Can we measure the ROI of Market Research?

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Introduction

In this paper the authors will outline a new approach to measuring the value of research and identify the future conditions under which it might gain widespread acceptance.

Measuring ROI: the challenge

There have been a number of papers in recent years that have addressed the issue of measuring the value or ROI of research. Tanner, 2006; Wills and Webb, 2004 and 2006 and Kingsbury 2008 have all taken up the issue either directly or as part of a wider argument about the best way of locating MR within the overall objectives and strategy of the business. Tanner (2006) for example, situates the value of MR within the framework of business investment decisions. Kingsbury (2008) looks at the issue through the lens of marketing planning. The most direct and sustained engagement with the issue is the Wills and Webb 2006 MRS Conference paper.

This previous work highlights the following key challenges for any attempt at measuring the value of insight:

- The value of research is embedded within the activities of the business as a whole, and especially within the activities of the marketing function. Any system for measuring the value of research needs to show how it can break out the contribution of research from the overall effort of the business.
- Research impacts on a business in diverse ways. The archetypal case of measuring ROI from MR is normally the contribution that MR makes to the launch of a new product or service. But this is just one type of research. There are a whole range of other types of research, such as continuous tracking studies, that do not readily fit with the product launch model.
- Finance and accounting are a key function for MR to understand and target if we are to get our valuations of research accepted within the business. Wills and Webb (2006) observe, for example, that the very use of the phrase ‘ROI’ may undermine our case with the finance department because they use the term in a very specific, technical sense that could not be strictly applied to a valuation of

MR.

- Researchers are not always comfortable trading in the currency of accounting and finance. But if we are to attempt to measure the ROI of research or insight, being able to express our findings in terms of revenue, cost and profit figures is a key first step. All authors on the subject agree that CEO's talk finance and accounting and that therefore to be fully appreciated at the very top of the business MR needs to be able to translate its findings into these terms.
- Converting our findings into costs and revenues is more difficult in cases such as continuous tracking research and qualitative research where the relationship between research findings, business investment and returns to the business is more complex and harder to map.
- The value of research and insight can be too easily overlooked. As research's main contribution is to the knowledge and understanding that the business possesses it becomes virtually impossible to distinguish the value of research unless you establish what the business genuinely knew before the research was conducted. Barabba and Zaltman (1991) note the effect of hindsight bias on the value that a business places on research. Pseudo-clairvoyance in the face of new information is a natural human tendency. Audiences for market research findings will tend to assume that they already knew what research is now telling them, whereas in fact what they take to be 'knowledge' is probably, at best, just one of a number of competing hypotheses that they entertained prior to the research.
- Any method that is going to be used to measure the value of research will have to be quick to carry out and will require an element of pragmatism.

The measurement system we propose will build on the work of these previous authors and attempt to address the challenges that they have highlighted. But recent developments mean that the business environment of the future is likely to be rather different from that of the past. This presents new challenges as well as new opportunities for MR in its efforts to prove its worth.

A new era of risk management

The economic turn of events of the last 18 months is likely to result in a significantly altered attitude to risk-taking within businesses. In the major banks the warnings of risk managers were ignored as consumers and institutions were gripped by 'irrational exuberance'. The early C20th economist Maynard Keynes explained the instability of financial markets as being due to over-confidence on the part of investors, what

Keynes termed the ‘animal spirits’ of capitalism. Keynes’ prescriptions for stabilizing the booms and busts of the capitalist economies are now very much back in vogue. The reflationary response of Western governments, of both the right and left, to the recent credit-crunch and subsequent down-turn in the economy were essentially Keynesian. The dominant model of economic prosperity since the late 1970’s until this recession was a free-market ideology which can be traced back to the C18th economist Adam Smith. On this ‘Classical’ view the economy would achieve full employment by the unfettered activity of rational agents seeking to maximize their self-interest by exchanging money for labour, goods and services. Keynes’ theories were in part a critique of this Classical view. He took issue with the idea that agents in an economy were rational. He saw that the over-optimistic spending of people in a growing economy followed by periods of equally irrational pessimistic saving in downturns, led to great instability in capitalist economies, periods of protracted boom and bust. His solution to this was for governments to intervene: raising taxes to cool off spending during boom times and then using the revenues raised during the boom to boost spending during down-turns – the counter-cyclical measures which are now being widely advocated.

