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FAMILINESS AND ITS RELATIONSHIP WITH PERFORMANCE IN MEXICAN FAMILY FIRMS

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ABSTRACT

How family involvement affects business results? The present work demonstrates how “familiness” is related to performance in Mexican family firms. We proposed three dimensions of familiness (Process, Human and Organizational Resources) from a perspective based on the Resource Based View and the Social Capital Theory. In addition, our intention is to look for the strongest relationship among those dimensions to show which one has more influence on the performance of the family firms. We interviewed a sample of 194 Mexican family firms and we discovered that they have many characteristics in common despite the region of Mexico they are located. We also used some control variables such as the size of the companies, the sector in which they have operations (commerce, services or manufacturing) and the age of the companies, in order to analyze the sample from different points of view.

Keywords: *Familiness, Family Influence, Family Involvement, Family Business, Firm Performance, Resource Based View*

INTRODUCTION

What makes the family business unique? How is it different from a non-family business? Specialized literature has identified several unique resources that are frequently referred to as the “familiness” of the firm (Cabrera-Suarez, De Saa-Perez, & Garcia-Almeida, 2001). Since Habbershon and Williams (1999) introduced the concept of familiness, many contributions have been made (e.g. the Resource Based View or the Social Capital approach to familiness) to advance in the understanding of the essence of family businesses. We consider that the understanding of the construct of familiness and its effects on goals, behaviors and performance of family businesses is a prerequisite for theoretical progress in family business research (Hack, 2009).

Familiness does not refer to the general influence of the family on the business but it specifically refers to the answer of the next question: “how family is a family firm?” (Rutherford, Kuratko & Holt, 2008). Habbershon and Williams (1999) define familiness “as the unique bundle of resources a particular firm has because of the systems interactions between the family, its individual members, and the business” (p. 11). Chrisman, Chua, and Litz (2003) later described the concept as “resources and capabilities related to family involvement and interactions” (p. 468). Familiness is proposed as a source of competitive advantage, generating firm wealth and value creation. For the purposes of this work, familiness describes the positive influence of family involvement in the firm (Pearson, et al. 2008).

In a relatively short period, familiness has become a widely acknowledged and popular construct with family business researchers (Chrisman, Chua & Steier, 2005; Habbershon and Williams 1999; Moores and Craig 2005; Nordqvist, 2005; Matz and Ireland, 2013). However, the sources and types of familiness are yet to be understood (Chrisman, Chua & Steier, 2005). The construct itself - its dimensions, antecedents, and consequences - has been left unattended in the field (Sharma & Zahra, 2004) and familiness remains a somehow ambiguous concept (Moores, 2009; Zellweger et al., 2010; Pearson et al., 2008; Rutherford et al., 2008).

Sharma (2008) suggests that the fundamental task of evaluating the construct itself – its dimensions, antecedents, and consequences – has been neglected, slowing down the theory-building aspirations of the field (cf., Zahra & Sharma, 2004). Chrisman, Chua and Sharma (2005) called for research that identifies family firms' uniqueness, focusing on how the family's involvement is a root cause of their distinctiveness. Zellweger et al. (2010) sustain that familiness is a multi-dimensional construct that needs to be better understood as it can affect the competitive advantage of family firms.

Full specification of the familiness construct remains an active area of research (Pearson et al.). For our purposes, familiness can be viewed as a continuous concept ranging from firms with very high family involvement having a strong familiness resource set (i.e., many unique family firm resources) to firms with no family involvement and thus having no familiness resources. Characterizing familiness as continuous in nature rather than strictly as a dichotomy between family and nonfamily, captures the variability of familiness as a resource across family firms (Habbershon et al.). Furthermore, this characterization helps capture the overall unique essence of family firms in line with other researchers who have employed similar concepts of family involvement, family influence, and family control (Konig et al., 2013).

It has been suggested that this uniqueness is largely a result of the idiosyncratic resources and capabilities that are generated when the family system and the business system interact and co-exist in union (Basco & Pérez-Rodríguez, 2009; Nordqvist & Melin 2010; Pieper & Klein 2007). This idiosyncrasy has been labelled as familiness.

Recently some scholars, considering the dynamics of the overlapping family and business systems, proposed that organizational identity may be a key source of competitive advantage for family firms (Sundaramurthy & Kreiner, 2008: 416). Indeed, adding organizational identity to the components of involvement and essence approaches to explain family firm performance seems warranted given preliminary research by Zellweger and Kellermanns (2008) which shows that identity concerns in family firms explain a significant portion of performance variance in these firms. Moreover, departing from the components of involvement and essence approaches, Eddleston (2009) argued that a family's configuration based on family involvement explains how some family firms are particularly proficient at creating a competitive advantage. Accordingly, we perceive family business as heterogeneous and also we acknowledge that while some families can be assets to their firms and build familiness, other families could be characterized more as liabilities.

In order to understand familiness we need to identify the core dimensions that constitute the construct, otherwise it risks remaining a wide concept that lacks conceptual clarity (Lambrecht, Korainen & Sharma, 2008). Therefore, the purpose of this paper is to provide conceptual clarity by identifying the main dimensions of this family business resource.

In this article, we review the effects of familiness in the firm's performance and then we focus on three approaches to familiness. The first one is the involvement perspective mainly discussed by Zellweger, Eddleston and Kellermanns (2010). The second one is the Resource Based

View, which was used to explain theoretically the distinctive competitive advantage that results from familiness. The third one is the resource dimensions that constitute the familiness construct from the Social Capital Theory. In doing so, we extend the familiness from a conceptual construct into a more measurable dimensions. Afterwards, we outline the method adopted for our research design. We next report the results and present a discussion of their implications. Finally, we conclude with limitations and suggestions for future research.

THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

Effects of Familiness in Performance

Rutherford, Kuratko and Holt (2008) documented in their meta-analysis 23 studies examining the link between performance and familiness; almost all of them published after 2000. Nine of those studies demonstrated support for a positive relationship between family involvement and firm performance, only one paper (Lauterbach & Vaninsky, 1999) found a negative relationship between “familiness” and firm performance; nine studies demonstrated neutrality. Four studies of the same sample indicated partial support for a positive relationship. Galve and Salas (1996), for example, found no difference in profitability between a sample of family and nonfamily firms, but did find that family firms are more efficient than non-family business.

Several relevant results are documented in literature, for example, Schulze et al. (2001) found that the longer the permanence of the CEO in his position, the lower the firm performance. Zahra (2003) examined the impact of “familiness” on firm performance in the international arena, and found that “familiness” was associated with significantly higher performance, measured by percentage of international sales. Olson et al. (2003) looked at 673 family businesses and found partial support for “familiness” and performance. They also found that multigeneration family businesses are associated with more revenues. Lee (2004) looked at a sample of 63 firms from the largest 150 family businesses in the United States, and found that family firms had a lower profit margin, but a higher ROA. Rutherford et al. (2006) on a sample of 934 family firms found that multigeneration family firms were associated with greater performance and also found that tension (represented by divorce rate) is associated with lower firm performance.

As we observed, the level of rigorous empirical study has greatly increased in the last ten years and the relationship between familiness and performance is gaining more relevance, even though that the familiness construct is simply not clear enough and further study of this important construct is in order. “The fact that research has not yet produced a dominant theory or conclusive evidence about how and why “familiness” is so ubiquitous and dominant, makes this field of family business interesting and exciting” (Rutherford, Kuratko & Holt, 2008: 1106).

To understand the effect of family involvement on business performance, we used in our research perceived financial performance, which was measured with a six-item scale. Participants reported the extent to which they were satisfied with three financial performance indicators: return on investment (ROI), profits and sales; and we also used three non-financial indicators: customer satisfaction, employee’s satisfaction and general results.

To explain familiness we found on the reviewed literature different approaches, explaining from a very distinctive point of view the concept: the involvement approach, the Resource Based View Theory, and the Social Capital Theory. In next sections, we describe the most cited theories and at the end, we state the way we directed our research: we proposed a mix between the RBV and Social Capital to determine the main components of familiness.

Familiness: Components of Involvement Approach

This approach considers the family's involvement in three different dimensions: ownership, management and control (Chrisman et al, 2005). This approach supports the theory in which family involvement in the three dimensions is a sufficient condition that can classify any business as a family business and therefore assume the existence of familiness (Pearson et al., 2008). Supporters of this theory also believe that the mere existence of a family within a business is a sufficient condition that can classify that business as a family owned one.

According to the information provided above, many authors think that the components of involvement are one of the most complex issues to justify on the terrain of family business when they have tried to explain the differences in performance among family firms (Corbetta & Salvato, 2004; Eddleston & Kellermanns, 2007; Schulze, Lubarkin & Dino, 2003). These authors usually sustain that the components of involvement approach do not account for the unique resources the family can possess and that can contribute to the firm due to the systemic interaction between family and business (Habbershon et al, 2003).

However, it is clear this is one of the first approaches that specified at least, some components to define the familiness concept. Even if such components were not clear enough to be measured, unless there were some kind of records on the company to compare previous performance (e.g. sales, cash flow statements, etc.) among years.

It is argued that family involvement from the point of view of this theory may not be sufficient in explaining how the family contributes to the business as a system. Family ownership, management and control may not only depict a family's potential to influence a family firm (Chrisman et al, 2005).

The challenge to the components of involvement approach is to be able to capture how family involvement influences strategic processes that lead to competitive advantages, and this limits the approaches's theoretical validity (Zellweger, Eddleston & Kellermanns, 2009).

This theory seems simple, but it is considered as the first step to explain familiness as a concept, taking into account some dimensions on the family involvement. In addition, such theory allows the connection with the RBV approach, which is explained in next paragraphs.

Familiness and the Resource Based View (RBV)

According to the RBV of the firm, resources are at the heart of competitive advantage and, therefore, business success; the RBV remains one of the most prominent theoretical foundations of today's management research (e.g., Newbert, 2007). RBV describes how resources can contribute to the competitive advantage of organizations. RBV has been found as a good base to develop a strategy for any firm (Barney, 1991). According to this theory, firms survive by having a sustainable advantage through being able to combine the use of their resources (Penrose, 1959; Peteraf, 1993; Wernerfelt, 1984).

Several authors have applied RBV into the study of family businesses (Chrisman et al., 2009; Eddleston, et al., 2008; Habbershon & Williams, 1999). From the RBV point of view, familiness refers to the idiosyncratic firm-level bundle of resources and capabilities that a particular firm has, because of the systemic interaction between the family, its individual members and the business (Habbershon & Williams, 1999; Habbershon et al. 2003).

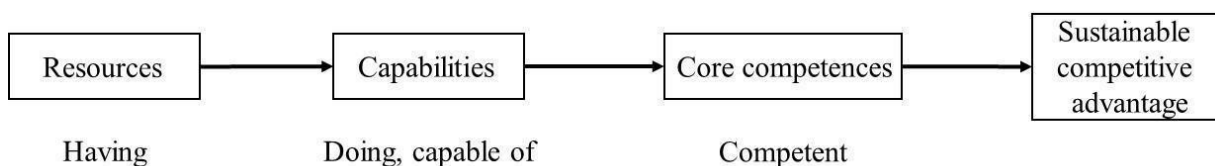
Chrisman, Chua, and Litz (2003) described familiness as "resources and capabilities related to family involvement and interactions" (p. 468). These authors argued that a positive contribution by the family leads to distinctive familiness, which can serve as a source of

competitive advantage for the family firm. So, familiness is often used as a unique element that can differentiate family and non-family firms and discriminate performing from underperforming family firms (Pearson et al., 2008).

Familiness is an important part of the family firm's resource portfolio; however, from recent extensions to the Resource-Based approach, we know that resources owned or controlled do not directly produce firm outcomes. Indeed, resources must be managed in order for their value-creating potential to be reached (Chirico et al., 2013; Sirmon et al., 2007). Building from this logic, resource management has emerged to emphasize managerial actions with a focus on structuring the resource portfolio, bundling resources into capabilities, and leveraging the capabilities in marketplace competitions (Sirmon et al., 2007; Sirmon et al., 2011).

RBV distinguishes the nature, characteristics and potential of a firm's complex and unique internal processes and intangible assets, including values, beliefs, and symbols, and interpersonal relationships possessed by individuals of groups interacting inside the organization (Barney, 1991). The mixing of the resources above-mentioned plus the capabilities altogether will generate a unique competitive advantage to the firm (Irava & Moores, 2010). A visual explanation of the RVB approach and its relationship to the sustainable competitive advantage is showed in Figure 1.

Figure 1
RBV SYNTHESIS



Source: By the authors based on Camisón, 2002

According to Camisón (2002), "Capabilities are the skills which represent the "know-how" and the idiosyncratic and tactical knowledge that the organization and its members possess, for the coordinated deployment of resources that contain special aptitudes to develop systematic and effective activities that enable the achievement of certain objectives" (p. 129).

Camisón (2002) also argues that the difference between capabilities and resources is that the latter are based on exchanging and developing information through human capital of the firm. Resources are therefore factors that the company owns or controls independently, while capabilities arise from the coordinated use of a group of resources. Human capital, social capital, financial capital, and patient capital are examples of what can be unique resources for family firms (Pearson, Carr & Shaw, 2008; Sirmon & Hitt, 2003). The way the human capital uses those resources becomes the expertise of the firm, which is called a capability. Besides, if a certain capability accomplishes the VRIO (*Valuable, Rare, Inimitable and Organized*) characteristics it will be considered as a core competence. (Wernerfelt, 1984; Vivas, 2005). The set of core competences will lead the firm to a sustainable competitive advantage.

Habbershon, Williams, and MacMillan (2003) define familiness as the set of resources controlled by a firm resulting from a continuous overlap of a family system with the business system in a firm. Furthermore, Habbershon and Williams (1999) characterized familiness as the bundle of idiosyncratic internal resources that exists due to the involvement of the family in the firm. They suggest that family involvement leads to familiness, which can be viewed as a unique,

inseparable, and synergistic resource and capability arising from family involvement and interactions.

Simon and Hitt (2003) stated about family firms and the RBV framework that non-family firms acquire, shed, bundle and leverage their resources in a different way than the family firms. This happens usually because of specific differences that family owned businesses have, and particularly Mexican ones like the way family members get involved into the business as managers or CEOs even if they do not have the knowledge nor the experience to hold that positions in the firm.

We agree with Irava and Moores (2010) that familiness is composed of three main dimensions: human resources (*reputation* and *experience*), organizational resources (*decision-making* and *learning*), and process resources (*relationships* and *networks*). To describe the variables used in our research, we must define first the kind of resources we considered to categorize those variables.

As a synthesis, we can say that the RVB framework assumes that a firm, diverse in resources and capabilities becomes an antecedent to create sustainable competitive advantage (Irava & Moores, 2010). RVB has provided a better conception of family firms from an internal perspective. In family owned firms the presence of familiness has been related to generate sustainable competitive advantage bringing uniqueness and usually VRIO characteristics in how they manage their resources (Irava & Moores, 2010).

Many authors claim that as a resource, familiness yields both advantages and disadvantages for family firms (Simon & Hitt, 2003; Habbershon & Williams, 1999; Rutherford, et al. 2008). Habbershon et al. (2003) label these as distinctive and constrictive familiness, respectively. We proposed that familiness is not only a resource but also a capability, since the definition sustains that a capability is the way the resources are used.

Process, Human and Organizational Resources as the Main Dimensions of Familiness

On the research of Irava and Mores (2010) the authors stated “furthermore, defining what a resource is, what makes resources unique, and how resources contribute to the competitive advantage of firms continue to evolve and change”(p.101), they tried to identify what resources or resource category had more relation to familiness. They described a case-study methodology of four family owned firms with similar characteristics using three categories of resources to make the interviews to the family members in those companies: physical, human and organizational. Irava and Moores used those divisions based on the same distinction made by Barney (1991) who also defined resources as “all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enables the firm to conceive of an implement strategies that improve its efficiency and effectiveness” (Irava & Moores, 2010: 102).

Irava and Moores (2010) found on their research that in the four analyzed cases there were six coincidences, among others, that were important to mention as familiness dimensions. Those six dimensions were: experience, reputation, decision-making, learning, networks and relationships. They also comprised the six dimensions into three groups consistent with the group name of resources described by various authors (Barney, 1991; Wernerfelt, 1991, Hitt, Ireland & Hoskisson, 1999) which are human, organizational and process resources.

We agree with Pearson, Carr, and Shaw (2008) when they proposed that Social Capital Theory can be the guide to understand the unique behavioral and social resources and capabilities found in family firms. Social capital can determine how family firms provide a unique context for the creation of value.

Social capital is a broad theory or an “umbrella concept” (Hirsch & Levin, 1999). Adler and Kwon (2002), proposed that social capital of a collectivity “is in its internal structure—in the linkages among individuals or groups with the collectivity and, specifically, in those features that give the collectivity cohesiveness and thereby facilitate the pursuit of collective goals” (p. 21). Nahapiet and Ghoshal (1981), defined social capital as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (p. 243).

Nahapiet and Ghoshal (Ibid.) presented the construct of Social Capital as consisting of three dimensions: structural, cognitive, and relational; Pearson, Carr, and Shaw (2008) proposed these dimensions as the specific elements of familiness resources. According to these authors, these capabilities are the result of the idiosyncratic combination of the structural, cognitive, and relational dimensions of resources related to the familiness construct.

According to social capital, the structural dimension of familiness is defined as the social interactions, including the patterns and strength of ties among the members of a group. In addition, the structural dimension contains the density and connectivity of social ties, as well as members’ ability to use and re-use social networks. In our study, we named this dimension as Process Resources.

On the other hand, cognitive dimension of social capital includes “resources providing shared representations, interpretations, and systems of meaning among parties” (Nahapiet & Ghoshal, 1998: 244). The cognitive dimension of social capital comprises the group’s shared vision and purpose, as well as unique language, stories and culture. We call these Human Resources in our research.

Finally, the relational dimension of social capital consists of the resources created through personal relationships, including trust, norms, obligations, and identity (Nahapiet & Ghoshal, 1998). These personal bonds create unique and often lasting attachments among individuals in a group that influence behavior, such as cooperation, communication and commitment to a common purpose. We named this dimensions as Organizational Resources in our work.

Here we described three dimensions of familiness from a social capital perspective that help define what aspects of familiness can be examined within family firms. Our research proposed these dimensions to develop empirical measures that can be used to capture the familiness construct in family firms.

HYPOTHESES

Several studies have examined the link between a family firm’s resources/capabilities and its competitive advantage/performance. For example, previous research has explored how human capital, social capital, patient financial capital, and governance structure contribute to family firm performance (Danes et al., 2009; Sirmon & Hitt, 2003). Other research has focused on how the family’s aspirations, visions and values affects their strategic choices (Carney, 2005; Chrisman, Chua, & Zahra, 2003; Naldi et al., 2007).

In contrast, our paper focuses on the different ways a family can be involved in the family firm. As such, we hope to answer the call for research by Pearson et al. (2008) to consider the various dimensions of family-related social factors that create familiness. Based on the studies mentioned above, we focus on the dimensions of familiness to explore ways in which this construct can influence the family firm performance.

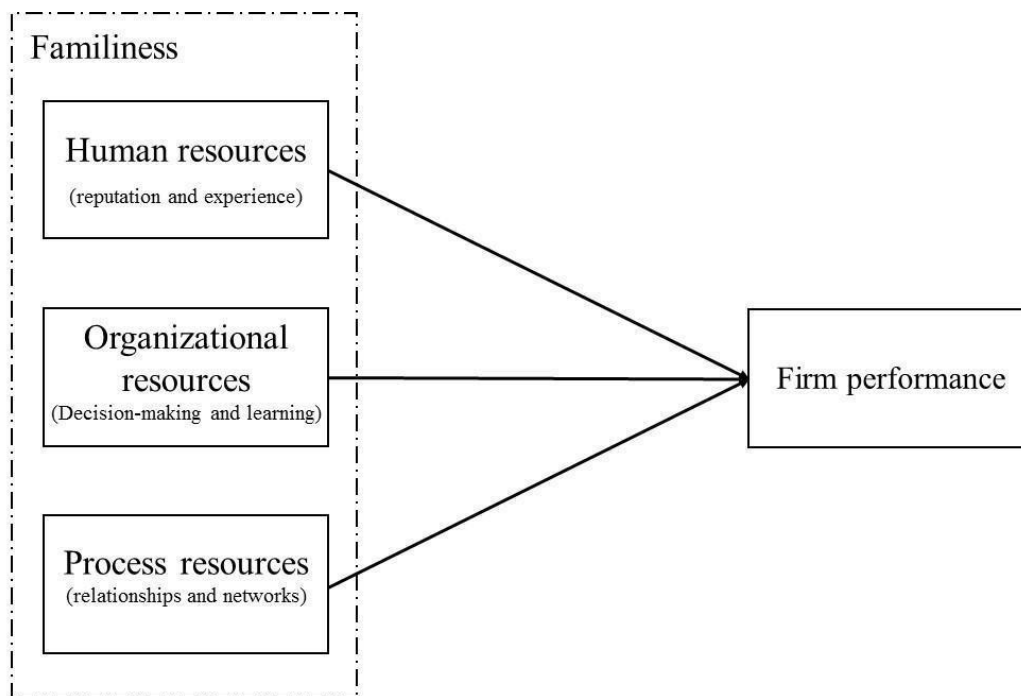
Familiness has been found to have positive (e.g. Tokarczyk et al. 2007) and negative (e.g. Leenders and Waarts 2003; Stewart 2003) effects on firm performance. Habbershon et al. (2003)

refer to these positive and negative outcomes because of the distinctive and constrictive natures of familiness. However, the field has yet to determine the conditions and factors that cause the specific outcomes (Chrisman, Chua & Steier, 2005). This led us to formulate our hypothesis:

H1 Human, organizational and process resources are positively related to the firm performance.

In the figure 2 we exhibit the model we are proposing for our empirical research representing the variables mentioned in the hypothesis

Figure 2
RESEARCH MODEL



In the next section, we present the methodology used to test our model.

METHOD

Data and Sample

For our work, we designed an empirical quantitative research and implemented a survey as data collection method. The sample consisted of 360 companies located in the four most important cities in Mexico, in terms of their degree of industrialization: Mexico City, Guadalajara, Monterrey and Puebla. The selection of companies was based on judgment and one of the requirements was a minimum quota of 40% to be a family owned business. Personal interviews at the corporate facilities with directors, owners and managers of the businesses with power on the decision-

making process were the source of our data. A 100% supervision of the questionnaires was conducted to verify proper filling before being transferred to the SPSS database.

The gathered information was validated by a special intelligent system called CS PRO which reduces any type of human error within the database. This program allows the validation of the following three errors: ranges, sequence and internal consistency. The validation of data was carried out using SPSS that enables dynamic versatility in managing data. Cluster sampling was performed according to the distribution shown in Table 1.

Table 1
SAMPLE PROCEDURE

City	Sector	Micro	Small	Medium	Total surveys by sector
Monterrey	Industry	12	12	6	30
	Services	12	12	6	30
	Commerce	12	12	6	30
Mexico City	Industry	12	12	6	30
	Services	12	12	6	30
	Commerce	12	12	6	30
Puebla	Industry	12	12	6	30
	Services	12	12	6	30
	Commerce	12	12	6	30
Guadalajara	Industry	12	12	6	30
	Services	12	12	6	30
	Commerce	12	12	6	30
Total of surveys by firm size		144	144	72	

Variables and Operationalization

We tested the model on a sample of 194 Mexican family firms. The dependent variable in our model corresponds to financial and operational performance. The independent variable consists of three dimensions; human, organizational and process resources. We also controlled for variables that are likely to affect companies' performance, including firm age, firm size and firm sector. We briefly describe each of the model's components in the next paragraphs.

Dependent Variable

The financial and operational performance (Venkatraman & Ramanujam, 1986) was measured with 5 items in a five-point Likert scale ranging from "inferior 1" to "superior 5". The scale was adapted from two different previous ones, one proposed by Gupta and Govindarajan (1984) and the other one by Kirca et al. (2005). The respondents indicated if their companies were inferior or superior in each of the following financial criteria: sales growth rate, gross profit margin and return on investment. In addition, respondents evaluated operational criteria: customer satisfaction, employee satisfaction and global results.

Independent Variables

The Human Resources dimension was measured with seven items in a five-point Likert scale that merges to different constructs, experience and reputation. On one hand, the experience scale was adapted from the ones previously used in O'Reilly and Chatman (1986), Allen and Meyer (1990), Carlock and Ward (2001), as well as Klein et al. (2005). Such scale focuses on the quality of the suppliers, customers, and allies compared to the industry, but also consider the commitment of family members to gain business success. On the other hand, the reputation scale was adapted from the instruments used previously in Cohen (1963), Delgado-Verde, et al. (2011), as well as Fombrun et. al (2000). The scale measures the products, services, leadership, vision, and financial reputation.

The Organizational Resources dimension was measured with a seven items in a five-point Likert scale that combines different constructs: Learning orientation and Decision Making. Learning orientation measures the commitment to learn as part of the organizational values and as a necessity to guarantee survival. The scale was adapted from Sinkula, Baker and Noordewier (1997). Decision Making, was also adapted from empirical studies that previously measured the support (Lee & Rogoff, 1996; Zellweger, et al., 2011), control (Lee & Rogoff, 1996; Klein, Astrachan, & Smyrnios, 2005) and emotional attachment (O'Reilly & Chatman, 1986; Allen & Meyer, 1990; Carlock & Ward, 2001; Eddleston & Kellermanns, 2007) of family members in decision making within the firms.

The Process Resources dimension was measured with 9 items in a five-point Likert scale that merges two different constructs, relationships and networks. On the one hand, relationships focus on analyzing the quality of the social ties with employees, allies and family members. On the other hand, networks concentrate on how the quality of social ties with customers and suppliers feedbacks the firm to develop solutions. Both scales were adapted from previous empirical studies (Miller & Le Breton-Miller, 2005; Miller, Jangwoo, Sooduck, & Le Breton-Miller, 2009; Cruz et al., 2010). See appendix 1 for detailed information.

Control Variables

To capture other organizational and environmental forces related to familiness and firm performance, our regression included three control variables. We obtained the control variables data from the "identification section" in the instrument. We asked to the respondents about the year of the firm's foundation, the sector in which the firm could be classified (e.g. industry, commerce or services), as well as the firm's size in terms of the number of employees. We expressed the firms age in years (calculated as 2014 minus the founding year). Moreover, the firm's size classification consisted in three options, "micro" from 1 to 10 employees, "small" from 11 to 30 employees and "medium" with more than 30 employees as Mexican Economic Ministry has them classified in Mexico (Mexican Economic Ministry, 2002).

It is noteworthy that we calculated and reported Cronbach's alpha coefficients, in order to test the internal consistency reliability of the scales we adapted and used to measure: financial and operational performance, human resources, organizational resources and process resources (Cfr. appendix 1).

Analysis

We used multiple regression analysis to examine the individual effects on the independent variables over the firm's performance. The main reason is the characteristics of the data, which consists of a mix of numerical and categorical measures. We tested a variety of models, looking for the one with the best fit. We present our results on the next section.

RESULTS

Table 2 presents the descriptive statistics for the analyzed variables. Due to the use of the Likert scale to measure the firm's performance, human resources, organization and process resources, their means and standard deviation are relatively similar. With regard to the firms' size, 91 of the surveyed family businesses were micro enterprises, which represents the 46.9% of the sample. Concerning the firms sector, this is distributed similarly among industry, services and trading. Moreover, the firm's age mean is 18.5 years with a standard deviation of 16.8 years.

Table 2
MEANS, STANDARD DEVIATIONS, AND CORRELATIONS

Variables	Means	S. D.	1	2	3	4	5	6	7
1. Firms Performance	3.6	0.7	1.00						
2. Human Resources	4.0	0.7	0.47 **	1.00					
3. Organization Resources	4.1	0.6	0.40 **	0.68 **	1.00				
4. Process Resources	3.9	0.7	0.47 **	0.75 **	0.71 **	1.00			
5. Firm Age	18.5	16.8	-0.16 **	-0.17 **	-0.09 *	-0.12 **	1.00		
6. Firm Size	1.7	0.8	0.01	-0.07	-0.10 *	-0.12 **	0.11 *	1.00	
7. Firm Sector	2.0	0.8	0.07	-0.06	-0.12 **	-0.06	0.03	0.06	1.00

a. N = 194

b. ** P < .05 *p<.1

Table 2 also shows the correlations of the variables considered in our model. On one hand, the firm's performance is significantly correlated with human resources, organization resources, process resources and firm age. The correlation level is less than 0.5 but highly significant. It is noteworthy that the correlation between firms age and firms performance is negative. On the other hand, the correlations among the three independent variables are highly significant and close to 0.7.

We used regression analysis to estimate the effects of human, organization and process resources on the firm's performance. Table 3 shows the results obtained by the application of this statistical method.

Table 3
HUMAN RESOURCES, ORGANIZATIONAL RESOURCES, PROCESS RESOURCES AND FIRM PERFORMANCE

Variables	Dependent Variable: Firms Performance							
	1	2	3	4	5	6	7	8
1. Intercept	3.605 ** (0.184)	1.343 ** (0.35)	1.495 ** (0.387)	1.388 ** (0.344)	1.027 ** (0.288)	1.03 ** (0.36)	1.115 ** (0.383)	0.93 ** (0.385)
2. Human Resources		0.527 ** (0.072)			0.406 ** (0.097)	0.302 ** (0.105)		0.275 ** (0.111)
3. Organization Resources			0.477 ** (0.079)		0.189 * (0.102)		0.17 (0.107)	0.081 (0.111)
4. Process Resources				0.523 ** (0.072)		0.302 ** (0.104)	0.41 ** (0.101)	0.267 ** (0.114)
5. Firm Age	-0.007 ** (0.003)	-0.004 (0.003)	-0.006 * (0.003)	-0.005 * (0.003)	-0.004 (0.003)	-0.004 (0.003)	-0.005 * (0.003)	-0.004 (0.002)
6. Firm Size	0.025 (0.07)	0.047 (0.062)	0.058 (0.065)	0.071 (0.063)	0.055 (0.062)	0.064 (0.061)	0.073 (0.062)	0.065 (0.061)
7. Firm Sector	0.068 (0.066)	0.09 (0.059)	0.109 * (0.061)	0.09 (0.059)	0.101 * (0.058)	0.093 (0.057)	0.1 * (0.059)	0.097 * (0.057)
R square	0.031	0.244	0.188	0.244	0.257	0.276	0.254	0.278
Adjusted R square	0.015	0.228	0.171	0.228	0.237	0.257	0.234	0.255
F-statistics	2.003	15.21	10.95	15.26	13.009	14.139	12.811	11.992

Standard errors are in parentheses

Probabilities of all F-statistics are less than .001

* p<.10 two-tailed test

** p<.05 two-tailed test

Table 3 also exhibits that all models were significant, except for model 1 that only included the control variables. In model 8, we regressed the three independent variables and the control variables. We found that human resources and process resources are highly significant. Moreover, the firm sector is significant too. However, model 6 has the highest adjusted R square suggesting that human resources and process resources explain the firms' performance variance in 25.7 percent. We include a control variables (firms age, size and sector) in all models; nevertheless, firm's age was only significant in model 3, 4 and 7; firm sector was significant in models 3, 5, 7 and 8 and Firm's size was not significant in any model. In sum, model 6 presents the best fit.

Due to all the results presented here, we accept our hypothesis:

H1: Human, organizational and process resources are positively related to the firm performance.

Therefore, our hypothesis is accepted because the three dimensions of familiness had a positive impact on firm performance. Nevertheless, only two of them (human resources and process resources) were highly significant. The results suggest some implications that should be address in order to better understand the effects of the dimensions on the firm performance.

DISCUSSION AND CONCLUSIONS

The involvement of the family in the business originates an idiosyncratic resource called familiness, which is widely accepted and studied in the academic and non-academic business literature (Cabrera-Suarez, De Saa-Perez, & Garcia-Almeida, 2001; Pearson et al. 2008; Rutherford et al. 2008; Zellweger et al. 2008b). Even though familiness helps to differentiate family businesses from other forms of business, we do not fully understand yet the nature of familiness nor the components of this construct (Chrisman, Chua & Steier, 2005; Moores, 2009).

