A MIXED-MODE MODELLING APPROACH TO THE *A PRIORI* SELECTION OF BEST PRACTICE STRATEGIES INCORPORATING TANGIBLE AND INTANGIBLE ATTRIBUTES

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ABSTRACT

In this paper, a heuristic algorithm for facilitating the evaluation and selection of best practice strategies for the enhancement of research output within a university business faculty is developed. The heuristic utilises the concept of mixed-mode modelling in its combination of 'hard' tangible expected value and 'soft' intangible human resources management modelling interfaces.

Introduction

In this paper, a methodology of ascertaining the tangible value of strategies is discussed and demonstrated with respect to publications and research grants strategies for a university School of Business; the methodology of evaluating the strategies with respect to their intangible value is also undertaken and demonstrated; and finally, the overall selection heuristic for determining the 'best practice' strategy is outlined and illustrated. The process developed in this paper is illustrated in Figure 1. Past research in strategy evaluation has included the 'updated paradigm' for strategy evaluation developed by [4] which is based on a subjective approach and is aimed at the corporate world. [3] in a similar attempt to develop a new approach to corporate strategy evaluation, adopted a tabular programming and analytic hierarchical process (AHP) approach that would allow the incorporation of intangible and tangible aspects into the evaluation. However, both of these approaches were required to generate/amend strategies, not just evaluate them. In the case of the approach suggested by [3], a relatively complicated approach is suggested.

These two suggested methodologies for strategy evaluation are a little short of being what [2] advocates in terms of the structured incorporation and assessment of qualitative and quantitative information, in a *simple* and in *user friendly* manner for the assessment of a strategy (in this application where it has already been carefully formulated taking into account fully the mission statement and goals of the organisation). The approach to strategy evaluation suggested in this paper however, sets out to achieve just these attributes, with the full and meaningful participation of the decision makers. Additionally, this approach lends itself readily to the application of Social Judgement Theory [1] to test for, and if needed, improve the level of consistency associated with the decision making and ranking processes involved in the approach.

Evaluating the Tangible Aspects of Research Enhancement Strategies – Stage B

Although it is extremely difficult to fully deal with the intrinsic and deep cultural aspects of any set of change management strategies, this paper attempts to deal with a significant number of them in order to provide a meaningful and useful evaluation procedure. The strategy evaluation procedure developed in this section corresponds to Stage B in Figure 1 and is based on an earlier idea contained in Nicholls and Cargill[5]. In the context of research support, there are a number of important aspects that need to be specifically evaluated. Leaving aside the subjective intangible issues at