Just as there has been a Keynesian reaction to the prevailing Classical economic theory of the last 40 years, so we are seeing a return to the theories of other critics of Classical economic theory, particularly those who focused on the other types of instability to which free market capitalism is prone. Joseph Schumpeter, the early C20th Viennese economist, took issue with the neo-classical picture of stationary economic equilibrium. He saw that new technology and entrepreneurship would periodically sweep away the existing economic order and replace it with a new, more efficient one; in a process he termed ‘creative destruction’. Thus, free-market economies are never stable because new technologies, and the entrepreneurs who seek to commercialize these technologies, are constantly upsetting the economic equilibrium. Schumpeter saw the rise of corporatism as being the solution to this instability. Governments would adopt increasingly corporatist policies, regulating free markets to moderate these destabilizing effects.

It is impossible to say whether, in the wake of the current recession, governments in Western countries will adopt a more interventionist stance towards business in the way Schumpeter envisaged. Given the collapse of the communist system in the late C20th, it seems highly unlikely that there will be a return to dirigiste economic policies on the scale of the C20th European socialist experiments. However, it is likely that the recession will result in large businesses taking a more risk-aware approach. Pressure for this will come from governments, mandated by electorates worried about their job security, savings and pensions and from shareholders concerned about the value of their investments. Businesses will have to show that they did what was required to understand the risks they were exposed to and that they took sensible measures to minimize these risks consistent with the need to grow the business by an appropriate and sustainable amount.

The economy of the last 30 years has certainly exhibited the creative destruction that Schumpeter predicted. Standard & Poor's credit ratings of publicly traded companies show that the pace of technological and cultural change since the mid-80's has resulted in the proportion of C-rated (high risk) companies more than doubling between 1985 and 2004.

The work of Adrian Slywotsky (Slywotzky, 2007) has focused on the subject of the risk to businesses arising from uncertainty and the increasing pace of change and how businesses can manage this risk. He identifies seven types of market risk that businesses are exposed to:

- Major project risk – the risk involved in a major initiative such as a new product launch or new market entry.
- Customer risk – the erosion of customer loyalty and share as a result of shifts in customer behaviour, preferences or needs.
- Transitional risk – a sudden radical shift in the market that renders a company's current offering obsolete or uncompetitive. This shift could be due to the emergence of a new technology or the creation of a new business model.
- Competitor risk – the emergence of a new, uniquely effective competitor that threatens to dominate your industry.
- Brand failure risk – the erosion or collapse of a previously very powerful brand due to failures in the relationship between brand, product and business design.
- Industry risk – the erosion of profitability in an industry due to changes in structural factors. For example, consumer electronics has very low margins due to retailer power, rapid imitation of innovations and low cost manufacturers from China.
- Stagnation risk – the leveling off and then decline of profit and share value due to the inability to find new growth sources in a mature market.

Slywotsky claims that the management of market risk will be one of the key requirements on businesses in future. He suggests a range of approaches to managing the different types of market risk. For example, in the case of major project risk he notes that businesses consistently overestimate the likelihood of success for major product or service launches. They fail to invest sufficiently in identifying the sources of uncertainty about a new product and spend too little time in product design and product launch planning aimed at minimizing the risk of failure.

He proposes combating these market risks with what he terms 'knowledge intensity' to address the uncertainty that is the cause of risk. On Slyvotsky's view companies should seek to eliminate all relevant unknowns by gathering continuous proprietary information about customers and minimizing the time lag between event and response.

In the last two decades MR has quite sensibly focused on the actionability of its findings. We have played down the core risk management function of what we do as businesses have increasingly focused on rapid action to grab a share of the almost uninterrupted growth in consumer and B2b markets. We have continued to exercise our main risk reduction function, but we have been forced to play this role down to a certain degree and to emphasize the more creative, action-oriented aspects of what we do. This has in many ways been a very valuable corrective to the rather academic, risk-averse view that researchers took of their role until the 1980's. It is not the authors' intention to dismiss or lose sight of the role that research can play in inspiring creativity; and the method of measuring the value of research which we are proposing will include a method for capturing the value of this type of MR activity. However, we do believe that a corrective needs to be applied in the other direction: that we should now seek to reassert the core role that MR can play in helping businesses manage and reduce market risk, to meet the demands of the coming era of risk management.