The results presented in this paper contribute to clarify the familiness concept. We have demonstrated how RBV along with Social Capital Theory provides a unified approach in the conceptualization of the idiosyncrasy of familiness. We started from the Familiness Resource Model presented by Irava and Moores (2010) composed of a unique bundle of six resources: reputation, experience/insights and skills (human resources), learning and decision-making (organizational resources), and relationships and networks (process resources). Using the Social Capital framework (Pearson, Carr & Shaw, 2008) we relate the basic three dimensions of this model with the components of Social Capital: Structural (Process Resources), Cognitive (Human Resources), and Relational (Organizational Resources). The influence of the family through this resource dimensions provides a theoretical body to understand the impact of familiness.

However, in the same line with previous research (Sirmon & Hitt, 2003), we agree that the only presence of the three dimensions mentioned does not constitute a performance of competitive advantage. The characteristics of the resources also helped to clarify the conditions associated with familiness advantage.

When we analyzed our sample and the results we obtained, we observed that only two of the three dimensions had an important impact on the performance. Those dimensions were the human resources and process resources, which in sum explains 25% of the performance. Those results made sense to us because in the field of family business, and specifically in Mexican firms, we usually observe some particular behaviors. For example, the company's founder works harder on building the relationships with the suppliers and clients, consequently, this first generation is preparing and training their sons and almost all the family members involved in the company to continue preserving those relationships for the future. In that sense, the company's founder is trying to preserve the reputation and to obtain more experience through developing skills related to public relationships, which has much to do with the way Mexican entrepreneurs behave.

It is important to mention that almost 50% of our sample is classified as micro businesses, which means that they have 1 to 10 employees including family and non-family members (Mexican Economic Ministry, 2002). The results showed that the size of the company was not determinant on the performance (-0.01). However, the firms age has an important level of significance (-0.16) which means to us that the younger the company, the weaker the performance results. This makes sense, because the mean of the age of the companies we interviewed was 18.5 years, and in our experience, we see that nowadays second and third generations are prone to expect easy and quick results from the company they inherited. Unfortunately, their lack of resilience usually leads to the company to bankruptcy in a short period. On the contrary, those companies that had experience and were able to subsist along many crisis had the pace, resilience and experience to make better decisions. Furthermore, those companies are well adapted because they already have substantial long-term relationships with both suppliers and clients.

We used the survey on appendix 1 to collect the data for our research. According to the results we obtained, we can conclude that familiness at least in two of the three dimensions in which we divide the construct such as human resources and processes resources were affecting the

performance of the firm. In addition, we discovered that the relationship between organizational resources and performance is the weakest one but it still has an impact on the general results of the company. This could have an explanation from our point of view because in our experience with owners of family firms in Mexico, they are not prone to make efficient decisions nor have an attitude of learning from their mistakes.

Our main contribution to the field of familiness studies is that each dimension used in our study (human resources, organizational resources and process resources) are related to the way each company uses and transforms each one of the resources. So, instead of consider the construct “familiness” as a resource we can consider it as a capability of the firm. This conclusion came up to us when we analyzed the characteristics of the sample and when we observed that each company had coincidences in the way they manage and bundle their resources.

We agreed with Habbershon and Williams (1999), Simon and Hitt (2003) and Irava and Moores (2010) on the misconception of familiness as a resource instead of being considered as a capability. In our study, we separated the dimensions of familiness seeing each one as resources and being part of the construct Familiness. Therefore, familiness is capability because according to Camisón (2002) “a capability is the know-how of a company”. This is the way each firm manages bundles and optimally uses its resources” and that’s exactly what familiness means to a company.

In brief, our study answers the ‘what’ question in establishing the content of familiness. We identify the three dimensions of familiness that can serve as dimensions in future theory-building exercises.

LIMITATIONS AND FUTURE RESEARCH

Our research presents some limitations and we hope that recognizing them could be a catalyst for additional studies. The objective of the study was to provide a deeper and richer description of the phenomenon of familiness. For that reason, we selected a sample on the most important cities in Mexico, but the study is cross-sectional. In the future, a longitudinal study will provide richer information and will allow having certainty in causality effects. In addition, the study was conducted for a sample of companies in Mexico, and naturally, in the future it can be extended to other countries and in specific industry sectors.

Moreover, data collection was based on interviews with owners and CEOs of each firm, which are reliable sources, but future studies may use the opinion of multiple actors per company. Finally, there are sophisticated methods for quantitative research (e.g. structural equation modelling) more robust in comparison with multiple regression analysis, which is the one we used in this article. For further research, a structural equation modelling should be used as analysis method.

Regardless of the limitations, we think our study provides opportunities for extension of this topic. For example, it would be interesting to study multi-generational family firms in different contexts, and determine how the patterns differ. Firms in a cultural context may cause different patterns, which are deemed of greater importance within their cultural context and environment. This could establish the overall performance implications of our familiness resource dimensions and their patterns.

The suggested propositions presented in this study provide fruitful avenues where one can begin a research design.

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APPENDIX 1: COLLECTION DATA INSTRUMENT (SURVEY)

Human Resources: Cronbach'S alpha = 0.764

Reputation

Cronbach's alpha = 0.681

Nº	Items/English	Source	Journal
113	Offers high quality products and services / Offers products and services that are a good value for the money	In. Delgado-Verde, et. al, (2011). / Product and services reputation. Fombrum et. al, (2000). Product reputation. Cohen (1963)	Cuadernos de Economía y Dirección de la Empresa / Journal of Brand Management
114	Has excellent leadership; Recognizes and takes advantage of market opportunities	In. Delgado-Verde, et. al, (2011). / Vision and leadership reputation. Fombrum et. al, (2000). Corporate leadership. Cohen (1963).	Cuadernos de Economía y Dirección de la Empresa / Journal of Brand Management
115	Has a strong record of profitability; Looks like a company with strong prospects for future growth	In. Delgado-Verde, et. al, (2011). / Financial and performance. Fombrum et. al, (2000).	Cuadernos de Economía y Dirección de la Empresa / Journal of Brand Management

Experience

Cronbach's alpha = 0.597

Nº	Items/English	Source	Journal
23	Family members feel that the family business's success is their own success.	Identification of Family Members With the Firm: O'Reilly and Chatman (1986), Allen and Meyer (1990), Carlock and Ward (2001), Klein et al. (2005)	Family Business Review
106	My company's clients database is considered one of the best in the industry	Identification of Family Members With the Firm: O'Reilly and Chatman (1986), Allen and Meyer (1990), Carlock and Ward (2001), Klein et al. (2005)	Family Business Review
109	My company's suppliers database is considered one of the best in the industry	Identification of Family Members With the Firm: O'Reilly and Chatman (1986), Allen and Meyer (1990), Carlock and Ward (2001), Klein et al. (2005)	Family Business Review
112	My company's allies database is considered one of the best in the industry	Identification of Family Members With the Firm: O'Reilly and Chatman (1986), Allen and Meyer (1990), Carlock and Ward (2001), Klein et al. (2005)	Family Business Review

Organizational Resources: Cronbach's alpha= 0.714

Decision-Making

Cronbach's alpha = 0.663

N°	Items/English	Source	Journal
22	Continuing the family legacy and tradition is an important goal for my family business.	Renewal of Family Bonds Through Dynastic Succession. Lee and Rogoff (1996), Zellweger, Kellermans, Chrisman, and Chua (2011)	Family Business Review
25	In my family business, family members exert control over the company's strategic decisions.	Family Control and Influence: Lee and Rogoff (1996); Klein, Astrachan, and Smyrnios (2005)	Family Business Review
36	Emotions and sentiments often affect decision-making processes in my family business.	Emotional Attachment of Family Members: O'Reilly and Chatman (1986), Allen and Meyer (1990), Carlock and Ward (2001), Eddleston and Kellermans (2007)	Family Business Review
43	Family owners are more likely to evaluate their investment on a long-term basis.	Renewal of Family Bonds Through Dynastic Succession. Lee and Rogoff (1996), Zellweger, Kellermans, Chrisman, and Chua (2011)	Family Business Review

Learning Orientation

Cronbach's alpha = 0.485

N°	Items/English	Source	Journal
51	The basic values of this organization include learning as key to improvement.	Commitment to Learning. Sinkula, Baker & Noordewier (1997).	Journal of the Academy of Marketing Science.
52	The sense around here is that employee learning is an investment, not an expense.	Commitment to Learning. Sinkula, Baker & Noordewier (1997).	Journal of the Academy of Marketing Science.
53	Learning in my organization is seen as a key commodity necessary to guarantee organizational survival	Commitment to Learning. Sinkula, Baker & Noordewier (1997).	Journal of the Academy of Marketing Science.

Process Resources: Cronbach's alpha = 0.839

Relationships

Cronbach's alpha = 0.515

N°	Items/English	Source	Journal
33	In my family business, contractual relationships are mainly based on trust and norms of reciprocity.	Binding Social Ties: Miller and Le Breton-Miller (2005), Miller, Jangwoo, Sooduck, and Le Breton-Miller (2009), Cruz et al. (2010)	Family Business Review
110	The employees of my organization work side by side with the allies to develop solutions	Binding Social Ties: Miller and Le Breton-Miller (2005), Miller, Jangwoo, Sooduck, and Le Breton-Miller (2009), Cruz et al. (2010)	Family Business Review

111	In the last years, my organization is improving the quality and the design of our products and processes through relationships with our allies	Binding Social Ties: Miller and Le Breton-Miller (2005), Miller, Jangwoo, Sooduck, and Le Breton-Miller (2009), Cruz et al. (2010)	Family Business Review
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Networks

Cronbach's alpha = 0.787

Nº	Items/English	Source	Journal
34	Building strong relationships with other institutions (i.e., other companies, professional associations, government agents, etc.) is important for my family business.	Binding Social Ties: Miller and Le Breton-Miller (2005), Miller, Jangwoo, Sooduck, and Le Breton-Miller (2009), Cruz et al. (2010)	Family Business Review
35	Contracts with suppliers are based on enduring long-term relationships in my family business.	Binding Social Ties: Miller and Le Breton-Miller (2005), Miller, Jangwoo, Sooduck, and Le Breton-Miller (2009), Cruz et al. (2010)	Family Business Review
104	We usually obtain from our clients list a lot of valuable information about the market trends and customer's needs.	Binding Social Ties: Miller and Le Breton-Miller (2005), Miller, Jangwoo, Sooduck, and Le Breton-Miller (2009), Cruz et al. (2010)	Family Business Review
105	My company's employees work side by side with our clients in order to develop solutions to their problems	Binding Social Ties: Miller and Le Breton-Miller (2005), Miller, Jangwoo, Sooduck, and Le Breton-Miller (2009), Cruz et al. (2010)	Family Business Review
107	My company's employees work side by side with our suppliers in order to develop solutions.	Binding Social Ties: Miller and Le Breton-Miller (2005), Miller, Jangwoo, Sooduck, and Le Breton-Miller (2009), Cruz et al. (2010)	Family Business Review
108	In the last years, my organization is improving the quality and design of our products and processes through the relationships with our suppliers	Binding Social Ties: Miller and Le Breton-Miller (2005), Miller, Jangwoo, Sooduck, and Le Breton-Miller (2009), Cruz et al. (2010)	Family Business Review

Performance Cronbach's alpha = 0.813

N°	Items/English	Source	Journal
82	According to our ROI Objective, last year was...	*Jaworski and Kohli (1993), *Narver and Slater (1990); *Kirca et al. (2005) **Covin and Slevin (1989).	*Journal of Marketing **Strategic Management Journal
83	According to our profits objectives, last year was...	*Jaworski and Kohli (1993), *Narver and Slater (1990); *Kirca et al. (2005) **Covin and Slevin (1989).	*Journal of Marketing **Strategic Management Journal
84	According to our sales objectives, last year the growth rate in sales was...	*Jaworski and Kohli (1993), *Narver and Slater (1990); *Kirca et al. (2005) **Covin and Slevin (1989).	*Journal of Marketing **Strategic Management Journal
85	According to our objectives, the customer's satisfaction degree last year was...	*Jaworski and Kohli (1993), *Narver and Slater (1990); *Kirca et al. (2005) **Covin and Slevin (1989).	*Journal of Marketing **Strategic Management Journal
86	According to our objectives, the employee's satisfaction degree last year was...	*Jaworski and Kohli (1993), *Narver and Slater (1990); *Kirca et al. (2005) **Covin and Slevin (1989).	*Journal of Marketing **Strategic Management Journal
87	Our general results rate last year was...	*Jaworski and Kohli (1993), *Narver and Slater (1990); *Kirca et al. (2005) **Covin and Slevin (1989).	*Journal of Marketing **Strategic Management Journal

IS THE SUM OF THE PARTS GREATER THAN THE WHOLE? SKILL VS. SYNERGY

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ABSTRACT

While managing performance outcomes in the workplace it critical to success, few studies have sought to determine whether the presence of synergy adds a measurable increase in workgroup performance. The research on synergy is often aimed at identification and at times quantification. Professional golf events provide an opportunity to study individual, dyad, and team performance, particularly as they relate to synergy. Performance data from six Ryder Cup team competitions between the USA and Europe were analyzed. A baseline of individual performance skill was established for each player. The skill level for both dyads and teams was then established. At the dyad level, if performance was equal to or greater than the skill of the individuals, synergy was present. The overall performance outcome was then calculated to determine whether dyads with synergy outperformed the others. The results showed that the number of dyads with synergy made no significant difference between the two groups. However, at the team level, a t-test of the skill of all members of each team was calculated and compared to team performance. The t-test demonstrated that the USA had significantly more individual skill and consistency than did Europe yet Europe earned 94 points compared to the USA's 74 over the 10 years of competition. Furthermore, the European team was awarded the Ryder Cup in five of the six tournaments, demonstrating the impact of team synergy on performance.

With the continued presence of group and teamwork in contemporary organizations and the significant work performed by “interacting individuals” (Ladley, Wilkinson, & Young, 2015), ensuring the success of this approach remains an important focus. However, “many questions about group versus individual performance ... remain unanswered” (Larson, 2010, pp. ix). In fact, as the frequency of team-based work continues to increase, understanding the influence of team composition on performance outcomes may be crucial to maximizing human capital (Humphrey, Morgeson, & Mannor, 2009; Shaw, Duffy, & Stark, 2000; Sparrowe, Liden, Wayne, & Kraimer, 2001; Ndinguri, Prieto, & Machtmes, 2012).

MOTIVATION

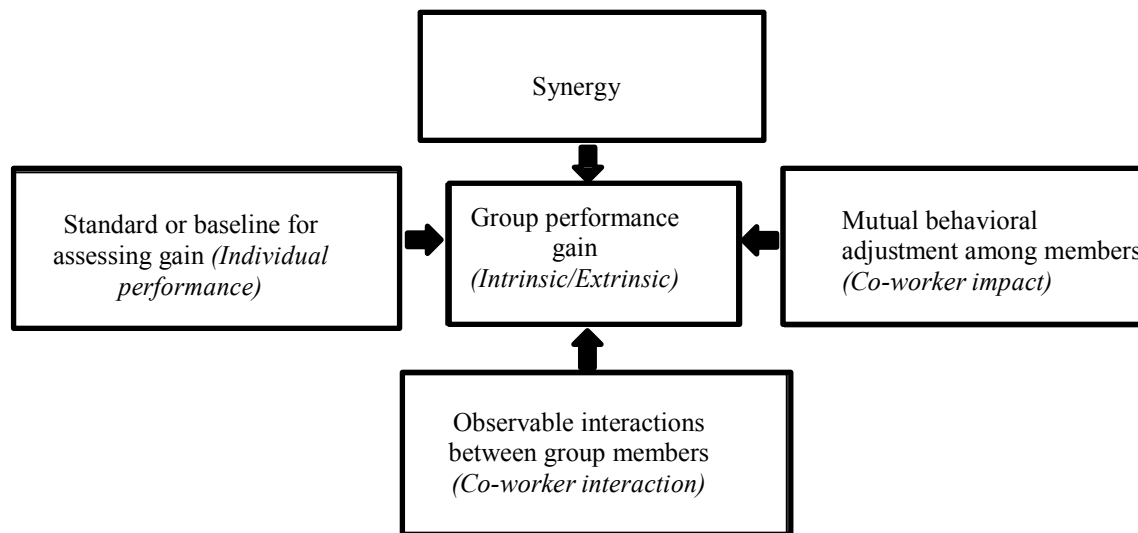
Studies on factors contributing to individuals' performance tend to examine intrinsic characteristics such as ability, interest, and internal motivation (Deci, Connell, & Ryan, 1989; Deci, 1975; Vallerand, 1997; Van Yperen & Hagedoorn, 2003) or extrinsic variables, including outcome and social or material rewards (Brief & Aldag, 1977; Sansone & Smith, 2000; Ryan & Deci, 2000). The impact of co-workers on an individual's performance may be positive or negative (Thibaut & Kelley, 1959). Positive actions, including task support, providing information, mentoring, and engagement, can improve performance (Caplan, Cobb, French, Harrison, & Pinneau, 1975; Ensher, Thomas, & Murphy, 2001; Kogler Hill, Bahniuk, & Dobos,

1989; Morgeson & Humphrey, 2006) but negative actions, including rudeness, envy, undercutting, and bullying (Duffy et al., 2002; Andersson & Pearson, 1999; Bruk-Lee & Spector, 2006) diminish it. Performance may be further enhanced by interpersonal variables such as “personality fit,” including “agreeableness, emotional stability and openness” (Barrick et al., 2001) while the lack of fit makes it more difficult for co-workers to perform effectively together (Larson, Jr., 2010).

Despite the wealth of studies linking individual motivation to performance, few have provided an understanding of the connection between individual motivation and group or team synergy. Furthermore, providing management with insight into forming teams to improve performance outcomes could have a significant impact on organization resources and success.

Synergy has been a topic of increasing interest in recent years (Larsen, 2010; Maymin, Maymin, & Shen, 2013; Clark & Clark, 2014). Previous studies have demonstrated that synergy exists in group or team sports (e.g., cycling, golf, basketball) and can improve performance. These studies have shown that the pairing or grouping of certain athletes for competitive events can generate improved performance exceeding individual skill. Larson (2010) not only explored the early evidence of synergy in research but clearly defined it as “a gain in performance that is attributable in some way to group interaction” (p. 4). This interaction may take many forms, including sharing information on competitors and conditions and/or planning a strategy to win. Regardless of the form of this interaction, certain sports require more engagement than others. Key elements of the synergy definition, shown in Figure 1 (Larson, 2010), are necessary inputs to group performance and a gain over the individual baseline can be attributed to synergy and include elements of individual motivation, as previously discussed.

Figure 1
ASPECTS OF SYNERGY DEFINED



To identify synergy in group performance, an activity must meet the definition of a group task (Larson, 2010; Hackman, 1969); a group task includes a “stimulus complex” of preexisting

materials, “goal directives” to create clear expectations for performance, and “procedural directives” to frame the performance.

Professional golf provides the venue for the study of performance and synergy as the nature of the sport is consistent with the definition of synergy and the game, specifically the Ryder Cup tournament, meets the definition of a group task. The Ryder Cup tournament provides a unique opportunity to examine evidence of synergy and related performance outcomes in a competitive environment. Of particular importance to this study is identifying whether certain groups or teams demonstrate synergy and if, in fact, those groups demonstrating synergy have a better performance outcome. Therefore, we propose the following:

Hypothesis 1 When synergy is identified in dyads, performance improves.

Hypothesis 2 When synergy is identified in teams, performance improves.

Measuring Synergy

Synergy has been measured with a variety of methods. For example, the synergy of National Basketball Association (NBA) teams is calculated by “comparing their 5-player lineup’s effectiveness to the ‘sum-of-the-parts’” (Maymin, Maymin, & Shen, 2013, p. 4). Collins and Guetzkow (1964, p. 58) focused on group performance and identified the “assembly effect bonus” as the increased performance of the group beyond both the most capable individual and the sum of the group members working individually.

Larson (2010, p. 4) provided a model with the most relevant definition of synergy: “a group is said to exhibit synergy when it is able to accomplish collectively something that could not reasonably have been achieved by any simple combination of individual member efforts”. Synergy is thus defined as follows:

Strong synergy – group performance gain that exceeds that of the best member

Weak synergy – group performance gain that exceeds that of the typical member

Context of the Study

This study examined individual, dyad, and team performance in the Ryder Cup golf tournaments from 2004 through 2014. These events meet both the definition of synergy (Figure 1) and the previously described group task criteria.

The Ryder Cup is biennial and played between teams from the USA and Europe. Table 1 provides the format for the three-day event with 16 two-person dyads playing the first two days and 12 singles or individual matches completed on the third day (Maher, 2012).

Table 1 RYDER CUP MATCH				
	Day 1	Day 2	Day 3	Total
Morning	4 dyad matches (Alternate Shot)	4 dyad matches (Best Ball)	6 singles team matches	14
Afternoon	4 dyad matches (Alternate Shot)	4 dyad matches (Best Ball)	6 singles team matches	14
Matches	8	8	12	28

Criteria for selecting the 12 players for each team vary. Most players for both teams are identified based on points awarded to top money earners in the year preceding the tournament. The remaining two to four players for both teams are discretionary picks by the team captain and chosen based on various criteria, including player experience in the Ryder Cup, recent success in tour events, or other measures the captain deems important (www.rydercup.com). Then only certain players are selected for dyad matches while all players compete in the final day of singles matches.

Dyad performance is measured by the number of wins in match play. For each hole played, the dyad with the lowest number of strokes to get the ball in the hole wins the hole, earning a point. The losing dyad earns no points and no dyad receives points when a hole ends in a tie. At any point in the match, the hole-by-hole performance is shown on the scoreboard indicating whether a team is “up,” “down,” or “all square,” followed by “after ‘x’ holes.” If a winner is determined before all 18 holes are played, the match ends. An example is when Dyad A is 3 (points) up with 2 (holes) to play, making it impossible for Dyad B to win or tie the match. Once the match has ended or all 18 holes have been played, the dyad winning the most points earns one point for its team. If there is a tie, a half point is awarded to both teams. Hypothesis 1 focuses on the synergy and outcomes of the 96 matches played in dyads.

Team competition at the individual level is held on the final day of the tournament, with the 12 players from each team going head-to-head in individual match play. Again, points are awarded at one point per hole won, no points for holes tied or lost. At the conclusion of a singles match, the winning player’s team is awarded one point; both teams are awarded a half point in the event of a tie. Overall team performance is determined by adding the results of team singles matches and dyad matches. Team results are shown by a cumulative score of all matches completed. The winner of the Ryder Cup is the first team to earn 14 ½ points (Mayer, 2012).

Hypothesis 2 focuses on the synergy and outcomes of all 168 matches (both the 96 dyad matches and 72 singles matches).

METHODOLOGY

We tested the hypotheses with data collected from the six Ryder Cup tournaments between 2004 and 2014 and for each team and:

1. Identified each player’s adjusted stroke average (ASA) and ranking to determine the individual baseline performance measure.
2. Calculated the dyad performance metric by averaging the ASA for both players then ranking the results by team for each dyad.
3. Reviewed the results of the dyad match play for each dyad to determine the performance outcome.

4. Compared individual baseline performance ranking with the dyad performance ranking to determine evidence of dyad synergy.
5. Performed t-tests comparing the individual performance of all players for the study years for each team to identify significant differences by team.
6. Calculated team performance compared to individual team member performance to determine team synergy.

Individual Baseline Skill

Various measures of performance are used in professional golf, including tournaments won, money earned (Alexander & Kern, 2005; Callan & Thomas, 2007; Moy & Leason, 1998; Nero, 2001) and player skill (Fried et al., 2004). ASA was used in this study to establish the individual baseline performance because ASA is based on “a minimum of 60 rounds, with no incomplete rounds (i.e. stipulated rounds as defined by the Rules of Golf, as approved by the USGA and the Royal & Ancient Golf Club of St. Andrews, Scotland), in events co-sponsored or designated by the PGA Tour” (http://images.pgalinks.com/vmc/pressReleases/MG_2015_Inside-Of-PGA.pdf, p. 4). This calculation averages each round played by a golfer annually, accounts for the difficulty of the event venue, and “takes into account the stroke average of the field” (Sen, 2012, p. 40). The ASA is ranked and shown for each player in Table 2- Europe and Table 3 - USA.

Table 2 INDIVIDUAL PLAYER RANK - EUROPE					
Year	Name	Scoring Rank	Year	Name	Scoring Rank
2004	Casey, P	4	2010	Donald, L	1
	Clarke, D	2		Fisher, R	11
	Donald, L	1		Hanson, P	8
	Garcia, S	3		Harrington, P	3
	Harrington, P	6		Jimenez, M	10
	Howell, D	5		Kaymer, M	5
	Jimenez, M	10		McDowell, G	7
	Levet, T	8		McIlroy, R	4
	McGinley, P	9		Molinari, E	12
	Montgomerie, C	12		Molinari, F	9
	Poulter, I	11		Poulter, I	6
	Westwood, L	7		Westwood, L	2
2006	Casey, P	10	2012	Colsaerts, N	9
	Clarke, D	9		Donald, L	3
	Donald, L	1		Garcia, S	4
	Garcia, S	5		Hanson, P	8
	Harrington, P	2		Kaymer, M	12
	Howell, D	6		Lawrie, P	11
	Karlsson, R	3		McDowell, G	7
	McGinley, P	11		McIlroy, R	1
	Montgomerie, C	12		Molinari, F	10
	Olazabal, J	4		Poulter, I	5
	Stenson, H	8		Rose, J	2
	Westwood, L	7		Westwood, L	6
2008	Casey, P	3	2014	Bjorn, T	10
	Garcia, S	1		Donaldson, J	9
	Hansen, S	12		Dubuisson, V	11
	Harrington, P	2		Gallacher, S	12
	Jimenez, M	8		Garcia, S	2
	Karlsson, R	4		Kaymer, M	6
	McDowell, G	10		McDowell, G	4
	Poulter, I	5		McIlroy, R	1
	Rose, J	6		Poulter, I	7
	Stenson, H	7		Rose, J	3
	Westwood, L	9		Stenson, H	5
	Wilson, O	11		Westwood, L	7

Table 3
INDIVIDUAL PLAYER RANK - USA

Year	Name	Scoring Rank	Year	Name	Scoring Rank
2004	Campbell, C	10	2010	Cink, S	8
	Cink, S	3		Fowler, R	5
	DiMarco, C	7		Furyk, J	6
	Funk, F	5		Johnson, D	10
	Furyk, J	8		Johnson, Z	7
	Haas, J	4		Kuchar, M	1
	Love III, D	12		Mahan, H	11
	Mickelson, P	1		Mickelson, P	9
	Perry, K	6		Overton, J	3
	Riley, C	11		Stricker, S	2
	Toms, D	9		Watson, B	4
	Woods, T	2		Woods, T	12
2006	Campbell, C	9	2012	Bradley, K	9
	Cink, S	6		Dufner, J	2
	DiMarco, C	12		Johnson, D	10
	Furyk, J	2		Johnson, Z	6
	Henry, J	8		Kim, A	12
	Johnson, Z	11		Kuchar, M	7
	Mickelson, P	4		Mickelson, P	11
	Taylor, V	10		Simpson, W	1
	Toms, D	7		Snedeker, B	5
	Verplank, S	3		Stricker, S	4
	Wetterich, B	5		Watson, B	3
	Woods, T	1		Woods, T	8
2008	Campbell, C	2	2014	Bradley, K	6
	Cink, S	5		Fowler, R	8
	Curtis, B	11		Furyk, J	5
	Furyk, J	8		Johnson, Z	4
	Holmes, J	12		Kuchar, M	1
	Kim, A	4		Mahan, H	12
	Leonard, J	3		Mickelson, P	11
	Mahan, H	6		Reed, P	10
	Mickelson, P	7		Simpson, W	7
	Perry, K	1		Speith, J	9
	Stricker, S	9		Walker, J	2
	Weekley, B	10		Watson, B	3

Dyad Performance

To determine dyad performance, the win, loss, tie (WLT) record for each group during the event was calculated. Results for each of the 96 dyad matches were calculated using the same point values employed by the Ryder Cup tournament. One point is awarded for a win, a half point for a tie, and no points for a loss, as shown in Table 4 for Europe and Table 5 for the USA.

Ranking is used as the accepted tool to compare athletic performance (Malcata, Vandenbogaerde, & Hopkins, 2014) and in professional golf ranking is often the basis for

comparing the areas of money, skill, and success (Bois, Sarrazin, Southon, & Boiche, 2009; Dias, Martins, Couceiro, & Mendes, 2014) culminating with the World Golf Rankings (PGA Tour).

Table 4
WLT FOR EACH DYAD 2004-2014 - EUROPE

Year	Dyad	WLT Ranking	Year	Dyad	WLT Ranking
2004	Montgomerie, C/Harrington, P	1	2010	Westwood, L/Kaymer, M	2
	Clarke, D/Jimenez, M	4		McIlroy, R/McDowell, G	2
	McGinley, P/Donald, L	7		Poulter, I/Fisher, R	9
	Garcia, S/Westwood, L	7		Donald, L/Harrington, P	9
	Clarke, D/Westwood, L	1		Jimenez, M/Hanson, P	4
	Garcia, S/Donald, L	1		Molinari, E/Molinari, F	8
	Clarke, D/Poulter, I	9		Harrington, P/Fisher, R	1
	Casey, P/Howell, D	4		Poulter, I/Donald, L	4
	Jimenez, M/Levet, T	9		Donald, L/Westwood, L	4
	McGinley, P/Harrington, P	4		Poulter, I/Kaymer, M	4
2006	Clarke, D/Westwood, L	1	2012	Garcia, S/Donald, L	2
	Garcia, S/Donald, L	1		Rose, J/Poulter, I	1
	Casey, P/Howell, D	4		McIlroy, R/McDowell, G	2
	Harrington, P/Montgomerie, C	9		Colsaerts, N/Lawrie, P	6
	Casey, P/Karlsson, R	4		Rose, J/Molinari, F	6
	Garcia, S/Olazabal, J	1		McIlroy, R/Poulter, I	2
	Harrington, P/McGinley, P	7		Westwood, L/Donald, L	6
	Howell, D/Stenson, H	7		Colsaerts, N/Garcia, S	6
	Westwood, L/Montgomerie, C	4		Lawrie, P/Hanson, P	6
	Harrington, P/Stenson, H	9		Rose, J/Kaymer, M	6
2008	Harrington, P/Karlsson, R	4		Westwood, L/Colsaerts, N	2
	Stenson, H/Casey, P	10		Westwood, L/Molinari, F	6
	Rose, J/Poulter, I	1	2014	McIlroy, R/Poulter, I	5
	Westwood, L/Garcia, S	4		J. Donaldson/Westwood, L	2
	Harrington, P/McDowell, G	10		Garcia, S/McIlroy, R	4
	Jimenez, M/Garcia, S	10		Kaymer, M/Rose, J	5
	Westwood, L/Hansen, S	4		Dubuisson, V/McDowell, G	2
	Jimenez, M/McDowell, G	4		Rose, J/Stenson, H	1
	Stenson, H/O. Wilson	2		Bjorn, T/Kaymer, M	5
	Casey, P/Garcia, S	4		McIlroy, R/Garcia, S	5
	Poulter, I/McDowell, G	2		Gallacher, S/Poulter, I	9
	Stenson, H/Karlsson, R	4			

Table 5
WLT FOR EACH DYAD 2004-2014 - USA

Year	Dyad	WLT Rankin	Year	Dyad	WLT Rankin
2004	Campbell, C/Furyk, J	8	2008	Mahan, H. /Leonard, J	2
	Riley, C/Cink, S	6		Mahan, H. /Mickelson, P	4
	Love III, D/Campbell, C	1		Furyk, J/Perry, K	4
	Love III, D/Cink, S	1	2010	Watson, B/Overton, J	2
	Love III, D/Woods, T	8		Johnson, D/Furyk, J	3
	Toms, D/Furyk, J	8		Johnson, D/Mickelson, P	1
	Toms, D/Mickelson, P	8		Furyk, J/Fowler, R	7
	Funk, F/Love III, D	6		Kuchar, M/Cink, S	3
	Funk, F/Furyk, J	1		Mickelson, P/Fowler, R	7
	Haas, J/DiMarco, C	1		Stricker, S./Woods, T	5
	Perry, K/Cink, S	8		Mahan, H. /Johnson, Z	5
	Mickelson, P/Woods, T	1	2012	Kim, A/Snedeker, B	3
	Woods, T/Riley, C	8		Johnson, D/Kuchar, M	3
2006	Campbell, C/Taylor, V	2		Dufner, J/Johnson, Z	1
	Campbell, C/Johnson, Z	5		Bradley, K/Mickelson, P	3
	Toms, D/Wetterich, B	8		Stricker, S./Woods, T	2
	Toms, D/Mickelson, P	8		Watson, B/Simpson, W	6
	Toms, D/Cink, S	5	2014	Watson, B/Simpson, W	6
	Furyk, J/Woods, T	1		Mahan, H. /Johnson, Z	6
	Mickelson, P/DiMarco, C	2		Johnson, Z/Kuchar, M	6
	Cink, S/Henry, J	5		Furyk, J/Mahan, H.	2
	Cink, S/Johnson, Z	8		Speith, J/Reed, P	1
	Verplank, S/Johnson, Z	2		Walker, J/Fowler, R	2
2008	Kim, A/Mickelson, P	1		Watson, B/Kuchar, M	6
	Curtis, B/Stricker, S.	2		Furyk, J/Kuchar, M	6
	Weekley, B/Holmes, J	4		Mickelson, P/Bradley, K	2
	Campbell, C/Cink, S	7		Fowler, R/Walker, J	5

Dyad Synergy

Evidence of dyad synergy is demonstrated when the dyad performance exceeds the individual baseline ASA performance of the players. To determine synergy, the following calculations were used:

Weak Synergy - If the dyad WLT rank is > the average ASA rank for the dyad players, weak synergy was identified.

