

## THE EVOLUTION OF E-COMMERCE RESEARCH: A STAKEHOLDER PERSPECTIVE

Cecil Eng Huang Chua  
Information Technology and Operations  
Management Department  
Nanyang Business School  
Nanyang Technological University  
aehchua@ntu.edu.sg

Detmar W. Straub  
Dept. of Computer Information Systems  
J. Mack Robinson College of Business  
Georgia State University  
dstraub@gsu.edu

Huoy Min Khoo  
Department of Information Systems  
and Technology Management  
College of Business  
University of Texas – San Antonio  
hkhoo@utsa.edu

Savitha Kadiyala  
Dept. of Computer Information Systems  
J. Mack Robinson College of Business  
Georgia State University

David Kuechler<sup>1</sup>

### ABSTRACT

The rapid rise of e-Commerce as a legitimate market has brought a corresponding increase in the number of academic papers on the subject. Stakeholder theory suggests that, as an emerging research discipline, e-Commerce research is likely to focus primarily on specific stakeholders and ignore others. This paper surveys seven of the top nine e-Commerce journals to test this proposition. We demonstrate that academic e-Commerce researchers concentrate their attentions on two stakeholder groups, specifically customers and the internal organization (i.e., managers and employees) of the Net-Enhanced Organization (NEO). Other stakeholders such as suppliers, indirect stakeholders, investors, and regulators receive disproportionately less research interest. However, as e-Commerce matures, these neglected themes, topics, industries, and stakeholders will require increasing attention. We thus explore some of the research questions relevant to these neglected stakeholders, and argue that IS and e-Commerce researchers should investigate these emergent issues before researchers in other disciplines do so.

Keywords: Stakeholder theory; Net-enhanced organizations, Regulators, Investors, Suppliers

### 1. Introduction

One perennial criticism of e-Commerce research (indeed all “explanatory” IS research) is that it lags behind practice [Jennex 2001, Khazanchi and Munkvold 2001]. Information Systems (IS) academics sometimes avoid studying problems that are of pressing concern to Net-Enhanced Organizations (NEOs) [Straub 2004] and fail to address problems that are of immediate concern [Gray 2001]. This paper attempts to deviate from this trend by applying stakeholder theory to identify legitimate academic problems that will be of concern, at some future point, to e-Commerce practitioners. Our specific objectives in this study are to:

1. Use stakeholder theory to suggest ways of reorganizing e-Commerce research,
2. Survey existing literature to identify stakeholders that e-Commerce research has typically addressed,
3. Identify stakeholders inadequately addressed to date by e-Commerce research and propose relevant research topics with respect to these stakeholders, and
4. Prepare e-Commerce researchers for addressing future problems of e-Commerce practitioners.

The work contributes to e-Commerce research by advocating the study of emergent problems relevant to both theory [Benbasat and Zmud 2003, DeSanctis 2003, Ives et al. 2004, Robey 2003] and practice [Gray 2001, Jennex 2001, Khazanchi and Munkvold 2001]. Specifically, we provide evidence that little scientific work in electronic commerce has investigated the role of suppliers, investors, regulators, and indirect stakeholders such as the media

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<sup>1</sup> Deceased. We appreciate the work of our colleague and hope that his appearance as a co-author on this paper is a small, but fitting tribute to his memory

and researchers on NEOs, and demonstrate that these stakeholders are pointedly within the purview of e-Commerce research. We present some emerging or recurrent issues concerning these stakeholders that have not been satisfactorily addressed to illustrate why research is needed. We make no claims that this potential research is necessarily the most important or relevant work that researchers could pursue. Instead, we highlight these areas to show the enormity of the problem thus far neglected.

The paper proceeds as follows. Section 2 elaborates on stakeholder theory, which we use to structure the e-Commerce literature. Section 3 demonstrates that only two e-Commerce stakeholders have been investigated to date. Section 4 discusses previously unidentified stakeholders and tries to prove that e-Commerce research on these stakeholders is both worthwhile and relevant to Information Systems. Section 5 draws conclusions from the prior discussions.

## 2. Related Research

Stakeholder theory posits that organizational strategies are driven towards satisfying the conflicting goals of organizational stakeholders [Hatch 1997]. In stakeholder theory, a stakeholder is a group or individual affected by the achievement of organizational goals, who can cause difficulties for the organization if its own needs are not satisfied [Freeman 1984]. An organizational strategy is best understood by identifying stakeholders and how organizational goals influence and are influenced by stakeholder perspectives [Frooman 1999, Jones and Wicks 1999, Luoma and Goodstein 1999, Scott and Lane 2000]. Thus, an organization is perceived to be surrounded by a set of stakeholders, each of whom is defined by two related functions: (1) a utility function that determines how much the stakeholder is being “satisfied” by the organization, and (2) an influence function that determines how much “damage/benefit” the stakeholder can cause the organization given a level of utility. The organization allocates its resources to minimize damage and maximize benefit [Phillips et al. 2003].

Thus, an organization that focuses exclusively on a single stakeholder will not survive because other (unsatisfied) stakeholders exert their influence on the organization [Phillips et al. 2003, Smith 2003a]. For example, an organization that only satisfies its customers will not survive if it breaks laws, overworks its employees, or reduces shareholder value. Thus, Napster went bankrupt as a result of lawsuits by the Recording Industry Association of America, an organization that, of course, did not use its technology and was not a customer [Collins 2002]. Similarly, an organization that focuses only on maximizing shareholder wealth may face demonstrations by ecological groups, or legal sanctions [Freeman et al. 2004, Friedman and Miles 2002]. Thus, while Microsoft’s monopolistic and predatory actions were moneymaking endeavors, they nevertheless raised the ire of government regulators [Gross 2003].

However, what is clear from research is that during the initial stages of the typical life cycle, an organization does not have sufficient resources to satisfy all stakeholder needs [Jawahar and Mclaughlin 2001]. The organization has to prioritize its stakeholders and identify those that most impact its chances for short-term survival. Once the organization has satisfied those stakeholders and accumulated more resources, it can turn to satisfying other constituents [Jawahar and Mclaughlin 2001].

This maturation of organizations and subsequent prioritization of stakeholders forms the central tenet of this paper. We argue that research on e-Commerce has focused myopically on the most obvious and extant phenomena. However, these phenomena only reflect the initial stages of the e-Commerce life cycle. We further argue that it is possible to predict how e-Commerce interests (and therefore academic interests) will evolve as e-Commerce matures. This prediction is carried out by identifying the universe of stakeholders [Clarkson 1995, Friedman and Miles 2002, Wolfe and Putler 2002] and removing from that universe those stakeholders that have already been addressed (see also Watson and Straub [2004], who likewise focus on a stakeholder perspective in forecasting IS research in e-Commerce). The remaining stakeholders will be the focus of future academic research.