The work that has been done to date on measuring the ROI of research reflects the action-oriented emphasis of MR discourse in the last 15 or so years. For example, the papers cited earlier all tend to focus on the contribution of research to successful marketing initiatives. None of them considers scenarios in which MR has saved the business from investing in potentially loss-making product or service launches. And yet, failure is the norm in new product and service launches, as Table 1 shows.

Table 1. Failure rates for different types of new market initiatives.

Hollywood movie	60%
Company merger or acquisition	60%
Information technology project	70%
New food product	78%
Venture capital investment	80%
New pharmaceutical product	>90%

(Reproduced from Slywotzky, 2007)

In a rapidly growing economy the failure of product launches is tolerable, perhaps even desirable. Businesses making very large profits from general category growth can afford to invest in unsuccessful new ventures and what a business learns in the process may, if the learning is retained, prove valuable in future. But in the economic phase that we are now entering such failures are unaffordable. Moreover, product launch risk is only one type of possible failure that a business could fall prey to. A business can just as easily lose touch with its customer base during a period of economic growth and prosperity as during a period of economic recession.

Our proposed model will allow for situations in which MR contributes to successful new marketing initiatives as well as for situations in which it stays the hand of an over-optimistic business and prevents it from taking unsuccessful, loss-making courses of action.

The other situation that the measurement system will allow for is when MR produces recommendations to launch that, for reasons beyond the control of the research function, the business does not follow. Very often in such cases MR findings are crucial to making the decision because they have allowed the business to weigh the course of action recommended by the research against other factors or emerging opportunities. There is a tendency to assume that in these cases the research has not been used, when in fact they have simply been used in subtle and indirect ways. Research gets used by a business in many ways, and in response to emerging challenges, that could not be envisaged when a research project was started. The valuation method needs to allow for this.

Finally, the method will make allowance for the fact that there is typically a fairly large degree of slippage between research recommendations and the actions eventually taken by the business based on these recommendations. A whole range of factors may intervene - technical, commercial, logistical etc. - which, again, research cannot be expected to envisage. For example, most companies do not research products right up to the point of launch: they normally stop researching somewhere between the concept and beta test stage. As a result the final product that is launched often differs markedly from the one that research tested.

The valuation method we are proposing, will not make the assumption that the value of research is linked entirely to a positive course of action that has been recommended by research in the precise way in which it was eventually taken. It will accommodate the full range of scenarios outlined above. It will do this by isolating just that part of the overall marketing process that MR is directly and primarily responsible for: the increase in knowledge and understanding of the market and the customer that results from research. But first we need to look in greater detail at some of the techniques required to isolate this value.

New tools for risk management

For researchers to operate in the area of risk management they will need a working knowledge of decision theory and some of the key modeling techniques associated with it. The level of our engagement with these techniques will have to be similar to the level of engagement that we have with classical statistics. Probability theory can be complex and counter-intuitive. During the OJ Simpson trial, for example, Simpson's defence team, to counter damaging facts about Simpson's record of domestic violence, constantly repeated a statistic that only 1 in 1,000 women who are abused by their partner are actually killed by the abuser. This fact, which people took to mean that Simpson's prior abuse of his wife was not evidence to support the claim that he murdered her, was never challenged by anyone throughout the trial. And yet it was completely the wrong probability to site with regards to the case. The correct fact is that, of abused women ***who are then murdered***, the abuser is the murderer in ***80% of cases***. If the jury had been presented with this statistical probability it would have put a very different complexion on matters. But it was never made known at the trial (Paulos, 1998). It is easy to make such mistakes when handling probabilities because we feel that they are intuitive, when in fact many aspects of even quite basic probability estimation are in fact very counter intuitive.

The specific technique deployed in the valuation method we are recommending is Monte Carlo simulation. This was originally developed by scientists working on the

Manhattan Project, where it was used to determine the precise amount of fissionable uranium required to make an atomic bomb. (The behaviour of uranium atoms was too complex to be captured in standard calculations and so a simulation technique had to be developed to approximate the likely behaviour). The outcomes of these individual simulations produce a distribution of outcomes and associated probabilities, in contrast to a single point estimate. The large number of iterations that it involves means that the technique has only really started to become accessible in the last decade or so, with widespread access to powerful computers. Monte Carlo simulation is now used very widely in applications from physics, chemistry and aerodynamics to finance and economics.

