CASE STUDIES OF E-COMMERCE IN SMALL AND MEDIUM-SIZED ENTERPRISES: A REVIEW OF THE LITERATURE

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UCED Working Paper 10-2007-01, EDA University Center for Economic Development, Clemson University, Clemson, South Carolina. This work was funded through a grant from the U.S. Department of Agriculture CSREES through the Southern Rural Development Center at Mississippi State University.
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INTRODUCTION

Community economic development in the New Economy is based on a foundation of innovative activity (development of new products and processes), entrepreneurship (converting innovation into economic activity), and industry clusters (networks of supporting markets, services, and skilled labor). Rural communities and small towns are at a competitive disadvantage in the New Economy because they lack the diversity and depth of local product, input, and service markets available in the larger metropolitan areas. The disadvantages of a rural location may be reduced significantly if rural businesses use the Internet to enhance their access to research, services, and markets. That is, businesses located in rural areas and small towns can compete more effectively in the global economy if they take advantage of the "worldwide" markets for customers, information, inputs, and services provided for them over the Internet.

The purpose of this paper is to provide an overview of case studies of firms that use electronic commerce (e-commerce) as part of their business strategy. E-Commerce will be defined broadly to encompass: marketing and selling over the Internet (e-tailing), business-to-business electronic data interchange (EDI), conducting research and seeking information, e-mailing and computer faxing, internal information networks for employees, and ensuring the security of on-line transactions and information transfers. Business types included among the case studies are business-to-consumer (B2C), business-to-business (B2B), on-line or virtual businesses, storefront (bricks and mortar) businesses with Internet sales or purchases, and home-based businesses. The diversity of case studies available gives the reader insights into alternative applications of e-commerce and its potential to increase sales, reduce costs, and improve customer services, supply chain management, and efficiency of operations. The reader should note that the reviewed case studies are not a carefully selected cross-section of e-commerce users, and thus they are not representative of typical experiences. The case studies were selected by the studies' authors because the businesses accomplished something "interesting" in the opinions of the authors. As such, the case studies are best viewed as inspirational success stories and not as blueprints for strategic business planning.

The review of case studies is organized as follows. First, examples of industry-level surveys are provided. These surveys are not case studies since the identity of the businesses and firm-level specifics are not available. However, the surveys do provide interesting information regarding rates of adoption, factors encouraging e-commerce use, roles of e-commerce in the businesses, and perceptions of the benefits from and shortcomings of the businesses' e-commerce activities. Second, case studies conducted by researchers at universities and government
agencies are presented. These studies range from an in-depth historical analysis of the e-commerce experience of one business (e.g., rural travel agency) to a review of the revenue enhancing impacts of a regional e-commerce service for 163 wood products companies in upstate New York (AdirondackWood.com). Third, case studies published by private (commercial) e-commerce service providers are discussed. These case studies should not be considered objective; yet, the studies do demonstrate the types of products and services available to interested firms. A brief overview is provided for each of the publications reviewed in the three sections. The interested reader may find the complete study by using the website address or publication's citation that accompanies each study's summary.

SURVEYS OF E-COMMERCE PRACTICES

A large number of research publications consist of surveys of businesses to determine the extent of participation in e-commerce and perceptions of benefits from these activities. These studies generally focus on a specific sector of the economy (e.g., small businesses or agricultural input suppliers) in a particular state or region. Information requested in the surveys includes: characteristics of firms adopting e-commerce (e.g., size, age, ownership, product line); factors or motivations supporting adoption (e.g., increase sales or reduce costs); barriers to adoption or to more widespread usage of e-commerce (e.g., lack of access, lack of skilled staff, consumer resistance, security concerns); stage of e-commerce development (e.g., website for marketing, on-line catalog, on-line ordering and payment, electronic data interchange); share of sales from e-commerce; and expectations for future sales. The studies cited below are selected because they focus on an industry or business type representative of that found in small towns and rural areas.