Numerous stakeholder groups have been identified in the literature. To make the analysis manageable, we identified stakeholders based on prior reviews [Clarkson 1995, Friedman and Miles 2002, Wolfe and Putler 2002] and grouped them into clusters. It is possible that other, unidentified stakeholders exist even though the stakeholder literature has not actively investigated them. The clusters are not meant to be definitive, but rather simply serve to make our analysis tractable. Table 1 lists stakeholders previously identified in the literature and structures stakeholders into this broad classification.

Each classification represents a particular stakeholder role for an organization or individual. Moreover, individuals and organizations can belong to multiple roles [Wolfe and Putler 2002]. For example, the consumer of an organization’s product (i.e., customer) might also be a shareholder, or an employee. The various classifications are:

- **Customer:** The customer class refers to any organization or individual for which the NEO provides goods or services. These include individual consumers in B2C e-Commerce and purchasing organizations in B2B

e-Commerce who obtain the NEO's good or service in exchange for money. Communities can also be considered customers, especially when the community's purpose is to facilitate a commercial relationship with a NEO. Customer communities include strategic communities formed by the NEO [Storck and Hill 2000, Ward 2000] or communities that employ extra-NEO resources to communicate such as the UseNet newsgroup alt.marketing.online.ebay [Chua and Wareham 2004].

Table 1: Groups Interested in e-Commerce Success

Group	Description	Includes
Customer	Stakeholders who may exchange goods or monies with the NEO	Consumers; business customers; communities
Internal Organization	Stakeholders who operate within the NEO	Employees; management; partners
Supplier	Stakeholders who belong to earlier segments of the value chain	Traditional suppliers; businesses on the spot market
Investors	Stakeholders who provide the organization with capital	Creditors; shareholders; owners
Regulators	Groups that attempt to proscribe NEO behavior because of some greater good	Includes all levels of government; social activist groups; the general public; non-government organizations
Indirect	Organizations that do not transact directly with the NEO	Competitors; media; researchers; companies related through trade associations; criminals

- **Internal Organization:** The internal organization reflects interest groups within the NEO itself. Employees and managers (i.e., employees who make NEO decisions) are internal organizational stakeholders. In partnerships, partners are members of the internal organization. Owners, that is, investors, are not considered to be members of the internal organization, unless they make active decisions about the direction of the NEO, in which case they may be thought of as managers.
- **Supplier:** Suppliers are other individuals or organizations who supply raw materials that the NEO employs. They encompass competitors and businesses on the spot market who provide resources when one NEO is short. For example, a bank that loans money to another bank based on the inter-bank rate is considered to be a supplier.
- **Investors:** The investor classification is composed of individuals or groups that provide capital to NEOs with some expectation of a future return on their investment. Investors include shareholders that own a NEO, the owner of a privately-held NEO, and creditors.
- **Regulators:** This class includes individuals and groups who attempt to influence the NEO for some "greater" public good. Regulators include various levels of government and activists such as the Better Business Bureau, hacktivists (i.e., individuals who overcome electronic security systems in order to promote their causes), and unions.
- **Indirect Stakeholders:** This amorphous group includes organizations and individuals who exist in the NEO's economic space but who seldom interact directly with it. Competitors, for example, interact principally with NEO customers. Criminals may or may not steal or damage important company resources. Similarly, the media may or may not interview the NEO to obtain information about the NEO's economic space. Likewise, the success or failure of a NEO is often the subject of study by e-Commerce and IS researchers.

### 3. Methodology

To ascertain which stakeholders have been investigated by e-Commerce researchers, we reviewed abstracts of all publications in seven journals for the period January 1990 to June 2003. The journal basket chosen included: *MIS Quarterly (MISQ)*, *Information Systems Research (ISR)*, *International Journal of Electronic Commerce (IJEC)*, *Electronic Commerce Research and Applications (ECRA)*, *Electronic Markets (EM)*, *Journal of Management Information Systems (JMIS)*, and *Journal of Electronic Commerce Research (JECR)*. These journals included seven of the nine top e-Commerce journals as identified by Bharati and Tarasewich [Bharati and Tarasewich 2002]. Two other journals identified in this top nine, *Communications of the ACM* and *Harvard Business Review*, were excluded for two reasons. First, both journals publish a large number of articles per issue, and thus coding and analysis of these journals presents a serious challenge. Second, most of these articles were not directly relevant to e-Commerce, e.g., articles dealing with implementation prototypes or doing business in China. While special issues on e-

Commerce have appeared in both journals, the proportion of research directly relevant to e-Commerce is relatively small. The high volume and difficulty of the coding and the low payoff made analysis of these two journals impractical and unnecessary.

Moreover, the number of journals that were coded can be taken to be representative of the content universe. The analysis of 7 journals over a 13 year period is in keeping with traditional scientometric studies, and, in fact, exceeds both the years and number of journals usually considered in published literature reviews. For example, DeLone and McLean [1992] analyzed 7 publications over 8 years. Grover et al. [1996] analyzed 8 journals over 14 years. Orlikowski and Baroudi [1991] analyzed 4 journals over six years. Boudreau et al. [2001] analyzed five journals for a three year period. Finally, Straub [1989] analyzed three journals for a four year period.

Consonant with the methodology employed in such reviews, two authors independently coded the data. Each article was assigned one of the following codes: (1) customer stakeholder, (2) internal organization stakeholder, (3) supplier, (4) indirect stakeholder, (5) investor, (6) regulator, (7) design research, (8) not directly relevant to e-Commerce. The focus of our analysis was on organizationally-focused work, and not work that focused on technological issues, the research commonly called design research [Hevner et al. 2004]. Only non-design research e-Commerce articles (i.e., articles having one of the first six codes) were relevant to this research. It should be noted that while stakeholders and paper topic are related concepts, the two are not identical, and we did not allocate papers to each code based solely on topic criteria. Instead, we focused on the principal stakeholder addressed. Thus, a paper on consumer surplus that focused on how NEOs could obtain more customers would be coded as a customer paper. However, a paper on the government regulation of NEOs to maximize consumer surplus would be a regulator paper.

Out of a total of 1674 articles, raters agreed on 1532 articles (91.5% agreement, Cohen's Kappa = 0.813). Both raters judged 436 articles to be non-design e-Commerce research, and identified identical stakeholders for 374 articles (85.8% agreement, Cohen's Kappa = 0.759). Regardless of method of assessment, inter-rater reliability, as measured using Cohen's Kappa, never fell below 0.70, an accepted threshold for reliability [Landis and Koch 1977, Miles and Huberman 1994]. Table 2 presents inter-rater reliability statistics.