To produce a Monte Carlo simulation you need first to define a range of possible inputs. This range should reflect a distribution that represents the current state of knowledge that you have about the inputs. You then generate inputs at random from the range of possible inputs and with each set of these inputs you perform a calculation that models the output you are attempting to estimate. You repeat this computation a very large number of times, using fresh randomly generated inputs each time. Typically, the computation is repeated more than 10,000 times. The final range of outcomes and associated probabilities are the aggregated outputs from each repeated computation (or scenario). The key to a successful simulation is that the range of inputs should represent the current state of your knowledge as closely as possible and that the inputs selected for each iteration of the computation should be genuinely random.

The ROI measurement system

MR's contribution to a business can be classified into two broad categories:

- Risk management – reducing the probability that a business will incur losses in its market-facing activities and maximizing the likely profitability of its new and existing marketing activities.
- Opportunity identification and realization – generating new propositions, directions or territories for a brand or business, to meet latent or existing demand and thereby generate additional revenue for the business.

Most MR studies play their primary role in one of these two areas. But they can also play a secondary role in the other area. Table 2. below summarises the Primary and Secondary roles of a number of the main types of MR study.

Table 2. Primary and secondary contributions of the main types of MR study

	Risk reduction	**Opportunity identification / creation**
Market sizing and entry	Primary	Secondary
Usage and attitude	Primary	Secondary
Market segmentation	Primary	Secondary
Concept development	Secondary	Primary
Concept testing	Primary	Secondary
Product trials/ tests	Primary	Secondary
Usability	Primary	Secondary
CSAT / loyalty tracking	Primary	Secondary
Brand positioning	Secondary	Primary
Brand tracking	Primary	Secondary
Ad/ comms development	Primary	Secondary
Ad pre-testing	Primary	Secondary
Ad/ comms tracking	Primary	Secondary

Measuring the value of the risk-reduction role of MR

The concept at the heart of the method for measuring the risk management value of MR is that of Expected Value (EV). Expected Value is the measure that decision-theorists use to estimate the value of information. It can be defined as the financial return from an outcome multiplied by the probability of that outcome. The financial reward in question could be an increase in profit as a result of additional revenue, a cost saving or the avoidance of a financial loss. The two components of Expected Value – the financial return of an outcome and the probability of that outcome – mean that EV can be increased in two ways: either by finding an outcome with a greater financial return or by increasing the probability attached to an outcome. In its risk-reduction role MR can increase Expected Value by increasing the probability with which we can predict an outcome.

To take a very simple case: if a particular outcome has a financial return attached to it of, say, £100,000 and we believe that the probability of this outcome is 0.5 (i.e. 50%), then the EV would be £50,000 (£100,000 x 0.5). If you conducted research that increased the chances of this outcome to 90% (0.9), then the EV would rise to £90,000 (£100,000 x 0.9). Thus the research would have increased the EV by £40,000 (i.e. from £50,000 to £90,000). If the research had cost £20,000 to conduct, the ROI on the research would be 200% (£40,000 ÷£20,000 x 100). Of course in reality, research findings impact on both the confidence with which the estimate is made as well as on the level of the estimate itself. With both these variables in play, we need a method that enables us to compare the change that research makes to both the revenue estimate and the confidence with which this revenue estimate can be made. Monte Carlo simulation provides us with just such a method.

The value measurement model

For the sake of simplicity we will use the example of a product launch to describe the method. Thus, we are modeling demand in terms of estimated volume of purchases. Each of the 50,000 outcomes that we model will include unit costs and prices set at the same level for all simulations and a calculation of the total cost and revenue associated with that level demand is performed. This will then result in a 'launch'/ 'don't launch' outcome based on whether that level of demand produces a profit or loss, plus a figure for the amount of the profit or loss.

The method involves producing 3 sets of simulations and comparing the results between them.

- The first set of simulations is for the business's estimates of demand for the product *prior to conducting any research*. This would be obtained from the client team and be based on their intuitions and hunches.
- The second set of simulations is for the research estimate of demand. It is based on the findings of the research.
- The third set of simulations is for the actual outcome of the launch. Its parameters are based on the mean of the business's estimate prior to the research and the estimate produced by the research.

