A Responsible Decision Making Model for Global Management Projects

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In recent years, more emphasis has been placed on Corporate Social Responsibility (CSR). The global world augments the complexity of making responsible decisions across cultures. What is proposed here is the development of multi-criteria decision models (MCDMs) and the use of sensitivity analyes to enhance responsible, global decision making.

1.Introduction:

More emphasis has been recently placed on corporate social responsibility. Campbell (2005), for example, has promoted a model that highlights a hierarchy of socially responsible decision criteria for organizations to utilize. The global world augments the complexity of making responsible decisions across cultures. Other models, such as "balanced scorecards" and "triple bottom lines" imply the multi-dimensionality on which today's global management decisions must be based. Balanced scorecards (Kaplan and Norton, 2007) and triple bottom lines (Elkington, 2004), however, are more utilized as feedback controls to assess the impact of prior organizational decisions. This begs the question, "how do managers make socially responsible decisions within the global management context?" This is especially a concern when criteria such a social and environmental outcomes must compete with financial outcomes or profits. What gets measured gets done, and what is easiest to measure dominates what is hard. Moreover, decisions or policies do not yield exclusive returns with regard to those criteria. Each decision will have some impact in all areas, not just profits or environmental benefits exclusively. What is proposed here is the development of multi-criteria decision models (MCDMs) that could be used to enhance responsible, global decision making. Sensitivity analysis can then be used with these MCDMs to discover the "soft spots" in the model that may demand enhanced data gathering techniques in order to make decisions that could more accurately predict more responsible decisions.

2. Literature Review

Multi-criteria decision models (MCDMs) have been employed for many years as a way to optimize decision outcomes (Saaty, 1982; Nagel, 1984). Simply put, this process

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involves building a decision matrix that compares the payoff of different policy options with regard to several competing criteria. Nagel did extensive work on the development of a P/G% Analysis Software program that computed decision payoffs within a multi-criteria model. One of Nagel's major contributions was how to develop a common denominator across very disparate units of measurement. He used a percentage analysis with percentages that can be computed with a base of the total scores. Percentages can also be developed from bases of the maximum score or the highest score. It does not matter because the values calculated with any of those bases will have a correlation of 1.0.

Sensitivity analyses may then be conducted which allow the analyst to ask a simultaneous series of "what if" questions that might change the outcome (Nagel, 1985 and Teasley, 1989). Evans (2007) has developed ways to improve decisions with simple decision models, and Doubilet, et. al., (1985) showed how sensitivity analyses could improve medical decisions where multiple criteria and outcomes must be considered simultaneously. Teasley developed graphic models of sensitivity curves that shows a diminishing return with increasing the values of scores and weights in a decision model. A review of these models shows the significance of how scores are entered into the analysis (Teasley, 1990, 1994; Teasley and Hornyak, 2005). Essentially, scores have more impact on decision models than the weights do, even though that is not the common prevailing belief. How scores are developed and how precise they are often affects the outcome of the model. One common trap in the absence of a common denominator is to utilize ranked data, which can lead to disastrous results (Teasley and Hornyak, 2010) What gets measured gets done, but if measures are inaccurate, then the wrong outcome may be implemented.

Balanced scorecards and triple bottom lines have been proposed, and in some cases, implemented to move policy evaluations beyond mere economics and profit-making. TBL has been popularized for its three foci—people, planet and profits. TBL has gained some traction in the U.S. in the states of Minnesota and Oregon as well as in other countries like Ireland and Australia. Moreover, TBL places more emphasis on ecological sustainability. TBL is not simply a matter of "good corporate citizenship," but rather, a fundamental principle of smart management. These are activities that organizations can engage in which not only positively "affect the natural environment and society," but which also result in long-term economic benefits and competitive advantage for the firm (Carter and Rogers, 2008).

Balanced scorecards, corporate social responsibility, and triple bottom line transition controlling beyond mere profits and economic returns. As such, they deserve more attention if one wants to emphasize ethics and social responsibility. What gets measured, gets done, and what is easy to measure trumps what is hard. And, that is the rub. Profits are fairly easily measured and businesses will eventually know if they are making money or not by ledger balances, at least in the long run.

