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" Catalyst for Change (Evolution Not Revolution)"

ROI (Return on Investment) doesn't have to be a four-letter word



A predicted ROI figure shows how returns compare to costs—if the hoped for results arrive. ROI by itself says nothing about the likelihood of that happening.

There are a few English words you can use almost anywhere in the world, anytime, and be understood: "Hotel", "Okay," and "Taxi" belong to this class. Among business people, so does the word ROI.

For several years now, cautious managers everywhere treated "Return on Investment" and its acronym "ROI" as words to live by. When a major proposal is on the table—infrastructure upgrade, marketing programme, changes to the product line, or anything else that calls for significant spending and therefore a business case the normal response from the top has been something like this:

"We'll invest only if we're sure that it comes with a good ROI. Show us the ROI first, then we'll talk about funding".

For example, somewhere between 70 and 80% of all major IT project proposals in the US and Europe now require a return on investment (ROI) analysis return on investment (ROI) before funding. The figure varies, depending on which analyst you read, but there's no question that the "ROI required" rate is high.

From such reports, you might think that the ROI is winning the trust of decision makers everywhere. In fact, however, ROI's reputation as a reliable basis for decision making may have peaked and now be on the slide. The same analysts who tell us how many funding decision require ROI also tell us that more than half of such projects never deliver the expected ROI. Several years ago, for instance, Nucleus Research published a now-famous study after interviewing SAP reference customers. Nucleus found that 57% of them did not receive a positive ROI.

A majority of the participants in our colleagues Building the Business Case Building seminars report that they do not trust vendor produced ROI figures. Even worse, ROI predictions from their own project and product managers have not proven accurate. In some places, we find that ROI is little better than a four letter word.

"Why then," you might ask, "do decision makers put so much emphasis on ROI when so many ROI figures do not predict what actually happens? If ROI cannot do any better than that, don't we cause more bad decisions than we prevent by trusting ROI?"

ROI in fact is a legitimate concept: It makes very good sense to compare expected returns to expected investment costs. The issue, however, is that ROI figures are insufficient and even dangerous to use—if they stand alone. An ROI estimate tells us only what we gain if things go as planned.

It may be that gamblers, more often than business people, understand why ROI by itself is not enough and what else the decision maker also needs to know.

Two Kinds of Odds

The term "odds" means two different things to gamblers. Serious gamblers know that one kind of odds has to be weighed against the other kind, in order to maximize the chances of coming out ahead.

At the racetrack, "odds" can mean **(1)** the ratio of the winning pay out to the cost of the bet (just like simple ROI !). A winning £2 bet on a 20-to-1 long shot puts £40 in your pocket. The skill in betting lies in knowing how the payout odds compare to the *other* kind of odds, **(2)** the actual probability of winning.

One glance at the tote board shows you the current *pay out* odds. (One glance at the bottom line of your ROI spreadsheet shows the predicted returns on your business investment, if everything goes as planned).

However, if you do go to the races, just watch the serious gamblers working, furiously, down to the last minute before the betting windows close, trying to estimate the *probability* odds. They visit the paddock and have a look at the horses. They pour over racing forms and tip sheets, and they work and re-work their racing calculators. Otherwise, they will tell you, it would all be "luck" and nothing more.

I believe that ROI estimates in business are often unlucky because managers give too much attention to the **payout odds** and too little attention to the **probability odds**.

Very few know how to how to maximize ROI by measuring and managing uncertainty.

Assumptions, Assumptions, Assumptions

Every forward-looking ROI estimate and business case stands on a foundation of assumptions. it can be no other way, after all, because the case predicts the future. Everything about the future is an assumption. A detailed case for a major business investment may require dozens or hundreds of assumptions about such things as future:

- Business volume
- Competitor's actions
- Market share
- Fuel prices
- Government regulation
- Software development time
- Salary increases
- Productivity improvements
- Implementation costs
- Ramp up time
- Labour requirements
- Raw materials prices

Some assumptions come with high certainty, others come with high uncertainty. But every assumption adds some uncertainty to the bottom line cash flow or ROI estimate. It's tempting to lump all these factors together into a single risk figure.

The key to managing your investment so as to minimise risk and maximise returns, is not treat risk as a single factor, but instead carefully weigh individual risk factors to determine:

- Which assumptions carry the most weight in driving results?
What happens to results if we do not manage critical success factors to target levels?