Table 2: Inter-rater reliability

<b>Evaluation Criterion</b>	<b>Identical Rating</b>	<b>Different Rating</b>	<b>Total Articles Rated</b>	<b>Percent Agreement</b>	<b>Cohen's Kappa</b>
All articles	1532	142	1674	91.5%	0.813
Non-design e-Commerce	374	62	436	85.8%	0.759

Table 3 summarizes the key findings. The number before the slash is the number of articles the first rater classified as belonging to that stakeholder. The number after the slash is the number of articles so classified by the second rater. No attempt was made to reconcile differences in ratings for three reasons. First, inter-rater reliability Kappas are above accepted thresholds. Second, since identical conclusions could be drawn from both ratings individually, a reconciliation of differences would not have materially altered the key findings of the paper. Third, a presentation of the raw scores provides a more accurate depiction of the research landscape than presentation of a single score negotiated by the researchers.

Table 3: Number of Articles on e-Commerce Stakeholders

<b>Journal</b>	<b>Customer</b>	<b>Internal Organization</b>	<b>Supplier</b>	<b>Indirect Stakeholders</b>	<b>Investors</b>	<b>Regulators</b>
<i>MISQ</i>	3/3	4/4	0/0	0/0	1/0	0/0
<i>ISR</i>	10/8	12/9	0/1	0/0	0/0	0/0
<i>IJEC</i>	64/64	58/41	14/15	0/0	0/0	4/4
<i>ECRA</i>	10/13	6/6	0/0	0/0	0/0	1/1
<i>EM</i>	55/55	163/145	1/4	3/0	0/1	24/22
<i>JMIS</i>	2/4	2/7	0/1	1/0	0/0	0/0
<i>JEER</i>	20/19	22/19	0/4	0/0	0/0	0/1
<b>Total</b>	164/166	267/231	15/25	4/0	1/1	29/28

As the table demonstrates, most research on e-Commerce has focused heavily on customer [Rajagopalan and Deshmukh 2005] and internal organization [Straub et al. 2002a, Straub et al. 2002b] stakeholders. Approximately 7 of 8 articles addressed either customers or the internal organization. There is, therefore, evidence to conclude that indirect stakeholders, investors, and regulators are given scant attention in e-Commerce research, especially as compared to customers and the internal organization.

A review of seven e-Commerce journals may not be reflective of the entire e-Commerce landscape. Were we to include other reputable journals like *Management Science* or *Decision Support Systems* in our journal basket, results could differ [Chua et al. 2003]. Nevertheless, the seven journals identified publish the vast majority of high quality e-Commerce articles, and therefore articles within these seven journals are more likely to be circulated in the e-Commerce community (as opposed to the broader IS community). Thus, even if research on neglected stakeholders is published in other venues, such research is less likely to have a high impact. Indeed, if quality research on the neglected stakeholders were appearing in significantly greater proportions elsewhere, this would suggest that the editorial policies of our top e-Commerce journals may need to be revisited.

#### 4. Neglected Stakeholders

Our main findings suggest that e-Commerce research focuses on a relatively small portion of the e-Commerce phenomenon. This is not surprising given the fledgling status of e-Commerce research and practice [Jawahar and Mclaughlin 2001]. This may also align with the focused interests of IS researchers. For example, in reviews of the trust literature, both Shankar et al. [2002] and Gefen et al. [2003] report that most trust research has narrowly concentrated on the customer and the internal organization.

Our finding is consistent with the prediction of stakeholder theory that NEOs would focus on specific stakeholders at particular stages of their life cycle [Jawahar and Mclaughlin 2001]. When a NEO begins life, it is important for it to attract customers, and to ensure that it keeps its own costs under control. As the dot-com bust vividly demonstrated, failure to manage customers and internal organizational stakeholders can cause the demise of NEOs.

However, stakeholder theory also predicts that neglected stakeholders will soon be establishing claims on NEOs [Froomean 1999, Jones and Wicks 1999, Luoma and Goodstein 1999, Scott and Lane 2000]. Circumstantial evidence exists to support this prediction. For example, several US states (i.e., regulators) banned trade with Paypal, an Internet remittance company, because it violates their financial laws [Grant 2002]. Similarly, the media (i.e., an indirect stakeholder) has begun to closely scrutinize eBay's auction fraud practices (see Chua and Wareham [2004] and Grazioli and Jarvenpaa [2003] for samples of media reports), and after the dot-com bust, venture capitalists (i.e., investors) are substantially more cautious about the e-Commerce startups they choose to fund [Lane 2001].

There are even instances of neglected stakeholders shaping e-Commerce technology. The Recording Industry Association of America spurred the development of distributed peer-to-peer file sharing when it sued Napster into bankruptcy [Collins 2002]. Peer-to-peer software developers transferred accountability to users, and thus new technologies that hide user identities are emerging [Germain 2004].

As these stakeholders make their claims, academic attention will refocus on relationships between these stakeholders and the NEO. However, it is not clear whether IS and e-Commerce research should focus on these stakeholders. We believe that IS and e-Commerce academics should focus on these stakeholders for three reasons. First, the e-Commerce phenomenon itself cannot be fully understood if important constituents are ignored. Second, as an inherently multi-disciplinary research field [Banville and Landry 1989, Benbasat and Zmud 2003], IS and e-Commerce researchers are ideally placed to understand how myriad stakeholders interact. Finally, since research disciplines like marketing and management are exploring problems traditionally regarded as within the intellectual domain of IS/e-Commerce researchers, we must reinvent ourselves by addressing emergent issues of practical concern in order to survive [DeSanctis 2003, Ives et al. 2004, Robey 2003].

In this section, we elaborate on stakeholders that have been inadequately discussed, or even completely ignored, in the e-Commerce literature. We attempt to show why it is legitimate for IS researchers to study these stakeholders. We identify three broad stakeholder-independent themes for research. Also, within each theme, we frame three separate research questions, one for each stakeholder. The research themes and questions we will discuss are summarized in Table 4.

We do not believe that these themes and research questions are necessarily the most critical questions for these stakeholders. Instead, we argue that the stakeholders are important to academic research (especially IS and e-Commerce research), and the themes and research questions illustrate the importance of these stakeholders. By implication, the themes and research questions must be important in and of themselves. However, we do not argue for the primacy of these themes and research questions. We provide evidence for each research question's importance by showing that:

(1) The research question is relevant to theory or practice, thereby demonstrating that the problem is worthy of attention.

(2) The problem is not just relevant to practitioners, but also to academics. Generally, we demonstrate the academic merit of the question in one of three ways. (a) The research question belongs to a particular, recognized, academic area. For example, ethical questions are accepted as problems in academic circles, because business ethics

is an area of academic study. (b) The problem could be complex, or there are unique characteristics of the problem that make existing solutions inapplicable. (c) Finally, there is a gap in theory. There is a phenomenon that we cannot explain, or else, we are unable to accurately predict the outcome of an event.