Strong synergy - If the dyad WLT rank is > the ASA rank for the best individual player, strong synergy was identified.

Team Performance

To determine team performance, in addition to the dyad data, we included the 72 singles matches totaling a possible 168 points. We identified the points won by each team as well as the winner for each of the six events (www.rydercup.com) (Table 6).

Table 6 2004 – 2014 RYDER CUP VENUE AND TEAM			
Year	Location	Europe	USA
2014	Gleneagles Resort Perthshire-Scotland	16 ½*	11 ½
2012	Medinah Country Club-Medinah, Illinois	14 ½*	13 ½
2010	Celtic Manor Resort-City of Newport, Wales	14 ½*	13 ½
2008	Valhalla Golf Club-Louisville, Kentucky	11 ½	16 ½*
2006	The K Club, Straffan Co. Kildare, Ireland	18 ½*	9 ½
2004	Oakland Hills CC-Bloomfield Township, Michigan	18 ½*	9 ½
	Total Points	94	74

*indicates winner

Team Synergy

A t-test was used to compare player skill and performance (ASA) of team members for the six events (Table 7). Creating this individual baseline allowed us to determine and identify any significant differences at the individual level between Europe and the USA. Then, team synergy was identified when the team performance exceeded that of the individual members (Maymin, Maymin, & Shen, 2013).

Table 7 T-TEST OF INDIVIDUAL SKILL		
	Europe	USA
Mean	72.36	70.81
Variance	1.56	0.41
Observations	72	72
t Stat	9.458	
P(T<=t) two-tail	3.146	
t Critical two-tail	1.986	

RESULTS

Table 8 summarizes the results of the dyad match performance and synergy. To test Hypothesis 1, of the 96 matches played in the six events, Europe won 49.5 match points compared to 46.5 for the USA. Overall synergy was found in 56 dyads from Europe and 54 dyads from the USA. Europe demonstrated strong synergy in 41 matches compared to the USA in 43 matches. Therefore, while synergy was found in both teams, the difference in synergy levels and match performance was negligible; thus, we must reject Hypothesis 1.

Table 8
DYAD MATCH POINTS AND SYNERGY BY YEAR

	2004	2006	2008	2010	2012	2014	Total
Europe							
Match Points	10	10	7	9.5	3	10	49.5
Strong Synergy	7	7	6	7	7	7	41
Weak Synergy	2	1	2	3	5	2	15
Overall Synergy	9	8	8	10	12	9	56
USA							
Match Points	6	6	9	6.5	13	6	46.5
Strong Synergy	7	6	8	5	12	5	43
Weak Synergy	2	2	1	4	0	2	11
Overall Synergy	9	8	9	9	12	7	54

In the overall team competition, when comparing the individual baseline skill for both teams, the results of the t-test show that the USA had significantly more individual skill and consistency than Europe. Europe had a much higher (3x) variance than the USA, demonstrating that the USA was not only more skilled but also more consistent. Table 7 assumes $p < 0.05$, therefore accepting that the skill level and consistency of the teams differ significantly (0.0001). However, in this study (Table 6), Europe won 56% of the points compared to the USA's 44%. Furthermore, Europe won the Ryder Cup in five of the six events, suggesting something beyond the skill and consistency of the USA team; in fact, the demonstration of synergy may be the variable that accounts for the success of Europe in the Ryder Cup. Therefore, since Europe's team performance was significantly better than its individual performance when compared to the USA, we accept Hypothesis 2.

CONCLUSION AND DISCUSSION

This study is one of the few recent papers linking team synergy to performance outcomes and finding that performance outcomes improved in a synergistic team. This finding has implications for both theory and practice. We contribute to the synergy literature by quantifying performance outcomes in a competitive setting. On the other hand, at the organization level, performance-driven managers and leaders may seek the benefit of team synergy and form teams with defined tasks that create the environment for synergy. Furthermore, by understanding individual skill and motivation, managers may be better able to achieve performance outcomes. Last, on average, three players are selected for each Ryder Cup team as "captain's picks." Understanding individual skill and the coaching leadership (Pinos, Twigg, Parayitam, & Olson, 2006) to create synergy through those potential picks may enhance the competition and the USA's ability to bring home the Ryder Cup.

FUTURE RESEARCH

While our research has examined the connection between performance outcomes and synergy, future research to understand how individual motivation or personality contributes to

team synergy is needed. Studies that identify how connections (i.e., social, interests, personality) or national cultures (particularly individualist versus collectivist; Hofstede, 1994) affect synergy will also add to the body of research.

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HEAD COACHES AS MANAGERS: HOW WELL CAN THEY ASSESS TALENT?

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ABSTRACT

Corporate executives rise through the ranks of managers learning skills as they receive promotions in departments. How well executives acquire human capital shows up ultimately in the firm's performance. In many cases, an employee who starts in a certain field progresses through that field until reaching senior management and eventually the CEO's position. The firm's performance rests on how well its chief executive acquired human capital across a variety of areas or how well the executive is at assessing and assembling a management team. A similar process happens in sports. In the world of football, coaches move up the ranks of coaching from position assistants to coordinators (where they are directly responsible for player performance and play calling) and finally to head coaches (where they usually play a tangential role in coaching and play calling). In most cases, coaches have played some college football. They usually stay with what they know: if they played on defense, they coach defense. Once they reach the position of head coach, the question becomes "How well does a coach know the other side of the ball?" That is, if a coach has spent his entire career learning the defensive side of football, how well are they at assembling the coaching staff and recruiting players for the entire team, including the offensive side?

This paper collects data on NCAA head football coaches for the 2013 season and looks at the relationship between the coach's specialty (say offense) and the success of each unit (offense and defense) and the team's success. The paper hypothesizes that coaches that have specialized in offense are significantly better at hiring offensive coordinators and players and less skilled at hiring competent defensive coaches and players. Results show support of the hypothesis. Using ordinal logistic regressions, it appears that an offensive-minded coach improves his team's performance in terms of offensive statistics which leads to a longer career in coaching. The results are less clear regarding an offensive coach's impact on his team's defense. The impact depends on the coach's success and longevity.

From a management perspective, it would be important for universities and head coaches to foster an environment that allows assistant coaches to gain a broad knowledge base while moving up the ranks of coaching. Like a successful firm that offers strong management training opportunities, a university should have a better chance at attracting better assistant coaches by offering them the chance to prepare for a future head coach's position.

INTRODUCTION

As football fans watch their favorite teams, you hear many complaints about the head coach's ability, especially if their team is losing. However, the head coach is rarely the one making the calls or responsible for the day-to-day coaching of the players. College athletic departments have become multimillion-dollar enterprises, and as a result the choice of a head coach becomes a critical decision for the department's financial success and strategic planning. This paper addresses the fact that coaches are now corporate executives in a

sense. It is their responsibility to acquire coaching and playing talent so that the firm succeeds, or in this case, the team wins.

As coaches move through the coaching ranks from graduate assistant to position coach to assistant coach to coordinator, they tend to learn only their side of the team. If the coach played defense, he usually ends up coaching on the defensive side of the ball for his entire career. That is, unless he becomes a head coach. At that time, he's expected to know how to manage *both* sides of the ball – or know how to at least pick an effective manager for the offense and recruit talented players. This is probably a more important question for football because the offense and defense are entirely different teams and require different skills. How well do head coaches perform in managing both sides of the ball? How well are coaches acquiring management skills as they move through the ranks to become head coach, or the CEO of the team?

Due to the division between offensive and defensive units in football, a natural experiment exists to study how well a coach from one side of the ball performs once he becomes responsible for both sides. The experiment is also more valid for college football because the head coach is responsible for hiring all assistant coaches and has complete decisions regarding each player. For the NFL, a general manager and owner usually have more control over player decisions regarding draft decisions and trades. Some coaches have only a minor say in these decisions.

This paper examines to what extent a head coach's specialty affects his team's success on both offensive and defensive units using data from the 2013 NCAA football season. For all coaches in the sample, results show that head coaches' functional areas of expertise do not have much of an impact on performance on the offensive unit. However, offensive-minded coaches tend to negatively impact defensive performance in terms of yards. Once adjusting for coaching success, results show that to achieve a winning record and longevity, coaches need to have a positive impact in the functional area of expertise. It also appears that coaches learn how to become better coaches outside their area of expertise though the impact appears to be negative, just less so.

LITERATURE REVIEW

A university athletic department is similar to a traditional corporation on several management levels. For example, an athletic department has an athletic director that is responsible for hiring coaches for a variety of sports and managing strategic planning for the university's sports programs. A corporation has a board of directors that also has the responsibility of hiring the CEO, leading strategic planning and creating a culture for management development. The head football coach, in turn, is responsible for hiring his coordinators and assistant coaches and recruiting players. The head coach is also responsible for the team's success. Likewise, a CEO is responsible for hiring the management team and developing managers and is judged on the firm's performance. Following Kahn (2000), this paper uses the sports environment as a "laboratory" for studying applications of management theory.

A variety of management theory and research has investigated the characteristics of successful CEOs and managers using quantitative data. At one end of this spectrum of CEO performance research, the role of managers as coaches is examined (Grant and Cavanaugh (2004)). In these papers, research examines how well the firm "coaches" or provides coaching training to this new manager to become an executive skilled in motivation – encouraging

his/her new employees to greater productivity. However, as much as coaching and managing would seem to have a strong link, very little research reverses the question and asks: how do coaches perform as managers of their “employees” (i.e. assistant coaches and/or players)? For example, Dawson and Phillips (2013) point out that little work has been completed on career development of coaches. Another strand of management literature investigates succession theory, the characteristics of new CEOs and the impact on the firm’s success, (Grusky, 1960). Adapting this research to sports, Grusky (1963) using data from Major League Baseball finds a negative relationship between succession rates of coaches and winning. Erhardt, McEvoy and Beggs (2011) look at the characteristics of coaching successors and show that hiring an outsider is more likely to lead to a team’s success. Finally, one last strand of literature takes an “upper echelon perspective” which suggests that a CEO’s functional area of expertise plays a significant role in the firm’s success. Hambrick and Mason (1984) ask why do organizations “act as they do?” Their paper takes the approach that “organizational outcomes—strategic choices and performance levels – are partially predicted by managerial background characteristics.” Koryuncu, et al. (2010) show that hiring a CEO with operations experience leads to better performance in operations, compared to like firms validating the functional area idea.

Along this vein of management research, this paper examines to what degree a coach’s experience in either offense or defense, his functional area, affects performance levels in these team units. This paper hypothesizes that a coach’s specialty (say, on offense) at the coordinator or assistant coaching level significantly affects his ability to attract talent in terms of coaches and players on offense while the team’s performance on defense will suffer. That is, in terms of management skills, functional experience plays a role in the firm’s success.

DATA AND REGRESSION ANALYSIS

The data include 112 teams during the 2013 NCAA football season. Teams in the data set include the power conferences with 60 teams (Atlantic Coast Conference (ACC), Big 10, Big 12, Southeastern Conference (SEC) and Pac 12) and 52 members of the other non-power conferences. Several coaches or teams were eliminated either because of a coaching change midseason, because the coach did not have a specialty, or the team did not belong to a conference.

In determining a unit’s performance several measures are considered based on rankings of production performance. The NCAA ranks teams from 1 to 150 for a variety of statistics. Due to ties, the maximum level in some category rankings reaches only 122. Ordinal data includes offensive ranking based on average points scored, offensive ranking based on average yards gained, defensive ranking based on scoring defense (average points allowed), and defensive ranking based on average yards allowed. The data are averages calculated on a per game basis. Another series of regressions also uses the teams’ winning percentage for a general test of the coach’s coaching talent. The NCAA provides statistics and data on NCAA.com. Other team data are provided from ESPN on ESPN.com. Strength of schedule data is provided by www.teamrankings.com. Data for coaching experience are drawn from universities’ websites providing biographical information on their coaches.

The independent variable of interest is a dummy variable, HC OFF, which equals 1 when a coach’s specialty (functional area) is offense. Other variables used to explain a unit’s success are the head coach’s career winning percentage, the number of years a coach has been a *head* coach, the number of years of coaching experience not at the head coach level, the

number of All Americans on offense and on defense, and the rating for the school's strength of schedule. A measure of the team's strength of schedule serves as a proxy for the difficulty (or ease) of having a successful season. The higher the value of the variable, the tougher the teams the coach faced. Table 1 provides a snapshot of the variables included in the regressions.

OLS Regressions

An initial set of regressions is estimated using an OLS regression to investigate all of the dependent variables. While it might be questionable to use OLS for ordinal data (they are not true random variables), OLS is appropriate for the team's 2013 winning percentage. For these initial regressions, the equations estimated are:

$$\text{Winning Percentage } 2013_i = a_i + \beta_k X_i + e_i \quad (1)$$

$$\text{Offensive Unit Ranking}_i = a_i + \beta_k X_i + e_i \quad (2)$$

$$\text{Defensive Unit Ranking}_i = a_i + \beta_k X_i + e_i \quad (3)$$

In all of these equations, β is the vector of variables to be estimated and X is a vector of explanatory variables including coaching specialty, number of years' experience as a head coach, number of years' experience at other coaching levels, winning percentage as head coach, strength of schedule and the number of All-American players on each unit. For winning percentage, a higher value means the team won more games and performed better. For rankings, a higher number means the team performed worse.

Table 1 DATA DESCRIPTION		
Variable	All Teams	
	mean	s.d.
Offensive ranking		
Avg yards gained	55.03	34.96
Avg points scored	53.87	35.80
Defensive ranking		
Avg yards allowed	53.5	35.4
Avg points allowed	54.2	34.1
Strength of Schedule	27.07	8.96
Years' experience		
Coach	13.75	5.05
Head ball coach (HBC)	7.77	6.83
At the school	5.42	5.6
Team Quality		
All Americans (offense)	0.31	0.66
All Americans (defense)	0.26	0.60
Win percentage HBC	0.61	0.13

Table 2 shows results for all performance variables for all 112 coaches. The only variables that stand out in all of the regressions is that the coach's overall skill (as noted by his winning percentage) leads to better performance outcomes for the 2013 season and for all offensive and defensive results. The coach's overall skill leads to higher rankings (a negative coefficient implies a lower (better) ranking), more offensive production and lower production for his team's opponents. Likewise, more skilled players on offense and defense also lead to better performance across all variables. There is no support for the hypothesis with these results. F-tests verify that the regressions are valid though the R^2 s vary across the equations. Robust errors were used to address any heteroskedasticity issues.

Table 2					
OLS RESULTS FOR ALL 112 TEAMS					
Dependent Variable	Independent Variables				
	Winning % 2013	OFFENSE		DEFENSE	
		Yards Rank	Points Rank	Yards Rank	Points Rank
c	0.14 0.09	116.61 0.00	131.46 0.00	105.87 0.00	112.26 0.00
HC OFF	-0.03 0.41	-6.23 0.31	-4.16 0.49	9.58 0.11	5.13 0.37
Win % as HC	0.74 0.00	-84.70 0.00	-94.84 0.00	-62.57 0.00	-68.17 0.00
AA offense	0.09 0.00	-10.51 0.01	-12.42 0.00		
AA defense	0.07 0.00			-15.68 0.00	-14.96 0.00
Exp HC	0.00 0.09	0.36 0.73	-0.06 0.90	-0.92 0.05	-0.80 0.06
EXP coach	-0.00 0.59	0.07 0.91	-0.28 0.62	-0.12 0.80	0.17 0.70
Strength	-0.00 0.34	-0.25 0.58	-0.28 0.53	-0.11 0.78	-0.31 0.38
R²	.59	0.30	0.39	0.35	0.40
P-value (F)	0.00	0.00	0.00	0.00	0.00

Ordinal Logistic Regressions

Given that the ranking variables are ordinal, an ordinal logistic regression is probably a more suitable tool for estimating Equations 2 and 3. A logistic regression is used when the dependent variable is discrete (binary, ordinal or nominal). While an OLS regression provides coefficients that predict how a one unit change in an explanatory variable will affect the dependent variable, the logistic model estimates the *probability* (P) of the dependent variable occurring.

A variety of sources provide a detailed explanation of an ordinal logistic regression (see Hosmer and Lemeshow (2000) for more details), so what follows is just a brief summary of what the method performs and the output it produces. The logistic regression model, or logit model, estimates the natural log of the odds ratio or

$$\ln[P/(1-P)] = \alpha + \beta X + e$$
$$\text{or } [P/(1-P)] = \exp(\alpha + \beta X + e)$$

where P is the probability that event Y occurs, $P/(1-P)$ is the “odds ratio” and $\ln[P/(1-P)]$ is the log odds ratio, or “logit”. In the simplest cases, when Y is a binary variable, the probability of Y occurring is either 1 or 0. In this paper’s case, the dependent variables are ordinal, which are discrete variables with multiple levels. The regression produces a fitted model which provides a logit equation for each ordinal response category (or ranking), minus one. As a result, each equation has a unique constant but the slope coefficient is common across all the dependent categories. The logistic regression’s coefficient estimates are used to compute the odds ratios for each independent variable. A log likelihood ratio test provides evidence that at least one of the explanatory variables’ coefficients is not equal to zero. A goodness of fit test, using a G test statistic, is used to verify the null hypothesis that no relationship exists, i.e. that a valid regression exists.

Following the paper’s hypothesis, a coach’s functional area of expertise allows him to better assess coaching ability and talent on that side of the ball. The coach’s management skills translate into a higher (lower number) ranked team given his area of expertise. For equation 4, we would expect a positive coefficient on Head Coach Specialty (Offense = 1) and a corresponding odds ratio. The hypothesis also implies that an offensive-minded coach’s team will suffer in terms of defensive performance. Hence, we expect a negative coefficient and corresponding odds ratio for equation (5).

$$\text{Offensive ranking} = \alpha + \beta_1 \text{ HC Specialty} + \beta_2 \text{ AA Offense} + \beta_3 \text{ Years HC Experience} + \beta_4 \text{ Years Experience} + \beta_5 \text{ HC Winning \%} + \beta_6 \text{ Strength of Schedule} + \text{error} \quad (4)$$

$$\text{Defensive ranking} = \alpha + \beta_1 \text{ HC Specialty} + \beta_2 \text{ AA Defense} + \beta_3 \text{ Years HC Experience} + \beta_4 \text{ Years Experience} + \beta_5 \text{ HC Winning \%} + \beta_6 \text{ Strength of Schedule} + \text{error} \quad (5)$$

As before, HC Specialty is a dummy variable (1= offense; 0= defense) and the variable of interest. Tables 3 and 4 show results estimating equations 4 and 5 for all coaches. Results show that the number of All American players and the head coach’s winning percentage are significant in the offensive rankings. For example, the positive coefficient on AA offense and the corresponding odds ratio means that for each All American player on offense the team has almost double (1.93) the probability of moving to a better ranking. The large odds ratio for the HC’s experience reflects a large standard error and potential problems with heteroskedasticity. More importantly in terms of our hypothesis, there appears to be no relationship between the head coach’s functional area and offensive performance. The story differs for the defensive side as seen in Table 4. The hypothesis finds support when the defensive ranking for average yards allowed is considered. The negative coefficient along with the odds ratio of 0.47 implies that the odds of the team (with an offensive head coach) moving to a better defensive ranking are only 44 percent of the odds of team with a defensive coach. Likewise, it is correct to also state that the odds of a team led by a defensive head coach will have a greater chance to move to a better ranking in terms of average yards allowed. HC OFF is not significant for the defensive ranking for points allowed. As expected, the number of All American players on defensive improves the likelihood (4.60 times) that the team moves to a better ranking in terms of yards allowed. The head coach’s winning

percentage and his experience also lead to a higher chance of moving to a higher ranking.

Table 3 REGRESSION RESULTS FOR ALL 112 COACHES OFFENSIVE RANKING			
Ranking based on Average Yards Gained	Coefficient	p-value	Odds Ratio
HC offense =1	0.33	0.34	1.40
AA offense	0.65	0.03**	1.93
Winning % HC	4.84	0.00***	126.99
HC experience	-0.03	0.23	0.97
Coach experience	-0.02	0.61	1.40
Strength	0.01	0.57	1.01
Log-likelihood ratio = -486.22 G = 41.87 DF = 6 p-value = 0.00 Deviance $\chi^2 = 972.4$ DF = 10650 p-value = 1.00 Somer's D = 0.38 Kendall's $\tau\text{-}\alpha = 0.38$			
Ranking based on Average Points Scored	Coefficient	p-value	Odds Ratio
HC offense =1	0.22	0.52	1.25
AA offense	1.03	0.00***	2.80
Winning % HC	5.98	0.00***	395.49
HC experience	-0.00	0.99	1.00
Coach experience	0.02	0.48	1.02
Strength	0.01	0.58	1.01
Log-likelihood ratio = -468.61 G = 60.46 DF = 6 p-value = 0.00 Deviance $\chi^2 = 937.21$ DF = 10095 p-value = 1.00 Somer's D = 0.44 Kendall's $\tau\text{-}\alpha = .44$			

Table 4 REGRESSION RESULTS FOR ALL 112 COACHES – DEFENSIVE RANKING			
Ranking based on Average Yards Allowed	Coefficient	p-value	Odds Ratio
HC offense =1	-0.74	.03**	0.44
AA defense	1.52	0.00***	4.60
Winning % HC	3.88	0.00***	48.24
HC experience	0.05	0.05*	1.06
Coach experience	0.00	0.79	1.01
Strength	-0.01	0.71	0.99
Log-likelihood ratio = -469.94 G = 57.79 DF = 5 p-value = 0.00 Deviance $\chi^2 = 939.9$ DF = 9984 p-value = 1.00 Somer's D = 0.43 Kendall's $\tau\text{-}\alpha = 0.43$			
Ranking based on Average Points Allowed	Coefficient	p-value	Odds Ratio
HC offense =1	-0.51	0.14	0.60
AA defense	1.24	0.00***	3.45
Winning % HC	5.45	0.00**	93.11
HC experience	0.05	0.00***	1.05
Coach experience	-0.01	0.69	0.99
Strength	0.02	0.45	1.02
Log-likelihood ratio = -458.42 G = 65.79 DF = 6 p-value = 0.00 Deviance $\chi^2 = 916.83$ DF = 9540 p-value = 1.00 Somer's D = 0.45 Kendall's $\tau\text{-}\alpha = .45$			

Winning Percentage

The ordinal logistic regression for all 112 coaches produces two concerns: the large standard error on a coach's winning percentage and its interaction with head coaching experience. An OLS regression could address this last issue by using an interaction term. However, an ordered logistic regression produces a coefficient on an interaction term that is very troublesome to interpret. To address these issues, the paper considers only those coaches with a winning percentage greater than 60% (which captures those coaches with better than average results in our sample). As a coach gains experience, we'd expect his winning percentage to increase. And if a coach has a higher winning percentage, he'd be able to remain as a head coach longer. (Put differently, there are not many head coaches with both losing records and longevity.) By splitting the data based on winning percentage for the head coach, that variable can be omitted from the regression minimizing any heteroskedasticity issues.

Table 5 shows support for the hypothesis: for the winningest coaches, a head coach with an offensive background plays a significant role in the success of the offense (in addition to having All-American players). In the case of ranking by average yards gained, an offensive-minded coach increases the probability of moving down to a higher ranking by 3.09 times and 4.29 times for ranking the offense by average points scored, respectively. Table 6, with results for defensive rankings for the winningest coaches, shows that offensive-minded coaches do not negatively impact the rankings of defensive unit's success. This is an important distinction; with all 112 coaches, the offensive coach led to *worse* defensive performance. These results show support for the hypothesis: good coaches use their functional area of expertise to improve their team's performance.

Table 5			
RESULTS FOR COACHES (WINNING PERCENTAGE > 60%) – OFFENSIVE RANKING – N=48			
Ranking based on Average Yards Gained	Coefficient	p-value	Odds Ratio
HC offense =1	1.12	0.04**	3.09
AA offense	0.63	0.07**	1.89
HC experience	-0.06	0.95	0.95
Coach experience	0.02	0.76	1.02
Strength	0.03	0.42	1.03
Log-likelihood ratio = -169.72 G=15.55 DF=5 p-value = 0.00			
Deviance $\chi^2 = 339.45$ DF = 1922 p-value = 1.00			
Somer's D = 0.34 Kendall's $\tau\text{-}\alpha = .34$			
Ranking based on Average Points Scored	Coefficient	p-value	Odds Ratio
HC offense =1	1.45	0.01**	4.29
AA offense	1.31	0.00	3.69
HC experience	-0.01	0.83	1.03
Coach experience	0.03	0.63	0.99
Strength	0.03	0.33	1.03
Log-likelihood ratio = -167.14 G = 22.44 DF = 5 p-value = 0.00			
Deviance $\chi^2 = 334.28$ DF = 1969 p-value = 1.00			
Somer's D = 0.41 Kendall's $\tau\text{-}\alpha = .41$			

Table 6			
RESULTS FOR COACHES (WINNING PERCENTAGE > 60%) – DEFENSIVE RANKING – N=48			
Ranking based on Average Yards Allowed	Coefficient	p-value	Odds Ratio
HC offense =1	-0.85	0.12	0.43
AA defense	1.48	.00***	4.43
HC experience	0.05	.14	1.05
Coach experience	0.06	.23	1.07
Strength	0.01	0.81	1.01
Log-likelihood ratio = -165.83 G=20.57 DF = 5 p-value = 0.00 Deviance $\chi^2 = 331.66$ DF = 1875 p-value = 1.00 Somer's D = 0.40 Kendall's $\tau\text{-}\alpha = 0.39$			
Ranking based on Average Points Allowed	Coefficient	p-value	Odds Ratio
HC offense =1	-0.12	.81	0.88
AA defense	1.10	.00***	3.01
HC experience	0.04	0.31	1.04
Coach experience	0.03	0.58	1.03
Strength	0.04	0.26	1.04
Log-likelihood ratio = -172.15 G = 16.25 DF = 5 p-value = 0.01 Deviance $\chi^2 = 344.30$ DF = 2016 p-value = 1.00 Somer's D = 0.33 Kendall's $\tau\text{-}\alpha = 0.33$			

Learning by Doing

An even richer picture of the impact of a coach's functional area occurs if we consider learning by doing. As noted above, we would expect a coach's success to depend on his years of experience. However, in the regressions above, the odds ratios show that years of head coaching experience have minimal impact on the rankings. To capture the impact of experience and learning on the job, the data are divided based on coaching experience and a third set of regressions is estimated. Tables 7 and 8 show results for coaches with at least three years of head coaching experience. By this time, coaches have been able to recruit for several years, instill their schemes across coaches and players and have upper classmen on the field. For example, a previous coach may have recruited players for a 4-3 defense or a spread offense while the new coach may run a 3-4 defense or a pro-style offense. It can take a few years to adjust to a new scheme both in terms of players and assistant coaches.

Similar to results above, a coach's functional area of expertise continues to play a role in the team unit's success. An offensive-minded coach still creates a more productive offensive unit in terms of average yards gained (increasing the odds of moving down in the rankings by more than 2 times). Results for the defensive side are somewhat surprising until they are compared to those in Table 4 above. When all coaches are considered, there was a 44 percent chance of an offensive coach's team performing worse on defense. Table 8 below shows that probability falls to only 35 percent. Specifically, as coaches gain experience they do get better at managing their weakness, but it may take several years and they still have a negative effect on performance in the area outside their functional expertise – at least in terms of average yards allowed.

Table 7 RESULTS FOR COACHES (3+ YEARS OF EXPERIENCE) – OFFENSIVE RANKING – N=67			
Ranking based on Average Yards Gained	Coefficient	p-value	Odds Ratio
HC offense =1	0.91	0.04**	2.47
AA offense	1.00	0.01**	2.71
Winning % as HC	3.42	0.12	30.72
Coach experience	0.00	0.92	1.00
Strength	0.01	0.79	1.01
Log-likelihood ratio = -261.80 G = 23.20 DF = 5 p-value = 0.00 Deviance $\chi^2 = 523.60$ DF = 3955 p-value = 1.00 Somer's D = 0.34 Kendall's $\tau\text{-}\alpha = 0.34$			
Ranking based on Average Points Gained	Coefficient	p-value	Odds Ratio
HC offense =1	0.63	0.15	1.87
AA offense	1.15	0.00***	3.19
Winning % as HC	5.99	0.01**	401.90
Coach experience	0.02	0.69	1.02
Strength	0.03	0.39	1.03
Log-likelihood ratio = -246.33 G = 32.62 DF = 5 p-value = 0.00 Deviance $\chi^2 = 492.67$ DF = 3493 p-value = 1.00 Somer's D = 0.40 Kendall's $\tau\text{-}\alpha = 0.40$			

Table 8 RESULTS FOR COACHES (3+ YEARS OF EXPERIENCE) – DEFENSIVE RANKING – N=67			
Ranking based on Average Yards Allowed	Coefficient	p-value	Odds Ratio
HC offense =1	-1.06	0.02**	0.35
AA defense	1.87	0.00***	6.52
Winning % as HC	4.45	0.04**	85.61
Coach experience	0.01	0.89	1.01
Strength	0.01	0.65	1.01
Log-likelihood ratio = -242.31 G = 36.18 DF = 5 p-value = 0.00 Deviance $\chi^2 = 484.62$ DF = 3361 p-value = 1.00 Somer's D = 0.39 Kendall's $\tau\text{-}\alpha = 0.39$			
Ranking based on Average Points Allowed	Coefficient	p-value	Odds Ratio
HC offense =1	-0.64	0.14	0.53
AA defense	1.31	.00***	3.70
Winning % as HC	5.12	0.02**	166.91
Coach experience	-0.03	0.44	0.97
Strength	0.04	0.16	1.04
Log-likelihood ratio = -252.27 G = 33.93 DF = 5 p-value = 0.00 Deviance $\chi^2 = 504.54$ DF = 3757 p-value = 1.00 Somer's D = 0.40 Kendall's $\tau\text{-}\alpha = 0.40$			

SUMMARY

In summary, the upper echelon theory perspective of management theory predicts that a manager's functional area of expertise positively impacts the firm's performance in that area. This paper applies that theory to head coaches in NCAA football for the 2013 season. Using an ordinal logistic regression, results find evidence in favor of the theory. Accounting for a coach's overall quality and experience, an offensive-minded coach leads to better performance on the offensive side of the ball. Winning coaches are able to successfully implement their specialty with assistant coaches and coordinators. The same coaches still have trouble on the other side of the ball, but manage to improve their performance over time.

In terms of strategic management for a university and athletic department, providing an environment where coaches are encouraged to build skills across a football program can pay dividends. As with any firm which offers a strong management training ground and attracts high- quality junior managers, an athletic department which offers assistant coaches the chance to learn how to become better head coaches can attract a better staff.