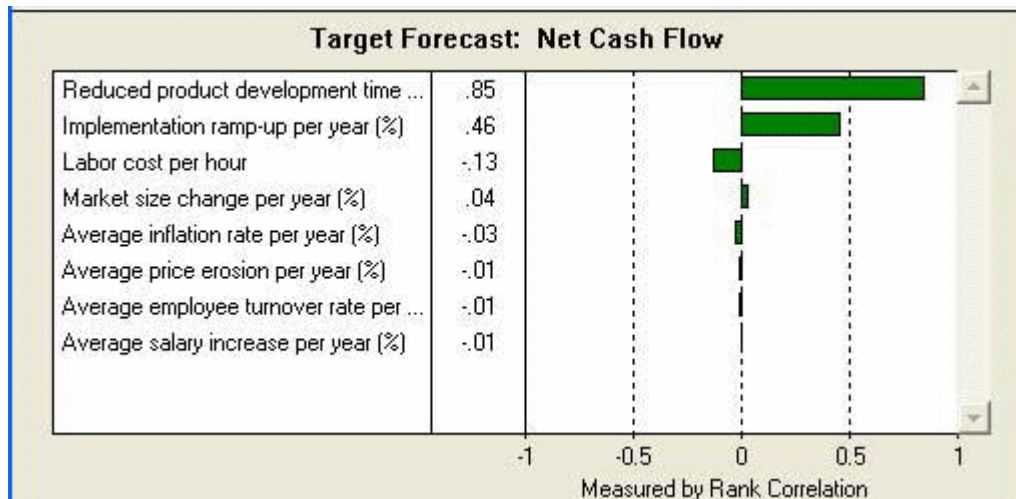
Sensitivity analysis addresses questions like these.

- What is the likelihood of other results besides the most likely predicted outcome? Which risk factors have to be watched carefully, as indicators that predictions need revising?

Risk analysis answers questions like these.

Example, for instance, had a proposal to begin a major ERP system implementation. This bottom line prediction was an incremental cash flow gain of £19.5 million over five years. That was a good looking "R" on an "I" of about £3M.

Here, however, is part of what turned up in a sensitivity analysis of individual assumptions:



The table shows the correlation between each assumption and the overall projected results, based on Monte-Carlo simulation with the same financial model that predicted a £19.5 gain.

There were some messages here that made management sit up and take notice.

- The ROI model assumed the ERP system would help lower new product development time by 30%. The high correlation between this assumption and financial results shows how the attractive ROI depends on reaching that target. In this case, a reduction of only 15% in development time (instead of 30%) brought the predicted gains down to £5M.
- The ROI model also assumed the ERP system would be fully implemented in 2 years (50% implementation per year). Clearly, missing the 2 year target would adversely impact the overall return on this investment. Stretching the implementation out to 4 years would raise costs and lower benefits to bring a zero net gain.

It's one thing to know generally that factors like implementation time and reduced development time are important. It's another thing entirely to bring home the importance of those factors in concrete terms. If you know ahead of time where the risks are, you can manage them (or at least watch them) and avoid unpleasant surprises down the road.

To your success.

The Bigger Picture – A Business Case at A Glance

You are pinched for time and you are supposed to build a ROI Business Model?

Cutting down preparation time for your Business Case is achieved by several means. First of all, you must have a clear idea about what needs to be done. That way you can manage your time well and use even smaller timeslots. In order to get the bigger picture you get an entire Business Case at a glance today.

In order to use the content of the following efficiently, save the information.

A ROI Business Case consists of three parts:

1. An **Influence Matrix**
2. A **Financial Model**
3. A **Sensitivity Analysis**

These three steps are consecutive and you can do one at a time.

Starting out with an Influence Matrix helps you to visualise the decision issue. Normally you deal with complex decision issues. If they would be simple you would not spend so much time on calculating their ROI. The Influence Matrix decomposes complex issues into quantifiable elements. The Influence Matrix thereby also helps to define them. As the decomposition only works, if the relationship of the singular elements is not forgotten, the Influence Matrix connects them via arrows.

The financial model quantifies the elements of the Influence Matrix. The Influence Matrix is the basis for the structure of the financial model and ensures that everything is included into the financial model. The dependencies, visualised in the Influence Matrix, are now converted into formulas. You most probably have a lot more data than you think in order to fill the financial model. By interviewing subject matter experts you gather the rest of all data you need for completing the financial model. The subject matter experts are asked to make estimates for the years to come. As an exact number would certainly be wrong, they are asked to estimate a range within which the possible number is to be expected with a 90% certainty.