Table 4: Illustrative Stakeholder Focused Research Themes and Questions

## (a) Indirect Stakeholders

Specific Stakeholder	Theme	Focus	Question
Competitor	Market function	Testing theories of competition in emerging markets	<i>How does hyper-competition affect innovation in e-Commerce markets?</i>
Criminal	NEO Governance	Organizational response to criminal behavior	<i>What should NEOs do about online criminal behavior?</i>
Researcher	Infrastructure for IT Success	Exploring the university/startup connection	<i>Why do technology startups form around universities?</i>

## (b) Supplier Stakeholders

Specific Stakeholder	Theme	Focus	Question
Intermediary	Market function	Relationship between Internet and intermediation	<i>Does the Internet impact the length of the value chain?</i>
Small suppliers	NEO Governance	Impact of standards on supplier differentiation	<i>How will new XML-based standards affect the ability of small suppliers to differentiate themselves to their client organizations?</i>
Small suppliers	Infrastructure for IT Success	Adoption of complex technology	<i>How can small suppliers afford to participate in XML data management relationships?</i>

## (c) Investor Stakeholders

Specific Stakeholder	Theme	Focus	Question
Technology Acquisition Specialist	Market function	Identifying factors that make technology profitable to acquire	<i>Does technological similarity/dissimilarity between two NEOs enhance the attractiveness of a merger?</i>
Venture Capitalist	NEO Governance	Venture capitalist governance of startups	<i>How does technological availability influence the negotiation process between the founder and venture capitalists?</i>
Generic	Infrastructure for IT Success	Evaluation of security technology products	<i>How can we incorporate the cognitive process of security circumvention in our security system evaluation methodologies?</i>

## (d) Regulator Stakeholders

Specific Stakeholder	Theme	Focus	Question
Activist	Market function	How NEOs manage Internet activism	<i>What are the factors that influence a NEO's activist management strategy?</i>
Self-Governance	NEO Governance	Defining morality on the Internet	<i>Are ethical standards of behavior different between online and offline organizations? If so, what are the contributing factors?</i>
National Government	Infrastructure for IT Success	Law enforcement on the Internet	<i>What are the necessary policy structures to make a tax on e-mail an effective deterrent to SPAM?</i>

(3) The research should be addressed by IS and e-Commerce researchers. Here, we show that our positioning at the nexus of technology and business provides us with some advantages in addressing the research question.

Unfortunately, IS researchers have distinct perspectives on the "appropriateness" of various topics for IS research [Benbasat and Zmud 2003, DeSanctis 2003, Ives et al. 2004, Robey 2003, Straub and Watson 2001]. To

forestall disagreement, we employ a conservative definition of “appropriateness.” Specifically, most examples and research questions presented in this paper involve the relationship between an information technology and a stakeholder [Benbasat and Zmud 2003, Straub and Watson 2001]. The remaining research questions and examples examine factors affecting the rate of innovation.

Some research themes identified here are arguably not relevant to IS researchers, but would be relevant to the broader community of e-Commerce researchers. However, some of these themes could become relevant when instantiated as specific research questions. The practice of studying a non-disciplinary research theme from a disciplinary perspective is commonly accepted in the multidisciplinary IS field. For example, customer acceptance of a product is traditionally considered to be of high relevance to marketing. However, through the Technology Acceptance Model (TAM) [Davis 1993], the theme has also been favored in IS studies of customer acceptance of technologies. Conversely, IS and e-Commerce researchers are also comfortable in applying methodologies and theories from other disciplines to IS problems. For example, much of the IS trust literature relies on psychometric principles to determine whether a particular IS stakeholder group trusts another [Gefen et al. 2003, Shankar et al. 2002].

Also, we do not attempt to answer whether these themes are relevant to other disciplines. While many of these questions could legitimately be studied by other research disciplines, that is not a satisfactory reason for IS and electronic commerce research to avoid them. If we allow other disciplines a monopoly on research questions that are legitimately within our purview, we decrease our relevance to our stakeholders (e.g., the business community) [Gray 2001].

The three themes developed in this section are: (1) market function, (2) NEO governance, and (3) infrastructure for IT success.

1. **Market Function.** This theme focuses on the organization as part of a market. Thus, issues of competitiveness and interactions between NEOs are explored.
2. **NEO Governance.** This theme focuses on identifying policies to best manage the NEO to achieve NEO goals (e.g., profit).
3. **Infrastructure for IT Success.** This theme explores how infrastructure, such as tools, methodologies, and national policies can be adapted to improve the e-Commerce environment.

Table 5: Reasons IS and e-Commerce Researchers Should Address Research Question

(a) Indirect Stakeholders

Question	Relevance	Academic Importance	Advantages of IS Researchers
<i>How does hyper-competition affect innovation in e-Commerce markets?</i>	Relationship between competition and innovation is unclear. Schumpeterian hypothesis predicts competition stifles innovation. Empirically, this does not appear to be the case.	The problem has received much academic attention, but has not been satisfactorily resolved.	e-Commerce is a natural laboratory to test competing theories on competition and innovation.
<i>What should NEOs do about online criminal behavior?</i>	Losses to online crime amount to tens of millions of dollars. Existing methods of controlling crime (e.g., the police) are inapplicable in the online environment.	Huge variety in kinds of crimes and victims. Lack of a central authority with enforcement capability make traditional solutions difficult to deploy.	Online crime is a uniquely e-Commerce phenomenon. IS researchers understand special characteristics of online user behavior and technology that other disciplines do not.
<i>Why do technology startups form around universities?</i>	Technopreneurship impacts national productivity in two ways. First, it creates opportunities for employment. Second, technology drives productivity.	Governing bodies at various levels of power have attempted to create techno-preneurial communities. Most failed.	Technopreneurship marries an understanding of technology and business.

## (b) Supplier Stakeholders

<b>Question</b>	<b>Relevance</b>	<b>Academic Importance</b>	<b>Advantages of IS Researchers</b>
<i>Does the Internet impact the length of the value chain?</i>	Initially, rich dialogue in IS about technology and intermediation. Dialog has moved to other disciplines.	The problem was raised in an IS/e-Commerce context, but has not been solved in an IS/e-Commerce context.	IS and e-Commerce research must take control of their own problems or else be viewed as irrelevant by other disciplines.
<i>How will new XML-based standards affect the ability of small suppliers to differentiate themselves to their client organizations?</i>	The first wave of XML-based standards is being released into the market. Often, standards are created without the consultation of these groups. Whether and how SMEs weather XML adoption is an open question.	Theory is insufficient to enable us to accurately predict the outcome of XML adoption by SMEs.	Question requires an understanding of both the value of intermediaries on the value chain, and XML.
<i>How can small suppliers afford to participate in XML data management relationships?</i>	XML adoption is a costly process. At least for the first wave, small suppliers are unlikely to adopt it unless they receive support. However, support often has attached strings.	Theory is insufficient to enable us to accurately predict the outcome of XML adoption by SMEs.	Question requires an understanding of the characteristics of SMEs, the organization of the value chain in specific industries, and XML.