ENDNOTES

- 1 For basketball, hockey, etc., the distinction may not be that clear-cut because players from offense and defense are on the playing field simultaneously.
- 2 A great deal of management research has also been published using qualitative data. For example, CEOs or coaches might be ranked on their leadership or communication skills.
- 3 Grusky also makes an interesting observation: "Although officially the manager may be held responsible for a team's showing, the fact that managers frequently are hired by other clubs would suggest that their alleged ineptness is partly a screen." That is, the relationship between a coach's winning percentage and coaching skills should be questioned.
- 4 All-American status is determined using AP ratings and reflects player quality. A player's selection as a member of either the first, second and third team is counted equally for each unit, either offensive or defensive.
- 5 Values for constants available upon request for all regressions.
- 6 To address this, a stepwise model building approach was taken and results did not substantially differ, even upon transforming the variable. To save space, results are not reported here but are available upon request.
- 7 As a reminder, odds ratios close to 1 imply that there is a minimal chance for a change in rankings.

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CORPORATE SOCIAL RESPONSIBILITY AN OPEN SYSTEMS PERSPECTIVE

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ABSTRACT

Integrating Corporate Social Responsibility and Environmental management into a company's strategic plan is a major challenge for today's business organizations. Increasingly the expectation is that business organizations do more than superficially engage with the concepts; they are expected to integrate them directly into their operations. These demands add to the dynamic complexity of issues facing today's business organization leaders, yet adaptation to these changing demands is critical for organizational survival. Through examining an 'open systems' organizational model, this paper provides an embedded notion of the business organization that understands the multifarious processes and relationships of corporate social and environmental responsibility not as independent entity's but as a complex and dynamic whole. We suggest that from understanding this embedded and integrated perspective a business leader will avoid the critical challenges in moving towards a strategic direction based on corporate environmental and social responsibility - Organizational vulnerability, Entrenchment and the Silo Effect.

Keywords: *Corporate Social Responsibility, Open Systems, Change management, Business Environment, Environmental Management.*

INTRODUCTION

Integrating Corporate Social Responsibility and Environmental management into a company's strategic plan is a major challenge for today's business organizations. Increasingly the expectation is that business organizations do more than superficially engage with the concepts, they are expected to integrate them into them into their operations and in doing so take into account a broad range of stakeholders (Eweje, 2011, & Fooks, Gilmore, et al, 2013), receive social sanction for activities (Devinney, 2009), and perform financially (Belu & Manescu, 2013). These demands add to the dynamic complexity of issues facing today's business organization leaders, yet adaptation to these changing demands is critical for organizational survival, as Tom Peters bluntly states business organizations need to "change or die" (Jick & Peiperl, 2004: xv). Understanding and managing this complex business environment with its increasing uncertainty and ambiguity is now essential for organizational survival, there is a great need for leaders and managers to have the skills and abilities to manage these increasing demands and expectations.

One major development that has inextricably changed the environment in which today's business organization operates is our technological advancement, specifically how we communicate. The volume and speed of information moving around the world has increased exponentially, an acute result of which is an increased awareness of the world outside of our immediate locality. Couple this amplified flow of information with an increased awareness of an organizations actions in terms of social impact, add into the equation a more accurate understanding of our effect on the natural environment, and the socially responsible business organization now finds that its actions are increasingly scrutinized and publicly evaluated,

resulting in a demand for improved environmental and social corporate responsibility. Understanding and managing this challenge ‘social exposure’ (Hall, Matos, et al, 2005) is now the reality of doing business in a globalized world. ‘Globalization’ as the changing dynamics of global business is often referred to is institutionalized in usage yet debated with respect to its meaning (Ricks, 2003; Rugman, 2003), however the discussion of whether an organization is operating in what is described as a global arena or between a ‘triad’ of trading blocks is in this case is not the pertinent focus of this paper. In both cases the socially responsible organization is operating in culturally and ecologically diverse environments and is both effected by and having an effect on these environments (Husted, 2003). The new communication technologies and the increasing scrutiny and exposure only add to the pressures of doing business. Additionally, the emotional natures of environmental and social responsibility issues often result in a very public debate that can be quite damaging to the organization, sometimes regardless of whether the organization is ‘doing the right thing’. The issue discussed here is not how to negate the public pressure, as this can be warranted, but to provide the manager a framework for understanding how to manage the increasing pressures for corporate environmental and social responsibility.

Through the examination of an ‘open systems’ organizational model, and resulting ideas of environment, boundaries, and equilibrium, this paper provides an embedded notion of the business organization that understands the multifarious processes and relationships of corporate social and environmental responsibility not as independent entity’s but as a complex and dynamic whole. We suggest that from this embedded and integrated perspective a business leader or manager will be able to understand a more complete picture and avoid what we see as the critical challenges in moving towards a strategic direction based on corporate environmental and social responsibility – Organizational vulnerability, Entrenchment and the Silo Effect.

To survive, “especially for the long term” organizations must be able to change and adapt to the environment in which they operate (Burke, 2002: 1). We argue that without an integrated, open systems understanding of how the organization is embedded within society which is in turn embedded in the natural environment, the business organization, and in particular the socially responsible business organization will likely collapse due to a failure of understanding its responsibilities and adapting accordingly.

CHALLENGES

The challenge of constant adaptation exposes an organization to many challenges. Regarding social and environmental responsibility three critical issues stand out, ‘Organizational Vulnerability’, ‘Entrenchment’, and the ‘Silo effect’. It is to these issues that this paper is focused, and through doing so develop and propose a resolution.

Organizational Vulnerability

Socially responsible business organizations face the challenge of diverse values, and resulting differences in culture, language, laws, and values provide many hurdles. With the recent awareness in environmental and social issues many organizations are undertaking programs to be proactive and mitigate issues before they arise. Additionally, proactive management in environmental and social issues has been traditionally described as an effective strategy for developing competitive advantage (Hart, 1995; Porter & van der Linde, 1995; Hart & Milstein, 1999; Senge & Carsted, (2001).

However two crucial issues result from this movement to environmental and social responsibility. The first issue focuses on how organizations expose themselves to increased societal scrutiny and have to manage what Hall and Vredenburg (2003, 2005) call “stakeholder ambiguity”. Explained through their ‘Double-Edged Sword’ model, Hall and Vredenburg (2003) recognize that the risks involved in taking a proactive stance to social and environmental issues are often more complicated and demanding to understand and manage than is often realized. Existing business models, skills, and managerial attributes are ideal for dealing with the expected problems and issues found in the conventional fields of business. However, with environmental and social issues the operational fields are changing. New unknown operational environments are created and organizations expose themselves to unexpected risks, new forces driving the change process, and different public expectations of success. Conventional business attributes are now only a part of the needed skill set for managers. Successful management of the changing environment is now even more critical if an organization is to be successful. As companies such as BP, Monsanto, Nike, and Shell Oil have all demonstrated the challenges produced by environmental and social issues can be quite destructive (Hall & Vredenburg, 2003). Nonetheless like any destructive change there is also opportunity for differentiation and competitive advantage (Schumpeter, 1934, 1942).

The second difficulty and one which increases the impact of organizational vulnerability is the manner in which problems are resolved. Issues are seen as technical in nature, and often resolved through innovation. Understood in isolation, the process of managing the issues are found through the identification of a problem, the creation of a solution, and the implementation of plan. The procedure is very much based on what directly effects the organization and how it can best utilize its available resources. With this approach managing issues often entails organizational change that is incremental in nature and embedded in organizational processes. The difficulty arises with how that incremental change is perceived. What is understood as incremental at an organizational level can frequently be perceived as radical or revolutionary by other stakeholders. This uncertainty in perception is particularly prominent with secondary stakeholders (Clarkson, 1995), those individuals and groups that are not directly involved in the organizational value chain, but still have a significant influence on the organization. Disparity between the organizational and secondary stakeholder perceptions can be very unpredictable and volatile, especially when concerning environmental and social responsibility. Hall & Vredenburg (2003) describe these phenomena as “stakeholder ambiguity”. Ambiguity differs here from the notion of uncertainty as it refers to not knowing either the outcome or the variables involved. Uncertainty refers to not knowing the outcome ref. The challenge for a manager is in understanding that not only do they not know what various stakeholders will do; they probably not even know who is a stakeholder.

Significantly it is the perceived difference in terms of value that is often the catalyst for such conflict. Environmental and social issues are volatile as they often deal with concerns that transcend economic values and involve deep rooted cultural values. It is the disparity in values that heightens any conflict and increases an organizations vulnerability to destructive forces of change. To explain why a socially responsible organization in particular can have difficulties in the way it manages this emotional and volatile change, we turn to the notion of entrenchment and the work of Christensen & Overdorf (2000).

Entrenchment

According to Christensen & Overdorf (2000) three organizational attributes are critical to organizations resources, its processes, and its values. The key point here is to understand the dynamics of how an organization understands its operations. When asked what the capabilities are of an organization, the answer predominantly revolves around its resources. However a more accurate measure of an organizations capability is found in the strength of its processes. These are, as Christensen & Overdorf (2000: 68) describe “patterns of interaction, coordination, communication, and decision making employees use to transform resources into products and services of greater worth.” The dichotomy here is that for the organization to be successful these processes need to be embedded into the organizations culture. The larger and more complex the organization the more established they need to be. However this creates organizational rigidity, which in turn creates a serious problem in terms of adapting to disruptive change. For the socially responsible organization the entrenchment of organizational process can be quite apparent, as the size and scope of an organization can be quite substantial. Entrenchment of process also provides an answer to why organizations often resolve environmental or social issues in the same manner as they would a resource issue. The pattern for problem solving is embedded in the organizations processes and culture. Corporate social and environmental responsibility issues often require a different approach, a change in the organizational processes, and without such a change can be quite disruptive. As Pascale, Milleman, and Gioja (2000) suggest, overcoming organizational inertia can be very difficult. Yet for managing disruptive change it is critical to achieve.

Organizational values are the third attribute that is influential in how an organization can adapt to change. As an organization develops there is an increasing need to establish organizational values. These act as a guiding structure within which employee’s are able to operate independent of constant senior management approval. Again the notion of entrenchment is critical, for if the organization is to be successful organizational values have to be a fundamental element in the organizational culture. Once more creating rigidity and reducing an organizations capability to adapt to the challenges of change.

With respect to corporate environmental and social responsibility the entrenchment of corporate values can create a discursive disconnect between the organization and the affected stakeholders. Values often provide an ethical or moral implication (Christensen & Overdorf, 2000), and are thus critical in the development of shared values. A difference in values leads to a difference in meaning, which can in turn lead to conflicting actions. The socially responsible organization is particularly vulnerable at a value level, as it is exposed to a large diversity of values and meanings. The corporate values so strongly integrated into the organization may be at odds with the values at the local level. It is thus prudent for such an organization to be flexible and adaptable in how it understands its role in the world. However as Christensen & Overdorf (2000) suggest this is against what is regarded as good management, “A key metric of good management, in fact, is whether such clear, consistent values have permeated the organization.” The disconnect in both processes and values can increase an organizations vulnerability, however the entrenchment of both that is so encouraged with respect to managing large organizations, also creates a third challenge to the organization, the ‘Silo effect’.

The Silo Effect

Through the establishment of specific rules, regulations, and processes for achieving success, coupled with increasing growth, an organization often suffers from increased differentiation between internal departments, specializations, leading to divisions of labor and a

general separation of the organization into smaller sub systems (Burke, 2002). It is this differentiation that creates the silo effect. The organization becomes the sum of many independent parts that increasingly interact less with one another, likened to working in separate tall concrete silos. The consequence for environmental and social responsibility is that issues that are in fact embedded are separated and dealt with as separate elements by different parts of an organization. Often through processes that are not designed for these types of issues and also as we have suggested with a set of values that may be very different from what is needed. Isolating environmental and social issues may result in some immediate reactive action, but it is often a remedy for a symptom and not the deep more pervasive issue.

If an organization, particularly a socially responsible organization is to be successful in its approach to corporate environmental and social responsibility it is critical that it meets the challenges just described. Without a complete understanding of the risks involved, and the manner in which an organization negates those risks effects; or an appreciation of how the entrenched processes and values that have provided success may not be applicable; or how through its success the organization has become a network of independent entity's, resulting in a separation and isolation of issues. The socially responsible business will become increasingly vulnerable to disruptive change brought on by poor management of environmental and social responsibility.

These challenges are not insurmountable but they do require a rethink in how we view the organization and its relation to society and the natural environment. An 'Open systems' approach provides valuable insight into how corporate responsibilities and environmental, management need to be seen as part of an integrated whole.

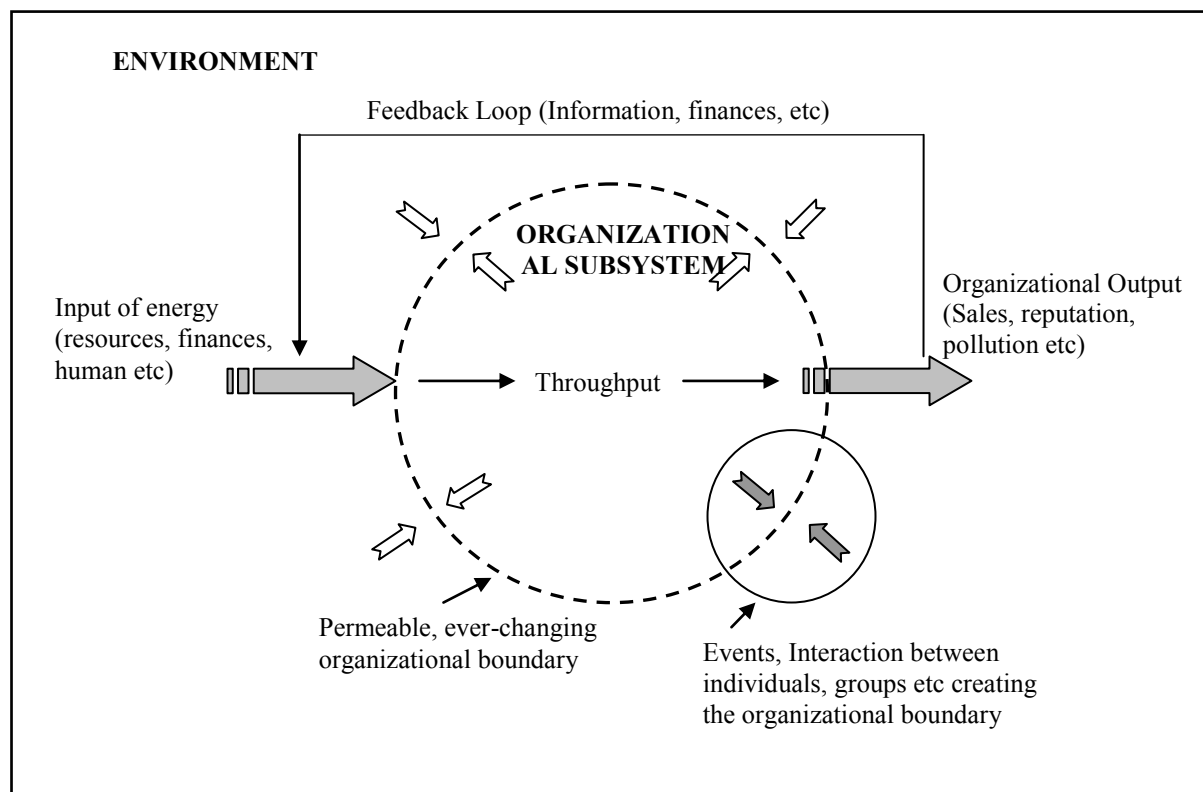
Open Systems

The movement toward corporate environmental and social responsibility acknowledges a growing appreciation of the impact an organization has on the social, cultural, and ecological environments in which it operates. However as described, an organization faces both opportunities and increased risk when moving in a strategic direction based on corporate environmental and social responsibility. The opportunities can be fruitful, but in many cases are only available to first movers, and quickly become extinct as growing regulations move to institutionalize any positive advantage. The risks on the other hand are compounded by the entrenched organizational process and values that are bought to bear on any issues. The difficulty is that managers need to develop an alternative approach and model to understand the relationships between the organization and the external context in which it operates. Without such an approach an organization will struggle with the rapid changes underway in terms of the expectations of organizations regarding their responsibility to environmental and social issues. A detail that is particularly acute for the socially responsible business organization with its increasingly diverse and complex operational environment. It is to meeting this challenge of providing an alternative approach that we explore the idea of the "open systems approach" to organization.

The notion of an open systems approach to organizations is founded upon the established theoretical work of Ludwig von Bertalanffy (1950) and General Systems Theory. Using the concept of wholeness and an appreciation of the relationships between elements, von Bertalanffy (1950: 148) suggests that we are unable to understand the complete picture of the "whole", through the examination of the "isolated parts". Through examining the organism and its organized structure, the way it interacts and adapts to the changes in the natural environment von

Bertalanffy (1950: 155) developed the foundation for open systems theory. In a system the relationships between elements, and between the elements and the environment in which they exist, are critically important. Without the deeper systematic appreciation, any comprehension of an organizational structure is a two dimensional understanding of a three dimensional issue. Thus to consider the full implications of change, it is critical to undertake a full systems perspective. von Bertalanffy's (1950) theoretical base provides the foundation upon which organizational researchers developed a notion of an open systems model of human organization, Figure 1.

Figure 1
An Open Systems Model of the Organization



Amongst those researchers that found value in such thinking Katz & Kahn (1978) established the most recognized set of distinguishing criteria for an open systems approach to organizational understanding (Burke, 2002). Table 1, provides a summation of these characteristics.

Table 1 CHARACTERISTICS OF KATZ & KAHN'S OPEN SYSTEM (Burke: 2002)	
Characteristics of an Open System Katz & Kahn (1978)	Organizational Perspective
Importation of Energy	A human organization needs an external input of energy, it can not be self-sufficient

Throughput	The processes involved in an organization that transfer the input into output, can be resourced based, administrative, and or managerial
Output	The product of the organization, often the desired outcome of the process. However can also be in the form of negative output: pollution, theft, inefficiencies, discontent amongst staff
Systems are cycles of events	The boundaries of an organization are not concrete or material, they are as Allport (1962) suggest is a series of events, It is the 'social structures' – the chain of events between and among people that create the boundaries
Negative Entropy	An open system can store energy and acquire 'negative entropy'. An organization needs to import more energy that it needs. The main source of negative entropy is from sales; therefore the throughput process needs to add value. However the negative entropy also has to overcome any negative outputs.
Information, Input, Negative Feedback and the coding process	The feedback process is crucial as it provides information to the organization of, how successful its output is, and how the environment is changing. Openness to a diverse source of feedback is critical, however in this information rich society, relevance is also critical.
Steady-State and Dynamic Homeostasis	A successful organization is understood as achieving a 'steady state', which does not mean that there is no activity but that the organization is achieving an equilibrium between the through out processes and the environmental conditions within which it operates
Differentiation	Through growth an organization tends to isolate and specialize processes, departments and resources; creating the silo effect mentioned earlier.
Integration and Coordination	To negate the differentiation effect, it is important to share, through communication, interaction, and openness, our norms and values: potentially leading to a common sense of shared understanding
Equifinality	The organization can reach the same goal a number of different ways, what is important is the understanding that the organization is not an entity with closed boundaries it is in fact a very open and permeable social construction

ORGANIZATIONAL PERSPECTIVE

Three significant central themes are crucial in understanding the relationship between socially responsible organizations and environmental and social issues. Although distinct in configuration from Katz & Kahn's (1978) characteristics, they do share many of the same ideas and concepts. However, these key themes are related specifically to the relationship under examination.

Key Themes: Environment, Boundaries, & Equilibrium

The first of these themes is concerned with the environment. Not the ecological environment or business environment, but the complete context within which the organization operates - environmental, cultural, social, economic, geographical, and political. Traditional management theory understood the organization as independent of the environment; with the machine as a common organizational metaphor (Morgan, 1997). This perspective treated the organization as a closed system, therefore focusing on internal processes and design. More recently, through the development of the open systems model, the environment has been

recognized as significant in its influence on the organization. However, as we have suggested this recognition is still framed within the entrenched processes of business - processes that often have their roots in the classical management perceptive of organizations as mechanized systems. The entrenchment of processes leads to a separation of issues and a resolution practice that is narrowly based on organizational values. The issue of concern, we argue, is that the environment is only understood here in the open systems context in terms of resources. There is recognition of the importance and influence of the environment on the organization, and an understanding that the organization can influence the environment, but the boundaries of the organization are still understood as fairly concrete. The environment is predominantly understood as a source of resources for the organizations processes. There is little recognition that the organization is actually embedded in the environment and that the boundaries of the organization are permeable, socially constructed, and constantly changing, depending on the focus at any particular time (Solomon, 2004).

As Allport (1962) suggests the boundaries of an organization are created through events - interactions between individuals. For example a customer is critical to many organizations, however often not understood as member of the organization. Yet without a customer most organizations will cease to operate, thus the customer is more a part of the organization than say many of the employees. It is the relationship, the serious of interactive events between the customer and other members of the organization that create the new boundaries (Driver, 2006). However through not understanding the customer as part of the organization, even if it is only for a finite time period, there is a risk of not appreciating the importance of that individual to the organization. They are seen in terms of their capacity for contributing to the output, but not as an integral part of the organization, even for a brief time, and thus a depth of understanding is lost. Consequently there is only a limited level of feedback back into the core of the organization, thus inhibiting the ability of the organization to fully understand its contextual environment

The feedback loop is critical to keeping the equilibrium of the organization within accepted boundaries. By equilibrium we mean the balance that an organization keeps in its constant adaptation to incremental changes. An organization that appears at a steady state is in fact not motionless but adapting its process and operations within limits that do not significantly change the structure of the organization (Colbert, 2004; Katz & Kahn 1978). There is constant motion in the throughput but the internal mechanism, the processes and values keep the organization from losing control, or falling into a chaotic state. However those process as we have stated are based on the processes of the organization that in turn restrict the flexibility of the organization to adapt. The difficulty lies when environmental and social issues are referred to the organization for they often involve process and values outside of the organizations equilibrium limits. The reaction from individuals in the organization is to deal with the issues within equilibrium limits, that is the known paradigm. Issues then become isolated and dealt with at a specialist level, unfortunately increasing the divergence of understanding as those process and limits are often perceived to limited for meaningful discourse (Freeman & Liedtka, 1991). Consequently the issue and resultant conflict is heightened, which is in turn is frequently met with further entrenchment from the organization. Increasing the organizations vulnerability, through creating a situation of potential disruptive change.

DISCUSSION

Whether an organization is forced through regulations, or moves by choice, toward a strategic direction focused on corporate environmental and social responsibility, does not matter.

The issue is that in both cases the organization becomes vulnerable to disruptive change through the mismanagement of often emotional issues concerning the environmental and social concerns. A fundamental reason for this is the difference in process and values. Corporate organizational, particularly socially responsible, process and values are often out of step with the society in which they are operating. This is caused by the cognitive separation of the organization from the environment and society. An open systems perspective however changes this understanding and introduces the idea that an organization is a socially constructed entity, which is integral and embedded within the society it operates (Kauffman, 1992). The organization is a part of society that generates a particular focus, is reinforced through a cycle of interactions (Wilbur, 2000). The implications for this in terms of environmental and social responsibility is that these issues then become direct issues integral to and not independent of the organization. Reducing the likelihood of what we term organizational vulnerability because through recognition of the organizational boundaries as permeable, changing and social constructed, there is a more responsive feedback mechanism thus reducing the likelihood of a disparity in process and values. The entrenchment of organizational processes and values thus become weaker through the increased openness and appreciation that other ways of thinking and doing are possible. As Katz & Kahn (1978) suggest there is a good deal of equifinality in an open system - there is more than one route to reaching a specific goal. Through inclusivity, openness, and understanding of the interdependence of the organization and contextual environment in which it resides, it is possible for the socially responsible organization to reduce its organizational vulnerability and overcome the entrenchment of rigid organizational process and values.

This paper describes the challenges of managing disruptive change found with integrating CSR and the use of an open systems perspective to help manage these challenges. This approach leads to a number of further research questions. The first is methodological in nature and concerned with how are we going to measure the impact on the organization of taking an open systems approach. It is one thing to suggest that integrating CSR is a worthwhile approach, but to really understand the full impact we need to develop tools and techniques that accurately record and measure the influence of this approach on the organization. Building on this is a second research question that focuses on the feedback aspect of taking an open systems approach. A fuller understanding of what feedback process and methods are effective in providing the needed information is required. This will further enhance our understanding of the full impact of an open systems approach and lead to a deeper integration of CSR practices into an organization's operation. The last area of research builds on the understanding found with the first two areas of further research and asks how might an organization adapt to the challenges of change while still maintaining an operational steady state its activities. Understanding how to move an organization whilst keeping it effective is critical if there is to be a more universal uptake on the integration of CSR practices.

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WHEN ARE INTERNATIONAL JOINT VENTURES TOO INFLEXIBLE TO EXIT?

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ABSTRACT

This paper aims to identify boundary conditions of real options theory in the context of international joint ventures (IJVs) embedded in host countries with higher legitimacy pressures. Drawing upon institutional perspective and experiential learning perspective, this paper argues that IJVs provide high divestment flexibility when environmental uncertainty is high and legitimacy pressures are low. If normative and regulative legitimacy pressures are high, then IJVs may not provide high divestment flexibility even when the host country's economic environment is volatile. In a similar vein, even when prior country- and partner-specific experience reduces perceived uncertainty in the host country, increased legitimacy gained through prior experience increases the expected level of local legitimacy and embeddedness for foreign parent firms of IJVs. Therefore, reduced perceived uncertainty may not necessarily lead to greater IJV divestment flexibility in such an institutional environment.

INTRODUCTION

For a firm to employ some logic in its strategic decision making process, it needs to identify conditions under which the firm can apply that logic to a particular decision. From institutional legitimacy and experiential learning perspectives, this paper identifies the boundary conditions of real options theory as strategic decision making logic within the context of the divestment flexibility of international joint ventures (IJVs).

In recent decades, real options theory has been suggested as an important form of strategic decision making logic because it explicitly considers the value of future flexibility (Bowman & Moskowitz, 2001). That is, flexibility and uncertainty explain the core themes of real options theory (Dixit & Pindyck, 1994). The rationale behind real options theory is that possessing flexibility provides decision makers with greater value when the future state is unpredictable. In other words, when the future is fairly predictable, flexibility is not valuable.

The conventional wisdom in the real options literature posits that the value of flexibility stemming from IJVs is greater in a host country with a volatile environment (Reuer & Tong, 2005). At the same time, however, empirical studies have indicated that high economic volatility in emerging economies may not contribute to the option value of having IJVs (Reuer & Leiblein, 2000; Tong, Reuer, & Peng, 2008). Given this seemingly contradictory empirical puzzle, this paper raises the question of under what circumstances, does high uncertainty not increase the options value of an IJV. This paper focuses on the option value of divestment flexibility because divestment flexibility has received little attention in the IJV literature (Zardkoohi, 2004). Only a few studies have examined the effects of divestment flexibility at the parent firm level instead of at the subsidiary level (Chung, Lee, Beamish, & Isobe, 2010). In this regard, the focal question is, when an IJV is not a real option in terms of divestment flexibility.

Before addressing this research question, there is a need to define the option value of IJVs. According to Chi and Seth (2002), one can classify types of flexibility that an IJV creates

into three categories: an option to expand/contract, an option to acquire/divest, and an option to use knowledge learned by IJV. This paper focuses mainly on divestment flexibility because the difficulty in terminating sequentially committed investments is one of the most understudied domains in the real options literature (Zardkoohi, 2004).

Then what does divestment flexibility mean? IJV divestment flexibility is the option value that the option holder (foreign parent firm in this case) has in terms of the right to sell its equity stake to a local partner or the third party when the option holder expects the economic payoff for maintaining the IJV is less than divesting it (Chi & Seth, 2002). Because all options are not obligations but rights, divestment flexibility provides a foreign parent firm with a safeguard that prevents further losses in case the focal IJV faces an unfavorable local economic condition.

In terms of the original research question, what factors make IJVs operating in volatile local environments not as valuable as the conventional wisdom of real options theory predicts? This paper argues that institutional pressures and behavioral uncertainty offset the positive effect of environmental volatility on IJV divestment flexibility. In this sense, this research implicitly assumes that foreign parent firms as multinational corporations (MNCs) are willing to invest in building host-country-specific capabilities (Song, 2002). That is, only those parent firms with economic incentives to maximize long-term benefits from the host country are posited to concern about local legitimacy in the country. Therefore, if an IJV investment has been made to serve as an export platform, then the parent firm of the IJV is less concern about gaining and maintaining local legitimacy. This paper also posits that the level of prior experience that each MNC gains affects the level of uncertainty and legitimacy pressures as an antecedent of uncertainty and legitimacy pressures.

From institutional and experiential learning perspectives, this paper evaluates the boundary conditions for applying real options logic to IJV divestment decisions. In doing so, this paper seeks to shed new light on the real options literature and the sequential decision making literature in the sense that an IJV may not be a valuable option when environmental uncertainty itself cannot ensure flexibility to divest.

REAL OPTIONS LOGIC AND JOINT VENTURE STRATEGY

Real options logic, which addresses the question of why an MNC chooses JV over a wholly owned subsidiary in a host country, posits that forming an IJV in the host country enables the MNC to reduce downside risks while claiming upside opportunities (Reuer & Tong, 2005). Kogut (1991) explicitly illustrated this option-like characteristic of joint ventures. When there are market, technological, and other economic uncertainties, firms with JVs can limit their downside risks to the initial investment because they only have to treat this initial investment as a sunk cost if future conditions for expected returns are not favorable (Kogut, 1991). At the same time, if circumstances become favorable, firms with JVs can expand by acquiring equity stakes from their JV partners (Reuer & Tong, 2005). In a similar vein, Folta and Miller (2002) argued that when there is no uncertainty surrounding alliances, firms are likely to acquire an additional equity stake from their alliance partners.

Kogut (1991) and Folta and Miller (2002) focused mainly on the option value of flexibility to acquire and expand. The option value in terms of flexibility to divest and contract has received relatively little research attention. As an exception, Reuer (2000) examined the stock market performance of parent firms when their investment in IJVs is terminated. Reuer (2000) distinguished five modes of IJV termination: the focal parent firm (1) acquires the IJV, (2) sells

it to the partner, (3) sells the equity stake to an outsider, (4) joins the partner in selling the IJV in its entirety to an outsider, and (5) liquidates the IJV. When IJVs lead to a negative stock market valuation during their formation, these ex ante unattractive IJVs tend to generate a positive stock market valuation when they are sold to outside parties. This implies that divestment flexibility is an important element of the option value created from forming IJVs. Unless the parent firm has the flexibility to divest, the reduction of downside risks, which is a fundamental assumption in real options logic, does not hold. In this sense, it is noteworthy that having IJVs in emerging economies do not actually contribute to the reduction of the MNC's downside risks, as suggested by Reuer and Leiblein (2000). Does this imply that real options logic is not useful for predicting the value of having IJVs in volatile environments? One cannot conclude this without robust evidence. Instead this seemingly contradictory empirical puzzle provides a promising research opportunity to better understand why environmental volatility does not make IJVs flexible in certain circumstances. The next two sections revisit the main assumptions of real options logic in terms of path dependency and the type of uncertainty. In this way, the departure point at which real options logic can reconcile with institutional and experiential learning logic is identified.

REVISITING SEQUENTIAL DECISION MAKING ASSUMPTIONS

In the real options world, decision makers want to make incremental resource investment decisions to reduce the potential cost in times of uncertainty. The central role of uncertainty in real options logic is consistent with sequential search logic in the behavioral theory of the firm (Cyert & March, 1963; March & Simon, 1958). March and Simon (1958) posited that decision makers tend to seek alternatives for their future decision making in a sequential manner because they are constrained by their own cognitive limits on rationality under uncertainty. Because decision makers seek alternatives incrementally, path dependency plays a critical role in subsequent decision making (Adner & Levinthal, 2004). In a similar vein, path dependency is an important characteristic of real options theory. In the case of IJVs, the flexibility to acquire or divest or that to expand and contract is dependent on accumulated previous investment decisions. For instance, when an MNC forms an IJV in the host country in the initial stage, the MNC has the flexibility to acquire or expand the focal IJV later. However, this path dependency is realized in an asymmetrical manner because of the "not an obligation but a right" nature of real options. That is, path dependency occurs only for realizing the upside potential, not for reducing downside risks. Therefore, when an MNC exercises a put option to divest from the IJV to reduce downside risks, the strategy created from the focal IJV's options is truncated, and further options are extinguished (Bowman & Hurry, 1993). Unless the host country strategy of the MNC is truncated by a divestment decision, the logic of having a safeguard from downside risks in real options theory does not hold. Therefore, for a divestment option to work for terminating path dependency generated by the focal IJV, the IJV investment need to be assumed as discrete and independent decision making from other investments in the host country (Adner & Levinthal, 2004).