The sensitivity analysis provides certainty and identifies risk factors. As the data you are working with are not exact numbers but ranges, a sensitivity analysis is the tool you need to provide certainty of your results. A simple Excel-Add-On makes a Monte Carlo Simulation a simple and therefore timesaving task. But the sensitivity analysis achieves more than showing the probability of your results. By using a tornado diagram also the most crucial risk factors can be identified.

Taking one step at a time the Business Case is not an overwhelming time consumer any more. Furthermore, it is ensured that the entire decision issue is captured the right way so that you do not need to review your Business Case over and over again. This way your Business Case will be perfect and unappeasable right away.

You will save 50% of your former preparation time with our method.

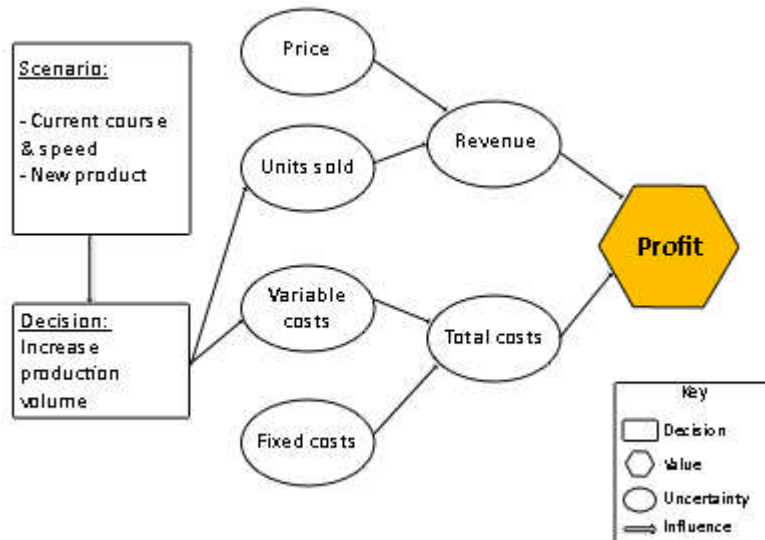
Getting Started with the Business Case – The Influence Matrix

The projects for which you are supposed to build a Business Case are complex. If they would be simple you would not spend so much time on their Business Case. Business. **How to save time with the so called Influence Matrix in order to visualise complex decision issue is what you will learn today.**

The Influence Matrix helps you to decompose a complex issue by defining and relating quantifiable elements. This tool helps you and your project group to agree on the definition of the decision issue by clearly visualising it for everyone. You will have experienced this as a challenging task. Probably it is the hardest part because one cannot just start calculating. And is the Business Case not about calculating the ROI? Why do I have to take the hassle of the Influence Matrix?

If the definition of your decision issue is incorrect or incomplete, the best data and the most elaborate statistical methods cannot help you to achieve a high quality Business Case.

A typical Influence Matrix that helps you with defining your decision issue looks like this:



This Influence Matrix shows a very simple project in order to explain the Influence Matrix's general structure that is the same for every project. The decomposition of the decision problem is achieved by dividing it into 4 main categories: **Value(s), Scenarios, Decisions and Uncertainties**. The **value** is the reason for your Business Case, it is the value you want to maximise or minimise. Financial values are i.e. ROI and cash flow, non-financial values are quality, image or innovation. In this Influence Matrix the value is profit. Values are always visualized by hexagons.

Scenarios are investments, projects or actions which include a bundle of decisions. The base level is the Current Course & Speed Scenario (What happens, if nothing is done?). It is compared to at least one additional scenario. Here it is the scenario caused by a new product.

Decisions are everything you can control. A decision is i.e. increasing the production volume. **Uncertainties on the other hand** are everything you cannot control. Uncertainties influence the value you want to calculate and their interrelation is captured by setting **arrows depicting the dependencies**. Price and sold units influence the revenue whereas variable and fixed costs influence total costs. Increasing the production volume has an influence on variable cost and sold units, but leaves the price and fixed cost unaffected. The six uncertainties within the project all influence the profit which is the value to be quantified.

By using these four categories you can visualise your entire project with all its complexity on one PowerPoint slide. That seems impossible? It is not. Also, the bigger a project the more necessary is the adequate reduction of complexity.

"This is supposed to save me time? You must be kidding!", you might think. We are absolutely serious. Quantifying Soft Benefits - The Financial Model.

"How can a financial model save time? This is certainly not my experience!", you might say.

You save time by doing it the right way right away!

