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3-25-2017

The Strategic Value of Information Security Research Participation

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ABSTRACT

Although information security is an important issue, the ability to obtain subjects to participate in information security research is challenging. The proposed research studies the link between the perceived strategic value of participating in information security research and the decision to participate. First, a perception of strategic value (PSV) instrument developed by Subramanian and Nosek (2001) will be used to guide interviews to identify the value-drivers for such participation. Second, drawing on previous research and interview results, an instrument will be developed to assess the strategic value of participating in information security research. That instrument will be used to answer questions about the link between the perceived strategic value of participating in information security research and the decision to participate. The results of the study would help practitioners to understand the value of participating in information security research, thus resulting in more such studies and discoveries to enhance information security.

Keywords

Information security, research participation, strategic value

INTRODUCTION

The deployment of information technology to support business processes is essential for many organizations. Although such deployment has facilitated efficiency, it has also generated a more pressing need for information security. Such necessity is evident in recent studies which showed a 24% annual increase in organizations' information security budgets as well as an increase in strategic initiatives to improve security and reduce risks (PWC, 2016, 2017). Similarly, a recent study found that participation in an information security survey occurred because respondents perceived strategic value from doing so (Johnson and Shipps, 2013). The ability to show strategic value from participating in information security research could help solve the challenging task of obtaining key informants to engage in such research.

The perceived strategic value of a resource or engaging in action that is thought to add value has been identified in a number of studies as a determinant of organizational behavior and outcomes. For example, perceptions of the strategic value of e-commerce has influenced the decision to adopt that technology (Amit and Zott, 2001; Grandon and Pearson, 2003; Saffu and Walker, 2008). Madu (2005) showed that the strategic value of reliability and maintainability management influenced organizational competiveness and customer satisfaction. Lastly, several studies have consistently recognized the strategic value of information systems (IS) planning (e.g., Henderson and Sifonis, 1988; Porter, 1985). Thus, the premise is that organizations engage in activities that are thought to offer strategic value.

Although studies have identified factors that influenced participation in research (e.g., Dillman, 1978, 2001; Groves, Cialdini, and Couper, 1992; Groves, Singer, and Corning, 2000; Groves, Presser, and Dipko, 2004), few have focused on information security research, and even fewer have focused specifically on the *strategic* benefits of participating in general and/or information security research. Because perceived strategic value does influence organizational behavior, it is imperative that such value be identified for participating in research endeavors. Moreover, because obtaining informants specifically for information security research has proven to be extremely challenging (Kotulic and Clark, 2004), identifying the strategic value of such participation might help to improve the response rate for information security research participation. Hence, the ability to obtain greater participation might facilitate efforts to improve information security.

The current study is an extension of the Johnson and Shipps (2013) study which found that executives participated in an information security survey because they believed doing so would add value to their firms by improving the organization's ability to compete, as well as providing support for their existing strategies. The Johnson and Shipps study was largely

exploratory; whereas, the current research proposes to employ Subramanian and Nosek's (2001) perceived strategic value instrument to more precisely understand the strategic benefits of participating in information security research. Thus the conceptual model shown in figure 1 will guide the proposed research.

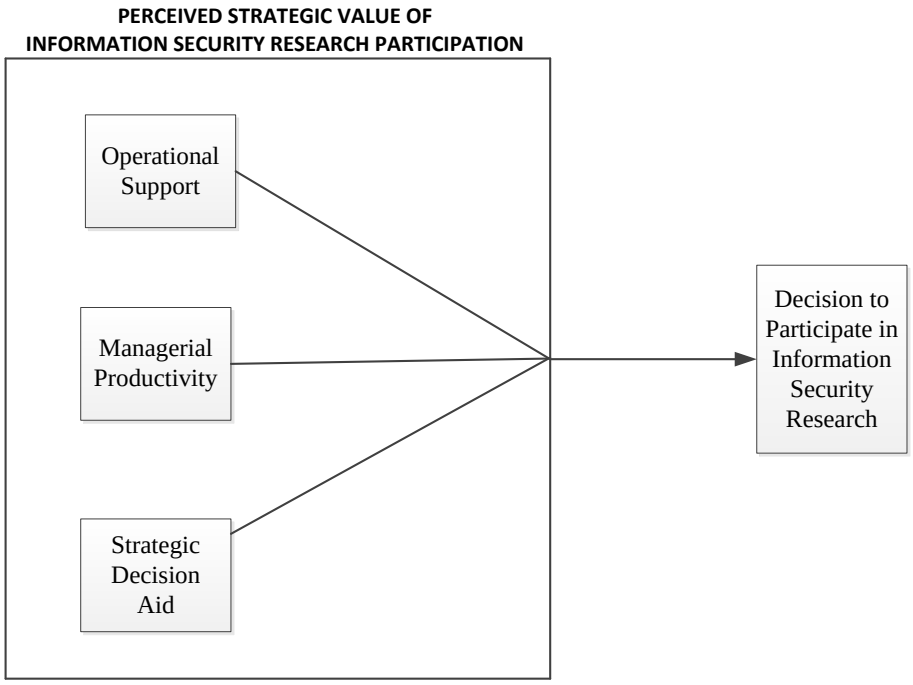

Figure 1. Conceptual Research Model

Specifically, the study proposes to answer the following questions:

1. Does the perceived strategic value of participating in information security research influence the decision to participate?
2. Are some value-added activities more influential than other such activities in the decision to participate in information security research?