However, what if decision makers are not in the position to separate prior investments as discrete and independent decision making from future investments? Given regulative and normative legitimacy pressures at the level of the host country, this paper illustrates how institutional pressures violate the discrete decision making assumption in real options theory with respect to the IJV divestment decision.

TYPE OF UNCERTAINTY AND DIVESTMENT FLEXIBILITY

In addition to the assumption of asymmetric path dependency between upside opportunities and downside risks, another assumption that restricts the applicability of real options logic to IJVs concerns the type of uncertainty involved in the IJV option value. Real options theory has been developed from financial economics (Dixit, 1992; Myers & Turnbull, 1977). Uncertainty in financial economics is basically determined by external environments beyond the boundary of organizational-level decision making (McGrath, Ferrier, & Mendelow, 2004). Because organizational decision makers can neither predict nor control this exogenous uncertainty, having the flexibility to choose alternatives according to future consequences is a valuable asset.

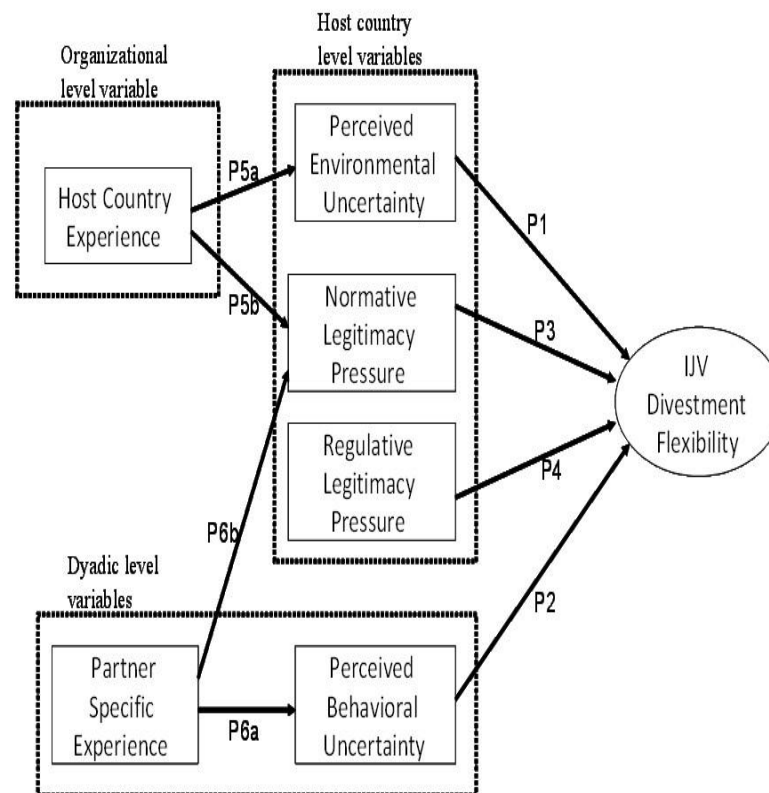
As pointed out in Adner and Levinthal (2004), the type of uncertainty that increases the option value is not endogenous but exogenous. The roles that endogenous uncertainty play has been underemphasized in the literature on real options except for few studies (Cuypers & Martin, 2007), although organizational learning and transaction cost approaches to joint ventures have flourished (Kogut, 1988; Luo, 2007; Reuer, Zollo, & Singh, 2002). Luo (2007) argued that joint venture partners' opportunistic behaviors increase when local environments are volatile. This argument implies that environmental uncertainty per se can make divestment flexibility valuable but that volatile environments can also affect the level of behavioral uncertainty in the host country. These two different sources of uncertainty make the relationship between uncertainty and divestment flexibility complex. This paper follows the traditional classification of Williamson (1985) and distinguishes between environmental uncertainty and behavioral one.

When environmental uncertainty (e.g., economic volatility) is high in the host country, an MNC with an IJV in the host country can realize a high option value in terms of divestment flexibility. This idea has been one of the core arguments in real options theory. This is because, under conditions of a high economic unpredictability, MNCs can capture higher value by "act and see" with IJVs until the unpredictability decreases. For instance, Lee and Makhija (2009) demonstrated that the option values created from IJVs is higher during economic crises. In addition to economic unpredictability, political unpredictability in the host country can increase the value of flexibility from IJVs. For example, Japanese firms prefer choosing joint ventures over wholly owned subsidiaries in countries with highly unpredictable political regimes (Delios & Henisz, 2000).

By contrast, when the local partner's behavioral uncertainty is high, the MNC cannot effectively exercise a put option to divest from the host country. The rationale for this argument is that, when a local partner exhibits an opportunistic behavior, the MNC may be constrained to exercise a put option as initially agreed upon or may face higher option prices that differ from expected terms and conditions. For example, using a formula for real options, Chi (2000) showed that how the call option value of joint venture (growth by acquisition) or the put option value (divestment by selling) varies with ex-post negotiations. When there is high behavioral uncertainty concerning the partner, the bargaining power of an MNC is weak, and this weaker bargaining power increases option prices and reduces option value.

The above discussion leads to the following propositions for effects of environmental uncertainty and behavioral uncertainty on IJV divestment flexibility. (See Figure 1 for a summary of the proposed research framework for IJV divestment flexibility):

Figure 1
PROPOSED RESEARCH FRAMEWORK



- P1* The higher the environmental uncertainty in the host country, the higher the divestment flexibility of an MNC is.
- P2* The higher the behavioral uncertainty in the host country, the lower the divestment flexibility of an MNC is.

INSTITUTIONAL EFFECTS ON IJV DIVESTMENT FLEXIBILITY

Institutions are regulative, normative, and cognitive elements that provide some stability and meaning to social life (Scott, 2008). In particular, legitimacy is a core concept of the institutional perspective because organizations can gain their stability and meaning within their socially embedded institutional environments. Legitimacy is a “generalized perception that the actions of an entity are desirable, proper, or appropriate within socially constructed system of norms, values and beliefs” (Suchman, 1995 p. 574). In addition, legitimacy is “not just another kind of resource that organizations acquire from their institutional environments, but rather a condition reflecting perceived consonance with relevant regulatory rules and normative support” (Scott, 2008 pp. 59-60).

From the perspective of an MNC facing the liabilities of foreignness (Zaheer & Mosakowski, 1997), a simple way to gain legitimacy is by conforming to the host

country's institutional environments (Suchman, 1995). By conforming to isomorphic pressures implicitly guided by host country's stakeholders, including government agencies, MNCs can gain legitimacy that they are endorsed as local actors embedded in the country's regulative and normative environments (Kostova & Zaheer, 1999; Scott, 2008). These isomorphic mechanisms do not necessarily make organizations more efficient (DiMaggio & Powell, 1983). Therefore, gaining legitimacy often forces organizations to let investment decisions be decoupled from economic efficiency. This is mainly because exercising the divestment option concerning IJV is not useful for gaining normative and regulative legitimacy in several ways.

As mentioned earlier, this paper assumes that MNCs have various goals to build country-specific capabilities in host countries where they have operations. This is partly because not only divest/growth options but also learning options from local operations are considered part of the total value created by the IJV option. Under this assumption, in many countries with high environmental uncertainty, gaining and maintaining local legitimacy from the host country's government agencies and other stakeholders are crucial for survival and growth (Dhanaraj, 2000). This raises the questions for whether normative and regulative legitimacy pressures facilitate or constrain IJV divestment flexibility in countries where the level of IJV divestment flexibility is supposed to be high.

To simply explain legitimacy effects, consider a hypothetical example of an MNC's IJV divestment decision when it has multiple operations in a host country, including IJVs. According to real options logic, if the expected return from IJV Alpha is under a given threshold, the MNC should divest from the host country regardless of the expected return from another operation Beta in the same host country. Also assume that the government of host country C holds some corporation-wide perceptions of foreign investment. In other words, the host country government views the divestment decision of IJV Alpha as the representative behavior of the MNC. In terms of normative legitimacy pressures, the MNC is constrained if it considers the possible disadvantage that Beta may face some disadvantage in the future. This normative legitimacy violates the conventional wisdom of real options logic. Real options logic typically assumes that the option value of an asset is not be correlated with the option value of another asset. Therefore, the possibility of a high correlation between operations in the same host country caused by normative legitimacy pressures is beyond the scope of traditional interests of real options theory.

Consider a more typical case. If IJV Alpha is the initial investment in country C, then major decision making by Alpha can be understood as a symbolic commitment signal by the focal MNC in C. Therefore, local stakeholders including the government have the normative expectation that the MNC plays a role as an embedded economic actor in the country. Conforming to these normative expectations instead of simply pursuing greater economic efficiency by exercising the divestment option when local market conditions are not favorable can be an effective means of symbolic management toward local stakeholders (Fiss & Zajac, 2006). For example, the MNC may try to minimize its commitment to additional resources instead of considering a permanent market exit.

Under local legitimacy pressures, divestment can be understood as a lack of commitment in the eyes of stakeholders. Once an MNC divests from country C, it loses normative legitimacy as an embedded actor who contributes to the economic development of the country (Dacin, Ventresca, & Beal, 1999). Even if the MNC identifies investment opportunities in the future within the country, the MNC may not have another opportunity

to receive policy favors at all once it loses normative legitimacy in the country.

In terms of regulative legitimacy pressures, the host country's regulatory policy may hinder flexibility to exercise the IJV divestment option. Host country government can place restrictions on selling out and liquidating equity stakes owned by foreign owners. In some cases, the host country government may require explicit "no-exit" clauses when it approves the formation of an IJV in the country, particularly in regulated industries. In most regulated industries, MNCs are allowed to enter the country only by a government license to do business in the focal industry. In such industries, as preconditioned terms, the host country government usually requires the MNC to form IJV with a local partner arranged by the government. Through the local partner, the host country government typically forces the MNC make long-term capital investment in the country and requires technology transfer from the MNC to the local partner up to a certain level. Until the expected capital investment and technology transfer level are met, any divestment from the IJV is prohibited in many cases.

The above discussion leads to the following propositions concerning the relationships between normative and regulative legitimacy pressures and IJV divestment flexibility.

P3 The higher the normative legitimacy pressures in the host country, the lower the divestment flexibility of an MNC is.

P4 The higher the regulative legitimacy pressures in the host country, the lower the divestment flexibility of an MNC is.

ANTECEDENTS OF PERCEIVED UNCERTAINTY: PRIOR EXPERIENCE

What are the antecedents of the level of uncertainty in determining divestment flexibility? This section focuses on roles of country- and partner-specific prior experience. Both environmental uncertainty and behavioral uncertainty are types of unpredictability perceived by decision makers. The bounded rationality of decision makers makes them perceive unfamiliar decisions as more unpredictable (Simon & March, 1958). Argote and Greve (2007) pointed out that the notion of incremental and context-specific learning introduced in experiential learning perspective is rooted in the behavioral theory of the firm (Cyert & March, 1963; March & Simon, 1958). In the literature on international business, experiential learning has been pioneered through the internationalization process model (Johanson & Vahlne, 1977), which has been verified in numerous extended studies (e.g., Chang & Rosenzweig, 2001; Davidson, 1980; Delios & Henisz, 2003a).

According to the experiential learning perspective in the MNC context, learning can mitigate the costs of uncertainty (Barkema, Bell, & Pennings, 1996). When environmental uncertainty is high and a foreign firm has no experience specific to the host country, the firm is likely to face disadvantages from various institutional differences between the home country and the host country (Kostova & Zaheer, 1999). Before accumulating its own experience in the host country, an MNC has to rely on other firms' experience in the host country by conforming to those firms. In other words, without own prior experience, one way to reduce uncertainty is by imitating other firms' behaviors. If other firms tend to stay in the country despite lower expected returns, then the MNC can also conform to institutional pressures to acquire and maintain local legitimacy.

However, after the MNC get its own experience, the MNC can utilize its prior

experience to mitigate the uncertainty. For example, Japanese firms with prior investment experience specific to the host country are less likely to avoid countries with a high level of policy uncertainty (Delios & Henisz, 2003b). In this sense, prior country-specific experience reduces the perceived level of environmental uncertainty.

In terms of effects of country-specific experience on normative legitimacy pressures, the broadened perception of various investment alternatives in the host country is likely to increase the flexibility of IJV strategic decisions. Ironically, however, prior country-specific experience can lock the MNC into the existing IJV investment. This is because local stakeholders, including the host country government, may have higher normative expectations as the MNC sequentially accumulates operating experience. Again, path dependency plays an important role in this context. According to real options logic, divestment flexibility is not related to path dependency in locked-in ways. Increased normative expectations implicitly force the MNC behave as an embedded actor to maintain legitimacy.

The above discussion leads to the following propositions regarding effects of country-specific prior experience.

P5a Prior FDI experience in the same host country is negatively related to the level of perceived environmental uncertainty.

P5b Prior FDI experience in the same host country is positively related to the level of normative legitimacy pressures.

Does partnering experience help reduce perceived behavioral uncertainty from the partner's opportunistic behavior? Previous studies have demonstrated that both partner-specific alliance experience (Gulati, 1995) and general alliance experience (Anand & Khanna, 2000) reduce behavioral uncertainty. This paper focuses on effects of partner-specific alliance experience because general alliance experience can also reduce environmental uncertainty.

Repeated ties to specific local alliance partners can foster trust between partners and reduce behavioral uncertainty (Gulati, 1995). This is because learning how to collaborate with a specific partner reduces the costs of uncertainty in dealing with various partners. Each partner may create some idiosyncratic internal uncertainty (Beckman, Haunschild, & Philips, 2004; Gulati, Lavie, & Singh, 2008).

Ironically, despite the trust-facilitating effect of prior partner-specific experience, an embedded relationship facilitated by repeated alliance experience can indirectly restrict the flexibility to divest the focal IJV by increasing normative legitimacy pressures. When an MNC accumulates a repeated alliance history, the MNC gains more local legitimacy than other MNCs. However, higher legitimacy does not necessarily provide the MNC with greater freedom in terms of IJV divestment decisions because increased legitimacy requires a higher level of normative expectations to behave as an embedded actor. This paradox hints a dark side of local embeddedness (Uzzi, 1997). Reducing behavioral uncertainty per se does not necessarily lead to increased flexibility. On the other hand, although an increased level of legitimacy can restrict the flexibility of an IJV, this increased legitimacy facilitates the MNC to realize benefits of its commitment (Ghemawat, 1991).

The above discussion leads to the following propositions regarding effects of partner-specific prior experience.

P6a Partner-specific prior experience is negatively related to the level of perceived behavioral uncertainty.

P6b Partner-specific prior experience is positively related to the level of normative legitimacy pressures.

DISCUSSION AND CONCLUSIONS

This paper contributes to the literature on real options in three ways. First, the paper explains why higher environment volatility cannot ensure an increase in the option value in terms of divestment flexibility. Considering normative and regulative legitimacy pressures explicitly, this paper illustrates the conditions in which the exercise of divestment flexibility is constrained. Second, this paper incorporates endogenous factors that have received little attention in the literature. Unlike in the case of environmental uncertainty, this paper posits that behavioral uncertainty restricts IJV divestment flexibility. In addition, this paper argues that country- and partner-specific learning can reduce the perceived level of environmental and behavioral uncertainty, respectively. The proposed multi-level framework identifies that the literature on real options should incorporate endogenous variables such as organizational- and dyadic-level prior experience. Third, the paper explains why prior experience can lead MNCs to the dark side of local embeddedness. Gaining higher legitimacy can reinforce higher expectations from local stakeholders. Locked in local legitimacy, an MNC is likely to experience a trade-off between flexibility and commitment (Folta, 1998).

The proposed approach has some limitations. First, unlike the traditional approach in real options theory, which focuses on the option value, this paper focuses only on IJV divestment flexibility to make the research framework as simple as possible. In this regard, institutional effects on the total option value embodied in IJVs should be a promising research agenda. Second, this paper assumes that MNCs pursue country-specific capability building regardless of the environmental volatility of the country. In many cases, however, MNCs from developed economies tend to enter emerging economies to seek efficiency instead of new markets (Dunning, 1998). In this regard, proposed argument holds when MNCs prioritize new market opportunities over efficiency. Third, this paper does not explicitly consider the legitimacy effect on the value of commitment because the main focus is on divestment flexibility. Future research should examine the relationship between legitimacy pressures and the value of preemptive commitment. Fourth, although there are several possible types of endogenous uncertainty, this paper focuses on behavioral uncertainty. Following recent studies (e.g., Cuypers & Martin, 2007), future research should extend the scope of uncertainty formulated in real options logic.

In conclusion, this paper aims to identify the boundary conditions of real options theory for IJVs by drawing on institutional and experiential learning perspectives. Given legitimacy pressures and embeddedness effects of prior experience, IJV divestment flexibility is likely to be restricted to exercise even in countries with high environmental uncertainty.

ENDNOTES

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ARE WE LISTENING IN THE RIGHT DIRECTION? A PROPOSAL FOR ADDING AUTHENTICITY TO YOUR CUSTOMER EVALUATION PROCESS

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ABSTRACT

The purpose of this paper is to propose and illustrate a practical technique to assess an existing customer evaluation system or to help establish a customer evaluation system that aligns with core customer desires. This method is illustrated using common tools and techniques readily available using spreadsheet software.

The proposed process could lead to improved effectiveness on the part of a firm's overall marketing strategy. However, it is limited in the sense that it provides the general, but not an industry-specific solution to customer satisfaction evaluation. This methodology helps to ensure the authenticity of one's customer satisfaction evaluation process. This can help management determine which directions to pursue to refine their process with some level of data analysis, which is repeatable and firmly aligned with practical results.

This paper is of value to business managers, marketing managers and customer service practitioners who need an objective method to determine the efficacy of their customer satisfaction evaluation systems. It is original in its synthesis of customer satisfaction evaluation concepts along with a practical method to improve one's evaluation process.

This proposal is a qualitative study using action research as a model in that it seeks to improve practice through an examination of shortcomings in existing practices.

The proposal illustrated provides detailed guidelines for evaluating the efficacy of a customer evaluation system and methods to make changes based on objective criteria.

The proposed technique is an original proposal by the author and represents a systematic and practical method to evaluate a customer evaluation system.

INTRODUCTION

In the world of business, there is possibly no greater focus by senior management than the focus on customer satisfaction. This lofty position is well deserved, as management knows that, where satisfied customers are, sales, and therefore profits, are likely to follow. However, the process of determining the level of satisfaction of customers is a very complex process, both in theory and in the application. The evaluation of customer satisfaction has been the subject of countless books and articles, and there is no shortage of philosophies on how to measure your customer's satisfaction.

In the world of performance measurement, it is always preferable to use objective criteria to evaluate any element of performance from product and process performance to organizational performance. An essential part of any organizational performance evaluation scheme would be the measurement of customer satisfaction. However, the objective evaluation criteria with respect to the customer's perspective are much less readily available.

This factor adds to management's dilemma. Most managers would not think of managing their operation without a plethora of objective performance measures. Measures such as the percentage of scrap/waste, percent of first pass yield, mean time between failures, and throughput rate, are all essential for managers to know how well their operations are performing. However, what about customer satisfaction and their evaluation of their customer satisfaction? How well are these tools working to evaluate the customer's wants and likely future spending habits? Can it be as simple as asserting that, 'if I'm making sales, then my customers must be satisfied'? This paper postulates that it is more complex than that. There are many other factors involved leading up to the customer decision to buy, and this is discussed later in this paper.

Adding to the complexity of assessing the efficacy of a firm's satisfaction evaluation process is the fact that for many products and services, subjective evaluations are perhaps the best, and at times the only, means available. This fact builds in an inherent measure of subjectivity to the process and many times; this subjectivity is the underlying weakness in many customer evaluation systems.

The importance of a firm in staying 'close to its customers' is essential to a company's continued competitiveness. In order know how they are performing in the customer's eye's, some effective system must be engaged which will let them know just how well they are performing. It is not a simple matter of looking at sale records. For example, a firm may be showing increasing sales but, may still be losing market share due to rising competition in an expanding market. Faed (2010) found that good customer relationship management enhance the firm's competitive stance and increase its marketplace share. Kotler and Armstrong (2011) went further in saying that firms must not only satisfy their customers but, do so in a more efficient and effective manner than their competition to remain viable. Bhattacharya (2011) also found that by implementing a good relationship management process, firms can reduce their firm's operational costs and thereby, increase profitability as a result of increased customer loyalty. Zineldin, (2006) went further into developing a triangle strategy between quality, CRM, and customer loyalty. This strategy is felt in turn would increase a company's competitive position. While other studies went on to identify the actual factors relating to customer satisfaction. For instance, Long, Khalafubezhad, Ismail, & Rasid (2013) identified; behavior of the employees, quality of customer services, relationship development and interaction management.

The purpose of this paper is to present a practical method to evaluate a firm's customer evaluation system and identify shortcoming. Then the paper shows how to align this evaluation system to the customers with the highest profit potential for the firm.

The methodology used follows the action research framework. It started with the fundamental question of a practitioner, How do I improve my work? (McNiff & Whitehead, 2000), and then seeks to illustrate current practices and then extend those into creating something new and implement those newly developed practices (Nieswiadomy, 2012).

This paper is presented in two parts. The first part provides a method to determine if an existing customer satisfaction measurement system is 'measuring the right stuff'. This part will be done by illustrating a proposed method to quantify the validity of a customer evaluation system. That is, is there an alignment between a customer's satisfaction level and the levels of one's company performance in the marketplace? The underlying assumption here is that superior performance in a firm's products and services will lead to higher performance among the competition. The first part will also look into the sources of misalignment in the customer evaluation system and corrective actions for that misalignment.

The second part assumes that one's current customer satisfaction measurement system is either inadequate or nonexistent. This second part of the paper presents a protocol for establishing a customer satisfaction system that 'listens better' to one's customers. It also introduces the concept that a firm should categorize its current and potential customers by their likely contribution to sales from high-profit potential to low-profit potential. Then, a method will be introduced to weight mathematically the profit potential of these customer categories with the wants and needs of the customers. The underlying assumption here is that a firm should focus its greatest attention to the needs and satisfaction levels of the high-profit potential customers over the needs and satisfaction levels of the lower profit potential customers. The second part of this paper will also discuss the 'what to ask' the customers and 'how to ask' the customers to focus in on the critical perceptions of the most valuable customers.

Finally, an example of a proposed evaluation matrix is presented to incorporate all the preceding concepts. This one matrix takes into consideration the profit potential of the customers, along with the current performance and importance ratings established by the customers. In the final part of the matrix, the summation provides managers with metrics by which to evaluate and prioritize their actions to increase customer satisfaction.

EVALUATING THE RESULTS OF YOUR CURRENT CUSTOMER SATISFACTION PROCESS ARE WE ASKING THE RIGHT QUESTIONS?

The preceding paragraphs discussed the importance of considering customers and their *relative potential* as a consumer of a firm's products and services. So far consideration has been given to what questions to ask regarding their customer satisfaction and then how to evaluate those questions. With this background, it is very likely that the right questions are being asked of the customers and this information can be used to make better management decisions. However, is it known for sure that we are asking the right questions? What are the *objective indicators* that the right questions are being asked in the customer evaluations? Or, another way to ask this question might be, "What evidence do I have to validate that I am asking the right questions to determine how satisfied my customers are in my products and services?" One very direct method would be to test the correlation between the customer satisfaction level and the actual market performance of the firm. If the measurement system has internal validity, then as the customer satisfaction level went up, the firm's market share and, or the sales should go up as well. Conversely, if the customer satisfaction levels were declining, is there a commensurate downturn in the market share or sales? This validity check can be considered in two dimensions; from the temporal or *time-base dimension*, and then the quantitative dimension, or about *the size of the change*. The temporal dimension refers to the timing of the events, that is, if some Factor A influences some Factor B, then Factor B changes only after Factor A changes. For the size dimension, Factor B increases or decreases in some predictable pattern based on Factor A.

What follows is a notional example of using the evaluation concepts discussed above in practice. The techniques mentioned in the preceding paragraph were used to identify the customer satisfaction levels for the most important questions that matter to the most important customers of the firm. To better capture and use the customer satisfaction data, the concepts of macro and micro-metrics will be used. For purposes here, a macro-metric is a compilation of several smaller customer satisfaction micro-metrics. This is illustrated later. The advantage of using a macro-metric is that it can distil the micro-metrics into a single customer satisfaction macro-metric for clarity and focus. Then this one macro-metric can be tracked over time. The

concept of use of using micro and macro metrics has received good attention in research. Day (2008) notes that there are several reasons for the use of micro and macro metrics. These center on rationality. Day notes that rationality is *local*, and rationality is *bounded*. This provides a natural breakdown of knowledge into the *tactical and the strategic*, which for metrics, can be operationalized at micro and macro metrics, respectively. Further, it is realized that in the field of economics, the micro and macro factors have an interrelatedness and studying one or the other alone, is not sufficient (Forge, 2009). In another study using the micro and macro data approach, the authors proposed that a 'fused' approach leads to additional insight that is unavailable when one focuses on either the micro or the macro data (Dias, 2002)

Following in Table 1 are notional results based on a firm's data collection effort. The example uses two metrics, the customer satisfaction macro-metric and the firm's Market Share for some period. Other metrics, such as sales volume, can be used as well, but this example will illustrate the point. This step is the first step in the proposed evaluation process. The purpose of this step is to determine if the level of current customer satisfaction is in logical alignment with the firm's performance. The consideration behind this is that if the customer evaluation system is valid, then it should be reflected in the firm's market performance. An example of this is that if a company had a valid measurement system, then when a company's customer satisfaction levels were high, then this fact should be reflected in market performance data. Likewise, if the customer satisfaction levels were low, then this should be reflected as well. The process starts with the example below to determine the alignment:

Table 1

Macro	Market Share
2.5	0.2
2.7	0.2
2.9	0.22
3.1	0.23
3.3	0.2
3.5	0.25
3.7	0.26
3.9	0.25
4.1	0.28
4.3	0.29

The Macro column shows the results of the company's customer satisfaction survey. The notion of a macro-metric is that this one macro-metric is a compilation metric and could be composed of several micro-metric-level questions. An example of the concept of this macro-metric for a fast-food restaurant might be the compilation of individual customer satisfaction ratings for; the quality of food, quality of service, cleanliness of the facility, and convenience. Management could collect these individual metrics, and consider some numeric weighting value if they felt that some of the factors are more important than others. To help us validate the credibility of the current set of customer satisfaction questions, a high correlation would be expected between the customer satisfaction levels and the market share as mentioned above. That is, the level of customer satisfaction should be an independent variable while the resulting

market share should be a dependent variable. The Regression Analysis function in Microsoft Excel (*Data – Data Analysis – Regression*) produced the following results in Figure 1:

Figure 1

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.997520811							
R Square	0.995047769							
Adjusted R Square	0.883936658							
Standard Error	0.017809067							
Observations	10							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	0.573545534	0.573546	1808.363	1.0308E-10			
Residual	9	0.002854466	0.000317					
Total	10	0.5764						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Macro	0.069453322	0.001633241	42.52485	1.1E-11	0.065758674	0.07314797	0.065758674	0.07314797

Based on the R Square and the level of Significance indicated in Figure 1 above, there is a very high correlation between the customer satisfaction level and the market share. So what does this mean to decision-makers?

It means that there is an association between the customer satisfaction levels and the performance in the marketplace. If there were little dissonance between the stated customer satisfaction levels and the market performance, this would indicate that the wrong questions are being asked. If the data shows that there is an association between the customer satisfaction levels and the marketplace performance, this would indicate that *the right questions are being asked of the right customers, that is, the high-profit-potential customers*. This means that we are satisfying those customers who spend a good deal of money with our business and their satisfaction is displayed in their continued patronage. Of course, other metrics can be used too. For instance, instead of using market share, which may be more difficult to determine in some cases, and then a firm can simply use its sales as the dependent variable. It is not suggested to use profit, as there may be extraneous factors that artificially drive profits down although sales and or market share may be going up. An example of this might be where a shortage of some raw material in the marketplace for one-quarter causes a reduction in profits for that same quarter. This transitory external driver was not controllable by the firm and should not be considered actionable for an operations manager.

WHAT ARE THE SOURCES OF MISALIGNMENTS?

The above example indicated a high degree of correlation between the results of the customer satisfaction macro-metric and the success in the marketplace. This correlation indicates that there is a high degree of association or alignment, between the customer satisfaction levels, which is the *independent variable*, and market performance, which is the *dependent variable*. This alignment is a good situation for the company. That gives the company some level of assurance that they are asking the right questions of the right customers. However, what if the

macro-metric and the market performance did not align to a great degree? What does this imply? It means that the right questions are not being asked or, asking the questions are being asked of the wrong people, that is, the low-profit-potential customers. These are the people who indicated that they would be spending little in the survey mentioned earlier. This later concept will be considered first, asking questions to the wrong people. How could that be? What does the 'wrong people' mean in this context? This will be covered in greater detail later in this paper, for now it simply means the potential customers that are being asked the customer satisfaction questions of are not serious 'income generators' for the firm.

The first question that is considered is, 'are we asking the right questions' question, with respect to the questions themselves. Based on the macro-metric mentioned above, how would one know which questions were the best 'predictor questions' regarding customer satisfaction?

The process begins with the deconstruction of the macro-metric down into its component micro-metric customer satisfaction questions. Then, comes a comparison of the individual micro-metric results with the performance factor that are used, for example, market share, and determine if there is a significant difference between the two metrics. Below is an illustration of this concept. In this example, perhaps the macro-metric was composed of the following three customer satisfaction questions; 1) facility cleanliness, 2) merchandise selection, and 3) employee friendliness. How might that look in an example? The three micro-metrics that made up the macro-metric are then consolidated using spreadsheet software to look at the association between each micro-metric and the market share, the *dependent variable* of interest. Figures 2 - 4 indicates that the level of customer satisfaction with the facility is not a driving factor behind the market share. Therefore, in this case, the 'right' question is not being asked of the customer since there is a dissonance between customer responses and market performance.

However, in the case of the other two micro-metrics, there is a degree of confidence that customer satisfaction with the merchandise selection and employee friendliness, do matter to the market share. Where is the data? What is the assumption for a linear relationship? Although the above data points are notional and not actual, the question of linearity is present for real-world performance data. The above technique for calculation is based on an assumption of linearity. This assumption is justified, as two continuous variable are used for calculations of the real-world data are used for the calculation (Tabachnick & Fidell, 2001; Warner, 2008). Cohen, Cohen, Cohen, West, & L. (2003) further state that unless there is some strong indication that non-linearity exists then linearity is assumed. However, if this is some reason to believe that a non-linear relationship exists, graphical methods can be used to verify linearity (Tabachnick & Fidell, 2001).