You save time by avoiding mistakes. You avoid mistakes by doing things correctly right away. You do things correctly by knowing what needs to be done when. This is the unbeatable advantage of a clear and understandable step-by-step method.

The financial model is a good one when it is well structured, all its formulas are correct and it is filled with high quality data. How do you get there?

First of all, you start with structuring your financial model. Now it becomes obvious that the Influence Matrix saves you a lot of time because it contains the structure already. In order not to make things complicated again (you just decomposed a complex problem!) **you keep the financial model simple.** An elaborate financial model might look fancy at first, in reality it is only prone to mistakes, a lot of reviewing and does not convince decision-makers. **Your Business Case is successful, if it is convincing. You can only convince, if a matter is clearly understood.**

Simple wins and saves time!

Second, dependencies need to be converted into formulas. Again it becomes obvious that the Influence Matrix is the basis for your financial model. The dependencies are depicted by the arrows in the Influence Matrix. For the formulas the same is true as for the structure of the financial model: Keep the formulas simple! **Basic arithmetic operations are not only sufficient, but the best way to go!** Complicated formulas cause only more mistakes and too much reviewing time.

The dependencies of the uncertainties in the Influence Matrix determine the value you want to calculate in your ROI Business Case. If you are not interested in financial values but "soft benefits" like quality or customer satisfaction, the procedure is just the same. The preliminary work has already been done in the Influence Matrix. **Quantifying "intangibles" in your financial models is no further work load. It is a reliable quantification into dollars and cents instead.**

Third, you need to collect all relevant data for the financial model. You might have already a lot more data than you think. The rest is collected by interviewing subject matter experts. The clue is that they are not supposed to give you exact data, but estimate ranges instead. Business Cases are about forecasting the future. Have you met anyone who can? It is highly unlikely that an exact number, i.e. for a currency conversion in 2010, will be correct. It is rather likely that a number within a certain range of a minimum, maximum and most likely value will be correct. In other words: **approximately right beats precisely wrong.** In order to have data of a good quality, the assumptions of the subject matter experts are calibrated. Their estimates of a certain range are made within a confidence interval of 90%.

At last, you can complete the financial model with filling in all your data. By having interviewed high level subject matter experts you possess best quality data. The structure and formulas of the financial model is the necessary condition, high quality data the sufficient one for a successful financial model. Either one is important. **Best data cannot save a bad financial model and bad data makes the best structured financial model useless.**

Having a clear idea about what needs to be done prevents the usual time consuming mistakes to creep in!

No Risk, No Fun or Success by Minimising Risk? - The Sensitivity Analysis

Risk might be fun in bungee jumping and white-water rafting, but it is not in business decisions worth millions.

Decision-makers are asking for a ROI Business Case in order to get answers to their questions. What is the projected cash flow of my project or investment? When will I reach the break-even? What risks do I face? The bigger the project the more the question on certainty of the results and risks of the project will be put. **Is this wishful thinking of decision makers? No, it can be done. And it is easier than you might think.**

A Business Case can give these answers only with help of a sensitivity analysis. Decision-makers do not believe in forecasts just because they are joined by a pound (£) sign. A sensitivity analysis consists of a Monte Carlo Simulation and a Tornado Diagram. The Monte Carlo Simulation provides certainty as it defines the probability of the outcomes. The Tornado Diagram determines risk factors and analyses them.

How can crazy statistics possibly save me time?, you might ask. The bad news first: there is no way around it. The good news: with the right software it is not difficult at all. **A Sensitivity Analysis is easy to perform for everyone using Microsoft Excel®.** In the financial model you had worked with estimated intervals. You need the Monte Carlo Simulation in order to tell you about the most probable outcome (which will be an exact figure and not a range). Again, this exact outcome will only be reached with a certain probability and is rather to be read as point of orientation.

Not being able to deliver the numbers the decision-makers requested is quite a backlash. If you cannot answer how certain your calculated results are, you also might have not started at all. That would have saved you a lot of time, too. **A sensitivity analysis provides you with all answers to the questions decision-makers might possibly ask and therefore saves time within the decision process.** The sensitivity analysis provides decision-makers with the certainty they need for the decision. If they trust your entire financial model and know that scenario A and B have value x and y which will be reached with probability z they have the basis they need.