Schneiderman (1999) conducted a study of "Why Balanced Scorecards Fail," and he predicted that they would fall on the "scrap heap" of other business fads. He concluded that non-financial metrics are poorly defined, the non-financial variables on the scorecard are incorrectly identified as primary drivers of future stakeholder satisfaction (customers, for example, may not really be more satisfied), and there can never be a quantitative linkage between non-financial and expected financial results. In other words, it is not really clear that satisfying customers and developing employees and processes will indeed enhance profits. The same concerns could be applied to the triple-bottom line.

Bourne, et al., (2002) conducted a broader range study of performance measurement that succeeds and fails. They found four blockers of performance measurement systems. These were: 1) the amount of extra effort required to develop and implement such a system, 2) the ease with which IT can access and analyze the data, 3) the consequences of the measurement—will it predict organizational success, and 4) parent company support.

Thus, these proposals are limited by the difficulty of obtaining feasible, accurate, and usable data or measures that would incorporate them into effective decision models. The use of sensitivity analyses, however, can reduce the "cost" of multi-criteria models by allowing the analyst to focus only on those areas that deserve further review to enhance decision optimality, especially for increasing the responsibility of global decision making. .

3. Findings

A basic problem facing decision makers, and especially global decision makers, is how to make those decisions more socially responsible. There are several models that may be employed, but the one used here will be the triple bottom line model. The issue becomes how to compare policy outcomes with regard to those three criteria—economic, social, and environmental outcomes. The issue, in a nutshell, is how to measure those outcomes to optimize a decision model, and of course, these dimensions must be converted to a common denominator to be summed.

Multi-criteria decision models (MCDMs) permit the analyst to develop a decision or policy matrix that compares total outcomes to make the most cost-beneficial decision that would maximize the simultaneous gains along each outcome. By using a simple MCDM, along with sensitivity analysis, those areas of the decision model can be identified by first using reasonable payoff estimates to determine which elements of a decision require further analysis. This can be accomplished both on a weighted and an unweighted basis.

Table One reports the outcomes on an unweighted basis—that is, all the weights are set at one and the criteria, therefore, have an equal impact on the outcome. In this model, the estimated profits from selling paper textbooks is $6.8 million dollars and

Table One
PAPER AND ONLINE PUBLISHING DECISION MATRIX

		Decision Criteria		
		Profits$M	**Social**	**Environment**
1.	**Paper P**	6.8	5	2
2.	**Online P**	2.3	3	5
	Totals	7.1	8	7
	Weights	1	1	1

		Allocation Percentages			**Totals**
1.	**Paper P**	74.73	62.50	28.57	55.27
2.	**Online P**	25.27	37.50	71.43	44.73
	Totals	100.00	100.00	100.00	100.00

the estimated profit from, assumed to be cheaper, online textbook sales is only $2.3 million dollars. Those estimates cannot be defended here, and they are only used for illustration purposes. The social and environmental dimensions do not have data readily available for estimating their outcomes, so reasonable estimates are made on a five point scale, with a five being the maximum impact and a one being the minimum impact. It is assumed that there is greater social value for a community when texts are published traditionally at a publishing plant. There would be more jobs available at the plant and it would contribute to the well-being of employees and other citizens as well as making a greater contribution to the tax base of the community. Similarly, but obviously inversely, it is assumed that online publishing would be much more environmentally friendly. Obviously fewer trees are cut down to make the paper, there is no plant to heat and cool, and there are at least fewer, if not no, employees driving back and forth to work.

Converted to percentages, the profits from paper publishing are converted to 74.73 to 25.27. That is equal to the ratio of 6.8 to 2.3 from the actual data in the model. Similarly, the Social and Environmental estimate scores are presented as percentages that equal their respective ratios of 5 to 3 and 2 to 5 respectively. Now that those scores are converted to percentages, they can be accurately summed to produce a final outcome.