Figure 2

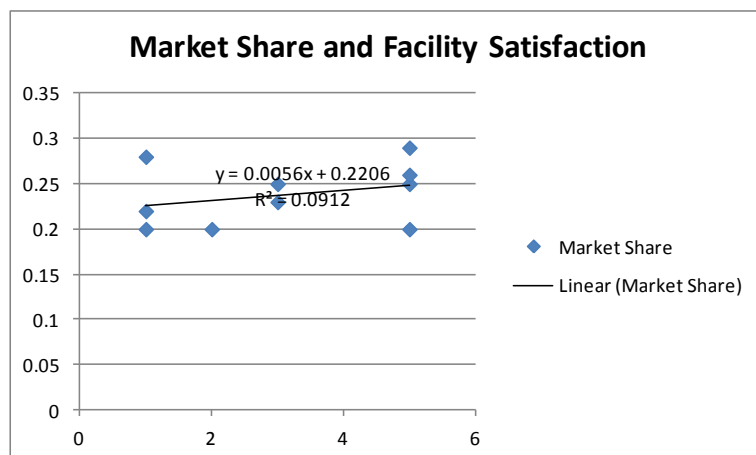


Figure 3

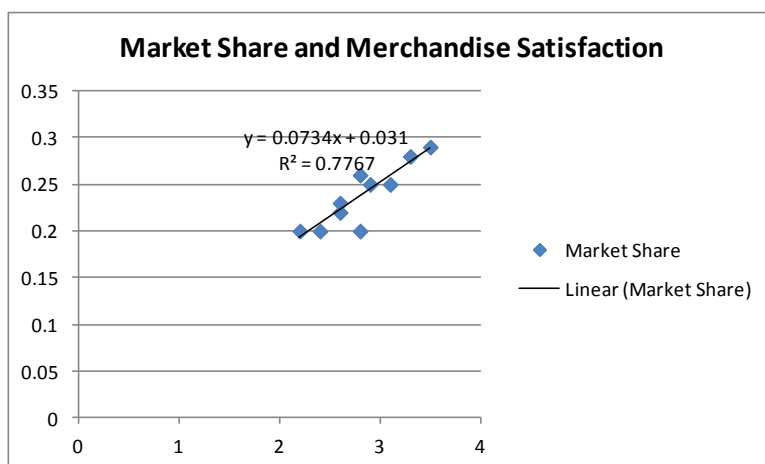
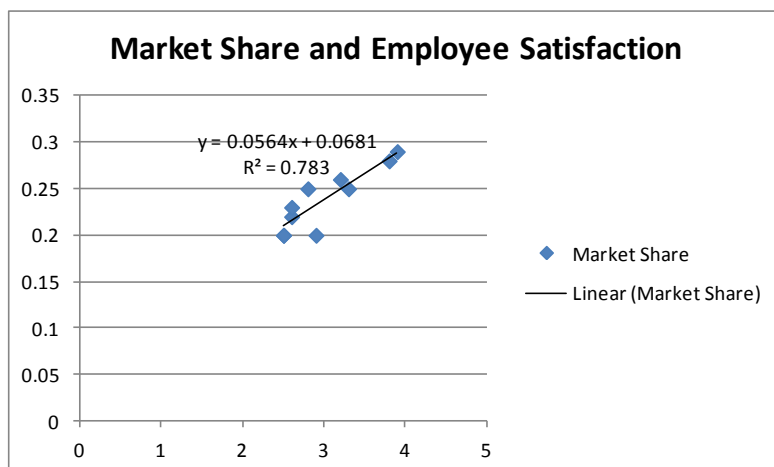


Figure 4



HOW TO CORRECT THE MISALIGNMENT

The above example illustrates how to identify those customer satisfaction micro-metrics that matter to the market share, and a case where it did not matter to the market share. In other words, the 'market predictor' customer satisfaction drivers were identified. Now it can be seen that the 'wrong' questions were being asked. These were wrong in the sense that the customer satisfaction questions did not drive success in the marketplace. This brings up the question of, 'Well what questions do I ask my customers?', and 'Am I asking the right people in the first place?' These questions lead to the second part of this paper, creating a New Customer Satisfaction Evaluation Process.

CREATING A NEW CUSTOMER SATISFACTION EVALUATION PROCESS

NOT ALL CUSTOMERS ARE THE SAME

As most business managers learn on their first day on the job, "the customer is king", certainly this is true for most successful businesses. The ability to supply the wants and the needs of the customer is the key focus point for all businesses. Much can learn about one's customers, not only their current sales decisions but also, about tomorrow's likely purchasing patterns if the right questions are being asked of the right people. However, there is one dilemma associated with listening to customers, do all customers "make the same noise", for your business to respond? What signals are they sending to the business, and should the business listen to all customers in the same way? This proposal states that no, not all customers should be listened to in the same way. The key factor is that opinions of those customers who are the high-profit-potential customers should be heeded to a must greater degree than low-profit-potential customers.

This question is illustrated by casual observation at a local retail business, such as a shopping mall. What is likely to be seen is that although most shoppers may walk through many stores in the mall, they are likely to walk out of the mall with shopping bags from only one or two of the stores visited. That is, foot traffic does not always represent sales, and at the end of the day, the most important "noise" the customer makes is the noise of the cash register opening. So what does this observation mean to the business manager in practical terms? It means there needs to be a differentiation between the "small sales wave potential", and the "big sales wave potential" customers. That is, differentiate between those customers that will more likely contribute to sales and those less likely to contribute to sales. The task then is to have an objective means to differentiate between these two ends of the spectrum, the high sales potential versus the low sales potential customers. While sales volume is generally considered the key metric for business, a more forward-looking technique would be to consider the *actual and potential buys* for a product or service, and then weight the significance of this into the 'level of noise'. That way you are hearing the most from your *high potential* customers.

With this in mind, it is proposed that managers use this "wave potential" as an objective weighting factor to help determine 'true' customer satisfaction and sales potential, which will be illustrated below. A business manager would 'listen to the rhythm' of the high-purchase, and even the high-purchase potential buyers much more than the rhythm of the 'lookers' or low-potential customers. As an extreme illustration of this concept, one would not ask a beer-drinker to evaluate their satisfaction of a fine wine. A prudent marketer knows to ask a focus group

composed of wine drinkers to be in a discussion on the development of a new wine or evaluate an existing wine.

This paper illustrates the process of making this distinction between the high and low sales potential customers and their level of satisfaction using basic Microsoft Excel software and skills. First, there is a need to select a representative sampling of core *potential* customers. Potential customers consist of two elements, *current* customers and *likely* customers. Current customers are easily identified through the company's sales staff and historic data.

However, identifying *likely customers* is more complex. It involves identifying the segment of the population that has a need or want, of the company's products and services, *under the right circumstances*. For example, an assessment is needed to determine who would be the likely customers for breakfast at a fast-food restaurant in a small town that has a total of three fast food restaurants open for breakfast? That would be the total of those customers that are now buying their breakfasts at the competition, as well as the 'hidden' customers. The hidden customers are that part of the population who would want a fast food breakfast, *given the right combination* of purchase decision factors. These decision factors are the same that influence all retail buys; price, location, convenience, service, etc. In this example, hidden potential customers may be buying breakfasts-to-go at a local convenience store where they may also buy gas and a pack of cigarettes.

Before proceeding, there is one other consideration brought out by Szwarc (2005), and that is 'eligibility'. That is, there are some occasions in which a market researcher might need to ensure that a potential respondent meets some minimum eligibility criteria to be part of a sample. This basic eligibility question helps ensure a representative sample is taken from only that segment of the population who could reasonably buy a company's product. For example, if a firm were questioning respondents on alcohol use, it would certainly want to exclude minors from the survey.

To illustrate this process, first a company would need input from potential customers. For example, a company can send out mailers to the surrounding neighborhoods of their location. From that mail out, they randomly identified a small sample of 15 potential fast food breakfast buying customers to survey. From discussions with the respondents, the company has identified potential spending for breakfasts from this sample of potential customers listed in Table 2. Note that this is a combination of their current and their likely customers.

Table 2

A	B	C	D
Customer Ref #	Customer Sales Potential	Percent ranking	Quintile
1	\$440	0.86	5
2	\$490	1.00	5
3	\$80	0.07	1
4	\$410	0.71	4
5	\$200	0.29	2
6	\$430	0.79	4
7	\$50	0.00	1
8	\$370	0.50	3
9	\$380	0.57	3
10	\$240	0.36	2
11	\$440	0.86	5
12	\$390	0.64	4
13	\$130	0.21	2
14	\$110	0.14	1
15	\$360	0.43	3

Explanation of Table 2

The above table is the starting point of this evaluation process. In Column A is a reference number for each of the sample respondents, it is used only for administrative purposes to account for the respondents. In order to understand the sales potential of the sample for fast food breakfasts, one could ask the attendees, “How much would you likely spend for a fast food breakfast over the next year?”

Column B shows the estimate from each respondent. Column C is a percentile ranking of the amount estimated for breakfast expenditures. Calculating the percentile is important as it is a means to determine the profit potential from sample respondents. This calculation is made by using the =PERCENTRANK function in MS Excel. An example follows: =PERCENTRANK(\$E\$9:\$E\$23,E9)

Column D is the quintile level for each of the respondents. This metric is calculated by segmenting the results of the potential sales from Column C into manageable quintile levels for further use in the evaluation process. This quintile was done by using the =LOOKUP function in Excel and specifying the categories, in this case, at the quintile level, that is, increments of 20%. An example follows:

=LOOKUP(F9,{0,0.2,0.4,0.6,0.8},{ "1", "2", "3", "4", "5"}) I do not think finding quintiles in Excel be an issue here. Especially since we do not see the excel data file.

The significance of the results from Table 2 goes back to what was mentioned earlier in this paper; not all customers are of equal importance with respect to their sales potential for the company. That is, it is most important to satisfy the high-profit potential customers than the low-profit-potential customers. The intent here is to be able to integrate a factor into the customer satisfaction calculation that represents the value of the potential sales to the customers. Using a quintile level of categorization is a judgment call to help categorize customer sales potential. It is used here as a reasonable compromise between some level of granularity and having an unmanageable level of detail. This metric is based on the customer's recollection of the actual purchases of current customers, or the anticipated purchases of prospective customers so this effort towards categorization is justified.

It is not intuitive as to why a company would be considering people who are not the regular customers in the first place. The notional sample mentioned above suggested getting a sampling of potential customers to and not just the current customers of the business. The existing customers may be easily surveyed as they conduct business with the company in the first place. The firm should also seek non-customers to ensure they have a holistic perspective of customer satisfaction. A firm needs to consider those potential customers who are not doing business now with the firm to determine their primary wants and needs. On the point of customer affiliation, Denove & Power (2006) state that all companies have three types of customers; Advocates, Apathetics and Assassins. The Advocates are those customers who would go out of their way to do business with one's firm. The Apathetics, do business with one's firm but with no solid commitment, this is statistically the largest segment. Finally, the Assassins will do everything they can to avoid doing business with a firm and ensure everyone else around them knows this. This concept is brought out also in what Reicheld (2006) calls his Net Promoter Score concept. Reicheld identified three types of customers also; Promoters, Passives, and Detractors.

With this in mind, the satisfaction of the potential customer base will consider all three categories of customers to find out 'what makes them tick', why they are so passionately for or against the firm. It would be interesting, for example, to find out where the areas of dissatisfaction are for those potential customers who do not spend money with a firm. What about the customers who spend the most money with a firm? What makes them so satisfied? Is it the products they buy? The price paid? The service they receive? By studying both the positive and the negatives responses, then a firm has that complete picture that is needed to understand how the potential customers views a business. With the proposed model in this paper, most consideration should be given to those with the most potential impact on profit, whether they are Passives or Detractors. This last point leads to a consideration of a company's 'mindshare'. In their book Callahan, James-Lundak, & Paula, 2007 point out that there is a difference between *customer satisfaction and customer loyalty*. Customer satisfaction can be thought of as a necessary first-step into gaining customer loyalty. They go on to discuss how this produces a firm's 'mindshare' in the customer's mind. When they think of some product or service, is it one's own firm that the potential customer thinks of first? This mindshare does not happen overnight. It is a compilation of the positive, and the negative experiences customers have had during their interfaces with the firm. Lee (2013) points out that the customer loyalty mentioned above is not easily won. His findings indicate that customer loyalty does indeed, follow behind customer satisfaction and customer perceived value.

One final mechanical factor that plays heavily into customer satisfaction surveying is determining the actual number of respondents to survey. A detailed discussion is beyond the

scope of this paper as there are many texts available to use as a guide. For a rough estimation, though, Self, Roche and Hill (2002) use as a basic guide of 200 respondents being a good number of to survey for even relatively large populations. As with any survey, a vital consideration is whether there is true randomness in how the respondents were chosen. One caveat is that not all potential respondents will respond, so additional respondents are likely needed.

WHAT CUSTOMERS WANT

The next step in this customer evaluation process (what process?) is to identify the features and characteristics that they feel are the most important, not just what they want but, what they want most. Of course, most firms and industries have a repository of core questions they ask their customers about the product or service of the firm. These core questions are especially useful when a firm may want to benchmark its customer satisfaction with that of competition. However, does a firm always want to ask the usual question? Well, it depends. The question might then become, "Is there a logical alignment between our customer satisfaction levels and our sales and, or market share?" That is, if a company were asking its customers the right questions, then there should be an obvious relationship between the customer satisfaction levels and the sales and market share.

An example of this follows. In the previous example above, a fast food restaurant was used as an example, and the firm wanted to evaluate their customer satisfaction. First, the authenticity of the customer evaluation process should be validated. To do this, the customer's satisfaction level must be compared with the company's sales performance. To help in this endeavor, the concept of a customer satisfaction *macro-metric* will be used. The performance macro-metric is the compilation of several performance *micro-metrics*. The micro-metrics are at some tactical level, an individual segment of customer satisfaction. The use of a macro-metrics can help bring all the individual metrics into a strategic-level perspective to aid in the decision-making process.

In constructing a macro-metric, care should be taken to consider if all of the micro-metrics are of equal importance. If they are not, and this is likely the case, then some rationale for prioritizing the micro-metrics is needed. There are three ways one could perform qualitative evaluations; rating without using weighting factors, rating with weighting factors, and ranking. Rating, at its simplest, involves assignment of a numeric factor, for example on a scale of 1-10, to some feature that is being evaluated. At another level of detail and complexity is rating with the using of individual weighting scores to the evaluation factors. This is illustrated below. Finally comes the ranking the scores of the various factors in relation to one another. Each of these three techniques has its advantages and disadvantages. Weighting is more complex to perform in that some rationale must be established to determine the individual weighting values. Ranking, on the other hand, is less detailed but much simpler to operationalize.

An example will be shown first to illustrate, this time of a simple rating scheme without weighting. Here scores are assigned for seven separate criteria, each criteria is scored on a scale of 1 – 7, with 1 being the lowest and 7 being the highest or best number. In this example, three different products or services are being evaluated but, as an alternative, the Product or Service columns could be substituted with competitor companies as well, but the principle is the same. In this case, Table 3 illustrates that Product 1 is slightly favored over the other two choices.

Table 3

Rating without weighting			
	Product or Service 1	Product or Service 2	Product or Service 3
	Score (1-7 scale)		
Criteria 1	4	3	1
Criteria 2	2	4	4
Criteria 3	5	3	5
Criteria 4	3	6	3
Criteria 5	2	7	7
Criteria 6	7	2	3
Criteria 7	4	1	2
Average	38.6	37.1	35.7

This next example will illustrate what happens when weighing is used in the evaluation process. Simply one column was added to the left side of the table to capture the level of importance of a particular characteristic based on customer preference. The process is to assign numeric ratings that add up to 1 to show the customer preference in some objective manner.

Table 4

	Rating with weighting						
		Product or Service 1		Product or Service 2		Product or Service 3	
Weighting Factor		Score (1-7 scale) followed by adjusted weighted score					
0.05	Criteria 1	4	20	3	15	1	5
0.2	Criteria 2	2	40	4	80	4	80
0.1	Criteria 3	5	50	3	30	5	50
0.4	Criteria 4	3	120	6	240	3	120
0.05	Criteria 5	2	10	7	35	7	35
0.1	Criteria 6	7	70	2	20	3	30
0.1	Criteria 7	4	40	1	10	2	20
1	Average	38.6	50.0	37.1	61.4	35.7	48.6

Table 4 illustrate that the Weighting Factor column is simply a factor to be multiplied by the raw score to produce the adjusted score. In this case, using the same scoring metrics as above but incorporating the weighting factors, now Product 2 is preferred over product 1.

The other evaluation method to use is a simple ranking procedure. An example of this in practice is where a customer is asked to consider seven different evaluation criteria. In this case, all the customer has to do is place the seven evaluation factors in order of preference or importance. In this case, Factor 3 might be the most important to the customer while Factor 5 might be the second most important factor to this customer. This method is considered less precise than the rating methods mentioned above. This is because it gives no measure of the preference the customer has, for instance, between the first and the second preferences. It only indicates the fact that one is ranked ahead of the other. However, it is easier for the users to understand and to implement.

For evaluation purposes, a ranking vice a rating method is chosen to balance between objectivity and simplicity. An example below of what this macro-metric might look like using some notional customer satisfaction questions.

A word of caution is in order here. Remember that an organization and its customers are not looking *at the product or service they receive in the same way*. Self, Roche and Hill (2002) talk about the 'lens of the customer' and how it is different from the 'lens of the organization'. The customers are concerned with the end results, the outputs of a process while organizations are often focused on their value-creating processes. A business need to be sure that the orientation of its questions is from the 'lens of the customer' and not that of the organization's 'lens'.

WHAT TO ASK

The actual questions to ask to identify customer preference can take many shapes so perhaps it is a good idea to consider how some of the world-class customer satisfaction organizations shape their questions.

The below questions are used by perhaps the premier organization dealing with customer satisfaction; J.D. Power and Company. JD Power today is a global market research firm that started out in the late 1960s when the founder of the firm, James David Power III started the firm by focusing on customer satisfaction in the automotive field. Today, JD Power surveys cover a wide variety of industries including; electronics, healthcare, finance, insurance, retail, travel, and others. For example, the types of questions asked in the Insurance industry, Homeowners insurance sector ratings include (JD Power, n.d.):

1. Overall satisfaction with the company
2. Policy offerings
3. Price
4. Billing and payment
5. Interaction, and
6. Claims

Another organization devoted to evaluation customer satisfaction is the US Department of Defense Interactive Customer Evaluation System, known as ICE. Figure 5 is an example of the questions ICE uses to establish customer satisfaction of the Defense Finance and Accounting Service, Indianapolis Travel Pay Services organization (DFAS, n.d.).

Figure 5

DFAS Indianapolis Travel Pay Services Comment Card

Please rate your satisfaction in regards to the quality of the customer service you received during your recent inquiry with us. If you rate any question less than "fair" please provide your recommendation for improvement in the Comments & Recommendations for Improvement" box located below.

[Information about this service provider \(FAQs, Events, Contacts, Links\)](#)

Your overall satisfaction with our service was	N/A				
Did you receive voucher receipt notification via MyPay/AKO within 4 days of submitting your most recent travel voucher?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A		
Was your voucher returned without being paid or only partially paid?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A		
If your voucher was returned without being paid or only partially paid, did the return notification's remark section state the reason why?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A		
Did you receive notification via MyPay/AKO that your most recent travel voucher was processed for payment?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A		
From the time of voucher submission to DFAS, how many days did it take to receive payment?	N/A				

Customer Service:						
Facility Appearance	<input type="radio"/> Excellent	<input type="radio"/> Good	<input type="radio"/> OK	<input type="radio"/> Poor	<input type="radio"/> Awful	<input checked="" type="radio"/> N/A
Employee/Staff Attitude	<input type="radio"/> Excellent	<input type="radio"/> Good	<input type="radio"/> OK	<input type="radio"/> Poor	<input type="radio"/> Awful	<input checked="" type="radio"/> N/A
Timeliness of Service	<input type="radio"/> Excellent	<input type="radio"/> Good	<input type="radio"/> OK	<input type="radio"/> Poor	<input type="radio"/> Awful	<input checked="" type="radio"/> N/A
Hours of Service	<input type="radio"/> Excellent	<input type="radio"/> Good	<input type="radio"/> OK	<input type="radio"/> Poor	<input type="radio"/> Awful	<input checked="" type="radio"/> N/A
Did the product or service meet your needs?	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A					

Satisfaction:	
Were you satisfied with your experience at this office / facility?	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A

One other method to determine what questions to ask come from a research methodology called SERVQUAL. This framework essentially measures the gaps between what the customer expects and what they say that are getting. SERVQUAL has questions in five basic areas:

1. Tangibles – regarding the facilities of the business
2. Reliability – on the delivery of services
3. Responsiveness – of the employees to help
4. Assurance – trust that services will be performed, and
5. Empathy – that a business understands its customers (Szwarc, 2005)

It is acknowledge that there have been some limitations to SERVQUAL regarding its five dimensions and 22 questions and their validity but, its framework is certainly a solid foundation to start with for purposes of this study (Llosa, Chandon, & Orsingher, 1998).

As can be seen, there are many similarities in the types of questions asked in the three customer satisfactions frameworks mentioned above. This degree of similarity suggests a broad agreement on what to ask the customers. However, without validating this, then high ratings in a business' customer service information data collection scheme may not be turning itself into profits.

HOW TO ASK

The next question in mind is the mechanism to use to ask the customers these questions. There are many ways but essentially, they center around those listed in Griffiths (2006) as follows:

1. Ask them – this is the direct approach of a firm just walking up to its present customers and asking them

2. Place a suggestion box in a conspicuous place
3. Include a questionnaire on the business' website. Many consumers nowadays are very likely to be on the web regularly and making a questionnaire available to them online is one more avenue to 'catch their eye'.
4. Do a follow-up call after a sale to gauge their satisfaction
5. Send a customer satisfaction survey to a business' customers if the addresses are known

One other consideration that is relevant here is that it is prudent to rely on more than one source from which to derive customer satisfaction responses. For example, Ye, Fulton and Durandean (2011) suggest that customers tend to give more extremely positive answers when questioned by telephone when compared to other data collection sources.

Although the above list appears to be very comprehensive, this does not give the *total picture* of the potential customer base. How can that be? Very simply, as important as it is to understand what the current customers think about a business' products and services, it is equally important to understand why potential customers are not making their purchases. Therefore, the methods above just will not work in isolation. A business must broaden its data collection base to include not only current customers but, perhaps former customers, who no longer do business, and from potential future customers. This logic would be analogous to an automobile manufacturer asking not only current drivers about features in an automobile, but also asking a group of high school-aged young adults what they think about feature in automobiles. This is because they represent our pool of potential customers in the near term.

PUTTING IT ALL TOGETHER

The final step in the process and will be linking the evaluations into a single, actionable document that incorporates all of the prior calculations into one worksheet.

From the methodology above, there is a reason to believe that right questions are being asked of the right people based on the weighting factors mentioned earlier. At this stage, this select group will be asked two essential and interrelated questions; What are the most important evaluation criteria of performance satisfaction to you, and then, How do you evaluate those individual criteria for this product/service? Starting with Table 5 the respondents will be asked to rate the importance of each of the criteria on a scale of 1 - 3:

Table 5

E			
Customer Ref #	Criteria 1	Criteria 2	Criteria 3
1	1	1	1
2	3	2	2
3	2	3	3
4	3	3	1
5	1	3	2
6	1	3	1
7	1	3	1
8	1	1	1
9	3	2	3
10	1	3	1
11	3	2	3
12	2	3	3
13	3	3	3
14	1	1	2
15	1	3	3
Criteria Importance			
1 Not a consideration, little or no importance.			
2 Nice to have this feature, moderately important.			
3 Critical, need to have this feature.			

Then the respondents will be asked to rate their satisfaction with each of the performance criteria as shown in Table 6, on a scale of 1 – 5:

Table 6

Customer Ref #	Criteria 1	Criteria 2	Criteria 3
1	3	3	4
2	2	5	2
3	1	4	3
4	3	3	4
5	5	5	3
6	4	5	3
7	5	1	2
8	1	3	1
9	3	5	1
10	5	1	1
11	3	4	3
12	5	3	5
13	3	3	3
14	3	5	2
15	2	3	2
Criteria Performance Score			
1 Very unsatisfied with performance			
2 Somewhat unsatisfied with performance			
3 Neither satisfied or unsatisfied with performance			
4 Somewhat satisfied with performance			
5 Very satisfied with performance			

Table 7 now provides us with the final analysis. To review, Column 1 is the Customer Ref #, Col. 2 is the sales potential for the customer. It is seen that a higher value is given to the evaluation of those customers who are likely to spend more money with the firm. Under the columns for Criteria 1, 2 and 3, the results of the preceding questions are now reduced into a simple multiplication formula. This formula multiplies the value of the Sales Potential Factor, by the Importance Factors, by the satisfaction Score factor. Each of the criteria then is summed and then averaged to arrive at a final number.

Table 7

The Sales Potential of the customer		Criteria are the features of the product/ service			The Importance of the feature to the customer		The performance Score of that criteria		Cross multiply; Potential, Importance , Score	
		Criteria 1			Criteria 2			Criteria 3		
Customer Ref #	Sales Potential Factor	Importance (1-3)	Score (1-5)	Criteria Total	Importance (1-3)	Score (1-5)	Criteria Total	Importance (1-3)	Score (1-5)	Criteria Total
1	5	1	3	15	1	3	15	1	4	20
2	5	3	2	30	2	5	50	2	2	20
3	1	2	1	2	3	4	12	3	3	9
4	4	3	3	36	3	3	36	1	4	16
5	2	1	5	10	3	5	30	2	3	12
6	4	1	4	16	3	5	60	1	3	12
7	1	1	5	5	3	1	3	1	2	2
8	3	1	1	3	1	3	9	1	1	3
9	3	3	3	27	2	5	30	3	1	9
10	2	1	5	10	3	1	6	1	1	2
11	5	3	3	45	2	4	40	3	3	45
12	4	2	5	40	3	3	36	3	5	60
13	2	3	3	18	3	3	18	3	3	18
14	1	1	3	3	1	5	5	2	2	4
15	3	1	2	6	3	3	27	3	2	18
Grand Totals		266			377			250		
Avg.				17.7			25.1			16.7
Median				15			27			12

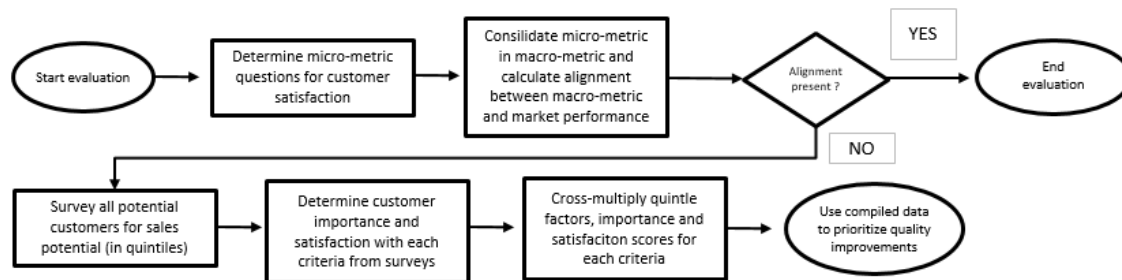
INTERPRETATION OF THE DATA

In the final evaluation process, it is important to note that it is not the absolute value of the criteria that is most important; it is the relative value of these factors. Why would that be? Remember that the first factor is the Sales Potential Factor. This factor is the quintile rating of the customer so; it is expected to reflect a uniform distribution of the numbers 1- 5 so the absolute value of this would be only of tangential importance. The formulas in this worksheet are set up to show the performance evaluation while reflecting the sales potential of the customer. In other words, in the above table, the high-profit-potential customers are ‘speaking the loudest’ whether they rate the criteria as high or low, their voices are being heard the loudest. From the notional data set above, it is seen that the relative performance for Criteria 2 is high relative to Criteria 1 and 3. Knowing this fact gives management its focus points for improving overall customer satisfaction. However, this leaves the relative value of the critical customer-satisfying performance factors. From these critical factors, the relative strong points and weak points can be seen and take corrective actions can be taken accordingly.

CONCLUSION

The model of this customer satisfaction evaluation process follows:

Figure 1



This paper recognizes a need to for a practical method to evaluate a firm's customer evaluation system. It presents a solution that uses readily available spreadsheet software. It incorporates a process that can be easily replicated using a baseline worksheet in widely available spreadsheet software. The advantage is that it can be easily taught and the baseline worksheet can be used throughout a company and be used on a periodic basis to identify trends. That is, comparisons can be made between the time periods to see the direction of change in the performance indicators.

FURTHER STUDY

Follow-on research is needed on this topic. This paper proposed a customer satisfaction evaluation process using notional data to illustrate the process. An assumption used for this model is that it can be generalized to all industries without customization that would give this model external validity. However, an application of this proposed process to real-world business setting would serve to test this assumption and the processes usability. Further, if more than one business domain were used for testing purposes, then comparisons between the test outcomes in the two business domains. These outcomes could be compared to determine if some customization in the above evaluation scheme is necessary due to unique differences between industries. One other extension of the worksheet in Table 7, it could be surmised that a company wants to focus on the higher potential customers, perhaps those in the 3rd quintile and above, and re-run the data to focus on the product/service criteria that are the most important features of the most important customers.

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STRATEGIC MANAGEMENT AND THE DISPARATE DUTIES OF THE CEO

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ABSTRACT

The role of the chief executive officer (CEO) is arguably the most important and influential in an organization. This exploratory research investigates the roles, duties, responsibilities, and nature of the work performed by the CEO. Employing both qualitative and quantitative methods, this triangulated study combines a comprehensive review of the management literature, with semi structured interviews and a brief questionnaire to examine what CEOs actually do. Grounded in the strategic management objective of maximizing an organization's relative firm performance in an ever-increasing high velocity and hypercompetitive marketplace, results suggest that CEOs perform three fundamental and highly disparate functions: functional coordination, environmental scanning, and visionary leadership.

A central challenge with these disparate responsibilities is each role requires a different set of skills and capabilities. To coordinate vastly disparate functional departments in an effort to achieve synergistic productivity, the CEO must be internally focused, maintain a coordination mindset, build and promote a culture of cooperation and open communication, and remain readily available -- both physically and cognitively -- to engage and resolve emerging conflicts, disputes, and challenges. To effectively scan the marketplace for opportunity and threat signals, the CEO must be externally focused, engage and maintain a search mindset, process and evaluate vast amounts of information, and nurture and expand existing information networks. While the coordination function requires turning one's focus inward on the organization, and the scanning function requires an external focus, the visionary responsibility requires simultaneous internal and external foci. In addition, the visionary leader must apply a "fit" analysis to identify relevant market factors, and then formulate appropriate strategic alternatives, while incorporating an intuitive crystal ball when determining the organization's strategic direction.

This triangulated design and grounded theory approach (1) revealed the CEO roles of coordinator, environmental scanner, and visionary leader, (2) brought to light that chief executive officers have multiple highly evolved identities they maneuver between to navigate the disparate executive duties as members of neo-tribes, and (3) underscored and reinforced previously published findings regarding the disparate, chaotic, unplanned, action-oriented, fast-paced, and broad-scoped nature of executive work, characterized by a lack of routine, orderly activities, and instead dominated by unexpected and often urgent crises. What makes the CEO's job so difficult, beyond the broad and extensive knowledge and capabilities required of the position, is that the executive must perform their disparate duties simultaneously, and in circumstances characterized by uncertainty and endless interruption.

CEOs and their organizational stakeholders benefit by embracing the "multiple identities" framework to better understand the disparate nature of executive work. Armed with a renewed and deeper understanding, CEOs might consciously, and with less resistance, move between identities as needed. An improved understanding may also assist boards of directors in the CEO search and hiring process, as well as inform nascent CEOs considering a career as an executive officer. In addition, this understanding may advance business schools and management education at undergraduate, MBA, and executive levels.

INTRODUCTION

In 2004, Proctor & Gamble's chairman and CEO, A.G. Lafley, "sat with Peter Drucker and several other CEOs and management scholars who had come together to ask, What is the work of the CEO?... Do we really understand the role and the unique work of the chief executive? Drucker believed the answer was no."

--Lafley, 2009: 2-3

Organizational survival depends on satisfactorily executing a plan and achieving a set of conscious or subconscious, predetermined objectives (Drucker, 1954) amidst calculated chaos and controlled disorder (Mintzberg, 1973). It is the responsibility of the firm's Chief Executive Officer (CEO) to serve as the organization's helmsperson, navigating the enterprise through the changing winds and waters of an oftentimes turbulent marketplace, and to pilot the firm successfully to its destination objectives (Ansoff, 1965; Peters & Waterman, 1982; Gulick, 1935, 1937a). The piloting decisions and choices made by the CEO can have far reaching consequences. "The fact is inescapable: These choices of single human beings exert enormous influence over entire enterprises. In the aggregate, they determine the prosperity of the nation," (Charan & Colvin, 2000, p. 266).

