A Transaction Cost Viewpoint of E-commerce Deployment and Use

Michael L. Gibson and Zhangxi Lin

Department of ISQS

The Rawls College of Business Administration

Texas Tech University, USA

Tel: (806) {742-1925, 742-1926}, Fax: (806) 742-3193

{mgibson, zlin}@ba.ttu.edu

INTRODUCTION

It is clear from recent history that companies who benefit most in e-commerce (EC) business activities are those who either provide a fundamental e-commerce service or brick-n-mortar companies who approach e-commerce more judiciously. Already successful in conducting business in standard ways, these brick-n-mortar companies approach EC with the same sound practices they apply in expanding their businesses in other ways. A close look at how they initiated EC reveals that aspiring to ventures into cyber space need to apply many of the tenets described in a previous investigation by the researchers.

This investigation constitutes a theory-building exploratory study to identify important aspects of EC influenced by transaction cost theory (Williamson 1985). The previous theoretical investigation using the structuration method of collecting data (Beath & Orlikowski, 1994) paved the way for this additional empirical investigation.

PRELIMINARY FINDINGS

From the previous data collection, three major areas of importance regarding EC activities are identified: 1) Fundamental Requisites of Cyber-Commerce, 2) Fundamental Business Operations Within E-commerce, and 3) Important E-commerce Legal Issues. The following depict the findings of this preliminary study.

Fundamental Requisites for E-commerce

1) Technology Requisites

- ?? Web Servers
- ?? Application Servers
- ?? Database Servers
- ?? Mail Servers
- ?? Procurement Systems
- ?? IT Networks
- ?? Routers/Firewalls
- ?? Ad Serving Sys.
- ?? Intra/Extranets
- ?? Security Systems
- ?? Backup Systems
- ?? Content Management Systems
- ?? Catalogs/Directories
- ?? Messaging Systems
- ?? Certification Systems
- ?? Databases
- ?? Development/Test Environment
- ?? Application Systems
- ?? Help Desk Systems
- ?? Traffic Reporting Systems
- ?? Storage Systems
- ?? Relationship Management Systems
- ?? Seamless Data Access
- ?? Data Warehouse

2) Capability Requisites

- ?? Procurement
- ?? Billings/Payments
- ?? Community Creation
- ?? Data Mining
- ?? Store-Front/Auction/Market

- ?? Site Monitoring
- ?? Customer I/O Support
- ?? Site Data Collection
- ?? Advertising
- ?? Identity Recognition
- ?? Site Searching
- ?? EC Business Content
- ?? Seamless B/M-EC
- ?? Operations

3) Human Resource Requisites

- ?? Web-Masters
- ?? Network Mgrs/Staff
- ?? Application Developers
- ?? Artists/Editors
- ?? Business Analyst
- ?? Financial Managers/Staffs
- ?? Database Managers/Staffs
- ?? Marketing/Advertising Managers/Staffs

Fundamental Business Operations Within E-commerce

- ?? EC Supplier/Purchaser Location
- ?? EC Procurement Support
- ?? EC Procurement
- ?? Process Improvement
- ?? EC Product/Service Cataloging
- ?? EC Customer Ordering Process
- ?? EC Customer Help Process
- ?? EC Inbound/Outbound Logistic
- ?? EC Billing/Payment Process
- ?? EC Customer Relationship Management

Important E-Commerce Legal Aspects

1) Assimilate Legal Team with Proper Characteristics

- ?? Business Strategy Ability
- ?? Know Business Venture Legalities
- ?? Copyright Research Ability
- ?? Trademark and Patent Ability
- ?? Know Trade Secret/Intelligent
- ?? Property Laws
- ?? Know Internet Patents
- ?? Understand Employment Laws
- ?? Know Domain Name Registration Laws
- ?? Know Customer Data Laws
- ?? Know EC Ownership Laws
- ?? Know EC Business Contract Laws
- ?? Know Proprietary Info. Laws
- ?? Know Geographic Scope Laws
- ?? Know Comp. Sys. Innovation Laws
- ?? Know Time Period Legalities
- ?? EC venture Experience
- ?? Know Customized Software Laws

2) Proactive Legal EC Actions

- ?? Register EC Domain Name
- ?? Establish Developer Contracts
- ?? Obtain Usage Permission
- ?? Establish Future Use Rights
- ?? Establish Intellectual Property Ownership
- ?? Establish Hosting Agreements
- ?? Identify Tax Liabilities
- ?? Establish Customer Privacy Protection

- ?? Set up Advertising Agreements
- ?? Identify Business Method Patents
- ?? Establish Click-through EC Contracts
- ?? Identify Profiling Legalities
- ?? Identify Territory/International
- ?? Law Differences

IMPACTS OF E-COMMERCE ON SUPPLY CHAINS

All business activities are either directly part of supply chain activities, off-line activities that contribute to the supply chain, or back-office activities that perform follow-up supply chain activities. EC potentially impacts the threads of activities all along the supply chain. For example, EC often impacts supply chains with cyber support for procurement of products and services, which is defined as "any purchasing-related activity that involves electronic communication, the Internet, and related software to help companies achieve increased value" (Elliff 2001).

