as well. If, for example, the goal of the project is to "fasten the processing of orders", then probably nobody can estimate by how much exactly will their performance improve. Calculations for determining profitability are possible when experts assess that the processing of orders will fasten for example by 20-30%. The author thinks one should attempt to evaluate the profitability of IT investments even when the goals are "fuzzily" evaluated, for it is better than rejecting assessment and thereby choosing a venture into the complete unknown.

4. IT ROI

Identifying the tangible and intangible goals of IT investments and quantifying "soft" values gives us starting points from which we can go on to calculating the profitability of an IT investment.

Return on investment (ROI) is often used as a blanket term to cover a whole host of different measures of the monetary gain (or loss) that can result from using corporate resources to complete an IT project. At first, positive and negative cash flows resulting from a project have to be laid out over the investment’s lifetime. Then, the time value of money has to be built into the ROI calculation using the discounted cash flow analysis. The positive and negative cash flows are discounted back to their estimated total value at the very start of the project, using a discount rate to produce a “Present Value” for both IT costs and benefits. ROI is usually calculated as the Present Value of the total incremental benefits, divided by the Present Value of the total incremental costs - and expressed as a percentage.

5. Conclusion

In this paper, the problem of calculating the profitability of IT investments has been analyzed. Based on the different goals of capital expenditures, the author has divided IT investments into two categories: operative and strategic.

This work deals mainly with strategic IT investments and foremost with the process by which one could determine starting points for financial analysis if the goals of the project are partly tangible. When dealing with such "soft" values, problems lay in determining the content of value objects, as well as in possible misunderstandings about the character of measurement and its accuracy.

The author states, relying on examples, that even in the case of initially immeasurable values, it is possible to clearly determine their content and thereby connect them to tangible, economical indicators. Given that all the values of an IT project have been converted into numbers, the financial analysis of the project can be conducted, calculating the profitability of an IT investment (IT ROI).

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