Scholars have long been fascinated with the organizational life and duties of the CEO. Luther Gulick, while serving as president of the Institute of Public Administration, in his opening essay to the classic collection of papers on the science of administration (Gulick & Urwick, 1937) introduced his POSDCORB framework (Gulick, 1937a, p.13) after asking the questions, "What is the work of the chief executive? What does he do?" Even before Gulick, Henri Fayol (1916) defined the roles of the chief executive as planning, organizing, commanding, coordinating, and controlling. Henry Barnard (1938) was the first to characterize the primary role of the chief executive as the shaper and manager of shared values in an organization. Barnard (1938: 235) while emphasizing the infusion of shared values, rational stewardship, professionalism, and moral integrity, further argued, "[The executive process] is a matter of art and it is aesthetic rather than logical," suggesting the fundamental functions of the executive focus on communication, employee effort, and purpose.

In support of Barnard, Philip Selznick (1957) introduced the concept of organization character, suggesting, "[o]rganizations become institutions as they are infused with values... [t]he institutional leader, then, is primarily an expert in the promotion and protection of values." Mintzberg (1973) was the first to scientifically study the roles and behaviors of executives, finding that their daily work lives were anything but routine and logically planned as posited by the theories of Fayol (1916) and Gulick (1937a). Instead, their lives are dominated with sporadic, unplanned, short-term copings, and crises management. Mintzberg (1973) identified three role categories for executives: interpersonal, informational, and decisional.

Drucker (1967) argued that effective executives "differ widely in their personalities, strengths, weaknesses, values and beliefs. All they have in common is they get the right things done." While the CEO's chief objective remains to acquire and maintain a sustainable competitive advantage, a fundamental and primary goal of any organization, some argue that any sustainable advantage is unattainable in our current hypercompetitive marketplace (D'Aveni, 1994). As environmental change accelerates, the role of the CEO becomes increasingly important. This study examines the nature of executive work, what it is these individuals actually do, and how they perform their various duties and responsibilities.

LITERATURE AND THEORETICAL REVIEW

Roles of the Executive

The early work of Henri Fayol (1916) during the period surrounding 1900 argued that the work of the executive included planning, organizing, commanding (leading), coordination, and control. For Fayol, planning emphasized long-range planning, organizing included processes and staffing, leadership encompassed oversight and motivation, coordination emphasized organizational harmony, and control focused on verification and conformity. Luther Gulick, while serving as president of the Institute of Public Administration, in his opening essay in the classic 1937 collection of papers on the science of administration (Gulick & Urwick, 1937) asked the questions, “What is the work of the chief executive? What does he do?” Gulick’s answer was an amplification of Fayol’s description of executive work.

Gulick (1937a), beginning with the premise that the major purpose of an organization was coordination, argued that there are seven functions of the chief executive, as identified by the acronym POSDCORB. These include planning, organizing, staffing, directing, coordinating, reporting, and budgeting. Gulick’s “coordination” function emphasizes the interrelationships of various parts of the organization. Absent in both the Fayol and Gulick perspective, are the responsibilities of environmental scanning for emerging opportunities and potential threats, and visionary leadership duty-bound to first determine and set, and then infuse into the organization its mission, vision, and values.

Also addressing the roles and function of the executive, Chester Barnard (1938) professed coordinated equilibrium within the organization, an examination of and adaptation to forces external to the organization, and the functions of the chief executive in managing and controlling the organization. Barnard’s emphasis was cooperation and coordination, and while he exalts organizational stewardship and values, and he is the first to tie together internal and external forces, he too failed to recognize the importance of visionary leadership. To be clear, Barnard postulated three executive functions: (1) to provide an effective system of organizational communications, (2) to inspire and motivate to secure individual effort and (3) to formulate and define the purpose of the organization. In this third executive function, Barnard addressed mission and purpose, but what is lacking is a vision of the future. Barnard (1938) was the first to identify the chief executive as the primary boundary spanner, which emphasizes the importance of environmental scanning (see Hambrick, 1982; Jackson & Dutton, 1988).

Philip Selznick (1957) supported Barnard’s (1938) emphasis on organization values, as he introduced the concept of organization character, suggesting, “[o]rganizations become institutions as they are infused with values... [t]he institutional leader, then, is primarily an expert in the promotion and protection of values.” More importantly, Selznick (1957) described the executive’s role primarily as one emphasizing effectiveness (doing the right thing) over efficiency (doing things right). This perspective was reinforced by Ansoff (1965) who delineated three levels of organizational decisions: strategic, administrative, and operational, arguing executives are primarily concerned with strategic decisions and issues.

The seminal work regarding the nature of executive work was conducted by Henry Mintzberg as his doctoral dissertation at MIT in 1971, and outlined in his book, *The Nature of Managerial Work* (1973). What Mintzberg actually did was closely followed and documents the activities of five prominent CEOs. His findings disproved the prevailing POSDCORB which characterized the daily life of an executive as systematic, structured, planned, reflective, contemplative, orderly, and routine. Instead what he found was that CEOs prefer hands-on

interaction and face-to-face communication in their high-pressured world of fragmented activities; a world characterized by never-ending responsibilities and demands, constant interruption, relentless pace and lack of recovery breaks, continuous brief activities each lasting typically only a few minutes, high uncertainty and ambiguity, and lack of routine or structure. Mintzberg discovered that executives are “involved, plugged in: the mode of operating is relational, simultaneous, [and] experiential” (Mintzberg, 1989: 50), yet pressured to make quick decisions that may have serious consequences. In his work, Mintzberg identified 10 roles of the executive, and placed those roles into three categories: (1) interpersonal, (2) informational, and (3) decisional.

Interpersonal roles include serving as figurehead, leader, and liaison. The figurehead performs symbolic legal and social duties. The leader inspires employees and provides oversight. The liaison serves as boundary-spanner, interacting with network branches outside the work unit. The informational roles entail receiving, collecting, and disseminating information. The second category of roles, the executive informational roles, includes information monitor, information disseminator, and spokesperson. In addition to the three figurehead roles and the three informational roles, the executive performs four decision-making roles including: entrepreneur, disturbance handler, resource allocator, and negotiator. The entrepreneur serves as innovator and change agent. The disturbance handler serves as firefighter resolving unexpected crises. The resource allocator distributes all organizational resources including financial, human resources, and even time. These ten roles, placed appropriately into three categories, clearly demonstrate the disparate nature of executive work. The current research builds heavily on Mintzberg’s three fundamental role categories to further explain and highlight the disparate duties of the chief executive officer.

In 1993, Stuart Hart and Robert Quinn developed a model of executive leadership consisting of the competing roles of vision setter, motivator, analyzer, and task master. In their work, the authors applied paradox and complexity perspectives to the roles of executives, arguing that “CEOs who achieve mastery of diverse and seemingly conflicting roles will deliver higher firm performance than those executives with a less encompassing approach to their jobs” (Hart & Quinn, 1993: 544). The vision setter creates a sense of identity and purpose based on internal assets and external conditions. The motivator manages meaning within the organization, translating vision into operational action through inspiration. The analyzer focuses internally on efficiencies and short-term management oversight. The task master gets their hands dirty and focuses on getting the job done today. Hart and Quinn (1993:569) found that “the particular roles played by the top manager are important predictors of firm performance. The results specifically underscore the importance of the vision setter and motivator roles (and to a lesser extent the analyzer role) to firm performance. It is only when the taskmaster role is combined with the vision setter and motivator roles, that performance is enhanced.”

In 2009, A.G. Lafley, chairman and chief executive officer of Proctor & Gamble, published a Harvard Business Review article based on his experience and 2004 conversations with Peter Drucker and other management experts regarding the nature of CEO work. Much of the article’s conclusions were rooted in Drucker’s 2004 comments and recent unpublished writings regarding the role of the chief executive. “In 2004 Drucker said, the CEO is the link between the inside that is the organization, and the outside of society, economy, technology, markets, and customers. Inside there are only costs. Results are only on the outside” (Lafley, 2009: 3). Lafley emphasized this “linking” role, suggesting that “it’s a job that only CEOs can do because everybody else in the organization is focused much more narrowly and, for the most

part, in one direction: salespeople are externally focused; just about everyone else is inwardly focused... The CEO can see opportunities that others don't see and, as the one person who's boss isn't another company employee, make the judgments and the tough calls others are unable to make" (Lafley, 2009:3).

In her 2011 dissertation study, Margaret Glick (2011a) re-examined the role of the chief executive officer, confirming all ten of Mintzberg's (1973) roles; but found that the negotiator and spokesperson may be delegated, and that the informational roles may no longer be as relevant as they were in the 1970s. Glick (2011b) also found support for Gulick's (1937b) and Fayol's (1916) roles. Glick further found support for the four roles revealed by Hart and Quinn (1993), and the "link" role articulated by Lafley (2009).

Just as the fable of the eight blind people experiencing and describing an elephant, so is the case with scholars describing the nature of executive work. Although there is significant overlap, existing theories and models vary enough to warrant additional study. What is widely accepted, although likely not understood except those who have walked in the shoes of a CEO, is the high pressure, chaotic, relentless pace, ambiguous, demanding nature of the chief executive officer's day filled with constant interruptions and unexpected events.

Identity and Neo-tribes

Michel Maffesoli (1996) developed the concept of neo-tribe to describe the fragmented potpourri of membership groups, each driven by a wanting to belong, and from each, providing members with a membership identity, complete with culture, accepted behavior, rules, modes of communication, schemas, and language. Identification within these groups "is marked by the lack of differentiation" (Maffesoli, 1996: 11). Neo-tribes are fluid. Lacking rigidity, neo-tribes refer to "a certain ambiance, a state of mind, and is preferably to be expressed through lifestyles that favor appearance and form" (Maffesoli, 1996: 98). As "communities of feeling" (Hetherington, 1998), neo-tribe members empathize with like-minded others. Individuals thus share lifestyles and tastes with others in the neo-tribe, and through their actions adopt the identity. Essentially, Maffesoli argues that personhood is required of every individual, that neo-tribes form to satisfy specific human needs, and the connection points and cross-fertilization between these different tribes create the networks of daily work and life.

In today's society, individuals often belong to multiple neo-tribes, and thus carry within them multiple identities. People ambulate between these identities as they engage often disparate neo-tribes. For example, a 25-year old woman might be recently married, and belong to a "bride" tribe, and with membership comes expected behaviors, a language, and expectations. That same woman may also have been promoted to full partner in a law firm, and in that role assumes a much different identity and set of behaviors. The mannerisms, the language, the behaviors, and the cognitive schemas for each of these identities are vastly different. Yet, the woman might easily transition from one identity to the other as she leaves the courtroom and minutes later attends a dinner party thrown by the bride community.

The challenge we face in this fragmented identity space, is that many individuals possess so many identities, and often vastly different identities, that we can lose ourselves in the cacophony of multiple lives. To the previous example of the young bride, imagine now that she has given birth to three children, performs for the local symphony, is an accomplished competitive tennis player, and enjoys the hobbies of sailing, equestrian, and needlepoint. She has a specific mannerism and language she uses when embracing her spouse identity, where she has specific roles and domestic household responsibilities. That identity is likely entirely different –

complete with different mannerisms and language – than her role as her husband’s lover, or her role as her children’s mother. And those identities are certainly much different than her identity as concert pianist, which may again be entirely different than her identity as tennis competitor or equestrian. Not to belabor the point, but her life becomes a constant navigation and transformation from one identity to another, on a daily and sometimes hourly basis.

CEOs similarly maintain an assemblage of identities at their disposal – some personal and some related to their duties as CEO. It is within the corporate identities that CEOs build and nurture three distinct identities: (1) functional coordinator, (2) environmental scanner, and (3) visionary leader. The first identity, in no particular order, coordinator is focused on the internal operations of the business. It is in this coordinator identity that the CEO builds a process mindset and language around synergistic opportunities of coordination and cooperation, where the executive inspires and encourages buy-in from internal stakeholders, engages dispute resolution, provides a veil of governance and oversight, and where efficiency and productivity remain atop the list of key objectives. In this neo-tribe, along with the CEO, are subordinates, internal contractors, and service providers associated with efficiency initiatives – as well as other CEOs in the executive’s network that share this same type of responsibility.

The second identity, external scanner, requires a search and evaluates mentality, ignoring for brief assessment periods the cacophony of internal noise generated by the coordinator identity. The scanner identity requires a focus on the external environment, looking for clues and queues that might signal change in the marketplace, maintaining at the ready, a host of assessment capabilities to evaluate a potential opportunity fit or nascent threat to the organization. It is in this scanner identity that the CEO nurtures and expands their external information and resource networks, deep into regional, political, technological, legal, and industry communities. This executive scanning identity must also embrace the future, possessing an intuitive and reflective sense of industry, consumer, and other environmental trends. Mintzberg’s (1989: 51) “dilemma of delegation” concept applies most appropriately to this scanning identity, where executives “...may simply be incapable of disseminating some relevant information because it is inaccessible to his or her consciousness.” This identity must build an intuitive sense based on extensive expert knowledge chunks in this area (Prietula & Simon, 1989; Simon, 1974, 1976; Chase & Simon, 1973); but this scanning identity has a different expert base of knowledge than does the identity of coordinator. The neo-tribe for the scanning identity includes mostly external contacts, information sources, service providers, industry and trade organizations, and other CEOs facing the same scanning challenges.

The third identity, as a visionary leader, requires an integrative and broad sense making (Weick, 1995) mindset, with a commitment to reflective assessment and imagination, and a creative tension (Senge, 1990) and restlessness with the present. It is within this identity the executive performs their most critical role (Pearson, 1989; Phillips & Hunt, 1992) determining the destiny of the organization, envisioning the best possible fit, both now and in the future, between (1) the organization’s internal resources and capabilities, as they now exist and their future potential, and (2) a dynamic environment. CEOs in their visionary role aspire to achieve high levels of organizational cohesion, trust, motivation, and enhanced performance (Zhu et al 2005). Visionary leaders must possess the ability to create and articulate clear visions, providing meaning and purpose to the work of an organization (Nanus, 1992; Sashkin, 1987). Operating under this identity, visionary executives must inspire stakeholders to the point of empowered action and follower dedication (Connaughton & Daly, 2004); for lack of engagement is typically due to a poorly communicated vision, causing people to spend their time in frustrated uncertainty

as they try to figure out what direction to go, leaving them tired and unresponsive (Hofer, 1975; Heath and Heath, 2010). The neo-tribe for the visionary identity is limited to other CEOs, also responsible for the destiny of their firms, and albeit at a lower membership status, those stakeholders to whom the inspiration is directed.

These three roles and identities emerge from the data and are supported by follow-up survey responses. They provide a parsimonious perspective and model of CEO duties and behavior, as we address “the need for an integrative, model of CEO behavior” (Hart & Quinn, 1993:551). Interestingly, the three roles/identities satisfy Parson’s (1959) four functional prerequisites for any system of action: adaptation (scanner and visionary), goal attainment (visionary and coordinator), integration (coordinator), and pattern-maintenance or tension-management (coordinator).

Expertise and Intuition

Expertise is typically identified with the speed and ease with which experts recognize key features of the situation, and accurately solve complex problems (Simon, 1985, 1987a). Expertise is often referred to as intuition; however, intuition is usually defined as the capability to act or decide appropriately, often without awareness, and absent consciously and deliberately evaluating alternatives or employing a specific routine (Hogarth, 2001, 2005; Kahneman & Klein, 2009). “Managers also use the word intuition to refer to thought processes that work but are unknown to them” (Mintzberg, 1989:50), suggesting that may have “good implicit models.”

There are two main streams of research regarding expertise and intuition. One approach – the Dreyfus Theory – argues intuition is a result of holistic brain processing (Dreyfus, 1972; Dreyfus & Dreyfus, 1986). The second approach – the Simon Theory – posits that pattern recognition and accumulated knowledge chunking lead to expertise and intuition (Prietula & Simon, 1989; Chase & Simon, 1973). Dreyfus suggests that aspiring experts go through five stages, including novice, advanced beginner, competence, proficiency, and expertise stages (Dreyfus & Dreyfus, 1986; 2005). The difference between the final two stages in the Dreyfus theory is that in the “proficiency” stage, individuals intuitively organize and understand, but continue to depend on analytical thinking to make decisions; while in the “expertise” stage, understanding and decision-making are intuitive, effortless, and fluid. According to the Dreyfus theory, CEOs develop their expertise and intuition through predictable stages.

Simon’s theory of expertise and intuition begins with the premise that both novices and experts suffer from the same cognitive limitations (Chase & Simon, 1973; Simon 1987b), which means they can focus attention on only one object at a time, and their short term memory is limited to only a few items. The theory is based on extraordinary performances of perception and recognition. A piece of information is stored in short term memory and accessed readily; however, it is likely lost over time. To overcome this issue of memory loss and to address long term memory limitations, Simon proposed the concept of knowledge chunk, a long term memory “symbol” having arbitrary subparts and properties (Chase & Simon, 1973). These chunks of knowledge can be accessed, and when evaluating, experts place pointers to these chunks in their short term memory. Simon and Gilmarin (1973), based on a computer program, estimated that expertise requires an accumulation of between 10,000 and 100,000 chunks of knowledge in memory. Rather than report this range, most literature cites the number 50,000 chunks as the requisite hurdle for expert status. Simon (1985) argued that insights are gained once approximately 50,000 chunks of related information have been accumulated. Expertise is a result

of slowly acquired knowledge chunks in long term memory, and the ability to access these chunks in an effective and efficient problem-solving manner.

CEOs acquire their expertise in some or all of their neo-tribe domains. It is this expertise that allows them to operate effectively in their chaotic, fast-paced roles. What is unique in the expertise discussion herein is that each identity requires a unique level of expertise. Assuming that 50,000 domain-specific chunks qualifies someone as expert (Simon, 1985), and assuming that there is most likely moderate, if not substantial, overlap of knowledge chunks between the domains of coordinator, scanner, and visionary, then it is reasonable to assume that effective CEOs must possess upwards of 75,000 to 150,000 chunks of domain specific knowledge. It may be that embracing a specific identity allows an executive to more readily access the expert knowledge base to “intuitively” work through decisions, problems, and crises.

METHOD & DATA

As an exploratory study into the identity and roles of the CEO, this research focused primarily on the literature to identify and develop the three disparate duties presented herein, and to address theoretical sensitivity (Glaser, 1978). An inductive grounded theory approach (Glaser & Strauss, 1967; Strauss & Corbin, 1997) was employed to identify factors, identities, and neo-tribes related to the executive. A triangulation approach (Denzin, 1978; Jick, 1979; Scandura & Williams, 2000) was undertaken to achieve some degree of cross validation and reduce the chances of a methodological artifact (Bouchard, 1976). To provide this preliminary validation, qualitative and quantitative data was collected using a snowball sampling technique. Interviews and brief questionnaires were employed to collect data, utilizing the constant comparison grounded theory techniques of iterative note-taking, coding, memoing, and sorting (Glaser & Strauss, 1967). In the tradition of grounded theory analysis, inductive theory emergence was used in lieu of hypothesis testing, theoretical sampling to appropriately address the research situation, and saturation to determine when appropriate data had been collected (Glaser, 1992; Charmaz, 1983).

Sample and Data

This research began with an extensive literature review followed by interviews of twelve chief executive officers. Eight interviewees were located in the San Francisco Bay Area, three in the San Diego region, and one in Boulder, Colorado. The interviews took place between February 2007 and August 2009. The firms managed by these executives ranged in size from \$325,000 to \$300,000,000 in annual sales. The executives were selected on the basis of convenience and availability, and were informed the interviews were intended to last no more than 10 minutes. In reality, the average interview was 37 minutes with the longest lasting more than two hours. In each interview, the executive was advised that the 10-minute limit had been reached, and in every case the executive asked that the interview continue.

After the interviews were completed, and initial coding accomplished, a brief eleven-question survey was created to provide additional validation with an opportunity for respondents to reveal additional aspects of their work that might inform this study. In accordance with Nunnally (1978), an eleven-item survey (see Appendix B) was developed using seven-point Likert scale (Strongly Agree to Strongly Disagree), rank order, constant sum, and open-ended comment questions, and emailed directly to targeted CEO respondents. The survey was sent to CEOs in a database of family businesses from a family business center at a large West Coast

state university, a database of technology firms, and a database of personal contacts. The email was sent directly to the CEO, and when the CEO was not identifiable, the email was sent to a high ranking manager asking that it be forwarded to the CEO. Rather than utilizing an online survey vendor, and in order to provide a more personalized touch, the survey was placed in the body of the email rather than as an attachment. In the email, respondents were asked to complete the quick 2-minute survey and to also forward it to any CEO they may know for their participation. In total, 941 email surveys were sent.

Data Analysis

The data collection and theoretical sampling started with a review of the literature on the roles and functions of the chief executive. The literature was coded and reviewed, using repetitive constant comparison to additional data and literature. As the codes were emerging, the literature led to the concept of identities and communities, which led to the work of Maffesoli (1996) and expertise/intuition (Chase & Simon 1973; Mintzberg 1989). Codes were eventually merged and sorted into categories and concepts. Throughout, memos were written to clarify and document relationships between categories and concepts. Sampling continued using a theoretical sampling approach, allowing the “next” data sample to be informed by coding, comparison, and memoing. Data collection, via theoretical sampling, was concluded when theoretical saturation was achieved; that is, when additional data provided no new insights.

RESULTS

There were twelve individual semi structured grounded theory interviews conducted, each lasting on average 37 minutes, asking core questions (see Appendix A) about the nature of their duties as CEO. The questions were modified slightly as coding and comparisons informed the research question. While the original interview questions addressed the CEO duties and responsibilities, and the nature of their daily work; as the interviews progressed, the questions evolved to include inquiries into the unplanned and chaotic nature of their CEO duties, the specific coordinator, scanner, and visionary functions, the possibility of identities associated with each of these roles, and the neo-tribes associated with each identity. The longest interview duration was 132 minutes. Four of the interviews were conducted face-to-face and the remaining eight interviews conducted on the phone. Although all interviews were originally scheduled as face-to-face meetings, the hectic and changing nature of the CEOs’ schedules led to many cancellations and rescheduling, and hence why eventually so many were conducted by phone. All interviews were recorded using handwritten notes, which were then typed within 48 hours of the interview. The interviews were coded immediately upon typing up the original handwritten notes. Each interviewee held the position of CEO.

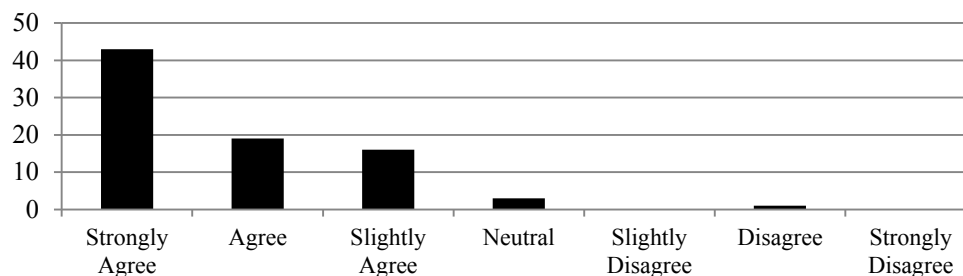
CEO interview participants in this study clearly identified with the three fundamental roles: coordinator, scanner, and visionary. They also strongly identified with the concept of each role being associated to a specific identity, requiring a specific set of knowledge, skills, and capabilities. There were comments by many of the CEO interviewees regarding the limited scope of the three roles, although during the interviews, the CEOs did not identify additional roles or categories. It was more a “sense” that there was something missing – that their duties were unimaginably broad, and broader than represented by the three roles. In the emailed questionnaires, several comments were received regarding their work as a boundary spanner,

figurehead, and liaison to the outside community; and many comments were related specifically to direct sales work and technical expertise.

Of the 941 email surveys sent, 106 were returned, which would represent an 11.7% response rate; however, due to the snowball nature of the sample, an accurate response rate is indeterminable. Of those 106 questionnaires returned, 24 were unusable due to missing or incorrect responses. Of the remaining 82 responses, 18 surveys had forced valuations that did not sum to 100%, but were close enough to adjust the CEOs' responses proportionately. The responses from the initial five survey questions support the model of three disparate executive roles, identities, and neo-tribes for CEOs facing daily situations characterized by high urgency, chaos, and fragmentation.

The email questionnaires revealed support for Mintzberg's (1973) findings of the high pressure, chaotic, relentless pace, ambiguous, and demanding nature of the chief executive officer's day. With $n=82$, there were 43 CEOs who strongly agreed with the statement "On average my typical workday is characterized by an overall relentless pace, continuous interruptions, unexpected crises, fragmented activities, never-ending responsibilities and demands, high uncertainty and ambiguity, and a general lack of routine or structure." In addition, (see Figure 1) 19 CEOs agreed, 10 slightly agreed, while only 3 were neutral and 1 respondent disagreed.

Figure 1
Q1: CEO DUTIES ARE FRAGMENTED, DISPARATE, CHAOTIC.



When asked their level of agreement with the statement, "Each of my duties and responsibilities as CEO fall into one of the following three roles: (1) coordinator of disparate functions and groups within the organization, (2) environmental scanner of emerging and existing opportunities and threats, and (3) visionary leader setting and promoting the firm's mission, vision, and strategy," 10 respondents strongly agreed, 12 agreed, 17 slightly agreed, 23 were neutral, 12 slightly disagreed, 6 disagreed, and 2 strongly disagreed (see Figure 2). When examining further, 17 of the 20 respondents that disagreed to some degree, commented in one respect or another that their duties were more complex, wide-ranging, all-encompassing, broader, or more extensive than represented by only three categories.

For the third survey question, "Each of my three roles (coordinator, scanner, and visionary) requires a substantially different set of skills and capabilities," responses included 29 strongly agree, 36 agree, 11 slightly agree, 3 neutral, 2 slightly disagree, and 1 disagree (see Figure 3). Few comments were included regarding the individual skill and capabilities required for each role; however, there were several comments highlighting the diverse skill set required of the CEO. These included comments, such as "I'm the only person in the organization with the broad and varied skill set to understand all aspects of the business."

Figure 2
Q2: MY CEO ROLES FALL INTO ONE OF THE THREE CATEGORIES.
(COORDINATOR, SCANNER, VISIONARY)

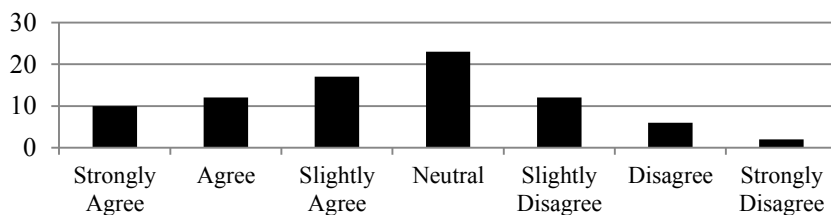
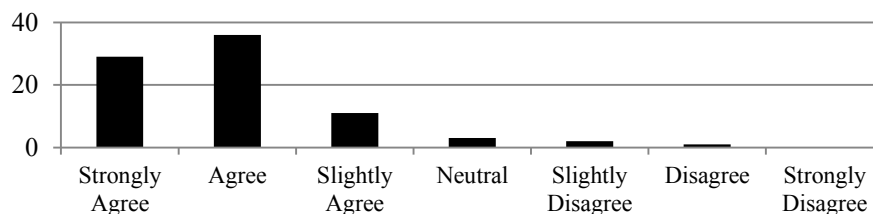
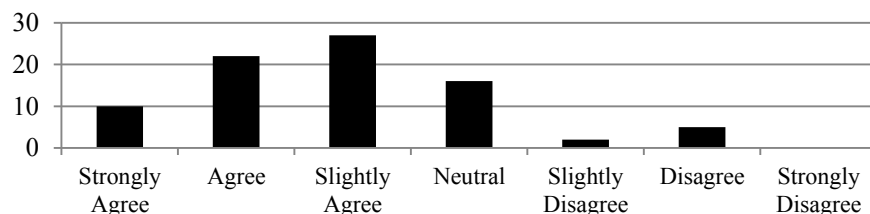


Figure 3
Q3: THE 3 ROLES REQUIRE DIFFERENT SETS OF SKILLS AND CAPABILITIES.
(COORDINATOR, SCANNER, VISIONARY)



When responding to the question about identities, “Each of my three roles (coordinator, scanner, and visionary) requires that I assume a separate identity (mindset, behaviors, language) when effectively performing each role,” of the 82 responses, 10 strongly agreed, 12 agreed, 17 slightly agreed, 23 were neutral, 12 slightly disagreed, 6 disagreed, and 2 strongly disagreed (see Figure 4). The comments from the respondents revealed somewhat of a split among the respondents, those who agree and those who disagree. Several respondents in agreement that their roles coincided with separate identities made comments such as, “I spend my day flipping between personalities as I assume each role.” Those in disagreement, often added comments regarding the single role and identity as CEO, including reference to the spotlight or figurehead.

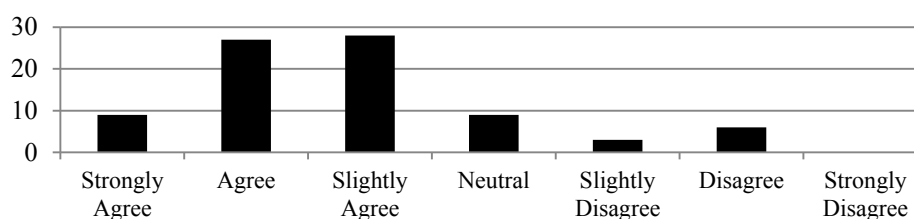
Figure 4
Q4: EACH OF THE 3 ROLES REQUIRES A SEPARATE IDENTITY.
(COORDINATOR, SCANNER, VISIONARY)



To address the concept of neo-tribe communities, each respondent was asked, “Within each of my three roles, I tend to interact with a different set of individuals.” On average, the respondents answered between “slightly agree” and “agree” with 9 strongly agreeing, 27

agreeing, 28 slightly agreeing, 9 neutral, 3 slightly disagreeing, 6 disagreeing, and no respondents strongly disagreeing (see Figure 5). Of the 9 respondents who disagreed at some level, 7 added comments suggesting they view their work network as one all-inclusive community. For example, one respondent commented, “I wear many hats, but I interact with the same people on a weekly basis. I often perform different roles, but do so with my entire network.”

Figure 5
Q5: WITHIN EACH ROLE, I INTERACT WITH DIFFERENT
NEO-TRIBES.
(COORDINATOR, SCANNER, VISIONARY)



When asked to “Place a percentage value by each of your CEO roles indicating the relative importance that role provides the organization,” the respondents reported valuing their coordination, scanning, and visioning roles at 39%, 18%, and 43% respectively (see Figure 6). In comparison, these respondents reported the actual time they spend in each of these roles at 67%, 20%, and 13% respectively (see Figure 7). With respect to how the CEOs valued their coordination role versus how much time they actually spent on coordination, 75 of the 82 respondents spent more time in coordination than their reported score for coordination value, while four respondents spent equal time and two respondents spent less time. For scanning, 38 respondents valued the role higher than the time they actually spent performing the role, 15 reported equal values to time engaged in scanning, and 28 indicated they spend more time actually scanning than the function’s value. Regarding vision, 76 of the 82 respondents, representing 92.7%, value this role higher than the actual time they spend at this executive duty, while 4 CEOs reported equal time to value, and 2 reported spending more time visioning than they value the role.

Several respondents during the interviews mentioned that CEO responsibilities may differ depending on age or size of the organization, or on the industry in which the firm competes. It may very well be that size matters, and for that reason this study further examined the survey responses based on organizational size. Table 1 separates the responses by categorizing size into three levels: Small Business with less than 50 employees, Small to Medium-sized Enterprise (SME) with 50-249 employees, and Large Enterprise with 250 or more employees. Results suggest that CEOs of small businesses, on average, value the coordinator role much more than do their SME or Large Enterprise counterparts. Results also suggest that CEOs with more employees spend less time performing their coordinator duties than do CEOs of firms with more employees. What is also noteworthy is that regardless of firm size, as measured by number of employees, CEOs spend more time in coordination than they actually value the role. Likewise, at all levels of firm size, as measured by number of employees, CEOs spend much less time in their visionary leadership role than they perceive the role as important.