## (c) Investor Stakeholders

<b>Question</b>	<b>Relevance</b>	<b>Academic Importance</b>	<b>Advantages of IS Researchers</b>
<i>Does technological similarity/dissimilarity between two NEOs enhance the attractiveness of a merger?</i>	In technology industries, many companies are purchased for their technology, and not for their financial soundness.	Unlike other kinds of mergers, technology mergers are predicated partially on technological factors.	Both the nature of the merged businesses, and the nature of the technology determine the success of the merger.
<i>How does technological availability influence the negotiation process between the founder and venture capitalists?</i>	Question focuses on the motivations of technopreneurs.	Entrepreneurship is recognized as a legitimate field of academic inquiry.	Question focuses on unique characteristics of IT-specific entrepreneurs.
<i>How can we incorporate the cognitive process of security circumvention in our security system evaluation methodologies?</i>	There are a number of cases, where huge sums were spent on the development of security technologies that were circumvented within days of rollout.	Solving the problem requires understanding the psychology of security development and circumvention.	The problem refers specifically to IT security systems.

## (d) Regulator Stakeholders

<b>Question</b>	<b>Relevance</b>	<b>Academic Importance</b>	<b>Advantages of IS Researchers</b>
<i>What are the factors that influence a NEO's activist management strategy?</i>	Online activists are becoming a significant problem to many NEOs.	Apparently similar organizations employ incongruous strategies to manage online activists.	The problem refers specifically to activist groups who advocate particular online practices.
<i>Are ethical standards of behavior different between online and offline</i>	Because of various corporate scandals, organizational ethics is	Organizational ethics is widely recognized as a legitimate field for	The focus is specifically on studying ethics for online behavior.

<i>organizations? If so, what are the contributing factors?</i>	considered a pressing problem.	academic inquiry.	
<i>What are the necessary policy structures to make a tax on e-mail an effective deterrent to SPAM?</i>	SPAM/UCE is widely regarded as a problem.	Straightforward solutions to SPAM (e.g., declaring it illegal) have failed.	e-mail is widely considered a legitimate field of inquiry for IS and e-Commerce researchers.

#### 4.1 Indirect Stakeholders

*Market Function.* Increasingly saturated e-Commerce markets provide an ideal natural laboratory to test how organizations adapt to hostile environments. IS researchers confident in their theories should be able to predict how emerging e-Commerce markets will evolve. As but one example, a useful test would compare the explanatory and predictive power of institution theory and population ecology theory [Baum and Singh 1994, Hatch 1997]. Institution theory predicts that NEOs will become more alike for three reasons. First, competitive NEOs will begin to duplicate successful IT practices, and strategies in their industry. Furthermore, once the legal foundations for e-Commerce have been established, NEOs will be required by law to comply, making them more like each other. Finally, NEOs will mimic their competitors in order to steal valuable customers [Hatch 1997]. On the other hand, the population ecology literature predicts that as markets become saturated, there will be more heterogeneity as individual NEOs specialize and adapt to their own ecological niche [Baum and Singh 1994]. By segmenting the market, each NEO is thus able to obtain monopoly rents.

One proposition suggested by both institution theory and population ecology is that innovation in hypercompetitive e-Commerce markets will be unprofitable. A competitor will engage in some form of negative interaction (e.g., mimic the innovation) that negates the advantage of innovation [Barnett and Hansen 1996]. Thus:

***Indirect Stakeholder RQ1:*** *How does hyper-competition affect innovation in e-Commerce markets?*

The Schumpeterian hypothesis suggests that innovation only occurs when the innovating organization can expect to obtain some monopoly benefit [Quirmbach 1993, Schumpeter 1942, Segerstrom and Zolnierok 1999]. As a market becomes more competitive, competitors are better able to mimic each other and copy innovations. The Schumpeterian hypothesis therefore suggests the following proposition:

*As an e-Commerce market becomes more competitive, benefits from innovation will decrease as a result of competitor intervention.*

And its corollary:

*Innovation in hyper-competitive e-Commerce markets will decline and eventually cease.*

The research question and propositions are especially relevant to theory given that one reason we investigate e-Commerce markets is to identify innovative behaviors and actions. The Schumpeterian hypothesis would appear to contradict observed phenomena, especially given that it predicts that e-Commerce markets should not innovate. This contradiction between theory and real world outcomes suggests an opportunity to revise old theory, better integrate disparate theories, or develop new theory to explain events.

The research question is also challenging, given that it can be approached from multiple perspectives. For example, a network externality perspective would suggest that e-Commerce markets do not become more competitive over time. Instead, network externalities, or other factors give particular companies monopoly power [Basu et al. 2003]. Late entrants are unable to compete, and the first-movers have an incentive to innovate. However, not all e-Commerce markets have such network externalities. Indeed, the first-mover/late-mover literature would argue that in many cases, it is preferable for a company to be a late mover, rather than an early mover [Boulding and Christen 2001, Makadok 1998, VanderWerf and Mahon 1997]. That so many theories can be applied to explain the contradiction between the Schumpeterian hypothesis and reality suggests the complexity of the problem.

The problem is also highly relevant to IS and e-Commerce researchers. First, e-Commerce markets are clearly within the purview of e-Commerce research. Second, one strength of IS and e-Commerce research is the plurality of theories from the multitudinous reference disciplines we are comfortable with.

*NEO Governance.* The Internet has spawned new markets and behaviors, which have correspondingly created new forms of crime. In some cases, crime on the Internet closely mimics crime in the real world. For example, non-

delivery fraud occurs both in mail-order and online. However, various forms of online crime have no close real-world analog. For example, phishing, the practice where one creates a deceptive website to obtain user information like credit card numbers, is essentially an online phenomenon.

Definitely online crime is a pressing problem. The Internet Crime Complaint Center (the branch of the FBI that focuses on online fraud) reported that complainants lost over USD 68 million to online crime in 2004 [National White Collar Crime Center and Federal Bureau of Investigation 2004]. The fear of online crime also frightens many away from e-Commerce [Jarvenpaa and Todd 1996/1997]. Thus:

***Indirect Stakeholder RQ2: What should NEOs do about online criminal behavior?***

The solution to the problem will likely have only weak parallels with solutions in the physical world. Geographical dispersion [Jarvenpaa et al. 2003], anonymity, [Chua and Wareham 2002], and other uniquely online factors make traditional responses such as police reporting and arrest difficult. There is a sparse, but growing interest in online crime in IS and e-Commerce. Sporadic articles by Kauffman and Wood [Kauffman and Wood 2001], and Grazioli and colleagues [Grazioli and Jarvenpaa 2000, Grazioli and Jarvenpaa 2003] have appeared, although not in "mainstream" e-Commerce journals. Other research refers to online crime indirectly. For example, Ba and Pavlou [2002] discuss trust (and by implication deception) in Internet auctions, and Hu et al. [2004] discuss the efficacy (and by implication deficiencies) of escrow as a trust building mechanism. As this research stream is nascent, there are many gaps. One urgent and sorely lacking area of work is prescriptive studies discussing how these kinds of crime should be addressed. Some authors have suggested that the solution requires communal involvement [Chua and Wareham 2004]. Individual customers, and businesses that can be victimized by crime must band together to self-police. However, this does not stop the criminal from moving elsewhere and preying on less organized groups. Education may be another solution. However, despite numerous articles in newspapers warning of the danger in opening unknown attachments, individuals continue to do so. Thus, more work is clearly needed.