E-COMMERCE CASE STUDIES CONDUCTED BY UNIVERSITIES AND PUBLIC ORGANIZATIONS

This section presents an overview of case studies of businesses and business networks that use the Internet to improve sales, customer service, and production and supply chain efficiencies. The case studies differ greatly in format, but they generally include introductions to the businesses and the roles of e-commerce in the businesses' operations. Two of the publications are in-depth analyses of the evolution and impacts of e-commerce on a single business (a travel agency and a jewelry store). Three additional publications examine the roles of regional e-commerce organizations, associations, and networks in enhancing e-commerce activity among area businesses. The remaining six reports provide multiple case studies of businesses. The individual case studies range from one to six pages in length and include an extensive variety of business types and e-commerce experiences.


Alexander, Pearson, and Crosby detail the transition of Borgsmiller Travel (Carbondale, IL) from a traditional travel agency to an e-commerce business. The process change involves moving from offering unspecialized services to the local market to competing in a global market with an emphasis on travel to Malaysia. Key aspects of the change are the identification of a niche market, investing in the technology and human resources necessary to conduct an e-business, and providing top management support for the new strategy. Borgsmiller Travel emphasizes the need for website maintenance and the need to continually provide new marketing material to meet the Internet customer's expectation of fresh website content.


The study describes how a retail jewelry store in a large city transitions from a traditional marketing strategy (signs, print and radio advertising, aggressive sales staff) to selling over the Internet. The implementation of an e-commerce strategy creates problems in terms of project management (deadlines, staffing, and testing) and adaptation to a new marketing culture. The store notes that their Internet customers are more knowledgeable buyers, and that e-sales tend to be for different merchandise than in-store sales. The net effect of adopting e-commerce is to reverse the decline in sales and improve staff morale. Firm profits, however, do not return to prior levels because the store's high-margin items are not big sellers over the Internet.


Henderson demonstrates that e-commerce can be used to support business networks and help rural firms overcome the challenges of small size and geographic remoteness. Business
networks in the study consist primarily of supply networks where large firms purchase material inputs from other firms. These networks may be open (access available to all) or closed (membership restricted to specific suppliers or customers and information exchange provided through Electronic Data Interchange - EDI). Five businesses are used as examples of rural e-commerce activity and network building - Wallis Oil Co. (Cuba, MO); Printingforless.com (Livingston, MT); eMerge Interactive, Inc. (Sebastian, FL); Woodnet Development Council, Inc. (Orofino, ID); and AgentSecure.com. The case studies are brief (one paragraph) and focus on network characteristics and benefits to the individual firms.


This paper examines the development of Internet-based business forums and their potential for overcoming difficulties faced by rural businesses in Scotland. The study starts with an overview of the benefits of information and communication technologies (ICT) for rural firms and potential reasons why e-commerce adoption among rural businesses is relatively low. The authors interview five Internet forums to assess the make-up and dynamic processes involved in rural Internet forums. Four of the forums have a geographic focus and the fifth forum targets a specific industry. The study finds variable experiences for the forums and concludes that ideal forum make-up, organization, and impacts are inseparable from the regional and business context. In addition, long-run sustainability of the forums is problematic because the "more effective" the forum is in enabling rural businesses in ICT, the less the forum is needed.

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Adirondack North Country Association (ANCA) is a regional economic development association that promotes economic development and quality of life in 14 New York counties. The ANCA maintains two regional e-commerce services for area businesses: AdirondackCraft.com serves 10 craftsmen, artisans, and small manufacturers and AdirondackWood.com lists the products and services of 163 wood products companies. The final report reviews the activities undertaken by ANCA (e.g., promote on-line catalogs, sales, and directories) and the major accomplishments pertaining to on-line participation by area businesses, identification of new markets, and building the human capital required for e-commerce activities. A major finding of the study is that small business owners value marketing and sales assistance, and a regional e-commerce service is an efficient means of providing this assistance.


