The Challenges of Implementing Standards Based Information Security within Family Influenced Firms: A Proposed Research Agenda

Research-in-Progress

James N. Smith
Kennesaw State University
jnsmith@bluereefgroup.com

Abstract

Information security is a complex topic that spans technology, systems, management and culture. This research in progress article proposes a relationship between the family ownership influence of businesses and their success in implementing standardized information security management systems (ISMS). It further proposes a mixed method research study to further understand the nature and needs of family influenced businesses by qualitatively exploring the challenges that family influenced businesses face in implementing information security and quantitatively comparing the ISMS implementation and assimilation success of family influenced businesses to businesses that are not family influenced.

Keywords

Information Security, ISMS, Family Influenced Businesses, Culture.

Introduction

Information security has evolved from a sub-specialty of information technology and become a significant concern to the management of businesses of all sizes and industries. With an increased management focus and the development of audit and regulatory requirements the standardization of information security has become a hallmark of the profession over the last decade (Ransbotham and Mitra 2009). From the development of standardized information security management systems (ISMS) such as ISO 27001, SP800, FISMA and COBIT to the standardization of credentials for information security practitioners such as the CISSP, CISM and CompTIA Security+ the landscape of information security is more delineated defined and quantifiable (Susanto et al. 2011; Tipton and Hernandez 2013; Tofan 2011).

While this standardization of information security may, on balance, be a net benefit to businesses, and to the information security profession, it may not benefit those companies that vary from standard business norms or work in niche industries (Siponen and Willison 2009; Tofan 2011). Of particular interest are those companies that are owned and influenced by families. These companies, to varying degrees, have goals, management structures and flows of trust and power that do not mirror their non-family owned and influenced counterparts (Chrisman et al. 2012; Verbeke and Kano 2012). These differences may create misalignment with standardized ISMSs and may increase the difficulty of both adoption and assimilation of an information security regimen.

There is a current lack of extant literature focusing on the information security needs and challenges faced by family influenced businesses. A family influenced business is most broadly defined as a business in which there is “some family participation in the business and that the family have control over the businesses’ strategic direction” (Astrachan and Shanker 2003 pp. 211–212). At this broadest definition of family influence the impact of family influenced businesses on the U.S. economy is vast. Astrachan and Shanker (2003) concluded that, at the broadest measure of family influence, family influenced businesses represented 89% of business tax returns, 62% of U.S. employment and 64% of gross domestic product (GDP) at $5.9 trillion. Based on the market size alone, there is a justification to explore the nature family
influenced businesses in the hope of identifying common traits that might influence the implementation and assimilation of standardized information security management systems.

The purpose of this proposed sequential, mixed methods study is first to explore the attitudes, norms and experiences of a group of firms that are influenced by family ownership using a series of open ended interviews with managers of these firms who are also members of the ownership families. This grounding will help to compensate for the lack of extant literature into the theorized phenomena and to provide additional basis for the development of the quantitative portion of the proposed study. The second phase will be to develop an instrument and to survey managers at firms with various levels of family influence in order to examine the relationship between the family ownership influence of businesses and the alignment challenges of implementing and assimilating standardized information security management systems into their organizations, controlling for firm size and revenue.

Literature Review

This review will be broken down into two sections. The first section will look at the basic underlying research into the impact of organizational and individual attributes on the successful implementation and assimilation of an information security within an organization. The second section will look at the basic underlying research into the nature of family owned and influenced firms and how they exhibit common organizational attributes that differ from non-family owned and influenced firms.

There is a body of extant literature that focuses on the human aspects of information security. Hsu et al. suggested a new theoretical lens by which “information security is considered an administrative innovation rather than a technological innovation” (Hsu et al. 2012 p. 919). Goodhue and Straub (1991) highlighted the importance of user perceptions in relation to their sensitivity to security concerns. Ashenden (2008) considered the human challenge of information security management wherein we consider “the individual’s unique attitudes, beliefs and perceptions that they bring with them to work. With this in mind we need to look at all individuals in the organization from end users to Information Security Managers to Senior Managers and Board members” (Ashenden 2008 pp. 195–196). The influence of institutional cultures on the implementation of information security management was highlighted by Hsu et al. (2012) and Ransbotham and Mitra (2009).

The study of the effectiveness of information security traces back to Straub (1990) as a subject of empirical study. Hsu et al. (2012) and Bulgurcu et al. (2010) are more recent quantitative examples of the measurement of effectiveness and its causes and moderators.