Numerous theoretical frames can also be applied to address the problem, including economics, psychology, or sociology. The economics literature has dominated the sparse research on online crime [Hu et al. 2004, Kauffman and Wood 2001], especially in the area of Internet auction fraud. However, because deception is a psychological phenomenon, psychological theories of deception [Grazioli 2004] and psychological contracting [Pavlou and Gefen 2005] can also help us address the problem. Finally, the sociological literature has long recognized the ecological characteristics of crime. Essentially, crime exists because the methods by which customers, organizations, and/or criminals interact create the opportunities for the crime [Cohen and Machalek 1988]. The ability to apply so many theories from multiple disciplines to an online situation makes this problem highly relevant to IS and e-Commerce researchers.

*Infrastructure for IT Success.* Substantial anecdotal evidence suggests that universities play a major role in ascertaining where startups will develop [Cole 2000, Evans 2002]. For example, Stanford and UC Berkeley are often cited as reasons for the aggregation of entrepreneurs in Silicon Valley [Cooke et al. 2002, Huffman and Quigley 2002]. However, little systematic research has ascertained factors that foster such innovation. Thus:

***Indirect Stakeholder RQ3: Why do technology startups form around universities?***

The question is also highly complex. While numerous areas have universities that produce strong technology graduates, only a few (e.g., Silicon Valley, Bangalore) are known as centers that encourage startup formation.

Finally, numerous research areas such as social network analysis [Reagans and Zuckerman 2001], knowledge management [Alavi and Leidner 2001], and communities of practice [Wenger 1998] are likely to be useful in answering the research question. Each of these three areas addresses how social relationships influence learning. Given that this question concerns e-Commerce and technology startup policies, it is clearly of relevance to the IS and e-Commerce fields.

#### 4.2 Suppliers

*Market Function.* The lack of e-Commerce research concerning suppliers is especially worrisome, in that other disciplines have taken up the challenge. For example, when e-Commerce first emerged, some IS researchers suggested that the Internet would cause disintermediation, i.e., companies in the middle of the value chain would be forced to close. The traditional argument was that as the Internet reduced transaction costs, these companies would no longer be necessary [Malone et al. 1987]. Other authors rebutted those claims. For example, Bakos [1991] pointed out that transaction costs in both markets and hierarchies would be reduced by the Internet, and hence disintermediation was not a necessary outcome of e-Commerce. Sarkar et al. [1995] also used economic logic to predict that some intermediaries would thrive. Hence, one question of decided interest to IS researchers is:

**Supplier RQ1:** *What is the relationship between the Internet and intermediation?*

While intermediation remains a topic of interest to e-Commerce researchers, most research on the subject has moved to other disciplines such as Economics and Marketing. Table 6 presents journals that have recently published articles on intermediation. The list was generated by querying ABI-Inform for the words ‘intermediary’ or ‘intermediation’ and ‘Internet’ for the period January 2000 to July 2004. Retrieved articles unrelated to the query were then removed. This is a worrisome trend, because it suggests that traditional areas of e-Commerce research are being taken over by other disciplines, perhaps because IS researchers are not investigating these areas thoroughly enough.

*NEO Governance.* Intermediaries often play a crucial role in coordinating information flows in the supply chain. For example, travel agents in the Internet era prosper because they possess information on discounts, search strategies, and the CRSs that the airlines and passengers often lack. Some travel agencies exploit systemic characteristics of CRSs to obtain optimal fares. For example, many airlines update their fares at prescribed times of day (e.g., midnight). These travel agencies will run software programmed to check the CRSs at those time intervals to identify low fares (see <http://www.thetravelinsider.info/2003/1003.htm> as one example). Other travel agencies are able to arbitrage between separate CRSs. Changes in airline prices take time to propagate from one CRS to another [Levine 2004]. Some travel agents are able to compare the prices between CRSs before the propagation to obtain an advantage.

Table 6: Journals Publishing Articles Related to Intermediaries and the Internet 2000-2004

<b>IS Journals (Number of Articles)</b>	<b>Other Discipline’s Journals</b>
Communications of the ACM (1)	Academy of Marketing Science (1)
Decision Support Systems (1)	ABA Banking Journal (1)
Journal of Electronic Commerce Research (1)	Business Economics (1)
Ethics and Information Technology (1)	Business Horizons (2)
Industrial Management + Data Systems (1)	Contemporary Economic Policy (1)
International Journal of Information Management (1)	Cornell Hotel and Restaurant Administration Quarterly (2)
International Journal of Intelligent Systems in Accounting, Finance and Management (1)	EDUCAUSE Review (1)
International Review of Law, Computers & Technology (1)	European Economic Review (1)
Internet Research (1)	Futures (1)
Journal of End User Computing (1)	Harvard Business Review (1)
	Industrial Marketing Management (1)
	International Journal of Operations & Production Management (1)
	International Journal of the Economics of Business (1)
	International Marketing Review (1)
	Irish Marketing Review (1)
	Journal of Business Strategies (1)
	Journal of Interactive Marketing (1)
	Journal of Marketing Channels (3)
	Journal of Estate Portfolio Management (1)
	Managing Service Quality (1)
	Marketing Management (1)
	Netnomics : Economic Research and Electronic Networking (1)
	RAND Journal of Economics (1)
	Risk Management and Insurance Review (1)
	Sloan Management Review (1)
	Texas Law Review (1)
	Transportation Journal (1)
<b>Total=10</b>	<b>Total=31</b>

The ability of intermediaries to leverage on their information is threatened in part by the standardization of inter-business processes [Damsgaard and Truex III 2000]. For example, a number of XML-based business communications standards are being developed by organizations like RosettaNet ([www.rosettanet.org](http://www.rosettanet.org)). Often, participating members are either large companies, or technology providers. These organizations often do not fully appreciate the information mediation role of smaller organizations, and are thus likely to exclude crucial information from these XML-based standards. Decisions about inter-business processes are then made purely on the standardized information, and the unique information possessed by individual suppliers can no longer be effectively disseminated. For example, while a small supplier may be unable to provide an individual discount on specific items, that supplier may be skilled at creating attractive bundles of items at reasonable price points. However, if the ability to offer and analyze bundles is not present in the XML standard, the small supplier no longer appears to be competitive.