This model illustrates rather well the tradeoffs inherent in decision making, and especially in ethical, global decision making. Every alternative has some impact on each of the decision alternatives has some impact on each criterion.

Table One shows that paper publishing is to be preferred over online publishing of textbooks by roughly 55 to 45 on a percentage basis. Paper textbooks win on two of the criteria, but online publishing wins on the third (environment) criterion. But this model is generated rather quickly using estimates for two of the criteria in the absence of reliable and valid data.

The question remains, "what difference would better measures have on optimizing the decision outcomes." In other words, where can decisions be improved so that they might change the outcome of a decision matrix Table Two shows the result of a threshold sensitivity analysis. It attempts to answer the questions that were posed above.

Table Two
Decision Matrix

		Decision Criteria		
		Profits$M	**Social**	**Environment**
1.	**Paper P**	6.8	5	2
2.	**Online P**	2.3	3	5
	Weights	1	1	1

		Threshold Values		
		Profits	**Social**	**Environment**
1.	**Paper P**	3.300	2.6289	0.7323
2.	**Online P**	4.794	5.7059	13.6559
	Weights	0.36	-0.26	1.74

Table Two illustrates a threshold sensitivity analysis with regard to paper publishing of textbooks compared with online publishing. The threshold values are the ones required for the model to breakeven, beyond which the outcome will change. Paper texts make more profit and have a higher social value with jobs and employees, but they are much harder on the environment. Profits are easily measured and cannot be changed in the model, while social and environmental outcomes are estimated on a descending five point scale, with the best option getting a score of five and the other option(s) getting scores that best estimate the ratio of points up to five. The threshold values represent what the existing scores, estimates and weights must change to reach the breakeven point in the model. Thus, profits of 6.8 million dollars must decrease to 3.3 million to change the decision outcome.

Even so, since the table shows is that the profits of traditional paper textbooks would need to drop below 3.3 million dollars or the profits from online textbooks would need to increase beyond 4.74 million dollars to change the outcome in the model, and those changes might imply a threatening decrease in revenues for the company. An alternative would be to give "profits" a weight of less than .36, but we are assuming that weights will be in whole numbers, with the minimum weight being one. So, no change would be possible there.

Table Two also shows that only with social values can the model be changed with better data. Assuming a five point scale can accurately represent the ratios obtained from better data, the threshold values for the environment are out of range—below one and greater than five. Similarly, the only logical weight change in the model is with the environmental criterion. If it were twice as important as the profit and social criteria, then the overall outcome in the model would change because a whole weight of 2 exceeds the threshold of 1.74.

The overall implication of the threshold analysis is that only by getting better measures of social outcomes can the model be further optimized. The profit estimates are already well-defined, and it might take a change in the economy or college textbook buying to make a drastic change in that dimension. The environmental threshold scores are already out of range. So, there is no change on a five point scale will make a difference in the outcome. We would be wasting our time to develop better measures and gather more data with regard to that dimension. Thus, it is only with the social dimension that we need to dedicate further time to refine the data because it may further optimize the model.

4. Conclusions

Business decisions and policies can only become improved and more responsible or ethical if measures can be developed to utilize in decision models. There are several factors that mitigate against such decision enhancements. First, social and environmental variables do not have universal criteria nor do they have easily obtainable data. If what gets measured happens, then appropriate measures will need to be developed before policies can reflect their input. If what gets measured easily beats what is hard to measure, then social and environmental variables will always seem harder to measure than profits and will always suffer from that disadvantage. What is needed is a way to measure social and environmental variables quickly and easily, if that is possible.

By using an MCDM that converts values and estimates to percentages, a model can be constructed that make appropriate mathematical conversions which maintain the exact intervals and ratios between the scores. Thus, an accurate result can be obtained.

Sensitivity analyses may then be used to discover decision model elements that may require further data to optimize the model. It may even be discovered that further analysis would prove futile to enhance the model at all. Therefore, the cost of data

gathering for making more responsible, global decisions could be greatly reduced by using sensitivity analysis as a strategy for optimizing more ethical, global models.

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