In the literature of family owned businesses, the focus becomes the emic causes of non-standard processes. Daily and Dollinger (1993), Riordan and Riordan (1993) and Verbeke and Kano (2012) identify the lack of a principal-agent problem as a source of the variance of family-managed firms’ business practices from best practices. The basic idea being that modern internal control systems exist to protect absentee owners’ interest where there is a hired agent who manages the firm. When that perceived risk is attenuated, the need, real or perceived, for rigorous controls decreases. Daily and Dollinger (1993) and Verbeke and Kano (2012) go further and indicate that as a family-managed organization’s size increases that the internal control systems of the organization become more rigorous and standardized. Verbeke and Kano (2012) attribute this to a bifurcation bias wherein the family management and the non-family management become differentiated due to an asymmetric human resource treatment. As the firm grows the non-family management becomes larger, more professional and more agent like, thus requiring stronger internal controls. These articles would seem to indicate that any measurable effect of family-ownership or family-management on security implementation success will be most observable in the small to medium sized enterprise (SME) environment (Daily and Dollinger 1993; Verbeke and Kano 2012).

Beyond the business control process issues, there is a great deal of literature looking at the way that family values, culture and goals affect the performance of firms. Haugh and McKee define family values as a “shorthand for a range of qualities in the family firm” (Haugh and McKee 2003 p. 145). They go on to note that “it would appear that there is some common ground in the findings relating to the cultural dimensions of the family firm. Themes of loyalty, trust, communication, commitment, independence and survival have emerged” (Haugh and McKee 2003 pp. 145–146).
Gudmundson et al. (2003) identify a uniqueness to family businesses and draw conclusions about how this affects innovation within family businesses in ways that vary from non-family businesses. They conclude that family-owned businesses vary from non-family-owned businesses in material aspects including a lowered acceptance of risk, and a decreased willingness to empower employees to innovate.

Chrisman et al. (2012) developed a model to examine family involvement, family essence and family-centered non-economic goals. Family involvement is identified by attributes of family ownership, family management and the number of generations of the family within the business. Family essence involves factors such as trans-generational family goals and family commitment that affect the family management’s behavior. The family-centered non-economic goals are goals such as family harmony, family social status and family identity linkage that provide value to the ownership, yet are not recognized in standard business metrics.

One work that I will single out is Kotey and Folker (2007). Their study comparing the effects of firm size and whether a firm was family-owned on employee training will serve as a model for this study. Their methodology achieves the comparative mechanisms related to the issue of training that I hope to accomplish regarding ISMS implementation success.

**Theoretical Framing**

Hsu et al. (2012) proposed and tested a research model wherein institutional influences have an influence on the adoption of information security management and the assimilation of information security management into the culture of a firm. Institution influences were conceptualized to include peer influences and supervisory influences. They hypothesized and tested an array of economic and organizational related moderators on this effect.

My research model expands upon the model developed by Hsu et al. (2012) and is shown with additions in Figure 1. This model proposes that within family owned and influenced firms, family influence may present a third form of institutional influence that is different in kind from the influences conceptualized by the previous study. I propose that the extant economic and organizational moderators may affect this relationship and also propose that firm size, by revenue or number of employees, may further act as a moderator on family influence as an institutional influence (Chrisman et al. 2012).

The primary independent construct, shown in Figure 1, for this study is called family ownership influence. Historically, the measurement of a family’s effect on a business presented three challenges. The first challenge is that there is no consistent definition of a family business (Astrachan et al. 2002). The second challenge is that there has been no consistent measurement scale for the effect of a family’s influence on a firm. Chua et al. (1999) called for an operationalized scale that could be used for replicable research. The third challenge is that what scales were used historically were categorical in nature and restricted the nature of analysis that could be performed (Holt et al. 2010).

In 2002 Astrachan et al. proposed a continuous scale known as the Family Influence on Power, Experience and Culture (F-PEC) instrument, for the standardized measurement of family influence within a business (Astrachan et al. 2002). This scale has been validated and expanded in following work (Klein et al. 2005; Cliff and Jennings 2005; Holt et al. 2007). The F-PEC scale does not attempt to reconcile the competing definitions of family business. However, it seeks to provide a consistent operationalization of family influence and provide a consistent scale of measurement (Klein et al. 2005).