Thus, when the smaller players in the value chain are required to adopt the standard, it may force them to compete solely on information that can be represented in the standard (e.g., unit price). Alternately, these small players may reject the standard, or employ hitherto unknown communication mechanisms. Hence, one interesting research question to explore is:

**Supplier RQ2:** *How will new XML-based standards affect the ability of small suppliers to differentiate themselves to their client organizations?*

As with supplier RQ1, this research question would best be answered by the literature on intermediation and disintermediation. What is worrying is that IS and e-Commerce researchers appear to be contributing less than they might to this area.

*Infrastructure for IT Success.* One major concern to small suppliers is the cost of developing XML-enabled applications. While such technologies are cheaper than traditional EDI systems, they are not inexpensive. It may therefore be necessary for large companies on either end of the value chain to subsidize their small intermediaries for the cost of XML systems, especially as small companies often lack sufficient IT skills [Stansfield and Grant 2003]. Such subsidies will likely require companies across the value chain to commit to each other. Thus, one interesting paradox of XML-based standards is that they may enable hierarchical value chains at the expense of market mechanisms. Thus, one emerging research question that e-Commerce researchers could address is:

**Supplier RQ3:** *How can small suppliers afford to participate in XML data management relationships?*

and the related question:

*Will XML-enabled supply chains reinforce market or hierarchy-based supply chain relationships?*

As with the other two research questions on suppliers, this one would best be answered by the literature on intermediation and disintermediation, a literature stream that has antecedents in IS.

#### 4.3 Investors

The e-Commerce research community has been surprisingly slow in investigating relationships between e-Commerce companies and their investors [Watson and Straub 2004], perhaps because such research is perceived as within the purview of the finance discipline. In this section, we argue that numerous technology factors are associated with investor stakeholders that e-Commerce researchers could profitably address.

*Market Function.* In some cases, the decision to invest in or acquire another organization is predicated mainly on technology factors. For example, when Microsoft acquired Firefly Networks Inc., it shut down Firefly's business and instead incorporated its core personalization technologies into Microsoft Passport [Seminerio and Kerstetter 1998]. There is little extant theory in IS and e-Commerce research to explain or predict when technological factors make acquisitions between NEOs possible. Nevertheless, a theory on technology-based acquisitions would be useful, given that many NEOs such as Firefly are purchased for their technology, and not their financial performance.

E-Commerce researchers are ideally placed to investigate such issues, because an understanding of technology issues is crucial for identifying factors and constructs for predicting such mergers and acquisitions. Indeed, the need to marry literature from these disparate streams makes this a complex problem to address.

One possible approach combines our understanding of technology with the economic theory of bundling, which states that the greater the diversity of products in a bundle, the more attractive the bundle is to would-be consumers [Bakos and Brynjolfsson 1999]. We can model the product offerings of a NEO as a bundle. For example, Microsoft's Hotmail service offers e-mail, security (i.e., through Microsoft passport), storage space, and other

features. A NEO that adopts a bundling strategy would include features that maximize the value of its bundle [Schmalensee 1984]. Such a NEO would seek to acquire technologies that are dissimilar to those it already possesses. Thus the research question:

***Investor RQ1:*** *Does technological similarity/dissimilarity between two NEOs enhance the attractiveness of a merger?*

And the attendant proposition:

*The willingness of a NEO to acquire a technology is proportionate to the dissimilarity between the technology and that already possessed by the NEO.*

One corollary of the proposition is that technology acquisition is more of a consideration when they occur across a supply chain than between two competitors. NEOs across a supply chain are likely to have distinct technologies, while competitors are more likely to have competing technologies. Thus:

*The probability that a technology will be abandoned is higher when a merger occurs between competitors than across a supply chain.*

***NEO Governance.*** Hellmann and Puri [2002] point out that venture capitalists are more than financial intermediaries. They help companies develop human resource and marketing policies and facilitate the formation of corporate governance bodies. However, little is known about how venture capitalists successfully perform these tasks. As IS and e-Commerce research draws heavily from multiple reference disciplines, researchers in these fields are well placed to investigate the role of venture capitalists as architects of the governance policies of e-Commerce startups. Such investigation will require integration of theory from management, economics and IS.

One issue Hellmann and Puri [2002] raised was that venture capitalists often seek to replace the startup founder as CEO of a company. The founder's interests are often not completely aligned with those of shareholders, because the founder receives ancillary benefits from managing the startup. In the case of NEOs, the startup enables the founder to use technologies he or she would otherwise not have access to. In fact, technology access may be precisely the reason for creating a NEO instead of another kind of startup. This implies that founders of NEOs with better access to technology would be less willing to relinquish their company to an independent CEO. Hence:

***Investor RQ2:*** *How does the difference between a NEO's and an individual's access to e-Commerce technologies influence the negotiation process between the founder and venture capitalists?*

And the corresponding proposition:

*An increase in the difference between a NEO's and an individual's access to e-Commerce technologies negatively impacts the negotiation process between the founder and venture capitalist.*

As with the previous research question, this one marries the need to understand technology, and business decision making. Thus, the question is ideal for IS and e-Commerce research.

***Infrastructure for IT Success.*** e-Commerce security systems pose unique challenges to the investor because such technologies are notoriously difficult to evaluate. Often, only a public review will identify flaws, and many vendors of security products are reluctant to expose them to public review [Stamp 2003]. For example, despite a rigorous internal review process, one recently introduced technology for preventing unauthorized digital music distribution was foiled by holding down the 'shift' key on a keyboard [Smith 2003b]. However, public review also helps security violators to learn how a security system can be bypassed. For example, writers of malware (i.e., viruses, and worms) often develop their software to exploit flaws published in security announcements [Ng 2004]. Given this reality, there is even more reason for investors to be offered sound methodologies for evaluating e-Commerce security system investments.

One possible approach would explore the cognitive mismatches between developers of security systems and the people who bypass security. For example in one case, security developers created a sophisticated encryption system to prevent the use of CDs in unauthorized players. However, the developers placed encrypted material in the outer ring of the CD. As a result, the entire security system could be bypassed by marking the CD's outer ring with

a black marker pen [Leyden 2002]. It would be useful to determine why security researchers could not see a flaw that was obvious to a user. Thus:

**Investor RQ3:** *How can we incorporate the cognitive process of security circumvention into security system evaluation methodologies for digital and e-Commerce technologies?*

Such a question clearly falls in the area of IS and e-Commerce security research. Given the world's increased attention to security, the research question is also a timely one.