Twenty-three case studies of small businesses in Australia are conducted to determine the roles played by the Internet among small businesses, drivers for Internet use, and benefits perceived by the firms. The case study firms are classified by business organizations, product/services,
employment, sales, years of Internet use, and key reasons for using the Internet. The case studies focus on identifying patterns among participants regarding (1) the role of the Internet as a medium for communication, (2) management's enthusiasm for Internet use in the business, (3) perceived benefits from Internet use, (4) differences in Internet usage among industries, (5) extent of integration between the Internet and internal management systems, and (6) the need to be entrepreneurial in Internet applications. The authors conclude that the most crucial factors affecting Internet use in the businesses are management commitment and perceived benefits.


Chau interviews 34 small and medium-sized enterprises (SMEs) in Australia that are active users of e-commerce. Interview questions cover four broad topics: business background, current use of e-commerce, impact of e-commerce, and problems encountered using e-commerce. The case study businesses represent a variety of industries (manufacturing, trade, fishing, hospitality/tourism, agriculture, education, ICT, and finance); ages (1 to 80 years old); and employment (1 to 65 full time equivalents). Analyses of the case studies reveal a wide range of e-commerce activities that are grouped into six categories: electronic banking, communications, customer service, sales and marketing, enhancing existing business processes, and cost reduction. Chau concludes that the benefits derived from e-commerce increase if the firm makes complementary changes in organizational structure and processes.


The Washington State University Center to Bridge the Digital Divide (CBDD) provides 27 case studies of Washington businesses that (a) offer information and communication technologies and services or (b) use e-commerce as a critical component of their business strategy. The CBDD website includes a brief introduction to each business and a link to a one-page overview that presents the business' history, products and services, uses and applications of ICT and e-commerce, and plans for the future. The case studies on the website and their business types are listed below.

HomeMovie.com (Winthrop, WA)
Preserving videos on DVD

Call Centers 24 x 7 (Port Angeles, WA)
Call Center and Business Solutions

Capacity Provisions, Inc. (Port Angeles, WA)
High Speed Communication

IBM (Curlew, WA)
Remote Specialist

*eAcceleration* (Poulsbo, WA)
Internet Security Products & Services

*Mobilisa, Inc.* (Port Townsend, WA)
Mobile & Wireless Software Development

*NCTeleserve* (Winthrop, WA)
Call Center

*RFTrax* (Allyn, WA)
Shipping Container Tracking Sensors

*Magna Force, Inc.* (Port Angeles, WA)
R&D for New Technologies

*TechTell, Inc.* (Satsop, WA)
Robust Outsourced Network Monitoring

*Athey Consulting Services* (Ritzville, WA)
Indoor Air Quality Consultation

*Earth and Sky Studios* (Twisp, WA)
Web Design and Development Marketing

*Earthwork Services* (Cosmopolis, WA)
Computer-aided Earthwork Analysis

*James & Associates of the Northwest, LLC* (Ritzville, WA)
Collection Agency

*Kitsap Payroll Services* (Poulsbo, WA)
Payroll Services

*Leffel, Otis & Warwick, P.S.* (Davenport, WA)
Accounting Firm

*Language Line Services* (Forks, WA)
Over-The-Phone Language Interpretation

*Olympic Graphic Arts* (Forks, WA)
Turn-key Printing Solutions, Office & Art Supplies

*TextPRO Business Writing Services* (Sekiu, WA)
Business Writing Services

*Inspired University* (Oroville, WA)
Professional and Personal Development Training

*Department of Social and Health Services* (Forks, WA)
Washington State Agency

*Washington Dental Service* (Colville, WA)
Dental Insurance

*Western Washington Rural Healthcare Collaborative* (Olympic Peninsula)
Rural Health Care

*Benbrook & Associates* (Cathlamet, WA)
Consultancy

*Kagele's Kache* (Ritzville, WA)
eBay Business

*Larry Burtness* (Forks, WA)
Technology Entrepreneur

*Dennis Company* (Raymond, WA)
Hardware/Home Center & Variety

**Access eCommerce.** 2003. "E-Commerce Case Studies of Entrepreneur Use of the Internet." Access eInfo, University of Minnesota, St Paul

[http://www.accesse.info/CaseStudies](http://www.accesse.info/CaseStudies)