The F-PEC scale measure family influence along three dimensions; power, experience and culture. “Power refers to dominance exercised through financing the business (e.g., shares held by the family) and through leading and/or [sic] controlling the business through management and/or [sic] governance participation by the family” (Klein et al. 2005 p. 323). This is operationalized through the power subscale. “The Power subscale measures the proportion of shares, the percentage of top management positions, and the proportion of board seats held by the family” (Klein et al. 2005 p. 323). “Experience refers to the summed experience that the family brings into the business” (Klein et al. 2005 p. 323) Experienced is operationalized as a function of how many generations of a family are in the ownership and management of a firm. Finally, culture is a function of the overlap of the values of the family and the values of the firm. Culture is operationalized using the Family Business Commitment Questionnaire developed by Carlock and Ward (2001) (Klein et al. 2005).
The dependent constructs on this study are retained from Hsu et al. (2012) namely, adoption of information security management and assimilation of information security management. Adoption is defined as “organizational mandate for change” (Hsu et al. 2012 p. 922). The adoption of information security management is operationalized in this construct using items taken from Ajzen and Fishbein (1980). Assimilation is defined as “the point when an innovation becomes embedded within organizational activities” (Hsu et al. 2012 p. 922). The assimilation of information security management is operationalized in this construct using items taken from Cooper and Zmud (1990).

In addition to the dependent constructs of adoption of information security management and assimilation of information security management, Hsu et al. (2012) conceptualized the independent variables of peer influence and supervisory authority influence. Furthermore, they conceptualized a number of moderating variables for each of the dependent constructs. The effects of the independent constructs on adoption of information security management are moderated by the economics-based factors of perceived environmental uncertainty, perceived gain in competitive advantage and availability of resources. The effects of the independent constructs on assimilation of information security management are moderated by the organizational capability factors of top management support, IT capability and cultural acceptability (Hsu et al. 2012).

Based on the literature regarding the differences of family influenced businesses from their non-family owned counterparts and the standardized nature of most ISMSs, I presume that there will be negative relationship between family influence and the effectiveness of adoption and assimilation of ISMSs (Tipton and Hernandez 2013). This is not to imply that family influenced businesses are insecure. It is possible that the trust dynamics embodied within family influence over a business may impart security benefits that has yet to be quantified (Chrisman et al. 2012; Riordan and Riordan 1993).
Research Methodology

Due to the exploratory nature of this study, I envision a mixed methods approach to its execution. Using a qualitative first approach will allow the proposed quantitative component to be refined. Also, I hope to use the qualitative portion of the study to gather some grounded observations on the issues related to technology in family influenced businesses for future research (Creswell 2008).

Qualitative

I plan to conduct open ended interviews with ten senior managers of family owned and influenced firms. These firms will vary in size from $20 million in annual revenue to $100 million in annual revenue. The lower boundary is chosen based on the face validity that businesses beneath that threshold generally lack formalized ISMSs. The upper boundary is based on assertion that the asymmetric treatment of family members attenuates as a firm becomes larger and has more non-family managers (Daily and Dollinger 1993; Verbeke and Kano 2012). These interview subjects will include both managers with oversight responsible for the information security functions and managers who do not. There will be an effort to focus on managers who are family members.

These interviews will cover the manager’s attitudes regarding information systems, information security in general, the formalized management of information security and the issues that family involvement creates regarding these subjects. They will also include the manager’s perceptions regarding family attitudes towards these subjects.

These interviews will be used to explore the various phenomena to be examined further during the quantitative phase of the study. They will also be used as a basis for future research into the information systems issues faced by family influenced firms.

Quantitative

Following the qualitative phase of the study I propose to conduct a survey targeting senior managers of both family influenced and non-family influenced firms with a goal of approximating the population of senior managers across all firm. I intend to target the same size firms as the qualitative portion of the study. I also intend to maintain a family member bias towards interview subject selection for the family influenced firms similar to the qualitative portion. The survey will be pilot tested on ten respondents and then distributed with a goal of 150 respondents evenly divided between family influenced firms and non-family influenced firms (Hair, Jr et al. 2011).

Independent Variables

The primary independent construct of this study is family ownership influence. I intend to operationalize this using the Family Influence on Power, Experience and Culture (F-PEC) index, a standardized and validated scale for measuring family influence within a business (Astrachan et al. 2002; Klein et al. 2005). These questions will be supplemented with a collection of control and demographic questions, including number of employees, revenue, age of business and industry designation. In addition, items of interest that arise from qualitative interview portion of the study will be included.

Dependent Variables

The operationalization of dependent constructs of this study, namely the adoption of information security management and the assimilation of information security management, will be largely based on the validated scales in Hsu et al. (2012) and Bulgurcu et al. (2010). In addition, items of interest that arise from qualitative interview portion of the study will be included.

Discussion

If the proposed study supports the proposition that family influence presents a negative effect on ISMS implementation then it will serve as a call to study the nature of family influence on information security with the goal of developing variations to standard ISMSs to better serve family influenced businesses.

It is also my hope that this study will serve as a catalyst to direct future research into the latent security structures that may exist within family influenced businesses for the purpose of better fitting security
products and services to family influenced businesses and to discover security methodologies that may be adaptable to non-family influenced firms.

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References


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