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Mahesh S. Raisinghani

The University of Texas at Arlington, msr7892@omega.uta.edu

Lawrence L. Schkade

The University of Texas at Arlington

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Strategic Decision Making: A Framework For Multicriteria Decision Analysis Of Technology Investments And A Field Survey

[Maresh \(Mike\) S. Raisinghani](#) and **Lawrence L. Schkade**,

Department of Information Systems and Management Sciences,
The University of Texas at Arlington, UTA Box 19437, Arlington, TX 76019-0437, USA,
Tel.(817) 272-3507, Fax (817) 272-5801,
Email: msr7892@omega.uta.edu

This research was conducted as an empirical field study utilizing a multi-item AHP instrument and selected follow-up interviews for data collection. The central construct of this research is the identification of strategic evaluation techniques that are used by executives in making the Internet/Intranet (INETs) investment decisions. This multi-attribute decision problem is researched by using an AHP tool that integrates the financial, quantitative and qualitative dimensions of a decision. The qualitative and the quantitative benefits of the INETs technology are the focus of the strategic evaluation. The major steps of the strategic evaluation methodology are strategic planning, enterprise assessment, strategic justification, implementation and audit.

Theoretical Basis Of The Study

The methodology is based on general systems theory, diffusion theory, and an activity-based management approach. In focusing on decisions (tactical as well as strategic) with tradeoffs among multiple, competing objectives, the basic approach is to use preference/utility theory, including subjective probabilities.

The integrated research approach taken by this study conducts an in-depth firm level analysis and provides the capability to acquire the necessary data including strategy data, utility data, metric selection, activity cost data, and performance measurements. It avoids the confines of causal inference created by hypothesis testing through operationalization of variables in questionnaires, while maintaining a rigorous attempt to minimize bias in the selection of a relationship between organizational strategies and strategic metrics. The value of such an approach has been discussed in the literature, but has seldom been implemented.

Research Questions

This research will address the measurement of the linkage between business and information technology objectives for electronic commerce applications using the analytic hierarchy process. How will the firms evaluate the qualitative and quantitative aspects of a strategic decision to invest in electronic commerce technologies? How will business strategies affect global networking in all of its dimensions (interconnecting, interoperating, interfacing)?

Strategic Justification Methodology

The analysis in the strategic justification methodology is based on the analytical hierarchical process (AHP), and the linking of business performance to information. Analytic Hierarchy Process (AHP) is a decision methodology that uses a set of axioms to develop a hierarchy of attribute values based on relative values obtained from pair-wise comparisons of attributes. It is "a theory of measurement concerned with deriving dominance priorities from paired comparisons of homogeneous elements with respect to a common criterion or attribute". The AHP is a judgmental decision modeling technique that produces weighted-additive decision models that are paramorphic. A paramorphic model may produce the same output as a human decision maker without having the same underlying process as the decision maker. The paramorphic problem makes any differences in the additive cue weights developed by the judgmental decision modeling techniques difficult to reconcile.

The AHP imitates the natural tendency of humans to organize decision criteria in a hierarchical form starting with general criteria and moving to more specific detailed criteria. The first step in the process is to

identify the factors relevant to the decision. Next, those factors are structured into a hierarchy of criteria, subcriteria, and alternatives. It is accomplished through a series of documentation and analysis matrices (templates), in which the pervasive impact of the INETs technology on the organization is evaluated. The strategic nature of this justification methodology requires that the analysis team gain an understanding of the strategic direction of the firm. A linkage matrix links various corporate/functional objectives and strategies can help accomplish this. The linkage matrix used for identifying and assigning weights to the metrics to be used in the integrated strategic analysis matrix of this justification methodology. These metrics are used to estimate the actual magnitude of impact that the instrument will have on the various strategies.

References available upon request from Mahesh (Mike) S. Raisinghani