Identifying and analysing risk factors is the only thing left to be done. As solutions or projects are most of the time long term commitments knowing more about the risk factors becomes crucial. The more I know about them, the more effort I can put into minimising them. But what is the most important one? Is it the one I think? **The Tornado Diagram identifies the crucial risk factors and analyses them.** By looking at the various uncertainties one by one the tornado diagram is able to point out the most crucial ones. It also shows the impact of each risk factor on the result in pounds (£). You will be surprised, often the one you thought the most important can be entirely neglected. Imagine what impact that has on the success of a project! **Now, the latest, decision makers are absolutely happy. You gave them everything they asked for!**

Presenting a Business Case Successfully

The step-by-step method of building a Business Case efficiently and effectively. Saving preparation time is achieved by

- Examples of Influence Matrices for your industry serving you as a basis
- Excel spreadsheets that help you with your financial model
- Having a clear To Do list telling you what to do when
- A Step-by-step explanation how to use every tool

Now that you have finished your Business Case there is only one thing left to do: to present it. The method saves you time again. The PowerPoint presentation includes all the slides necessary to present a strong business case analysis.

You can present your Business Case successfully because you offer a solid presentation and you can answer any questions your audience might have. By building your Business Case the way you did you are prepared for everything that might come. You will be able to explain why your numbers can be trusted and you can do it with simple words without going ballistic in statistics. Most of the time there will be a question on the quantification of the "intangibles". Although seeing an Influence Matrix the first time the audience might be overwhelmed (or just impressed), you can clearly show how everything was measured and why it was measured that way.

Decision-makers want to be convinced and not talked into something. They want to understand the numbers they are supposed to base their decisions on. With your Business Case you can offer them all they want. Due to the clear structure of the Business Case due to the Influence Matrix and the financial model you have a clear idea about the subject and the conclusion you are presenting. As simple as it might sound this is the basis for a successful presentation. Answering questions on the financial model is easy because you named the cells and the formulas you used are simple. Therefore everything can be easily found and explained and you do not get lost in your

own financial model. **Instead, the decision-makers get their answers and you are the capable and confident professional!**

Your Business Case is not a mystery to others but convinces them by offering profound and explicable numbers. Furthermore the software allows you to quickly react and produce new numbers, if the audience asks for them. For example, you can easily show what difference it makes if the numbers have 80% probability instead of a probability of 90%. **Again, the decision-makers get their answers and you are the capable and confident professional!**

Your Progression Starts Here!



Six ROI Secrets You Need to Know

- The planned IT infrastructure upgrade comes with a projected ROI of 120%!
- We estimate an ROI of 80% for this proposal!
- The proposed CRM (Customer Relationship Management) system should bring an ROI of more than 200%!

Participants in ` **Building the Business Case** ` seminars, information below, tell us that projected ROI (return on investment) figures like those are typical for proposals of all kinds. When was the last time you saw a proposal supported with a projected ROI under 10%?

Expected ROIs like these may seem stunning, especially when compared to other figures such as a company's overall "return on assets" of perhaps 10%, or investments in bonds that yield 7%. Not to mention the whopping 2 to 4% annual interest that banks pay these days for cash on deposits.

Even a child can see that ROIs like these—80% or more—point the way to good investments. Choosing to fund these proposals should be a good business decision, shouldn't it?

Many business people have learned the hard way that the answer is: "That depends." Using an ROI figure by itself as the basis for an important decision is dangerous because the stand alone ROI figure has some important "secrets" that are not always out in the open.

Whether the ROI estimate comes from a sales person, or from one of your own project, program, or product managers, here are the questions you need to ask

ROI Secret 1. Investment returns must result from investment costs.

When you purchase an investment bond and then collect the dividends, there's no question that the "returns" were brought by the investment costs. But most investments in a business environment are more complex than that. Business investments may include enterprise resource planning software systems, employee training, marketing programs, or new product launches, for instance.

When benefits such as increased employee productivity, or increased sales appear over the next few years, they may be the result of several initiatives and actions. An ROI figure that factors in these benefits is making the claim, however, that the benefits in view were brought by the costs in view.

Whether the projected ROI figure comes from a vendor sales person or one of your own project managers, be sure that you understand the connection between investment costs and investment returns. The ROI figure validity depends on the answer to:

ROI question 1: Were the investment returns brought by—and only by—the investment costs?

ROI Secret 2. ROI can depend heavily on the time period covered.

When you purchase a bond and then collect dividends, the "yield" is usually calculated on an annualized basis. This makes it easy to compare the investment with alternative uses of the funds, investments in shares of stock, mutual funds, or cash deposits in the bank.

ROI figures, in common practice, are usually not quoted on an annualized basis. Instead, we often speak of a "3-year ROI" or a "5-year ROI," for instance. Remember that most investments in business bring many costs and returns over a long time period and the "ROI" can depend heavily on the time period in view.