Access E.info is an educational outreach program of the University of Minnesota Cooperative Extension Service that helps communities become better informed regarding ICT, the Internet, and opportunities for using these resources in commerce, government and nonprofits. One component of Access E.info is Access eCommerce, an educational program that "...helps small businesses use e-commerce more effectively, encourages business growth or start-ups, and helps businesses participate in the global economy." The Access e-commerce website includes 15 case studies of Minnesota entrepreneurs that use the Internet in their businesses. The case studies are based on phone interviews conducted by University of Minnesota graduate students. The studies are three to five pages in length and generally provide a history and description of the business, uses and impacts of e-commerce in the business, challenges in implementing an e-commerce strategy, keys to success, and plans for the future. The case studies included on this website are listed below.

*Pro-Trainer* (Alexandria, MN)
Design and Manufacture Containers for Recycling Industry
Rolco Inc. (Kasota, MN)
Custom Thermoplastic Molding.

RBJ's Restaurant (Crookston, MN)
Spreadable Fruit, Syrup, Whipped Honey, Jellies, Recipes

Sawbill Canoe Outfitters (Tofte, MN)
Canoe Rentals, Outfitting, and Trip Planning

Phillip Drown Companies (Morris, MN)
Consulting and Professional Writing Services

Midwest Wireless (Mankato, MNN)
High Speed Wireless Internet Services, Cellular Phones

Turtle Island Communications (Brooklyn Park, MN)
American Indian Owned Telecommunication Consulting and Engineering Company.

Hunt Utilities Group LLC (Pine River, MN)
Developing Systems that Support Ecological Living

Wildrose Farm Organics (Minneapolis, MN)

Tri County Hospital (Wadena County, MN)
Private, not-for-profit Health Care Corporation

Todd County e-Mall (Todd County, MN)
Web Store for Artisans of Central Minnesota

Andrej's European Pastry (Chisolm, MN)
Bakery specializing in Czechoslovakian Potica

EdVisions Cooperative (Henderson, MN)
Design and Implement Programs to Create and Sustain Great Small Schools

Helios Nutrition Ltd. (Sauk Centre, MN)
Organic Beverage ("Kefir") Targeting Health Conscious Consumers

Rural America Arts Partnership (Plainview, MN)
Nonprofit Community Arts Initiative
The Queensland Government Department of State Development offers an excellent collection of e-commerce case studies on its website. These studies include virtual and storefront businesses located in both urban and rural locations. The case studies generally are organized to provide an overview of the business, to present the challenges faced by the business (e.g., expand markets, manage the supply chain), and the e-commerce or e-business solution to the challenge, and to show how to plan for the future. Thirty-five case studies are presented on the website.

AEMS Queensland (Electronics Manufacturing Services)
Aquarius Filter Systems (Water Purification and Sanitation System)
ATA Holidays (Travel Agency)
Australian Fresh (Packing and Selling Live Seafood)
Brizcomm (Consulting and Training in Online Content)
Doree Embroidery (Embroidery Image Generation and Final Machinery)
Earthtech Consultants (Soil Testing and Eco-site Engineering)
eMOC (Electronic Products Supplier)
ePharmacy (on-line Pharmacy)
Fishing Cairns (Anglers Guide to Fishing the North Queensland Coast)
Gilletts Jewellers (Retail Jewelry Store)
Grocer-Ease (Personalized Fruit and Vegetable Orders)
Jack Purcell Meats (Wholesale and Retail Meats)
Jadin Pharmacy Group (Retail Pharmacy)
JWP Engineering (Water, Sewer, Road, and Drainage Engineering)
KH Distribution (Distributor of Computer Peripherals)
Longreach Bush Tucker (Growing and Supplying Bush Foods and Native Foods)
Miscamble Bros (Supplier of Hardware and Rural Products)
Nerada Tea (Supplier of North Queensland-Grown Tea)
North Surveys (Survey Consultancy Business)
O'Brien Milling (Flour and Specialist Baking Mixes)
Orli-Tech (e-Business Software Development)
Oxford Property Group (Residential Real Estate Agency)
Portmann Events (Event Management Solution Consultancy)
Prime Developments (Developer of Land and Industrial and Commercial Buildings)
PrimeMovers NQ (Truck and Machinery Company)
QMW Industries (Manufacture Safety Cages for Heavy Machinery)
Queensland University Bookshop (Campus Bookstore)
Saville's Meats (Chain of Retail Butcher Shops)
Sport Supply (Sporting Goods Company)
The Nut Farmer (Growing and Selling Macadamia Nuts)
Toombul Music (Retail Music Store)
Vegweb (Wholesale Marketing for Fresh Fruits and Vegetables)
Zandella (Distributes and Retails Essential Oils and Skin Creams)