#### 4.4 Regulators

The relative paucity of regulator research in e-Commerce can be partly explained by the lack of applicable laws. In recent years, many countries have passed laws regulating the e-Commerce landscape [Jarvenpaa et al. 2003]. Some level of regulation is definitely required because lawlessness on the Internet creates numerous social costs [Bywell and Oppenheim 2001, Kauffman and Wood 2001, Snyder 2000]. However, because the Internet spans multiple political regimes, it is difficult to enact laws on it [Roy 2005]. For example, unsolicited commercial e-mail (i.e., SPAM) costs US businesses an estimated US\$ 10 billion per year [Krim 2003]. As a response, the US government passed the CAN-SPAM act to (unsuccessfully) regulate this anti-social activity.

*Market Governance.* The Internet has spawned its own set of activists. One important concern is to identify the factors that cause companies to adopt distinct activist management strategies. For example, the open source movement encourages the dissemination and use of free, modifiable software. Traditional companies have responded to the open source movement in disparate ways. In some cases, the reasons for companies to adopt their respective strategies are obvious. For example, because much of the open source movement espouses a shift away from their products, Microsoft has been antagonistic toward the movement [Raymond 2004]. Conversely, IBM, a hardware manufacturer and information services firm, has been openly supportive of the movement's intentions [Taft 2002], because cheap software improves hardware sales.

However, there are numerous instances where similar companies adopt opposite strategies to activism. For example, Sun Microsystems has traditionally claimed to be a proponent of open-source. However, Sun allied itself with the SCO Group to fight Linux [McMillan 2003]. In contrast, Hewlett-Packard has actively sided with Linux [Solheim 2004]. That both companies adopt separate strategies is interesting given that both are traditional hardware vendors with their own proprietary Unix operating systems. Both, furthermore, market their own brand of Linux. Hence the research question:

**Regulator RQ1:** *What are the factors that influence a NEO's activist management strategy?*

And its corollary

*Why are Sun and HP adopting opposite strategies to manage Linux proliferation?*

The fact that similar companies adopt disparate activist management strategies immediately suggests two possible lines of academic inquiry. First, there may be an optimal activist management strategy, and some companies have adopted it, while others haven't. Second, all the adopted activist management strategies could be optimal, but some unknown factor is interacting in the situation to encourage one organization towards a given strategy.

The question is highly relevant to IS and e-Commerce, because the activists being considered are advocates for specific technology issues. For example, the Linux/SCO issue focuses around open vs. proprietary software. It is therefore necessary to understand the technology before understanding the activism.

*NEO Governance.* Little research in IS and e-Commerce has explored the ethics of emergent NEO behavior. E-Commerce has provided NEOs with numerous opportunities unavailable to traditional companies. For example, Internet casinos are able to operate without the tight regulations commonly associated with traditional casinos. As legality becomes an impractical consideration, it becomes more important to define and institute standards of morality.

For example, many community members in Internet auctions will disrupt the auctions of suspected con-artists [Chua and Wareham 2004]. In the traditional world, these actions are viewed as illegal. However, the auction community often supports the actions of vigilantes. Community members sometimes make resources available so the vigilante can pursue his scheme. The community's ethical perspective may be explained by the absence of legal enforcement. Con-artists are difficult to catch and punish online, and communities thus often seek extra-legal measures to control fraud that victimizes community members. Thus:

**Regulator RQ2:** *Are ethical standards of behavior different online and offline? If so, what are the contributing factors?*

Organizational ethics is widely considered to be a field of academic study, and Internet ethics is an emerging phenomenon with its own rules. For example, rules like “do not mass-mail hoax e-mails” and “do not carbon-copy everyone else when you have a personal disagreement” are a response to the wide availability of e-mail. Here, technology is clearly a driving factor. The presence of auction vigilantes is predicated on the existence and characteristics of Internet auctions. Similarly, e-mail’s characteristics drive rules of e-mail behavior. The technology dimension of these ethical situations make IT and e-Commerce researchers ideally positioned to explore them.

*Infrastructure for IT Success.* One key emerging problem in Internet regulation is how governments can enforce regulations on the Internet, especially given that individuals on the Internet are often anonymous [Akdeniz 2002], and Internet commerce spans multiple nations and states [Jarvenpaa et al. 2003]. For example, the US CAN-SPAM act has been ineffectual in reducing SPAM [Raine and Fallows 2004] primarily because enforcement of the act has been thorny.

One suggested proposal is a tax on outgoing e-mail similar in nature to postage stamps [Orlowski 2004]. Because regular users send small quantities of mail while spammers send large quantities, such a tax deters spammers without overly affecting traditional e-mail users. The tax would be enforced by software installed on recipient e-mail servers. The proposal has several drawbacks. First, spammers often hijack the e-mail accounts of regular users. It would be unfair if regular users had to pay for e-mail they did not send. Second, coordination and enforcement would be difficult because all users, regardless of country of origin or ISP, would have to pay the tax. If coordination and enforcement is improperly carried out, spammers would displace themselves to avoid the tax. Thus, users would bear the cost of a tax that has no beneficial effect. Third, the tax would need to have minimum impact on legitimate e-mail users, but this would be especially difficult given the wide disparities in purchasing power and income across nations. Finally, the stamp mechanism would have to be resistant to tampering; otherwise, spammers would simply pay a one-time cost to obtain a device for duplicating electronic stamps. Thus, the following research question:

**Regulator RQ3:** *What are sensible policy structures that would make a tax on e-mail an effective deterrent to SPAM?*

As this question concerns national and international policy and strategy, it clearly warrants academic attention. Furthermore, the question focuses on problems created by a technological artifact (i.e., the Simple Mail Transfer protocol), making it ideal for IS and e-Commerce researchers to address.

## 5. Conclusion

This investigation proposes that IS and e-Commerce researchers have focused on a narrow set of stakeholders in the burgeoning e-Commerce field. Specifically, work has primarily addressed customers and the internal organization. These issues have attracted most of the research resources because the fledgling status of NEOs has encouraged research and practice to concentrate mainly on identifying ways to attract customers and better ways to internally manage the NEO.

However, as NEOs mature, they are likely to require solutions to other pressing needs. It is therefore important that IS and e-Commerce research reposition itself. We argue that at least four stakeholder groups, namely investors, suppliers, regulators, and indirect stakeholders, will increasingly demand the attention of NEOs, and therefore should be attracting the interest of IS and e-Commerce academics. To help prepare the way, we have identified some initial research questions and testable propositions relevant to these stakeholders. We do not claim that the questions and propositions encompass the entirety of future interest nor the most critical questions, but suggest them as legitimate and nascent avenues of exploration.

We also emphasize the necessity of addressing these stakeholder groups. Many recent publications in prominent IS journals and conferences suggest that IS is under a disciplinary threat, and could be made redundant by other disciplines. If we do not address these stakeholders, other disciplines will. We provide evidence relevant to the supplier stakeholder to suggest that this is already happening.

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