Here, for instance are projected cost and benefit cash flows that could represent an investment in e-learning training for customer service people across five years (figures in £1,000).

	Year 1	Year 2	Year 3	Year 4	Year 5
Returns	50	70	100	100	100
Costs	80	40	30	30	30
ROI	-37.5%	0.0%	46.7%	77.8%	100.0%

The bottom row is the `Simple ROI` (Incremental gains over investment costs) through the end of each year. On a two-year basis, this investment has an ROI of 0. On a five year basis, the ROI for the same investment is 100%. When presented with an ROI figure, be sure to ask:

ROI question 2: What time period does the ROI cover? Is this the right time period for evaluating the investment?

ROI Secret 3. All the investment costs, hidden and obvious, must be included.

Investment costs are half the ROI story. Underestimate the costs and you over inflate the ROI. But finding all the investment costs can be a less than certain undertaking—if you do not use a good, comprehensive cost model to identify both the obvious costs and the less obvious costs.

		System Life Cycle		
		Acquisition	Operation	Growth & Change
Resources	Hardware			
	Software			
	Personnel			
	NW & Comm			
	Facilities			

Here, for instance, is a total cost of ownership model that works well for identifying cost categories and cost items for major IT acquisitions. The yellow cells show where the obvious costs lie (HW and SW acquisition and operation). The majority of IT costs, however, usually lie elsewhere, especially in the "Personnel" row and "Change" column Without a good cost model like this, no one can be sure that the total cost of ownership or the ROI cost estimates cover all the costs. When someone presents you with an ROI figure, and where the investment may very well have "hidden" costs, ask:

ROI question 3: How do we know that all the costs are covered? Can we see a simple cost model that summarizes the "I" in this ROI?

ROI Secret 4: Actual ROI will almost certainly differ from the predicted value.

When a project proposal or investment proposal projects an expected ROI of, say 50%, everyone knows that the actual result will not be 50%, exactly. It will be something more or something less. Everyone who will evaluate the ROI figure needs to know how likely it is that the actual results will vary a little or a lot from the predicted value.

An ROI figure by itself means little unless accompanied by a risk assessment that shows the likelihood of other results. Ideally, the ROI estimate will also come with a confidence interval estimate that lets the ROI analyst say something like this: I'm 95% confident the actual ROI will be between 42% and 58%. For more on minimizing and measuring uncertainty in business case projections, see the whitepaper **`Business Case Essentials`** information below or the **`The Business Case Guide`** information below. When evaluating ROI figures, business people might take a lesson from the gambler who compares the payout odds with the actual probability of winning before placing a bet. In other words, ask:

ROI question 5: How likely are other results besides the predicted ROI? How do the potential risks compare with the potential rewards?

ROI Secret 5: ROI estimates usually stand on contingencies and critical success factors.

The ROI figure may depend on many factors "going right" during the life of the investment: software is installed, tested, integrated, and running on time, employees are trained and up to proficiency by a certain date, and Purchasing negotiates prices of raw materials to a target level, for instance. These may be critical success factors for the ROI, meaning that if we do not manage these to target levels, the projected ROI will not come in.

The projected ROI should not be viewed simply as a prediction out of the crystal ball. It should be seen instead as an estimate of what will happen, *if* certain critical success factors and other contingencies are managed to expected levels. Before putting confidence in an ROI estimate, ask:

ROI question 5: Which contingencies and critical success factors have to be managed in order to bring in these results?

ROI Secret 6: The quality of the ROI may depend on its heritage

An ROI figure by itself says nothing about its heritage. That is, it does not indicate whether the costs, benefits, and return estimates come from methods that have been tested, validated, and improved through previous ROI and business case analysis *in this environment*, or whether the ROI developer is trying something completely new. Without a history of validation, there is no way to know how much confidence should be placed in the estimated costs and returns.

When presented with an ROI figure, remember that the ROI figure is no better than the cost and return figures that go into it, and ask:

ROI question 6: Have the cost and return estimating methods been validated in this environment?

To your success.

"Two little words that can make the difference: START NOW."

- ✓ **Success is a journey, not a destination**
- ✓ **Our goal is simple...to help you reach yours.**

Now go and be successful.

Please visit www.cavendish-mr.org.uk for powerful publications, guides and business models that provide the solutions for you to be successful.

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Visit the knowledge Pool at the new formatted website www.cavendish-mr.org.uk for over 95 solutions to help you in your success to raise the `bottom-line`.



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