

# Return on Investment: A Placebo for the Chief Financial Officer... and Other Paradoxes

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**Background:** Return on Investment (ROI) is one of the most popular evaluation metrics. ROI analysis (when applied correctly) is a powerful tool of evaluating existing information systems and making informed decisions on the acquisitions. However, practical use of the ROI is complicated by a number of uncertainties and controversies. The article reveals some of these controversies in an engaging and thought-provocative manner.

**Purpose:** The intent of this note is to highlight several of the ROI paradoxes in a format of an opinion or a viewpoint with a hope that drawing attention of the ROI practitioners and researchers to these issues will contribute to more transparent and responsible application of the ROI evaluation.

**Setting:** Not applicable.

**Intervention:** Not applicable.

**Research Design:** Not applicable.

**Data Collection and Analysis:** Review of current practice.

**Findings:** The article reveals three weaknesses of the ROI evaluations, which in the absence of the commonly accepted ROI standard, can make results of the ROI evaluations uncertain or questionable.

**Keywords:** *return on investment; ROI; paradox; evaluation*

Return on investment (ROI) is one of the most popular evaluation metrics (Rate of Return, 2011; North, 2009; Phillips & Phillips, 2006). For the readers who are following the Harvard Business Review for a while, this note may sound like a déjà vu. Over 40 years ago, Harvard University professor John Dearden (1969) published an article titled “The Case against ROI Control.” Dearden’s paper deals with the use of return on investment (ROI) for a specific purpose—evaluating

the profit performance of division managers in decentralized companies.

Although this note is focused on a different application of the ROI, one of Dearden’s fundamental arguments stay intact: “ROI oversimplifies a very complex decision-making process.”

The initial article was not the case “against” ROI as it is. It was the case against the use (or to be precise, misuse) of the ROI. As well, this note doesn’t question the ROI as an important

financial tool. The point here is that too often ROI is looked at as a silver bullet, and we felt necessary to raise concerns about this misconception in the form of a “case against ROI exclusivity.”

Since the time of the original article, the use of the ROI progressed swiftly from the accounting offices to the mainstream of any business. Google search brings back eight million mentions of ROI.

Some of the ROI-related notions are paradoxical. The purpose of this note is to highlight several of these notions in a format of an opinion or a viewpoint, which doesn't suggest a strict scientific statement of the problems or development of the solutions to the identified problems. Obviously, there's no intention of providing a thorough analysis of all ROI problematic issues in a short note. However, the three pin-pointed paradoxes represent major areas of the ROI use: what is ROI, how it should be evaluated, how evaluation results should be presented. It's the hope of the authors that drawing attention of the ROI practitioners and researchers to these issues will contribute to “cleaner and more reasonable” application of the ROI.

## ROI is not a Number

Approaches to ROI vary from company to company, and most likely every consultant has his/her own version of the ROI calculations. With all the diversity of the definitions, the primary notion is the same: ROI is a fraction (usually expressed in percent), the numerator of which is “net gain” (financial return, benefit, etc.) earned as a result of the project (activity, system operations), while the denominator is the “cost” (investment) spent to achieve the result (“Return on Investment: ROI,” 2011):

$$\text{ROI} = \frac{\text{Gain from investment} - \text{Cost of investment}}{\text{Cost of Investment}}$$

Seemingly, the result of the calculation according to the above formula should be a single number, and that's how it is usually presented to decision-makers.

However, let's say we have to select between two (2) projects. For each, we have absolutely correctly calculated ROI numbers: “A” with ROI=7% and “B” with ROI=70%. Which one to choose/approve? The answer seems to be obvious – project “B” must be selected... But what if “B” has project risk (probability of success) of 0.1 (destined to fail) and “A”—0.95 (almost sure to happen)? Now, with inclusion of the project risk in the consideration, the choice between the projects doesn't look so obvious. Depending on the company's situation, it may very well be that gaining almost guaranteed 7% return will be more attractive than taking high risk and hoping for higher return. So, ROI as a standalone number cannot be used to make a decision. We could “unveil” several other business case parameters (e.g. total amount of profit, gross investments needed, payback period, etc.) and with each parameter being added an “obvious” ROI-based decision may be questionable, if not completely wrong. This example demonstrates that ROI being presented as a single number has many uncertainties which make the number actually meaningless.

To provide a meaningful context for business decisions, ROI number MUST be accompanied with a detailed description of the terms, conditions and assumptions under which the ROI calculations were conducted and at least 5-10 additional numeric characteristics of the ROI business case. When ROI is provided to decision-makers as a single number, it

doesn't mean that those who perform analysis don't know about other factors. They just "assume" that all other factors are the same for the compared projects. However, this assumption rarely happens in real life.

So, ROI is not a single number!

## A Placebo

ROI popularity is due to many objective reasons (e.g. anecdotal evidence of the successful use; easy to compute; encourages cost efficiency and focuses on one of the main corporate metrics—profitability, etc.) and subjective perceptions (e.g. seems familiar from college textbooks; feels familiar from personal investment experience; seemingly easy to collect and process data, etc.).

Also, strong driving forces of the ROI use are the interests of certain business groups and corporate chief officers (C-level executives).