BACKGROUND

Strategic Value

The term strategic value has been used to describe the extent to which a particular action is essential to help an organization achieve some defined outcome (Cambridge Business English Dictionary, 2016). Previous research about strategic value has focused on defining the components of the construct as well as determining its predictors and outcomes. A common framework for operationalizing the strategic value construct is the resource-based theory which suggests that an activity (i.e., resource) has strategic value when it results in the reduction of cost or increase in performance (Barney, 1991). Zhuang and Lederer (2006) used the framework to identify value-added resources that contributed to e-commerce performance. They found that e-commerce technology and business resources predicted e-commerce performance. Several other studies have employed the resource-based view to determine the extent to which IS contributed to business performance. Wade and Hulland (2004) identified eight such IS resources which were grouped into three categories. Cao, Wiengarten, and Humphreys (2011) proposed a contingency resource-based view and argued that IS business value depended on the interaction of a system of variables that were subjected to multiple moderators and mediators.

Another framework, Porter's (1985) value chain model, delineated value-added activities that organizations could engage in to achieve competitive advantage. The activities were shown in two categories. One was primary activities which were directly related to the production and distribution of an organization's products and services. The other was support activities such as human resource management and procurement. In contrast to primary activities, the support activities add value indirectly by supporting primary activities.

Subramanian and Nosek (2001) developed and validated an instrument that could be used to measure the perceived strategic value of information systems. Three dimensions were discovered. One was termed operational support which measured the extent to which information systems were used to reduce costs and enhance firm efficiency. A second dimension was named managerial productivity. It measured the extent to which information systems improved manager productivity by providing better access to information. The third dimension, strategic decision aid, addressed the use of information systems to provide support for strategic decision-making. The strategic decision aid factor was more important for the perceived strategic value of e-commerce adoption in one study (Grandon and Pearson, 2003), whereas operation support was the strongest predictor of the strategic value of such adoption in another study (Saffu, Walker, and Hinson, 2008).

Research Participation Factors

A challenging and enduring task for researchers is the ability to obtain subjects to participate in studies. Therefore, several documents, including entire books, have offered techniques for acquiring such participation. Two streams of research exist. One has offered techniques that could be applied to any discipline. For example, Dillman (1978) initially provided techniques to improve participation response rates for telephone and mail surveys. Subsequently, that literature was updated to include other, more modern ways to administer surveys such as the Internet and interactive voice response surveys (Dillman 2011). Groves et al. (1992, 2000, 2004) have identified a number of factors, such as incentives and perceived legitimacy of the sponsor that influenced research participation.

The second stream of research has focused on issues about participation for specific areas of interest. One such study has prescribed methods for obtaining participation for health surveys (Preloran, Browner, and Lieber, 2001). A second has identified factors that influenced participation in agricultural research (Sanginga, Tumwine, and Lilja, 2006). A third has identified factors that influenced participation in information security research. Kotulic and Clark (2004) identified a number of reasons that prohibited subjects from participating in information security research. In contrast, Johnson and Shipps (2013) identified factors that motivated subjects to participate in information security survey research and suggested that the factors might vary across industries. More specifically, participants in the finance, healthcare, and insurance industries had strategic reasons for participating in information security research.

METHODOLOGY

Both qualitative and quantitative methods will be used to answer the research questions and confirm or reject the proposed research model shown in figure 1. The research will be conducted in two phases. Phase one is currently underway. It consists of structured interviews with information security managers who have previously participated in one or more information security research endeavors. The objective of this phase is to identify the strategic reasons for participating. Since prior research had suggested that individuals in the finance, healthcare, and insurance industries would be more likely to garner strategic reasons for participating than those in other industries, phase one employed subjects from these three industries to accomplish the aforementioned phase one objective. Questions derived from the constructs in the conceptual model (figure 1) are used to develop the interview manuscript. Based on the results of the structured interviews, the research model will be revised, as required, and a quantitative instrument will be developed to test the model.

Phase two will employ the instrument derived from the previous phase. A survey questionnaire will be distributed to a random sample of 1000 information security managers across a variety of industries. Confirmatory factor analysis and structural equation modeling will be used to validate the instrument. Also, methods prescribed by Churchhill (1979) and Gefen, Straub, and Boudreau (2000) will be employed.

EXPECTED BENEFITS AND CONTRIBUTIONS

The proposed research would provide many contributions. First, this would be the only attempt to study the strategic value of participating in information security research.

Second, the study would confirm that the perceived strategic value (PSV) instrument is a useful framework for assessing information security research participation. Such confirmation might also provide a basis for further research to determine if the perception of strategic value influences the decision to participate in other types of research.

Thirdly, use of a large sample in the proposed research, would confirm (or reject) the preliminary results of the Johnson and Shipps (2013) case study research.

Lastly, findings from the research would help practitioners to understand the value-added contribution of participating in information security research. Such understanding might result in more information security studies and hence facilitate improvements in information security.

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