Papandrea and Wade provide the most thorough case study analysis of e-commerce in rural areas. The principal objective of the research is to highlight "practical and successful adoption of e-commerce practices" in rural areas of Australia. Twenty-two businesses are selected for detailed evaluation and follow up, and each case study summarizes the firm's background, e-commerce activities, main benefits, and website development. The paper includes an extensive discussion of lessons learned from the interviewed businesses. For example, the rural businesses use the Internet for a variety of activities including communication, research, banking, product promotion, sales, document delivery, and supply chain management. The websites are established to complement existing businesses in most of the firms with only a small number of business opportunities generated by the Internet. The authors note that only a few firms report a significant increase in revenues attributable to on-line sales. Principal benefits cited are creating an international presence, establishing contact with prospective customers, and cost savings in document and information delivery. The businesses in the case studies are listed below.

Olives Australia (Grantham, Qld)
Olive Trees and Associated Products

Reynolds Winery (Wybong, NSW)
Wine

Easyorchids (Woodburn, NSW)
Orchids and Eco-tourism

Toorallie (Bombala, NSW and Canberra, ACT)
Wool Grower and Knitwear Manufacturer

McMahon Global Foods (Gordon, Vic)
Dairy Products

E-Wool (Adelaide, SA)
Electronic Wool Market

Agdealer (Sydney, NSW)
Electronic Grain and Agricultural Products Market

Freshport/BGF (Sydney, NSW)
Electronic Business Hub

Argent Agribusiness Services (Bowraville, NSW)
Grower and Supplier of Tea Tree Seeds and Seedlings

Bunny Bite Farms (Boonah, Qld)
Grower of Carrots and Vegetables

Calm Services (Sydney, NSW)
Online Auction for Livestock Marketing

Doonkuna Winery (Murrumbateman, NSW)
Wine

Hidden Valley Plantations (Beerwah, Qld)
Macadamia Nuts Grower

King Island Dairy (Richmond North, Vic)
Manufacturer, Marketer, and Distributor of Cheese

Main Camp Tea Tree Oil (Ballina, NSW)
Bulk Tea Tree Oil and Tea Tree Based Materials

Majestic Marino (Via Denmark, WA)
Wool Yarns and Other Wool Products

Pacific Seeds (Toowoomba, Qld)
Seed Research, Production, Marketing, and Distribution

Petals Network (Armidale, NSW)
Clearinghouse Service Operation for Florists

Tartrus Braham Stud (Marlborough, Qld)
E-COMMERCE CASE STUDIES PUBLISHED BY PRIVATE ICT SERVICE PROVIDERS

The following case studies were completed by private service providers to demonstrate how their services might be useful to business owners interested in ICT services. As such, they should be viewed as illustrative of the development of e-commerce capabilities by businesses and not as objective case study analysis of the experience of e-commerce businesses.


Lone-Eagle Consulting (Dillon, MT) provides Internet training guides, resources, and courses for individuals/businesses/organizations desiring to enhance their resources and skills. An ongoing collection of Idaho e-commerce success stories is funded by the USDA through the Rural Development Council of Idaho. These success stories are maintained and updated on the Lone Eagle website. The success stories are very brief, often consisting of only a one or two sentence description of the business. Website addresses are provided for approximately 25 success stories, thus the interested reader may obtain additional details on the business. The Lone Eagles website also includes four success stories shared by the Idaho Virtual Incubator (IVI), a service provider that assists businesses develop websites. Brief (one to two paragraphs) testimonials to the services of IVI are provided by four businesses: New Pioneer Log Homes, EverydayBucks.com, Clearwater Country Cakes, and AAA Precision Tool and Cutter Grinding.

