

Entrepreneur Behaviors on E-Commerce Security

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INTRODUCTION

Electronic communication developments have always been associated with many security *risks* since the ARPANET implementation in 1960s. In 1972, John Draper (Captain Crunch) unlocked the AT&T phone network marking the beginning of the modern technology of hacking. Later in the 1980s, the seminal developments in the U.S. laid the conceptual and practical foundation for future electronic crime tools such as trapdoors, trojans, and viruses. More recently in the Internet environment, *electronic attacks* have reached an epidemic level (US-CERT, 2004). In South Africa alone, over 500 Web sites were defaced in January 2005 and e-crime losses are estimated at around 40 billion a year.

BACKGROUND

While electronic attacks present serious social and economic implications for small organizations engaged in e-commerce, these organizations are complacent about these attacks and continue to ignore *good security practices* (Jacque, 2003). One possible explanation for this *low regard for security* and subsequent attacks could be found in the examination of the *decision-making behaviors* of entrepreneurs during the e-commerce adoption process. While researchers have looked at *entrepreneurial traits* to explain the adoption process of e-commerce and many agree that personal characteristics of individual actors modulate the adoption of innovations (Wejnert, 2002), the potential impact of these traits on the adopted systems has not been examined. It is the view of the researcher that the decision-making behaviors of entrepreneurs at the time of e-commerce adoption affect the security of their information systems (IS). Entrepreneurs are mainly business owners who operate in uncertain environment and make all of the business decisions. They use intuition rather than data analysis and are often perceived to be somewhat irrational (Olson, 1985). *IS security* is the protection of information and the systems that use, store, and transmit that information.

This study examines the influence of entrepreneur decision-making behaviors on the quality of IS security.

It explains why entrepreneurs ignore security, creates awareness of the dire consequences of *mistaken perceptions of security*, and emphasizes the importance of proper analysis of business and technological implications before the implementation of e-commerce. In the following sections, the decision-making behaviors of entrepreneurs, their potential influence on IS security, and the research propositions are presented. The research methodology is presented first. This is followed by the data analysis, the results of the survey, and finally the conclusion.

ENTREPRENEUR BEHAVIOR AND IS SECURITY

Two influential concepts in the field of entrepreneurship are used to examine this relationship. These are: entrepreneurial orientation (Miller, 1983) and entrepreneurial management (Stevenson, 1983). Entrepreneurship may be defined as the art of finding profitable solutions to problems.

Entrepreneurial Orientation

Entrepreneurship researchers have used the term entrepreneurial orientation to describe the methods, practices, and decision-making styles managers use to keep the firms competitive. Several researchers (Grundy & Kickul, 2001; Miller, 1983; Miller & Friesen, 1978) emphasize the need for risk-taking, innovativeness, and proactiveness. Risk-taking refers to taking chances in a decision-making situation. Innovation refers to doing new things by recombining parts of what is already being done, and proactiveness is the ability to take the initiative whenever the situation arises (Jun & Deschoomeester, 2004).

However, entrepreneurs take risks because they are unaware of risk implications or sometimes simply ignore them. They tend to have low-risk perception (defined as the subjective assessment of the probability of a risk (Sjöberg, Moen, & Rundmo, 2004)) and consequently implement risk prevention measures as a hurried reaction to a bad experience. Jun and Deschomester (2004) argue that *proactive risk-handling* is an important dimension of entrepreneurial orientation which has unfortunately

received limited consideration. They contend that successful entrepreneurs do not only take risks, but also possess the propensity to handle them proactively. They define risk-handling as the process in which potential risks to a business are identified in advance, analyzed, mitigated, and prevented, and the cost of protection is balanced with the cost of exposure to the risk. In an electronic environment where market needs, technology requirements, and security challenges change very rapidly, proactive risk-handling is essential.

Entrepreneurial Management

Stevenson (1983) views entrepreneurship as a management approach of pursuing opportunity without regard to resources currently used. He categorizes management behavior into the following dimensions. These behaviors and their influence on IS security are discussed as follows. The research propositions are also named.

Strategic Orientation

Strategic orientation describes what factors drive the creation of strategy. For an entrepreneur, strategy is driven solely by the opportunity, not the resources needed to exploit the opportunity. Resources are defined here as assets, capabilities, routines, and knowledge used by an organization.

As entrepreneurs seek new opportunities, they give limited attention to resources and some organizational activities. Gifford (1998) contends that limited entrepreneurial attention explains many issues relating to entrepreneurial activities (e.g., limited firm size growth and innovation, the choice of resource procurement and relationship between managers and employees). Evidence shows that limited attention is often paid to the resources and system requirements needed to support e-commerce activities (Hoffman, 2003; Jain, 2003). Literature on the evolution of e-business (Earl, 2000) also confirms that in the early stages of e-commerce, there is limited use of IT by small organizations and systems security measures are usually basic. The adoption of technologies such as firewall and authentication systems is not extensive (Allan, Annear, Beck, & Beveren, 2003) and managers often shun good security practices (Jacque, 2003). Jensen (2004) found that security only became of much greater concern for the entrepreneurs once they had adopted e-commerce and for non-adopters, this was a matter of least concern. Katsikas and Gritzalis (2002) warn that if security is applied as an add-on or patch to existing e-commerce solutions, degraded services will be provided since existing e-commerce functional requirements cannot easily be altered a posteriori. By placing limited attention to re-

sources and security requirements, entrepreneurs fail to handle security risks proactively. It is therefore hypothesized that:

H1: Entrepreneur's lack of propensity for systems risk-handling will negatively influence the quality of IS security.

Lack of propensity for systems risk-handling is the inability to proactively identify, analyze and prevent systems and e-commerce security risks. *Quality of IS security* refers to the degree to which the information system is protected from e-crime or cyber attacks.

The Commitment to Opportunity

According to Stevenson, entrepreneurs are ready to commit to action rapidly. Many writers report that key decision-makers in small organizations haven't the time to devote adequate attention to the appropriateness of their decisions. They instead rely mostly upon their intuition and feelings (Miller & Friesen, 1978). Studies by (Jensen, 2004) reveal that many entrepreneurs adopted e-commerce before fully examining the resource, financial & risk implications. Exploiting e-commerce opportunities irrationally may result into the failure to engage the right players; improper evaluation of the systems and resources; and failure to examine potential vulnerabilities, the regulatory environment and legal issues. It is hypothesized that:

H2: Entrepreneur's irrational commitment to opportunities will negatively affect the quality of IS security.

Irrational commitment to opportunities refers to the tendency to seize opportunities without proper consideration given to potential implications.

Commitment of Resources

Stevenson maintains that entrepreneurs will commit as few resources as possible at each stage of the project and may even try to pursue opportunities without the proper resources. Jain (2003) found that many small business owners are reluctant to purchase up-to-date hardware/software and argues that piracy is one extreme option available to them. They also approach novelty with caution due to the fear of loss and related cost implications (Wejnert, 2002). In their national study, Daniel and Myer (2001) found that the majority of entrepreneurs in the UK used a staged approach to e-commerce adoption due to limited resources. While this approach allowed entrepre-

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