



Chapter XII

A Balanced Analytic Approach to Strategic Electronic Commerce Decisions: A Framework of the Evaluation Method

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Choice, not chance, determines human destiny (*God's Lil' Instruction Book II*)

This chapter presents a comprehensive model for optimal electronic commerce strategy and extends the relatively novel Analytic Network Process (ANP) approach to solving quantitative and qualitative complex decisions in electronic commerce strategy. A systematic framework for the identification, classification and evaluation of electronic commerce (e-commerce) strategy using the Internet as an information, communication, distribution, or transaction channel that is interdependent with generic business strategies is proposed. The proposed methodology could help researchers and practitioners understand the relation between the benefits organizations seek from an information technology and the strategies they attempt to accomplish with the technology. As companies all over the world come out of restructuring, downsizing and business process re-engineering, many are realizing that in order to achieve a competitive edge they must formulate and implement strategies based on innovation and development of e-commerce. This chapter identifies and analyzes the methodology for synergistic integration of business and Internet domain strategies.

INTRODUCTION

A recent study by *Computer Economics Report* estimates that about three-fourths of information systems investments, ranging from data centers to websites, offer no calculable business value. At most companies, the money spent on servers, information systems (IS) salaries, and systems maintenance is not linked to specific projects and the deliverables are not always tied to the end user. Although there is little agreement on which of the new capital budgeting approaches works best, Chief Information Officers (CIOs) use some combination

of the following approaches to determine optimum spending levels:

- Activity-based costing: This most commonly used approach determines the cost of providing a service to a particular business unit, with the goal of calculating how much should be charged for the service.
- Performance-based budgeting: This approach relies on a rigid system of measures, where percentages of expenditure are tied to performance goals, in order to evaluate the effectiveness of technology.
- Benchmarking: IS budgets are based on what other companies are doing or to the return on investment (ROI) of the firm. However, companies recognize that they must have more tangible goals linked directly to the business.
- Economic value-added: This quantitative concept tries to measure benefit by assessing productivity gains. It is the cash-adjusted operating profit minus the cost of capital used to produce earnings. The approach tries to identify the contribution of a particular business initiative (e.g., increased sales from a new e-commerce application offered on the WWW) and compares it to capital costs. If there is a positive return on capital, then the initiative has succeeded.
- Options analysis: This approach is better for evaluating major technology initiatives such as migrating to an intranet-based on a client-server architecture. The real-options theory of evaluating and analyzing IT investments considers factors such as systems upgrade from Novell Netware to Microsoft Windows NT, or timing of a project launch. The idea is to evaluate corporate goals according to a variety of scenarios, since IT investments cannot always be traced to a tangible business benefit. The value of options is not considered by traditional accounting measures.
- Cumulative anecdotal evidence and “gut instinct”, not just accounting measures.

According to Erik Brynjolfsson, an associate professor of Information Systems at MIT's Sloan School of Management, there is a need for new metrics that go beyond the traditional industrial-age measures that focus on cost analysis and savings, due to the difficulty of measuring the true economic benefits of IT and determining the accurate accounting of IT returns. For example, top management would like to know how to determine e-commerce technology's contribution to areas such as competitive differentiation and how to measure the advantage that their company has over the competition in its e-commerce applications. The primary question for the decision maker is; *In order to assess the business value of information technology for e-commerce, how can the qualitative and quantitative factors of a strategic decision be evaluated before investing in a particular e-commerce technology?*

The key focus of this chapter is to address the measurement of the linkage between business and information technology objectives for e-commerce applications using the analytic network process (ANP). This chapter discusses the measures of success for e-commerce and ways to improve on the business processes in the physical world by adopting e-commerce. The ANP is described as an integrative methodology for decision structuring and decision analysis of the various e-commerce technology/business model alternatives. Managers can benefit from this holistic approach to formulating the optimal e-commerce strategy based on the interdependencies between the Internet-level strategy domain and the business-level strategy domain.

BACKGROUND

Showing how investment in IT has been put to productive and profitable use is one of the biggest challenges faced by the IT manager. Research on IT investment refers to the

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