Through EC, the development of new network organizational forms has brought into practice transaction cost economics, inter-organizational collaborations, and strategic alliance (Wang 2000). A growing number of companies are explicitly replacing bureaucratic internal resource allocation with internal markets (Ellig 2001). The businesses of brick/mortar EC companies will penetrate these markets because disappearing market boundaries generate greater business opportunities. Stapleton et al. (2001) explains the concept of such a virtual integration. The tenants of transaction cost economics used to explain conventional vertical integration governance might also be used to explain virtual integration for brick/mortar EC companies. A framework to explain the variety of trading relationships that exist between firms has been presented by Kerrigan et al (2001), using game theory and transaction cost economics. This framework forms the basis for studying virtual integration for e-commerce supported activities.

THE INFLUENCE OF THE PREVIOUS E-COMMERCE RESEARCH PROJECT

Venturing into EC involves tremendous organizational change. The process of the transition is suggested to have three phases: readiness for change, adoption of change, and institutionalization of the change (Armenakis et al 1993). The specific requisites for venturing

into EC identified within the Fundamental Requisites of Cyber-Commerce provide preliminary evidence to access readiness for change involved in e-commerce ventures. The deployment of these fundamental requisites in fundamental business operations within EC corresponds to the adoption of the change. Initiating the legal aspects of EC will help to institutionalize the changes instigated when deploying and using EC. These preliminary findings provide guidance relative to this research project.

Using our preliminary results is consistent with the practice of using experts and consultants for important business ventures. Experts and consultants typically bring skills and experiences to new ventures that are not completely proven, but nonetheless considered important to those endeavors. In the next research phase, we will investigate two distinctly different perspectives relative deployment and use of EC. We will perform case studies to investigate the two major cost viewpoints. This research will help construct a model for deploying and using e-commerce.

A TRANSACTION COST VIEWPOINT (TCVP)

Two prominent perspectives exist within the TCVP: 1) that units within an organization interact with participants within a transaction from the standpoint of what is good for the organizational unit and not necessarily the whole of the organization, and 2) that units within an organization interact with participants within a transaction from a stand point of what is good for the entire organization, not just what is good for the organizational unit. The theory is based upon the fundament principles of self -reservation. The first TCVP implies that the organizational unit practices self-preservation of the unit, which can sometimes conflict with the self-preservation of the whole organization. The second TCPV implies that organizational units practice self-preservation of the organization, which can sometimes conflict with the self-preservation of the organizational unit.

The adoption of client/server computing technology has been the key for the popularization of network-based management information system for organizations in 1980s. Today, as the Internet becomes the underpinning technology for EC, organizations further adopt both intranet and extranet infrastructures. The immediate benefit from the expanded network from internal network to the world-wide connection is the reduction of transaction cost, which has finally changed and will continue to change the way organization units operate.

This research project will study cases within EC wherein the organizational units acted within the two opposing TCVPs. We hope to illustrate how the interests of the whole organization should be the main perspective under which EC is deployed and used. We also hope to illustrate how the most prominent TCVP is the one wherein the self-preservation of organizational units dominate, and in which many EC ventures fail. The researchers believe that case study analysis will best serve the purpose of the research objectives. From the research outcomes, we will pose a model of EC deployment and use that encourages the local perspective of the first TCVP within the more important TCVP of the second TCVP that encourages an enterprise-wide perspective for EC deployment and use.

References:

Armenakis, A.A., S.G. Harris, and K.W. Mossholder, "Creating Readiness for Large-Scale Change," *Human Relations*, 46, 6 (1993), 681-703.

Beath, C., and W. Orlikowski, "The Contradictory Structure of Systems Development Methodologies: Deconstructing the IS-User Relationship in Information Engineering," *Information Systems Research*, Vol. 5, No. 4, September, 1994.

Elliff S.A., "New Dimensions in EC and SCM Part 1: The Benefits of E-Procurement General Electric," *TechnologyEvaluation.com*, February 14, 2001.

Ellig, J., "Internal Markets and the Theory of the Firm," *Managerial & Decision Economics* 22, no. 4,5 (Jun/Aug 2001): 227-237.

Kerrigan, R., Roegner, E. V., Swinford, D. D., and Zawada, C. C., "B2B Basics," *McKinsey Quarterly* no. 1 (2001): 44-53.

Stapleton, D., Gentles, P., Ross, J., and Shubert, K., "The Location-centric Shift from Marketplace to Marketspace: Transaction Cost-inspired Propositions of Virtual Integration via An E-commerce model," *Advances in Competitiveness Research* 9, no. 1 (2001): 10-41.

Wang, S., "Organizational Visualization of Electronic Commerce," *Human Systems Management* 19, no. 4 (2000): 285-294.

Williamson, O., "The Economics Institutions of Capitalism," New York: Free Press, 1985.