Chief Information Officers (CIOs) favor the use of the ROI because that's the way to show that Information Technology (IT) departments are the "profit centers," not just "cost centers" as it may seem when total cost of ownership (TCO) is used as a metric. Chief Financial Officers' (CFOs) influence in this area is certainly overwhelming. Common CFO's message is "you must show ROI to get your project approved" and "this ROI must be convincing—give me a clear one-number solution." Business area is eager to meet the "challenge". Both sides are not very sincere.

CFO tries to "buy himself insurance" in case anything goes wrong ("they proved me mathematically that was the best solution"), while he/she understands that ROI one-number solution is mystery—

that's why accounting relies on a couple of dozen of financial metrics on the top of ROI.

Business side is willing to provide a simple answer—actually any ROI number—to get through and continue with the project (which they need for the reasons other than financial). They understand that most likely there will be no post-project evaluation (only 25% (Alter, 2004) to 46% (Jeffery, 2004) of companies re-assess ROI after projects are completed), and there are consultants around who pledge to demonstrate at least 200% for ANY project they are hired to explore (ROI-Calc, 2011). Will CFO feel better after hearing such numbers? Sure. Will it change company's bottom-line? Eh. That's exactly how placebo works.

Producing high ROI numbers is not a problem if "intangible" benefits are included (e.g., increased productivity, reduced time to complete projects due to better collaboration, growth of intellectual capital, etc.) (Hao, Jager, Cheng, & Hulten, 2011; Mogollon, & Raisinghani, 2003; A Practical Guide to ROI Analysis, 2009). Usually (Ali, 2007; North, 2007), inclusion of intangibles is preceded by a "conservative assumption" that a new system will save (let's say) 5 minutes per employee per day. The issue with this notorious "5-min" savings is not in the amount, which may seem to be reasonable, but because normally it is based on the evaluator's perceptions without any substantiation of this amount, which could be twice as small or three times larger. This uncertainty opens a wide door for subjectivity and misjudgment. When individual productivity savings are multiplied by employee salary savings of several hundred people and taken over a period of three (3) years—the numbers become convincing. With this approach, the ROIs

with the magnitudes of 300%-700% became common and widely published in the business literature (Roulstone & Phillips, 2007; Kofax plc, 2011; SalesForce.com, 2011; Soffront, 2011). The mere level of these ROI numbers testifies that this measure has little, if anything, in common with a traditional ROI—an important financial metric.

If a “real dollar” ROI of a Ferrari (let’s say) is 30%, will you feel better to hear that when intangibles are included (improved public image, enhanced self-respect, ability to turn blondes’ heads in the street—what’s the value of all these “benefits”)—your ROI will be 700%? Sure you will. Placebo is still working. You are under the influence.

Need to note that there’s nothing “personal” against intangible benefits. We share the belief that many solutions/projects (including information systems) create more value than could be counted in hard dollars. Research in the area of intangibles, their quantification and evaluation is an important effort (Intangible Assets, 2011; Sveiby, 2001; Cleary, Kennedy, O’Donnell, O’Regan, & Bontis, 2007). However, this area is far from being completed and the results being ready for use in regular business (accounting) practice. Until financial people recognize and use intangibles for the accounting purposes, any ROI calculations and results should explicitly provide not only overall ROI but also separate ROIs for “hard” dollars and anything else (e.g., predicted estimates or “virtual” dollars of perceived intangibles).

Another point on intangibles. To be consistent, not only benefits, but also intangible costs (e.g., temporary drop in productivity associated with a change (implementation of new information system and business processes) need to be factored in the ROI calculations (What are

some intangible costs for information systems? 2011). Not a frequent component in the ROI assessments.

## **If Your Boss Assigns you to Demonstrate Return on Investment, Showing a Result of the ROI Calculations may be Wrong**

If you hear just the term “ROI”—it has no meaning because the person who is requesting it could have a different, if not completely opposite understanding of the “ROI” than you do.

Within millions academic and business publications on ROI, there are many ROI types and hundreds of versions. Multiple interpretations of what ROI is, and how it should be calculated lead to arguments between the authors on what’s right and wrong.

So, your boss may mean any of the following:

First. Very often return on investment is understood as a “method” or “approach”—“ROI analysis.” In this meaning, ROI or “ROI Analysis” includes not only an “ROI ratio” but also several other financial measures (e.g. Internal Rate of Return—IRR, Net Present Value - NPV, payback period, etc.), which are collectively called “ROI” (“Rate of Return,” 2011). In this case, correct answer may be: \$2 million, with an average payback of 7 months (e.g., Kofax plc, 2011).

Second. Return on investment is understood as any kind of positive impact (return/effect/result) (Bigham & Goudreau, 2004; Al-Raisi & Al-Khoury, 2010). It may be financial or non-financial impact. In this case the boss’ question can be translated in plain English as: What are

the results of the work you do and are you spending money prudently?

And finally, ROI is understood as a “simple” ratio/number (“Return on Investment: ROI,” 2011). Still there is some uncertainty involved. Is your boss interested in “hard” dollars? Although ROI is a ratio (measured in percent), an underpinning question after the ROI analysis completed is imminent: where is the money—dollars? In this case a traditional ROI should be calculated based on the numbers taken from financial records (accounting systems). Or maybe he is interested in a non-financial overall project’s impact and assessment can be based on the “virtual” dollars which take account of subjective intangibles.

With so many options and variations in the meaning of this simple but pretty “open” request, it’s almost impossible to give the correct answer. Don’t forget to ask for clarifications.

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