Authorize.net. 2007. "Case Studies."  
[http://www.authorize.net/resources/casestudies/](http://www.authorize.net/resources/casestudies/)

Authorize.net, a service of Lightbridge, Inc., manages the submission of payment transactions (credit cards and electronic checks) to the processing network on behalf of its merchant customers. Authorize.net provides seven case studies of businesses that use the company's services (e.g., Check.net, fraud detection, automatic recurring billing, mobile payment solutions, and virtual point of sale payments). Each case study describes the business, the challenge or problem, the solution provided by Authorized.net, and the results. Businesses on the Authorize.net website are listed below.
Northwest Rural Electric (Cambridge Springs, PA)
Electric Transmissions Company

Sunflower Wrestling (Des Moines, IA)
Retail Supplier of Athletic Shoes and Gear

Pattern Review.com (American Fork, UT)
On-line Forum for Discussions and Reviews of Sewing Patterns, Techniques, and Machinery
plus On-Line Instructional Classes

PressReady Marketing (South Hero, VT)
Advertising and Design Agency

Orem Owlz (Orem, UT)
Minor League Baseball Team

Showcase Business Centers (Torrence, CA)
Pay-per-use Business Service Centers for Luxury Hotels

Thomas Baker (Bainbridge Island, WA)
Online Retailer of Premium Teak Patio Furniture

Vinyl Renaissance (Shawnee, KS)
Online Distributor of LP Records

Channel Advisors. 2007. "Case Studies"

Channel Advisors (formerly Marketworks) is a technology and marketing services company that assists businesses to implement a multi-channel online business. Services include web design, search marketing, and educational and training programs. The principal goal of Channel Advisors is to maximize exposure for its clients' products through marketplaces (e.g., eBay, Yahoo); web stores; search engines (e.g., Google, MSN); and comparison sites (e.g., Shopzilla, NexTag). Channel Advisors provides case studies of select businesses that use their services. Each study includes company background, business challenge, and results from using their services.

http://www.bitwiselogic.com/Portfolio/Portfolio.aspx

Bitwise Logic is an information technology service provider that focuses on website design and development, enhancing e-commerce capabilities, and providing database solutions and search engine services. Bitwise Logic's goal is to increase the efficiency and profitability of e-commerce businesses. The Bitwise Logic website includes seven case studies of firms that use
their services. Each case study presents a short introduction to the client firm, the project objectives and solutions, and a list of services acquired from Bitwise Logic.

The Design Doctors
Interior Design Company

ListedLocal.com
Free Classified Ads to Members of Local Communities throughout Minnesota and Wisconsin

Wiring Harness Manufacturers Association
Association of 150 Industry Manufacturers, Assemblers, and Suppliers

Fantasy Football Commish
Online Fantasy Football League Management Service

Scholarship Learning Company
Educational Programs for Parents and College Students Seeking Scholarships

Nesbit Agencies
Independent Insurance Broker

Fleet Advisors
Management and Administration of Fleets of Vehicles

Orchard Village
Real Estate Development

CONCLUSION

While this Literature Review has identified a body of research that provides insights into the use of e-commerce by rural businesses, three deficiencies in the literature are apparent. One, there are relatively few thorough case studies of rural businesses actively using e-commerce in a variety of ways. Given the diverse ways in which businesses use the Internet as part of their overall business strategy, expanding the case study literature to include more diverse rural case studies would be advantageous. Two, given the diversity that exists in the literature in terms of the type and quality of case studies, a curriculum guide to using e-commerce case studies as part of extension or other training programs would be useful. Finally, solid examples of case studies that deliver information necessary to accelerate the adoption of useful e-commerce strategies and to decrease the occurrence and magnitude of mistakes are needed to support additional applied research on strategic e-commerce adoption by rural businesses.
OTHER REPORTS IN THIS SERIES

This report is one of four produced as part of this project. Others in the series include: