The First World Congress on the Management of Electronic Commerce: review and commentary

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Abstract

Summarizes some of the key findings of academic papers presented at the First World Congress on the Management of Electronic Commerce, which took place in January, 2000, in Hamilton, Ontario, Canada, sponsored by McMaster University. The conference was attended by 243 delegates from more than 25 countries. Outlines two meta-management issues including: the importance of taking a strategic approach to Internet ventures as well as considering infrastructure design during implementation. Several of the papers presented fell into three broad functional categories including operations, human resources and marketing. Finally, a summary of internationalization and education implications is discussed.

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Introduction

The universal definition of e-commerce can be summarized as the buying and selling of goods and services via electronic means such as the Internet. However, the Internet is no longer a business medium solely for information technology (IT) companies. It has now infiltrated all industries from banking to automotive to travel and all corporate departments including marketing and operations to name a few. E-commerce has also changed the characteristics of the knowledge economy in which competition, market valuation and the role of monetary exchange are all taking on new identities.

The objective of this paper is to highlight some of the key micro and macro issues relating to the management of e-commerce which were presented at the First World Congress on the Management of Electronic Commerce hosted by the Michael G. DeGroote School of Business, McMaster University, in Hamilton, Ontario, Canada, on January 19-21, 2000 (EC Congress). A survey of academic participants was taken to develop an understanding of the direction of e-commerce as a field of research and to evaluate whether and how business schools should be incorporating e-commerce into their curriculum.

Growth of the Internet and e-commerce

Virtually all of the literature presented at the EC Congress (see Appendix) mentioned the fantastic growth in Internet usage world-wide. From its ambitious beginnings as a pilot project for the United States Department of Defence, the Internet is now used across the globe as a medium for communication and commercial exchange. In the USA (the world leader in Internet usage), the number of Web users has increased from 28 million in 1996 to 102 million in 1998 (Internet.com). At the time the World Congress took place in January 2000, the World Trade Organization estimated that there were 300 million Internet users world-wide (WTO.org). The untapped potential of non-Anglophonic on-line traffic suggests that the continued growth of e-commerce is assured. Where businesses were once limited to an

on-line audience of technologically proficient, predominantly young-adult male users, they are now being exposed to a wider audience in terms of age and gender demographics (MediaMetrix.com).

As the number of Internet users increases, so do their needs. Not only is the amount of time spent on-line increasing, but the breadth of activities pursued while on-line is expanding as well. No longer just used for sending e-mail, the Internet is a virtual community where people go to meet others, download software, conduct research, gather information and most importantly, engage in commercial activity.

One of the most popular commercial activities discussed at the EC Congress was shopping on-line. In 1999, the total value of e-commerce revenues world-wide was $111 billion and was expected to grow to $1.3 trillion by 2003 (Internet.com). Not only is the revenue from e-commerce accelerating, so is the variety of products and services people are purchasing on-line. Software, music (CDs) and literature (books and magazines) continue to dominate on-line purchases; however, new industries are finding their place on the Web as well. Travel and tourism companies, grocery and department store chains and non-apparel specialty stores are making their presence known (Internet.com).

Much of the mainstream talk during the EC Congress regarding industry models focused on the business-to-consumer (B2C) relationship. However, the B2C sector is dwarfed by the extraordinary revenue predictions for business-to-business (B2B) e-commerce. The B2B e-commerce market is projected to multiply almost three times between 1999 and 2000. By 2004, it will constitute 7 percent of the world's total sales revenue (Internet.com). The major sectors of B2B e-commerce purchases are predicted to be in: retail, motor vehicles, shipping, industrial equipment, high tech and government (Internet.com).

Regardless of the research presented, the general consensus at the EC Congress was that the projected growth of e-commerce would easily outpace any traditional industry figures and would inevitably always need to be updated.

Meta-management issues

The two key management issues that surfaced during the EC Congress as they related to both new e-business ventures as well as traditional bricks-and-mortar companies attempting to move onto the Internet, were the importance of strategic context and infrastructure design.

Taking a strategic approach

Shouhong Wang stressed in his paper the steps companies must undertake at the beginning of an e-commerce implementation plan. He outlined four basic activities for success in the B2B sector:
(1) Analyze requirements.
(2) Track the possibility of satisfying requirements.
(3) Allocate satisfiers to requirements.
(4) Adjust the optimality criteria (Wang, 2000).

These recommendations reiterate the fact that an e-commerce strategy must coincide with the overall strategy of the firm. E-commerce strategies which are cohesive with company strategies will connect all departments in the organization, create technological and human support systems and establish mutually beneficial external partnerships. Wang lists the five essential meta-management functions for virtual organizations which are also relevant to bricks-and-mortar companies:
(1) Specify explicit objective goals of the virtual organization.
(2) Search and identify potential partners.
(3) Evaluate potential partners against the goals.
(4) Negotiate with current partners and redesign the business processes, IT infrastructure and cost/profit distribution.
(5) Reform virtual organization by switching partners (Wang, 2000).

Wang also offered four strategic support activities as follows:
(1) Redesign the business process.
(2) Make changes to the information infrastructure.
(3) Change internal accounting policies.
(4) Make an action of switching (Wang, 2000).

Many of the elements mentioned above point to a standard strategic perspective on e-commerce that does not veer too far from the traditional dual precept of *formulate* and *implement*. However, a couple of present-day factors seem to conflict with this traditional dual model:

(1) Internet speed does not allow senior management the luxury of traditional strategic planning exercises.
(2) Organizational structure must consider the fact that today's virtual organizations no longer adhere to traditional configurations.

The infrastructure of today's virtual organizations benefits from electronic tools that allow for joint collaboration and group decision-making without geographical and physical barriers. Developing this technological infrastructure is key in supporting the information exchange and efficient operations of an e-business.

Infrastructure design
Once a company has established its strategy of how to approach e-commerce, the company needs to develop the technical infrastructure to support the endeavour. From basic on-line access to billing servicescapes and security measures, infrastructure design is the foundation of e-business success.

First and foremost, companies must have Internet access to participate in any on-line activities. Once the very basic requirement of on-line access is established, companies can focus on what concerns their customers most: Website design, billing methods and security.

The design of a Website is the on-line consumer's gateway to the organization. As mentioned earlier, consumers are becoming more experienced with Internet usage and are developing personal tastes. Web surfers will quickly exit a site if they do not develop an affinity for what they see in the first few seconds. Research shows that overall "click-through rates" have been decreasing as more people join the on-line community and become familiar with the Internet (Boritz and Argenti, 2000). This emphasizes the importance of Web page design in keeping customers interested. Boritz and Argenti outlined the important logistical factors for Web page design: keep it simple, make it fast, welcome the shopper and

give directions (Boritz and Argenti, 2000). If basic guidelines are followed for these simple Website attributes, companies will have an easier time keeping the interest of customers by creating a familiar visual outline to which the customer can relate.

Setting up a billing servicescape is imperative if an e-commerce site is going to be dynamic and not just an information board. If companies are planning to have transactions processed over the Web, a billing servicescape not only provides payment infrastructures to finalize the transactions, but also serves to establish business relationships. These servicescapes are necessary in both business-to-business and business-to-consumer transactions. As stated by Papadopoulou in her research paper on billing servicescapes presented at the EC Congress:

> The ultimate goal of the servicescape is to use the Internet bill as the gateway for the dynamic initiation of one-to-one dialogues leading to the establishment and maintenance of a relationship between the biller and the various types of customers (Papadopoulou *et al.*, 2000).

Thus, the billing servicescape establishes inter-organizational links for all members of a value chain in the B2B sector. In addition, billing servicescapes give customers and suppliers the opportunity to initiate further commercial activity in the B2C sector.

There are many logistical concerns for virtual and bricks-and-mortar organizations when it comes to engineering e-commerce. Networks, Websites, servicescapes, agents and other technological building blocks must be set-up to cater to the specific needs of each organization and their customers. Other logistical concerns for e-commerce involve information exchange agents and software agents to facilitate flow and value-chain development in e-commerce. These initiatives will hopefully foster business communication and development.

The previous section described some of the key management issues that organizations would face with their e-commerce strategies. However, the actual dynamics of an e-commerce project must be dealt with in the various functional areas of the business. The functional areas cited most often at the EC Congress were: operations, human resources, marketing and finance.

Functional areas of e-commerce

Operations

Janssen and Sol examined several case studies on how managers can manipulate their organizations' value-chain (Janssen and Sol, 2000). They argue that e-commerce is not just another medium to reach consumers; it is also a way for a company to maximize the benefits from a restructured value-chain. The alternative proposed by Janssen and Sol is to establish intermediaries who add value through aggregation, trust, matching and facility (Janssen and Sol, 2000).

While intermediaries are one way of manipulating e-commerce to add value to operational methods, another issue focuses on developing and integrating new distribution channels to reach customers. Although Van Dieppen and Sol reported on the financial services sector, their findings can be generalized to many industries. As consumers demand more customized goods, companies are going to have to find ways to become more flexible while maintaining efficiency (Van Dieppen and Sol, 2000). This requires increasing points of interaction with customers where they can receive personal attention and assistance.

Canada Post presented their *eParcel* alternative at the EC Congress, as an example of how mass customization can benefit both businesses and consumers. eParcel services allow companies to integrate Canada Post software into their own Website. By doing so, Canada Post becomes the company's shipping provider from the distribution centre to the customer. The customer is able to complete the entire sales/distribution transaction in a short amount of time with little hassle, while the company rationalizes its operations. Chapters.ca is one company in partnership with Canada Post. This case was presented as a successful example of how a company's e-commerce operations secured an invaluable intermediary partnership while maximizing efficiency and personalization (direct shipping) for the customer.

Human resources

The advent of the electronic era has individuals concerned that many jobs will become obsolete as computers replace people. While this concern is true for many administrative jobs, e-commerce has given birth to many new dynamic careers. The focus for many e-commerce companies is to develop and integrate these new positions into their organizations. As Kaiyin Huang and Kaidong Huang stated: "The advantage from e-commerce is gained by the way it is used, not by the technology itself" (Huang and Huang, 2000, p. 7).

Michael Wade studied the function of a Webmaster and investigated what management knowledge and technical expertise was necessary for success in the position (Wade, 2000). Even though the Webmaster position is typically considered technically-heavy, Wade's (2000) job content analysis showed that some employers desired management capabilities as well.

Since e-commerce affects all areas of the organization, it is becoming increasingly important that IT professionals possess a balance between management and technical skills. Since much of e-commerce involves strategy and marketing, without proper management skills, IT professionals in the e-commerce industry would not be able to effectively develop new business ventures, nor would they be able to understand the strategic context of their organization. Wade's (2000) Webmaster research concluded that maximum benefit is derived from a blend of both technical and managerial capabilities.

While the human resource function is very important, no other functional area achieved more research attention at the EC Congress than marketing. Since this area is the most important link between the customer and the business, a clear and focused marketing plan must be developed to attract and retain customers to use an on-line service.

Marketing

As the most visible aspect of e-commerce, marketing is what ultimately generates revenue. The first marketing challenge of e-commerce is to attract potential customers to Websites. At present, the common methods used are search engines and banners. Once users have reached a site, they will, first and foremost, be looking for information. Since the Web allows access to a plethora of information on different products,

the organization must encourage the potential consumer to use the Website as both an information tool as well as a purchase option (Kolesar and Galbraith, 2000).

The combination of information search and purchase process is one that is becoming increasingly personalized in the virtual economy. This is an advantage over traditional retailing as on-line consumers have stated that personalized targeting is a reason they shop on-line (Dublish, 2000). One of the first examples of personalized e-commerce was on-line banking. Not only could consumers check account balances, pay bills and obtain information, they could also purchase mutual funds, RRSPs and apply for loans. Now consumers can even invest in stocks through discount brokerage and e-trading accounts.

When consumers are more involved in the buying process it significantly improves brand recognition and recall (Aguilar and Dube, 2000). Keep (2000) argues that the best customer-retailer Internet systems (CRIS) possess the following four characteristics:
(1) Full product/service descriptions.
(2) Customer purchase history.
(3) Community information.
(4) Facilitation of target marketing .

Rettie (2000) reported that on-line consumers who experienced *flow* while shopping were most satisfied. Organizations can ensure such an experience by providing customers continual service support which will also encourage repeat business. Bontis and Chung (2000) reviewed three difference cases to examine the importance of pricing Internet activities. They found that older pricing techniques, such as mainframe processing and user licenses, were giving way to newer pricing models based on service levels and business objectives.

Finance

The stock markets have recently experienced a high-tech revolution in which analysts have filed most of their traditional models of commercial valuation in the garbage. Dot com companies have realized valuations in the billions of dollars the day after their initial public offerings without having made one single penny in revenues. Bontis and Mill (2000) presented a paper in which they tried to predict stock price

fluctuations of the top 15 Internet companies by using Web-based metrics as opposed to traditional financial measures such as revenues and profits. They concluded that Web-based metrics such as *unique number of visitors* did a much better job at predicting stock price fluctuations for these particular companies. The implication for their research is that analysts and investors are generating a new set of algorithms to determine the future viability of an e-business based on the market share of eye-balls attracted to a Website.

The development of e-commerce is not limited to any one industry or region. The international opportunities are extensive, since organizations can, for the first time in history, be *born global*.

E-commerce and international business

The EC Congress benefited greatly from the participation of a global audience which encompassed delegates from over 25 countries. EC practitioner speaker and chief e-commerce officer at AMS, Reginald Foster, stated: "The Internet's ability to reach customers globally *en-masse* has made it the issue *du jour*". Although a majority of the e-commerce growth has occurred in the USA, Canada and Western Europe, secondary regions such as South-East Asia, China, Australia, the Middle East and Latin America will experience the largest potential for future growth. In Asia, e-commerce is expected to reach $87.5 billion in 2004, up from $0.7 billion in 1998 (Hamilton, 2000). In Latin America, e-commerce spending will grow to $8 billion, with Brazil leading the way with 88 percent of the market (Helft, 2000).

The global explosion of e-commerce has developed both opportunities and concerns for companies, consumers, governments and regulatory bodies. It has also changed economic structure leading markets toward increased comparative advantage (Steinfield and Klein, 1999).

E-commerce has the theoretical capability to develop perfect competition on an international scale. These characteristics create advantages for consumers and contribute to economic

efficiency. However, many legal and cultural issues overshadow the benefits.

Both locally and internationally, legal and security issues are a major concern. There is no global regulatory body for the Internet or an international e-commerce organization to answer some key questions. For example, when laws are infracted on by a member of one country and affect a citizen of another country, what laws govern the punishment? How are contracts created in an international e-commerce transaction enforced? What constitutes a document in the legal sense globally? How do tax and tariffs apply? All of these are concerns that are currently being defined by very loose guidelines.

Security concerns are another prevalent issue. Innovations such as encryption and digital signatures are commonly used as protective methods, but what if they fail? Does a person have any recourse? Again, the e-commerce field is at the embryonic stages of addressing these issues.

Governments must collaborate to establish international laws and guidelines to protect e-commerce participants and enforce punishments for infractions. Until this is accomplished, the current ambiguity of e-commerce legal and security concerns on an international level will continue to create a lack of confidence in e-commerce. Consequently, this will inhibit the development of e-commerce to its fullest potential on a global scale.

The suppression of culture is a prominent issue when discussing the globalization of e-commerce. Currently, 78 percent of Websites are in English (Whyman, 2000). English is the most common language for business, but not the most commonly spoken language, since it ranks second behind Mandarin (Benson, 2000). Furthermore, 65 percent of e-commerce participants conduct business in English (Whyman, 2000). The prevalence of English will continue to enable large overseas corporations to engage in global e-commerce, but smaller companies in countries where English is not predominantly understood would be excluded from participating in e-commerce on a large international scale. Converting to English would mean giving up part of the organization's culture. It is the responsibility of companies, customer and governments to foster

the development of e-commerce in their region. These stakeholders must also take an active role in developing legal, security and cultural systems to protect and foster the growth of e-commerce to their advantage.

Nevertheless, many e-businesses seem to concentrate on the English market first before establishing a presence elsewhere. EC practitioner speaker and chief executive officer at Knexa.com – the world's first knowledge exchange auction – David Brett, stated: "Our business model will be put through its paces in the US and Canada before we plan to do any significant marketing in non-Anglophonic markets". He cited Yahoo's international expansion as an example of an organization that did the same.

In addition to internationalization, another popular issue discussed at the EC Congress was the importance of e-commerce education.

E-commerce education

A brief pen-and-paper survey was distributed to academic speakers who attended the EC Congress with a response rate of 25 percent. The purpose of the questionnaire was to understand the current state of e-commerce education in business schools.

Even though all respondents stated that e-commerce should be a required course for business school programs, none listed universities they knew of with a current e-commerce program. So, the top ten MBA programs in the USA as rated by U*S News and World Report* were also reviewed to see the extent of e-commerce incorporated into their programs. All ten programs had e-commerce courses, but only three had a dedicated e-commerce stream, not including Stanford University which also had a dedicated e-commerce research centre (see Table I). The similar review was done for MBA programs in Canada as rated by *Canadian Business Magazine*. Of the ten schools listed in this review, only the University of New Brunswick offered an MBA program with an e-commerce stream (see Table II). The results were definitely discouraging when revealed to the delegates. However, many predicted that the numbers would be better in the near future, as a

Table I US business schools and e-commerce programs

Rank	Business school	Dedicated e-commerce stream
1	Harvard University	No
1	Stanford University	Yes, plus e-commerce Research Center
3	University of Pennsylvania	Yes
4	Massachusetts Institute of Technology	Yes
5	Northwestern University	No
6	Columbia University	No
6	University of Chicago	No
8	Duke University	No
9	University of Michigan – Ann Arbor	Yes
10	University of California – Berkeley	No

Source: *US News and World Report* (2000)

Table II Canadian business schools and e-commerce programs

Rank	Business school	Dedicated e-commerce stream
1	Queen's University	No
2	University of Manitoba	No
3	University of Western Ontario	No
4	York University	No
5	University of Toronto	No
6	McGill University	No
7	Wilfred Laurier University	No
8	HEC	No
9	University of Ottawa	No
10	UNB – Saint John	Yes

Source: *Canadian Business Magazine* (1999)

majority of the delegates were currently working with their own administrators on designing future e-commerce programs.

The survey also asked respondents to list the most important resource organizations would need to further develop when pursuing e-commerce initiatives. The most popular response was the human component of the organization. The two most cited issues that respondents claimed were holding back e-commerce development related to government and included: security and legal infrastructure.

Conclusion

E-commerce has the potential to revolutionize the future economy and management education. The benefits of increased competition, convenience and ease of transactions possess many benefits for businesses and consumers alike. However, in focusing on the development of e-commerce worldwide, there are many concerns for business, government and educational institutions. The rules and future of e-commerce are currently vague at best. There is no precedent to guide the development of educational programs, legislation and security infrastructure. Governments and universities have been slow and hesitant to address the potential issues and concerns of the cyber economy. With the tremendous growth e-commerce has shown in the past few years, in both B2B and B2C sectors, it is now imperative that these organizations begin to acknowledge the urgency and necessity of training, development and legislation.

The host of the World Congress on the Management of Electronic Commerce has responded to this call by launching Canada's first technical MBA in e-commerce. The

DeGroote School of Business at McMaster University, is dedicated to training and nurturing the future business leaders of the Internet economy. Research and business activity has shown that the potential for e-commerce globally is infinite. To capitalize on this growth and the new economy, more research must be conducted in the field of e-commerce to guide its development in the right direction and bridge the gap between traditional and new business methods.

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