Thus for each simulated actual outcome, there will be a corresponding outcome estimated by the business prior to research and a corresponding outcome estimated by the research. The method proceeds by comparing the outcome predicted by the business prior to research and the outcome predicted by the research, with the corresponding simulated actual outcomes. This comparison will yield an assessment of the accuracy of each estimate in the following way:

- True positive: Launch when should launch - correct
- True negative: Don't launch when shouldn't launch - correct
- False positive: launch when shouldn't launch - incorrect
- False negative: Don't launch when should launch - incorrect

The total Expected Values of the business's estimate prior to research and the research estimate are then calculated by taking the average of the following for each:

Actual profits that would result from the launch of the
product in the case of the estimate yielding a true positive
MINUS
Actual losses that would be avoided by not launching the
product in cases where the estimate yields a true negative
PLUS
Actual losses that would result from the launch of the product
in the case of the estimate yielding a false positive
MINUS
Actual profits that would be missed by not launching the
product in the case of the estimate yielding a false negative

The final measure of the value of research is calculated by subtracting the total EV of the business's estimate prior to research from the total EV of the research estimate and subtracting the total cost of conducting the research. If you want to express this in the form of an ROI figure (i.e. is a percentage of the amount invested) simply divide this figure by the cost of the research and multiply by 100.

A worked example

To draw out some more of the detail of the approach we have prepared a worked example. The screen grabs are taken from the full working version of model implemented in Excel. Figure 1 below shows the main inputs to the risk reduction valuation model. (Note: the calculations have been slightly simplified to draw out the underlying principles involved).

Figure 1. Inputs to the Risk-reduction value simulator

COSTS AND REVENUES	Cost of launch (000's)	Margin per unit (000's)	Breakeven volume
	£5,000	£10	500

ESTIMATES	Business's demand estimate prior to research	Post research estimate
Lower limit conf not below	**200**	**250**
Upper limit conf not above	**1000**	**950**
Target confidence	90.0%	95%
Likely confidence (adjusted)	50.0%	80.0%
Standard deviation	593.04	273.11

ACTUAL DEMAND PARAMETERS	
Lower limit	225
Upper limit	975
Mean	600
Standard deviation	417.8

The COSTS AND REVENUES section contains the key financial information for the various outcomes. As the example we are using is for a product launch in this instance they are the known unit costs and margins flowing from the various outcomes. Though the type of information included here would be different for different types of research. For example, if you were measuring the value of customer satisfaction tracking research the information would relate to the cost to the business of declining levels of satisfaction or the financial gain to the business of increasing levels of satisfaction.

The ESTIMATES section contains the business's demand estimate prior to conducting the research and the estimates from the research. These are expressed as a range of volume of demand at a target confidence level. The business's demand estimate is obtained by asking the project team to estimate the upper and lower limits between which they are 90% confident that demand for the product will fall. Empirical research has shown that even experts in a field are consistently over-confident in their estimates of outcomes under conditions of uncertainty. Thus, the model adjusts the business's estimate for this known level of overconfidence. In this case the 90% confidence level is reduced to 50%, based on evidence from the decision-theory literature on overconfidence bias (see **Confidence of expert estimates and research estimates** section, below). The confidence level for research has been based on the confidence limits at the 95% confidence level. This confidence level has been reduced from 95% to 80% to reflect the other types of error, besides sampling error, to which research is known to be subject. (See **Confidence of expert estimates and research estimates** section, below). The Standard deviation is calculated using the Lower and Upper limit and the z-score for the adjusted Likely confidence figure.

The ACTUAL DEMAND PARAMETERS are taken from the ESTIMATES. All the figures here are means of the corresponding figures from the 'Business's demand estimate prior to research' and the 'Post research estimate' – these two combined being the best knowledge we have about the likely outcomes.

Figure 2 below shows a small number of the individual outcomes simulated in the Monte Carlo simulation.