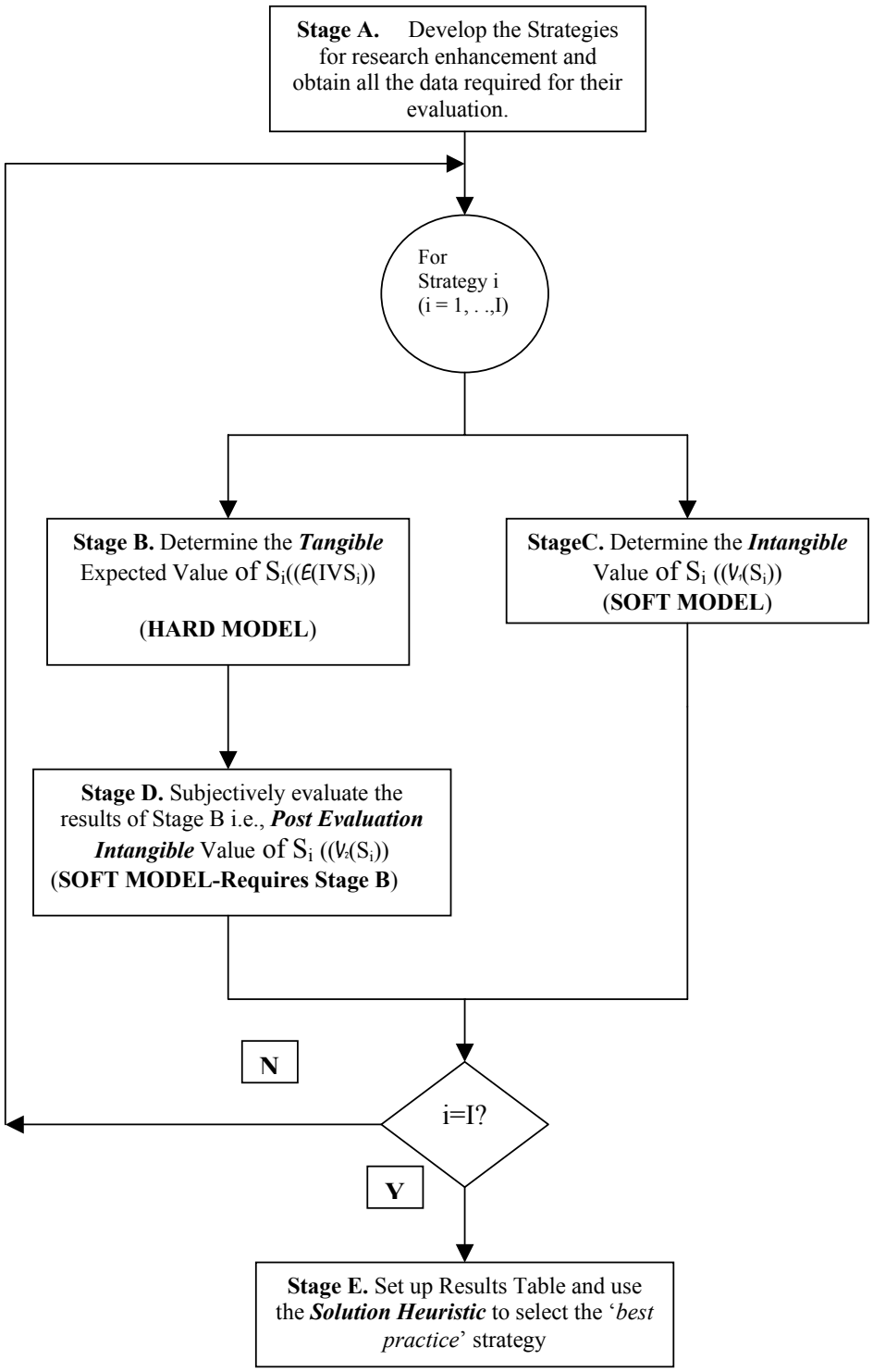

Figure 1 The *modus operandi* for determining the best practice strategy for research enhancement

this point, the objective expected value determination can be broken down into three parts:

(i) The *expected increase in research funding* attributable to the implementation of a given strategy ($E(IRFS_i)$).

(ii) Given that time is limited for any staff member, the *expected research opportunity cost* associated with the reduction of other research output (publications in the case of grants and *vice versa*) needs to be considered ($E(ROCS_i)$). However, one must also account for the situation where different categories of research output in the same area of research output are being targeted for enhancement. Here, as a result of the increase in time allocated to the increase of the targeted research activity as a result of the implementation of a given strategy, other categories of research output within the same area might decrease ($E(SROCS_i)$). Hence it is necessary to evaluate both sources of opportunity cost.

(iii) The *expected cost of 'back-filling' for staff and other staff consequential* as a result of their being allocated time allowances for the additional research activities and/or the need for the School to supply additional research and/or clerical assistance as a result of the implementation of a given strategy ($E(COBS_i)$) With these elements evaluated, the *expected incremental value of a given strategy* may be evaluated ($E(IVS_i)$).

The Determination of the Intangible Value of a Strategy ($V_r(S_i)$): Stage C

It is necessary to bring into the evaluation of a strategy the subjective (intangible) aspects. In the scenario considered in this paper, the change management process which is intended to create a research culture alongside a teaching culture and to thus gain research output, has been in progress for approximately five years. All consideration of intangible aspects takes place in that context. There are two main types of intangible factors to be evaluated. The intangible factors that can be assessed before or at the same time as the tangible aspects of the strategy and the post evaluation intangible factors that require stage B to have been performed. The former factors can be further divided into at least three contextual 'layers'.

A first stakeholder layer might be that *external* to the university. Business and industry partners, potential employers and government policy makers might have views about which sorts of research outputs are most desirable. Some level of subjective assessment needs to be made of the likely impact of various strategic choices with these stakeholders. A second layer of considerations arises *within* the university. The strategies to be evaluated will be viewed by other key parties and decision-makers within the university, as will the outcomes, and this gives a *political* dimension to the considerations. How might other key players within the university see the change of direction or approach? Might the shift to journal publications as preferred output be seen favourably? Might a shift to seeking grants be seen as even more prestigious, for example? Where internal funding decisions are often made on the basis of perceived success or probability of success externally, then this political dimension is vital. A third layer of contextual considerations relates to the individuals most affected by the planned strategy. Effectively, one needs to consider the likely impact on this *target population.* For example, the strategy to reduce conference papers as research output in favour of peer reviewed journal publications and book chapters might be seen as simply cost-cutting. Is this likely to be de-motivating at a time where conference attendance has actually become one of the most motivating aspects of being research active? Are they perhaps likely to see the step up from refereed conferences papers to peer reviewed journal articles and the like as just a little too difficult to be attainable, and therefore a demotivating shift in strategy? Could a shift in strategy be read by academics as confused and indicating no management direction? Change management processes that take sudden and unpredictable directions might be seen by the target staff as

reasons to lose confidence in management and therefore as reasons not to bother making the indicated behavioural change. Additionally, one might also consider the impact of the strategic change to research output for this target population on their other tasks within the normal workload, namely their teaching roles and responsibilities. A further element could be the behavioural 'opportunity cost' of the new research strategy, where the impact of staff doing X is not so obviously connected with X itself but shows in terms of them not then being willing or able to do Y. These factors need to be subjectively assessed and an overall weighting established for the strategy (in this case using Panel Consensus).

Post Evaluation Intangibles (Stage D)

The factors (of which there are P) involved in this Stage are quite different from the ones identified in the evaluation of Intangibles in Stage C as they might include for example, the human resources impact of a negative opportunity cost (outside the targeted area). It might be that senior managers anticipate discontent in the School with the small level of savings that, for example, a shift away from conference papers will actually produce. Hypothetically, it could be that the slight risk of industrial trouble amidst a particular staff group who might find themselves having to work longer hours to meet new research expectations, is deemed too high cost to allow. It may be that one strategy alone is considered likely to fail to produce enough synergy in the research culture, therefore tending to make such marginal alterations to status quo that insignificant behavioural change would be likely. These are more holistic judgements rather than separate stakeholder considerations as were being looked at earlier in the Intangible evaluation phase in Stage C. Evaluation is then undertaken as in Stage C

Overall Solution Heuristic

By using a simple mixed-mode modelling approach, a methodology has been developed that facilitates the evaluation of tangible and intangible components of research enhancement strategies (or for that matter any other for any other areas of application if required) as detailed in Sections C and D using a similar approach to Section C and D (details available from the authors). The end result is a single assessment indicator that provides the ability to select the best practice strategy.

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