Figure 2. Example of individual outcome simulations

Iteration	Simulated Actual demand			Business's estimate prior to research					Research estimate				
				Accuracy +/- 25.0%					Accuracy +/- 10.0%				
	Demand	Actual margin (000's)	Launch?	Demand	Projected margin (000's)	Launch?	Result (000's)	Estimate performance	Demand	Projected margin (000's)	Launch?	Result (000's)	Estimate performance
1	455	-£450	N	430	-£700	N		True negative	416	-£840	N		True negative
2	689	£1,890	Y	517	£170	Y	£1,890	True positive	719	£2,190	Y	£1,890	True positive
3	220	-£2,800	N	170	-£3,300	N		True negative	232	-£2,680	N		True negative
4	428	-£720	N	502	£20	Y	-£720	False positive	413	-£870	N		True negative
5	288	-£2,120	N	347	-£1,530	N		True negative	273	-£2,270	N		True negative
6	674	£1,740	Y	574	£740	Y	£1,740	True positive	661	£1,610	Y	£1,740	True positive
7	436	-£640	N	528	£280	Y	-£640	False positive	470	-£300	N		True negative
8	677	£1,770	Y	574	£740	Y	£1,770	True positive	650	£1,500	Y	£1,770	True positive
9	453	-£470	N	341	-£1,590	N		True negative	472	-£280	N		True negative
10	625	£1,250	Y	698	£1,980	Y	£1,250	True positive	665	£1,650	Y	£1,250	True positive
11	269	-£2,310	N	241	-£2,590	N		True negative	278	-£2,220	N		True negative

The ‘Actual Demand’ is simulated by taking randomized points on a normal distribution around the mean and standard deviation given in the ACTUAL DEMAND PARAMETERS shown in Figure 1. The Actual Margin is calculated based on the COSTS AND REVENUES shown in Figure 1. If the demand passes the break even threshold, then it is assumed that the product will be launched. (This is a simplification for ease of demonstration. In fact of course a threshold considerably higher than break even is normally required for a business to launch a product).

The Demand figures for the ‘Business’s estimate prior to launch’ is again calculated by taking randomized points on a normal distribution around the mean. But here the mean is the Actual Demand estimate and the parameters used for the estimate are set by the Accuracy figure which is shown at the head of the column. This is derived from the ‘Likely confidence (adjusted)’ figure. In the case of the Business’s estimate prior to launch the 50% accuracy figure means that the demand estimates will range from +25% to -25% around the Actual Demand estimate. The Projected margin is based on the estimated Demand figure and the decision to launch is then made if the forecast exceeds the break even threshold. If the decision to launch is ‘Yes’ based on the client’s estimate, then the Result is whatever the Actual margin from the Simulated Actual Demand would be. Where the Business estimate results in a decision to launch in situations where actual launch would result in a loss (as in Iterations 4 and 7 in Figure 2), then the Business estimate would result in a loss. The Estimate performance classifies each estimate into True positive, True negative, False positive and False negative based on comparison of the launch decision for the estimate with the launch decision for that iteration of the Actual simulation.

The corresponding figures for the Research estimate are calculated in exactly the same way, but with the Accuracy figure being derived from the 80% Likely confidence figure – resulting in a +/-10% range for the Demand estimates around the Actual demand mean.

Figure 3. below shows the aggregation of the outcomes from the individual simulations.

Figure 3. Aggregation of outcomes and estimates of value of research

Class	Business's estimate prior to research				Research estimate			
	Cases	Case %	Avg value (000's)	Weighted Avg value (000's)	Cases	Case %	Avg value (000's)	Weighted Avg value (000's)
True positive	27145	54%	£2,540	£1,379	30056	60%	£2,644	£1,589
True negative	16988	34%	£1,717	-£583	18439	37%	-£1,654	-£610
False positive	2631	5%	-£343	-£18	679	1%	-£140	-£2
False negative	3236	6%	£543	£35	826	2%	£186	£3
Total	50,000			£1,909	50,000			£2,194

	000's
Avg value of business estimate prior to research	£1,909
Avg value of research estimate	£2,194
Gain in average value due to research	£285
Cost of Research	£50
Net gain due to Research	£235
ROI	470%

Figure 3 shows the final stage of the simulation. The values from the four classifications of performance of the prior and research estimates are averaged and then weighted by the percentage of the total cases that they represent. These weighted values are then aggregated to produce an estimate of the total value of the prior and research estimates. The difference between these two is the gain in total value to the business due to research. Subtracting the cost of the research from this figure produces the net gain due to research. Dividing net gain figure by the cost of research yields an estimate of ROI.

Confidence of expert estimates and research estimates

In the simulation method we adjusted the business's prior estimate of demand and the research estimate of demand to reflect the likely accuracy of the estimates. Both prior estimates and research estimates are subject to biases which render them more inaccurate. Table 3 below shows the biases to which decision-making in general and research are subject.

Table 3. Biases in decision-making and research estimates

Decision-making		
Ambiguity effect	Extraordinarity bias	Neglect of prior base rates effect
Anchoring	Extreme aversion	Neglect of probability
Attentional bias	False consensus effect	Not Invented Here
Authority bias	Focusing effect	Omission bias
Availability cascade	Framing	Optimism bias
Availability heuristic	Gambler's fallacy	Outcome bias
Bandwagon effect	Herd instinct	Overconfidence effect
Base rate fallacy	Hindsight bias	Positive outcome bias
Bias blind spot	Hyperbolic discounting	Primacy effect
Capability bias	Illusion of control	Pseudo-certainty effect
Choice-supportive bias	Illusory correlation	Reactance
Clustering illusion	In-group bias	Recency effect
Confirmation bias	Irrational escalation	Selective perception
Congruence bias	Just-world phenomenon	Self-serving bias
Conjunction fallacy	Lake Wobegon effect	Status quo bias
Conservatism bias	Ludic fallacy	Sub-additivity effect
Déformation professionnelle	Mere exposure effect	System justification
Disregard of regression toward the mean	Need for closure	

Research
Sampling error
Coverage error
Non-response error
Measurement error due to respondent
Measurement error due to interviewer
Mode effects

Decision-making is subject to a very wide range of biases. Decisions based on research are of course subject to these biases as well but to a far lesser extent, as research data present a counterweight to these biases. In conditions of considerable uncertainty – i.e. when research data are not available – the various biases in the columns to left of the table work together to make even experts in a particular field far less accurate in their estimates than they are aware. A number of experiments have demonstrated and measured this overconfidence. McKenzie and Yaniv (2008) show that both experts and novices are correct in their 90% interval estimates only about 50% of the time. That is to say, when asked to give an upper and lower limit that they are 90% confident that a figure falls between, the actual figure falls outside the range they give, in about 50% of cases. Ben-David and Harvey (2007), in a very large study of top financial executives, showed that actual market returns fall within executives' confidence limits at the 80% level only 38% of the time. Based on this very large body of evidence about the overconfidence of estimates when empirical data are absent, we have recommended down-weighting the prior estimates of the business from 90% to 50%

Research is subject to sources of error other than the sample bias which we normally allow for (Weisberg, 2005). Clearly, the degree of error will vary from survey to survey. But based on the authors' experience of conducting and reviewing quantitative surveys and comparing outcomes with research forecasts, we believe that subtracting between 5% and 15% from the standard 95% confidence level is a fair reflection of this non-sampling error.

Quantifying the accuracy of **qualitative** research is rather more difficult, but can nevertheless be done. Qualitative research is not generally used to make forecasts or quantitative estimates. But in Grounded Theory and the notion of 'conceptual saturation' we have empirical and theoretical grounding for the claim that findings from qualitative research have a high probability of being 'correct' even if they do not have quantitative scope. Thus, we would recommend that a figure of 80%-90% confidence is appropriate for qualitative findings and recommendations.

Applying the risk-reduction valuation method to different types of MR

Because the method focuses on the role of MR in reducing uncertainty it can be applied to other types of MR fairly easily. For any particular survey all that is needed is to identify the **revenue** and **cost** risks that are associated with action or inaction taken on the basis of the survey. Table 4 below shows the different types of revenue and cost risks that correspond to the different types of research.

Table 4. Revenue and cost risks associated with different types of research

	Nature of main, ultimate risks	
	Revenue risk	**Cost risk**
Market sizing and entry	Missed opportunity	Wasted investment
Usage and attitude	Missed opportunity	Wasted investment
Market segmentation	Missed opportunity	Wasted investment
Concept development	Missed opportunity	Wasted investment
Concept testing	Missed opportunity	Wasted investment
Product trials/ tests	Missed opportunity	Wasted investment
Usability	Lost customers/ Missed opportunity	Wasted investment
CSAT / loyalty tracking	Lost customers/ Missed opportunity	Wasted investment
Brand positioning	Lost customers/ Missed opportunity	Wasted investment
Brand tracking	Lost customers/ Missed opportunity	Wasted investment
Ad/ comms development	Missed opportunity / Lost customers	Wasted investment
Ad pre-testing	Missed opportunity / Lost customers	Wasted investment
Ad/ comms tracking	Missed opportunity / Lost customers	Wasted investment

To put a figure on the revenue risk reduced by conducting regular CSAT /loyalty tracking, for example, you would need to get an estimate of the likely loss of profit resulting from, say, a 5% drop in top-box scores. Prior to a wave of a customer satisfaction tracking study you would get the end client to provide: a) the range within which the key metrics will fall in the next wave; b) what actions they would take as a result of the scores falling at each end of this range; and c) an estimate of how much these actions would cost. This would give you all the necessary information about costs, revenues and probabilities that are required to measure the value of conducting each wave of tracking.

Measuring the value of MR's contribution to opportunity identification / creation

What about the value that research brings in terms of creating new ideas which go on to generate new profits for the company? There is a model for estimating this from the field of patents. When a patent holder sells his or her patent to a company for commercial development they will usually negotiate a royalty deal that ensures that they receive a percentage of all future profit resulting from the commercialization of the patent. Obviously, the client researcher is not in the same legal position with regards to his or her employer as a patent holder is with regards to another company which plans to bring a patented idea to market. But the royalty deal for a patent does provide a useful benchmark for assessing what proportion of the return on such a development is due to the person who comes up with the original idea (the researcher / the inventor) and what proportion of the return is due to the company which realizes the commercial potential of the idea.

A good indicator of the value of a patented idea as a proportion of total additional profits can be found in the level of awards made in patent infringement cases. Whilst there is an academic debate about how these awards should be calculated (see for example Kerr and Prakash-Canjels, 2003), in practice a figure of about 25% of additional gross profit seems to be considered a reasonable royalty - a figure below which an award of damages in cases of patent infringement should not fall (Wise, 1997). There is even reference in US legal circles to a '25% rule'. This figure can be used as a rough benchmark for the proportion of additional profits flowing from an innovation emerging from research which should be marked up to the research function. If research was only one amongst a number of contributors to the original innovation, then a fraction of this figure should be taken. In a similar way the 25% figure should be reduced to reflect the degree to which the final innovation that is launched differs from the original idea that emerged from research. Clearly, the 25% figure is only a rough guide, and the fractional estimate requires a degree of judgment and negotiation. But this approach provides an easy and reasonable way of valuing the contribution of research to opportunity identification and creation.

Evaluating the value measurement system

At the start of the paper we outlined the key requirements of any method for measuring the value of research. How does the method we have outlined here measure up against these criteria?

- *Needs to show how it can break out the contribution of research from the overall effort of the business.* **The method focuses on just those parts of the business process to which research is uniquely equipped to contribute – i.e. the reduction of risk through the reduction of uncertainty and the creation of innovations.**
- *Must overcome the hindsight bias by taking realistic initial estimates from the business prior to research and comparing these with the research estimates.*

The use of prior estimates from relevant teams within the business ensures that hindsight bias is eliminated. The method not only places a monetary value on MR it helps to make it clear to the business the degree to which research reduces uncertainty and adds to knowledge .

- *Must be applicable to all types of research, not just new product launches.* **On the risk management side, the Expected Value approach means that all that is required to measure the value of research is a prior assessment of likely outcomes and the actions, revenues and costs associated with these. Thus, the method can be applied to any type of research. The opportunity identification / creation part of the approach ensures that research's role in innovation is captured**
- *Must be quick and fairly easy to carry out.* **Although the risk management model itself is quite involved, once it has been set-up it would take no more than 10 minutes to conduct each valuation.**
- *Must cover situations in which research prevents the business from taking unsuccessful, loss-making courses of action. Must enable measurements of value when MR produces recommendations for action, that for reasons beyond the control of the research function, the business does not follow. Must make allowance for slippage between research recommendations and the actions eventually taken by the business based on these recommendations.* **The Expected Value approach means that there is no need to track the outcomes of actions recommended by research. However, the opportunity identification / creation approach is still dependent on tracking actions and outcomes.**
- *Must gain acceptance by those in the business (such as the CEO) who view things through the lens of accounting and finance.* **This is probably one of the main barriers to the method's adoption. At present the use of probability theory and decision-making theory is not common in most businesses, primarily because finance departments have not shown much interest in their use. However, as we have suggested, the fallout from the recent recession, where traditional approaches to risk have been exposed as inadequate, may result in a change in emphasis in the near future. If risk and uncertainty come to be seen as a serious threat to businesses and economies, then finance departments are likely to become far more receptive to an approach such as the one we have outlined here.**

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