Figure 6
DISPARATE DUTIES OF THE CEO
CEO PERCEIVED ROLE VALUES

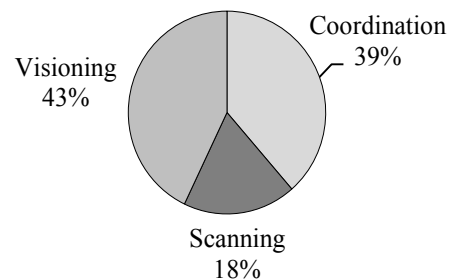


Figure 7
DISPARATE DUTIES OF THE CEO
CEO ACTUAL TIME SPENT IN ROLES

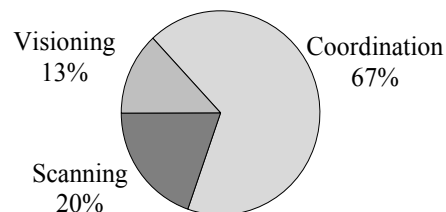


Table 1
DISPARATE DUTIES OF THE CEO
SIZE BY EMPLOYEES: CEO PERCEIVED VALUE OF ROLE
IMPORTANCE VERSUS ACTUAL TIME ENGAGED

Size Categories	N	x-bar	Value vs Time	Coordination	Scanning	Vision
Small Business (0-49 employees)	51	13.4	Value to Firm Actual Time	41.7% 72.2%	17.6% 18.2%	40.7% 9.6%
SME (50-249 employees)	25	85.1	Value to Firm Actual Time	33.2% 61.0%	21.0% 21.2%	45.8% 17.8%
Large Enterprise (250+ employees)	6	964.2	Value to Firm Actual Time	35.0% 51.7%	15.0% 25.0%	50.0% 23.3%

Annual revenue was also used as a second measure of firm size. Table 2 displays results when respondents are divided into categories by firm size, with Small Business identified as those with annual revenue less than \$7-million, SME revenue between \$7-million and \$50-million, and Large Enterprise as those firms with revenues exceeding \$50-million. CEO responses were similar for the size groups for both size by employee number, and size by annual revenue.

Table 2 DISPARATE DUTIES OF THE CEO SIZE BY REVENUE: CEO PERCEIVED VALUE OF ROLE IMPORTANCE VERSUS ACTUAL TIME ENGAGED						
Revenue Size Categories	N	x-bar	Value vs. Time	Coordination	Scanning	Vision
Small Business (0-\$6.9 million)	50	1.6	Value to Firm Actual Time	42.1% 71.4%	17.6% 18.8%	40.3% 9.8%
SME (\$7-\$49.9 million)	20	23.2	Value to Firm Actual Time	34.5% 62.5%	19.8% 19.0%	45.8% 18.5%
Large Enterprise (\$50+ million)	12	108.8	Value to Firm Actual Time	30.8% 57.9%	20.0% 24.2%	49.2% 17.9%

Several of the CEOs during the interviews mentioned age of the business as a possible factor. The idea being that systems and routines in new ventures are likely less developed, and thus results in different chief executive duties or perspectives. Additionally, many of the conversations about age of firm included comments about the concepts of founder and entrepreneur, suggesting a difference between the new venture CEO and the chief executive of an established firm. Another conversation that emerged regarding age was the idea of the Legacy Organization, characterized as a business that had survived at least one major CEO succession. The conversations suggested “legacy” may apply to any firm, but most likely to a family business. Based on these respondent insights, the data was stratified by age, identifying New Venture as those firms in business less than 10 years, Established Firm as those firms in operation 10 to 40 years, and Legacy Firm as those older than 40 years. The results of age categories appear to be similar to those of firm size categories, which might be expected as age and size are often highly correlated. The correlation coefficients between Revenue and Employees, Revenue and Age, and Employees and Age are 0.89, 0.71, and 0.66 respectively.

Table 3 DISPARATE DUTIES OF THE CEO FIRM AGE: CEO PERCEIVED VALUE OF ROLE IMPORTANCE VERSUS ACTUAL TIME ENGAGED						
Age Categories	N	x-bar	Value vs Time	Coordination	Scanning	Vision
New Venture (<10 years)	25	6.6	Value to Firm Actual Time	38.0% 75.0%	19.8% 15.4%	42.2% 9.6%
Established Firm (10-39.9 years)	43	17.4	Value to Firm Actual Time	42.0% 63.9%	17.0% 21.4%	41.0% 14.7%
Legacy Firm (40+ years)	14	58.2	Value to Firm Actual Time	29.3% 63.9%	20.7% 21.8%	50.0% 14.3%

The data thus far has been presented in its raw form, but to better understand the CEO responses it may be helpful to weight the responses based on firm size or age. This was accomplished by converting each response to the product of the actual response and the weighting factor. Number of employees and firm annual revenue were used as weighting factors. Figure 8 presents how the respondents value each of the three CEO roles, weighted by firm annual revenue. Figure 9 displays how the respondents distribute their time among each of the three CEO roles, weighted by firm annual revenue. Essentially these two graphs exhibit how the CEOs value each of the three roles, per dollar of annual revenue; and likewise how they spend

their time, per dollar of revenue. Similarly Figures 10 and 11 present the value and time distribution data weighted by firm size as measured by number of employees.

Figure 8
DISPARATE DUTIES OF THE CEO
CEO PERCEIVED ROLE VALUE: ADJUSTED FOR REVENUE

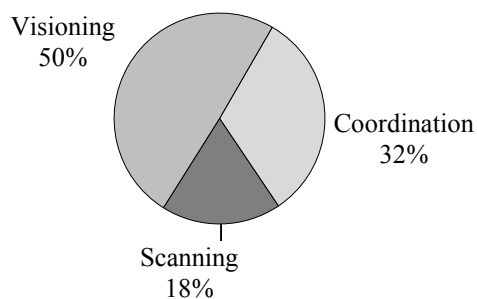


Figure 9
DISPARATE DUTIES OF THE CEO
CEO ACTUAL TIME SPENT IN ROLES: ADJUSTED FOR REVENUE

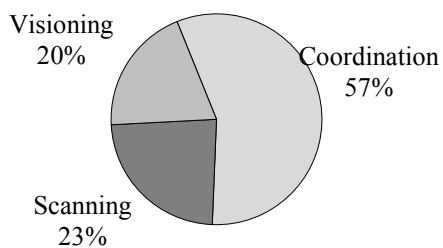


Figure 10
DISPARATE DUTIES OF THE CEO
CEO PERCEIVED ROLE VALUE: ADJUSTED FOR EMPLOYEES

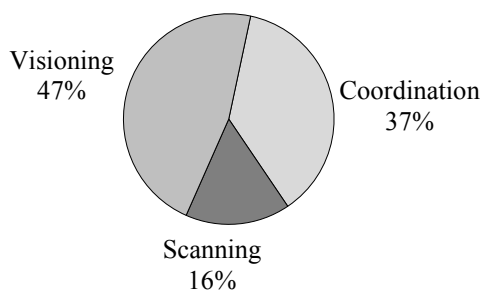
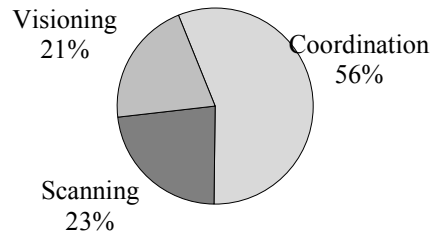


Figure 11
DISPARATE DUTIES OF THE CEO
CEO ACTUAL TIME SPENT IN ROLES: ADJUSTED FOR EMPLOYEES



CONCLUSION (DISCUSSION)

This study examines the disparate nature of chief executive work. Building on the work of Fayol (1916) and Gulick (1937a), who characterized executive duties as planned and organized activities; then building on the work of Barnard (1938) and Selznick (1957), who emphasized stewardship and values; and then building on the classic work of Mintzberg's (1973) ten roles of the manager, this study extends the current view of managerial work to include disparate identities complete with independent mindsets, skills, capabilities, and neo-tribes. CEOs exist in an environment characterized by a cacophony of noise and information, high degrees of uncertainty and ambiguity, constant shuffling between brief yet crucial activities, and a relentless pace (Mintzberg, 1973). Multiple identities may be a coping mechanism, a way to compartmentalize and maximize critical sets of capabilities, and the identities may serve as a means to meaningfully participate in corporate neotribalism. Being cognizant of multiple identities and the concept of neotribalism may bring comfort to executives grinding through day after day of relentless chaos, information, and disparate demands. Consciously knowing and understanding the concept of multiple identities may allow CEOs to better schedule their work duties, more easily maneuver between identities, and more readily call upon the appropriate identity when faced with a particular situation. Mintzberg (1989:50) suggests that executives "revel in ambiguity, in complex, mysterious systems without much order" which one would expect when performing vastly disparate duties and constantly shifting between identities. Multiple identities may be a core mechanism through which CEOs navigate the turbulent winds of an organizational performance vessel.

The three executive identities – coordinator, scanner, visionary – are associated with three nearly distinct neo-tribes. The executive coordinator brings a like mindedness to his or her employees, customers, and vendors; however, the core members within this neo-tribe reside in the company's human resources. The executive scanner, on the other hand, joins the ranks of other CEOs desperately seeking new opportunities and ever on guard for signals of emerging threats. The network tie between the coordinator and scanner neo-tribes is moderate, as the same customers and vendors provide contract to the coordinator neo-tribe and information to the scanner neo-tribe. As such, these two identities are more similar to each other than they are to the visionary identity, and this may allow the CEO to operate, at least moderately effectively, using either identity while tending to coordination or scanning duties. Based on the data collected in this study, it is the visionary duties that are likely most important among the host of executive

responsibilities. Assuming this is true, the visionary identity is crucial to the CEO. Unfortunately, this identity is substantially different than the coordinator or scanner identities, and requires the CEO step away from the coordinator and scanner neo-tribes to reflect and embrace their intuition to make critical strategic decisions. Again, armed with this understanding, CEOs might build their schedules accordingly, and immerse themselves, when needed, in their visionary neo-tribe.

The research and findings also re-emphasize the notion of expertise (Prietula & Simon 1989, Mintzberg, 1989) as it relates to the complex and disparate nature of the duties and responsibilities of the CEO. Clearly, executives perform under unique circumstances because of the combined weight of their varied duties, constant interruption, high uncertainty, extreme time pressures, and the fact that they are alone in the sheer quantity of organizational and industry information. Revealed in this study were the clearly identifiable identities that CEOs possess, and the dramatic differences between these identities.

Maffesoli (1996) speaks of *puissance*, from a sociological perspective, as the inherent energy and vital force of the people. *Puissance* emerges out of our everyday interactions, and for Maffesoli, the core of *puissance* is the will to live, and to live strong. CEOs undeniably live strong. Within an environment of perpetual flux, their neo-tribes interact and intra-act at a relentless pace. Executive tribal membership requires a sophisticated identity, and the successful navigation of executive duties demands multiple identities. Maffesoli also argues that society, and I argue by extension, the institution of business, is evolving from a paradigm of rationality, to one of empathy, to eventually one of passion, suggesting we are currently in the transition from rationality to empathy. If true, then expert-intuitive members of the CEO neo-tribes are well positioned to adapt and succeed within their roles and identities.

This research does uncover one alarming concern, the loss of individual identity. This is the idea that when carrying multiple identities, and shifting between these identities at an increasingly relentless pace, we become ever more susceptible to losing our “true self.” Nowhere might this be more concerning than for the chief executive officer attempting to satisfy the incessant needs of innumerable personal and organizational stakeholders, and this may be magnified further for the CEO “supermom.”

RESEARCH LIMITATIONS

As is the case with all research endeavors, this study has its limitations. First and foremost, the results have limited generalizability due to a small convenience sample. Yes, the triangulated grounded theory design was intended to provide an acceptable level of validity; however, much more data must be collected and analyzed before it is reasonable to argue that these three identities are commonplace among chief executive officers. The database of CEOs included many “info” addresses as the name on the CEO email address, and thus likely delivered to a general email account managed by an administrative gatekeeper, possibly resulting in the survey never reaching the CEO. In addition, nearly 10% of the CEO email addresses were incorrect, resulting in emails being returned as undeliverable. Also, it is unknown if the CEOs were the ones who actually answered the survey, or if the respondent answered honestly. Another generalizability limitation is due to the fact that this study was limited to CEOs in the United States, so the results may not apply to CEOs in other countries.

As with any classification system, the “three roles” typology developed herein is intended to aid in the comprehension, understanding, and explanation of complex social phenomena. In this study, the goal was to explore, understand, and explain the nature of executive work. The

development of this role typology is a limitation because the creation of any classification systems is often aided by the researcher's experience and intuition (Hambrick, 1984; Snow & Miles, 1983).

FUTURE RESEARCH DIRECTION

Additional research is needed to duplicate and validate the findings herein. These studies should explore larger and different CEO samples, and control for industry factors, as well as firm age and size. Lifecycle may be a substantive element in CEO behavior and roles, suggesting the CEO duties of a start-up might be much different than those of an established business, or legacy firm. As with any development of a typology, there is a risk of exclusion. Further research is needed to better assure that these three roles of the CEO are complete and comprehensive, as there may exist a category of CEO duties that was not revealed by this research or by this CEO sample. Based on several comments in the email surveys related to the idea of boundary spanner, figurehead, and technician duties of some respondents, there may be an additional set of roles related to a liaison role, whether it be sales-, legal-, public relations-, or technician-oriented. There may also be a transitory or situational set of roles that rarely surface, such as additional roles needed during severe crises, mergers, or turnaround situations.

More research is needed exploring the cognitive limitation factors that apply to the disparate and unstructured nature of executive work. Leonard Wrigley (1970), building on the work of Chandler (1962) and Ansoff (1965), developed a nine-category measure of diversity strategy. Richard Rumelt (1974, 1982), building on the work of Wrigley, and others, conducted the seminal work on corporate diversification, relating organization performance to strategy and structure. Rumelt's work led others (Bettis & Prahalad, 1995:6) to posit that performance may be linked to a variety of dominant logics, suggesting why so many companies are "information-rich but interpretation-poor." It may be that CEO performance is related to the issue of bandwidth, and more specifically, the management of limited bandwidth. That is, the more varied the responsibilities, and the more accelerated the numerous flows of crises, disputes, and decisions demanded of the CEO, the poorer his or her performance. Likewise, the increase in number of identities harbored within the CEO, the less likely they are to perform at their potential. This stream of inquiry should be explored. Several CEOs in this study commented that their outstanding Chief Operations Officer relieved them of a great deal of the daily coordination duties, allowing them to spend more time on visionary and opportunity seeking activities.

Another needed research area revealed in this study is in the area of CEO health and well being, as it relates to multiple identities. Several respondents mentioned the multitude of roles they play both inside and outside their firm, including both their business and personal lives. It may be that highly successful CEOs tend, for whatever reasons, to be naturally successful in any endeavor undertaken; and thus may tend to be involved in more activities that require an expanding number of identities and neo-tribes. Many of our respondents mentioned industry and trade positions they held, outside board responsibilities, child coaching and support duties, local community obligations, and personal art, sport, and hobby achievements. Researchers should answer the question if the maintenance of additional identities leads to reduced performance in each or any of an executive's obligated roles.

One last area of future research regarding CEO identities needs to take into consideration different types of organizations. It may be that different types of businesses require different identities. For example, a highly diversified enterprise needs strong portfolio management, and thus may require less coordination, whereas a strategic management company may require more

guidance and leadership identities to manage related businesses. Likewise, a firm with active CEO management may require operational expertise and governance identities, whereas hands-on firms may be led by technician or sales CEOs that work very closely with all members in the organization, thus emphasizing almost entirely the coordination identity.

IMPLICATIONS FOR PRACTICE

This research informs practice in a variety of ways, and at numerous levels. A deep understanding of one's identities and associated neo-tribes may help CEOs navigate their chaotic workday and better plan their unpredictable and ever-changing schedule. A cognitive awareness of the identities associated with each executive role may also aid chief executives in their professional development. Once a CEO understands the nature of each role, and the requisite skills and capabilities needed to successfully perform each role, they are in a better strategic position to exploit their strengths and bolster their weaknesses.

At the firm level, boards and executive search firms who truly understand the nature of each executive identity, and the associated requisite skills and capabilities, are better positioned to evaluate candidates, and indoctrinate new hires. In addition, boards may realize that many CEOs are plagued with excessive coordination activities that may be performed successfully by a competent chief operations officer, and thus allocate additional firm resources to the search, hire, and professional development of the COO.

An industry and societal understanding of the extreme identity challenges faced by chief executive officers, and the importance of the roles they play in the firm, the industry, and society may initiate an economic, moral, legal, and political conversation regarding how to balance individual, firm, industry, and societal performance. With respect to sustainability and the recent growing support of balanced approaches such as the Balanced Scorecard (Kaplan, 1992) and Triple Bottom Line (Elkington, 1997), an understanding of how identities may inform the goal of balance and sustainability at all levels.

Another area of practice where the concept of CEO identities and neo-tribes may prove beneficial is in the world of entrepreneurship and new venture creation. Because entrepreneurs wear so many hats as they launch their start-up venture, a lack of understanding executive identity may lead to unnecessary confusion and inefficiency. This understanding will also inform entrepreneurship education, helping instructors better explain the nature of entrepreneurial executive work, and inform those thinking about a career in entrepreneurship, or nascent entrepreneurs just getting started.

One last area practice that may benefit from an understanding of CEO identities and neo-tribes is in the area of crises management. For organizational crises, the CEO might employ a specific identity and reach out to specific neo-tribes. For personal crises, such as the loss of a family member, a CEO may use the identity frame work to better predict their ability to perform in the job and provide insights on how to cope and plan accordingly.

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APPENDIX A: SEMI STRUCTURED INTERVIEW GUIDE

I'm interested in understanding what it is you do as CEO. What are your CEO daily activities, responsibilities, and duties? How do you spend your time as CEO?

1. How would you describe your typical day?
2. List the most important duties you perform as CEO – the duties that most impact the organization.
 - a. Describe the duty of _____ (from the list provided in the previous questions) and explain why it is so important and how it impacts the organization.
 - b. Describe the duty of _____ (from the list provided in the previous questions) and explain why it is so important and how it impacts the organization.
 - c. Describe the duty of _____ (from the list provided in the previous questions) and explain why it is so important and how it impacts the organization.
3. If you could replace yourself with several versions of your CEO self, how many would there be and how would they differ – what CEO responsibilities would each have, and why? What I am trying to understand is if there are discernible categories of your CEO work.
 - a. What knowledge, skills, capabilities, and personality traits are needed for you to perform the duties of _____ (from the list provided in the previous questions) and explain why they are needed to successfully perform those duties?
 - b. What knowledge, skills, capabilities, and personality traits are needed for you to perform the duties of _____ (from the list provided in the previous questions) and explain why they are needed to successfully perform those duties?
 - c. What knowledge, skills, capabilities, and personality traits are needed for you to perform the duties of _____ (from the list provided in the previous questions) and explain why they are needed to successfully perform those duties?
4. How did you acquire your CEO knowledge, skills, and capabilities?
5. What would you recommend to aspiring CEOs regarding developing their knowledge, skills, and abilities?
6. What recommendations do you have for CEOs regarding how to manage their duties and lives?

APPENDIX B: EMAIL SURVEY

This study suggests that your CEO duties fall into the following three categories:

1. Coordinator (coordinates the disparate people, groups, and activities of the organization)
2. Environmental Scanner (scouting the industry, marketplace, and economy for signals of emerging or existing threats or opportunities)
3. Visionary Leader (establish and promote the vision and mission of the organization, as well as infuse organization with values)

Indicate the degree to which you agree or disagree with the following statements.

1=Strongly Disagree, 2=Disagree, 3=Slightly Disagree,
4=Neutral,
5=Slightly Agree, 6=Agree, 7=Strongly Agree

1. ____ On average my typical workday is characterized by an overall relentless pace, continuous interruptions, unexpected crises, fragmented activities, never-ending responsibilities and demands, high uncertainty and ambiguity, and a general lack of routine or structure.

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2. ____ Each of my duties and responsibilities as CEO falls into one of the following three roles: (1) coordinator of disparate functions and groups within the organization, (2) environmental scanner of emerging and existing opportunities and threats, and (3) visionary leader setting and promoting the firm's mission, vision, and strategy.
 3. ____ Each of my three roles (coordinator, scanner, and visionary) requires a substantially different set of skills and capabilities.
 4. ____ Each of my three roles (coordinator, scanner, and visionary) requires that I assume a separate identity (mindset, behaviors, language) when effectively performing each role.
 5. ____ Within each of my three roles, I tend to interact with a different set of individuals.
 6. RANK ORDER: Place a "1" by the role you feel is most important to your organization, a "2" by the role of secondary importance, and a "3" by the least important role.
____ Coordinator (coordinate people, groups, departments)
____ Environmental Scanner (scouting the marketplace for signals of threats or opportunities)
____ Visionary Leader (establish and promote the vision and mission of the organization)
 7. RELATIVE IMPORTANCE: Place a percentage value by each of your CEO roles below indicating the relative importance that role provides the organization. The total must sum to 100%.
____ Coordinator (coordinate people, groups, departments)
____ Environmental Scanner (scouting the marketplace for signals of threats or opportunities)
____ Visionary Leader (establish and promote the vision and mission of the organization)
 8. YOUR TIME: On average, what percentage of your time do you spend in a given year on each of your executive duties? The total must sum to 100%.
____ Coordinator (coordinate people, groups, departments)
____ Environmental Scanner (scouting the marketplace for signals of threats or opportunities)
____ Visionary Leader (establish and promote the vision and mission of the organization)
 9. DUTIES: Please add any additional comments about the idea that your daily job responsibilities, on average, fall into one of the three categories of functional coordinator, environmental scanner, and visionary leader. Are there other duties or responsibilities that might fall outside of these three?
 10. IDENTITIES: Please share any additional thoughts regarding the idea that you may likely have three disparate identities to perform each of your three primary job duties, and that you switch between these identities during each work day.
 11. NETWORKS: Please share any additional thoughts you may have regarding the different networks or communities of individuals with whom you interact while performing each of the three duties of coordinator, scanner, and visionary. For example, you may interact primarily with individuals within the company when performing your coordination duties,

and conversely you may interact largely with individuals outside the firm when performing your scanning activities.

THE INFLUENCE OF COMPETITIVE PRESSURE ON INNOVATIVE CREATIVITY

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ABSTRACT

Government policy to open free market changes business environment. It will then deeply influence SME's competitive rate especially on creative industries. Tight competition pushes entrepreneurs in batik industry to keep on innovating, such as innovation in product, design, dyeing method, technology, and service innovation. These need to be done to make batik industry more interesting in import and export market. One local heritage creative industry in Indonesia is batik industry. This study is aimed to investigate and analyze the influence of competitive pressure on innovative creativity and competitiveness of batik SME in Indonesia. Design method in this study is survey method on batik entrepreneurs in Indonesia. The numbers of samples are 168 respondents. Purposive sampling technique is used to decide sample, based on certain criteria that is the frequency of exporting batik into foreign countries. Data is analyzed by using Structural Equation Modelling (SEM) and AMOS 16.0 program. Hypotheses results state that competitive pressure does not affect product innovative creativity skill, on the other hand competitive pressure affects the ability to adapt with business environment change. Adaptive ability on business environment change also affects batik industry's marketing performance. Product innovative creativity also affects significantly on SME's product performance. Competitive pressure in business environment will push entrepreneurs to be more creative in developing their product and to improve SME's competitiveness. Results from this study contribute to Resource Based View theory (RBV) states that an organization will be able to improve marketing performance through product innovative creativity and adaptive ability to business environment change.

Key Word: *Competitive Pressure, Marketing Performance, Batik SME*

INTRODUCTION

Small to Medium sized Enterprises or SME is a part of economy protection in a country, including Indonesia. SME has an important role to improve economy development pace, enlarge job opening, improve domestic income and strengthen community empowering. Right now, SME in Indonesia represents about 90 percent of Indonesia's business and contribute about 57 percent of Bruto Domestic Product in Indonesia.

Economy crises in 1998 proved that SME is much tougher compared with larger industries and has higher rate of flexibility, uses local material and able to survive in economy crises. In 2015, ASEAN Economy Era will be applied and it will not only become an opportunity but also challenge for Indonesia's economy. By applying ASEAN Economy Community in the end of 2015, ASEAN members will have experienced the free flow of goods, services, investment and well educated person from and to each country. By performing this kind of activity there will be solid integration called as "free trade area", the omission of tariff rate among ASEAN members, free labor and capital market. These will influence on

stronger competition of SME's product especially in creative industries in Indonesia. One creative industry in Indonesia that becomes unique feature is batik.

Batik is an artistic creation and local heritage in Indonesia. Batik is well known throughout the world. Batik is unique feature acknowledged by UNESCO as Intangible World Heritage in October 2009, besides kris and puppet. Batik has made Indonesia as one of the leader countries to produce the soft traditional fabric, origins from the old, artistic and rich tradition in Indonesia. One area in Indonesia that is well known as batik central is Pekalongan (Meutia, 2012).

Marketing development in facing globalization era becomes certain challenge for SME in developing its business. It needs innovative development and creativity to be able to survive and face the competition from foreign SME. SME needs to be more creative in producing products, and adapting with business environment change in Indonesia to keep marketing performance in line.

High rate of adaptive ability in business environment change and innovative creativity will become the strength that has to be owned by SME to face competition. Entrepreneur ability in adapting with business environment change will become internal resource that is imperfectly imitated by other company, and it will create competitive advantage in an organization. Krajewski & Ritzman (2003) stated that managing ability and adaptability will create competitive advantage oriented strategy.

Besides adaptability factor, innovative creativity also becomes one of the triggers to create SME's marketing performance. Formerly, innovation term can be meant as a new product related breakthrough. As the development goes on, innovation term also includes the application of new ideas and process. Innovation also viewed as organization's mechanism in adapting with dynamic environment. Innovative creativity is a strategy to put an organization one step ahead in competing with same field products from competitors.

Entrepreneurs' incompetence to maintain and preserve challenges will make performance declining and company's failure (Hill and McGowan, 1999). Study on marketing performance done by Menon et al. (1999) stated that marketing program creativity does not deeply influence marketing activities. Other stated that creativity provides important influence on marketing performance since it will be useful to develop certain product (Menon et al., 1999). Other study recommended that in developing countries, environment adaptability has an important role for performance improvement. Based on some previous results, problem for this study is to know and further analyze the influence of competitive pressure on business environment adaptability and innovative creativity to improve marketing performance.

HYPOTHESES DEVELOPMENT

The Influence of Competitive Pressure on Business

Business change and competitive pressure push entrepreneurs to keep their business stable. Competitive pressure pushes entrepreneurs to be more creative doing something new compared with their competitor in order to produce innovative creativity. Porter (1985) explained how organizations keep their business under competitive pressure by using five strength model that will influence industrial competition. They are new comer, substitute product, supplementary product, supplier bargaining power, customer bargaining power and industrial competition threat. Competitive pressure will push an organization to be adaptable with fast and uncertain change in business environment.

Business environment is always considered as barrier factor for industrial growth. The element of competitive environment should be further studied because industrial failure in reaching sales comes from management's inability to analyze present changes in industrial competitive environment. Broader knowledge about marketing environment will improve management's ability to analyze received data and choose needed data to decide organization's aim as response for environment change condition (Menon et al., 1999).

Business environment is the combination of social, law, economy, physic and politic factors that will influence business activities. Significant changes in these factors will make business pressure for organization. The lack of market strength, dynamic business environment and the emergence of new markets will make SME fragile to face external influences from larger organizations (Man et al., 2002).

The higher competitive pressure requires organizations to continually adapt with business environment change such as anticipation to face market preference and customer preference change, government policy and adaptability. Based on phenomenon and results above, the first hypotheses proposed as follow:

H1: The higher Competitive Pressure, the higher Business Environment Adaptability will be

The Influence of Competitive Pressure on Product Innovative Creativity

Government policy to open free market triggers every organization and SME to face freer competition. It will produce competition in business world. An organization must compete and maintain its product to keep business survival. Temtime & Passiri (2005) explain that when a competition improves, entrepreneurs need more than just skill and knowledge to manage their own business.

Environment change and competitive pressure require entrepreneurs to keep their survival effort. Competitive pressure pushes entrepreneurs to think more creative in performing something new compared with their competitor; as a result it will produce innovative creativity. Porter (1985) explained how organization maintains its survival effort under competitive pressure in an industry by using five strength model that influence industrial competition. These strengths are new comer, substitute product, supplier bargaining power, customer bargaining power and industrial competition.

Porter (1985) argued by stating that there are two factors that will determine options in competitive strategy, these are industry's potent to get long term profitability and its decision factor in which the organization will respond to industrial condition and also shape desired industrial condition. In existing industry, competition is determined by five main strengths: (1) new competitor, (2) substitute product, (3) buyer bargaining power (4) supplier bargaining power and (5) existing competition in present organization.

Environment change and competitive pressure require entrepreneurs to keep their survival effort. Competitive pressure requires entrepreneurs to think more creative and perform something new compared with their competitor; as a result it will produce innovative creativity. Result from Yang Lee (2009) shows that the effect of competitive market pressure faced by organization is caused by customer preference and it will influence R and D incentive to perform technology competence. Organization with high technology competence will aggressively respond on R and D competition, while organization with low technology competence may only follow the market.

Hadjimanolis (2000) used innovation term as the individual speed rate in adopting new ideas compared with other members in a system. The existence of similar kind of product from competitor has similar look and it becomes the trigger factor to create innovation, especially product innovation. Competitor's product usually shows up without any changes, it tends to be static. Therefore it becomes an advantage since competition can be easily won by doing product innovation. Product innovation is a product that can be viewed from its functional side that will bring a product one step ahead compared with its competitor. Hadjimanolis (2000) explained that competitive intensity and environmental competition are market measurement to have innovation. When competitors produce new strategy they will have an opportunity to grow, as a result competitive intensity will get higher. Based on previous results it can be proposed hypotheses as follow:

H 2: The higher Competitive Pressure rate the higher Product Innovation of SME will be

The influence of Business Environmental Adaptability on Marketing Performance

Present business environment characterized by fast pace change in customer preference, technology and competition. Organization needs to be more creative in order to keep its survival effort. Inovative ability, organizational learning, market orientation and entrepreneurship become the main capabilities for an organisation to reach competitive advantage (Hult & Ketchen, 2001; Hurley & Hult, 1999).

Internal environment connects with the entire condition of an organization that covers resources, capabilities, and core competence (Hitt et al., 2001). Meanwhile, external environment connects with general environment, industry and competitive environment. Result from previous study showed that environment can influence organizational performance (Bain, 1956; Hansen & Wernerfelt, 1989). Marketing performance is an organizational ability to have self-transformation in facing challenges from long term perspective environment (Keats & Hitt., 1988). Performance measurement is a part of organizational efforts in viewing application of strategy fitness to face environmental changes. Environment has become important part of an organization and it is imperfectly imitated. Organization needs to know its environment, and then manages it in proper way so as to provide benefit for the entire organization. Good comprehension of an environment will impact on strategy quality and marketing performance.

Dynamic environment describes the continuous unstable rate of market and turbulence. Dynamic environment is caused by interconnection or inter organizational relationship (Aldrich, 1979; Mintzberg, 1979). Dynamic environment is operationalized as the newest product innovation that shows the main influence of performance measurement (Hambrick, 1983). Keats & Hitt (1988) stated that dynamic environment significantly related with organizational performance. Based on empirical result above it can be proposed hypothesis as follow:

H 3: The higher Business Environmental Adaptability the higher Marketing Performance will be

The influence of Product Innovative Creativity on SME's Marketing Performance

Product and process innovation have been explained in previous studies. According to Van Geenhuizen & Indarti (2005), besides product and process innovation there are four kinds of innovation in SME. Four kinds of innovation are service, market, logistic and organizational innovation. Innovation can occur simultaneously. For example, product innovation may need new technique in production process or innovation one. New product, product innovation are needed to fill the needs of new market, states that new product advantage is really important in competitive global market environment. This advantage is tied with innovation product development as a result it will produce market advantage that will eventually win the competition.

In Indonesia's furniture industry, Van Geenhuizen & Indarti (2005) found that product innovation is the most important innovation, such as new product design, and kinds of new product. Other important innovations are market and logistic innovation. Other authors state that creativity in fact which has important influence on marketing performance, because it will provide benefit to develop desired product for customers that love high creativity and unique product (Han et al., 1998; Ismail, 2015) stated that marketing performance is influenced by environmental factor, product innovation and market orientation that positively impact on marketing performance.

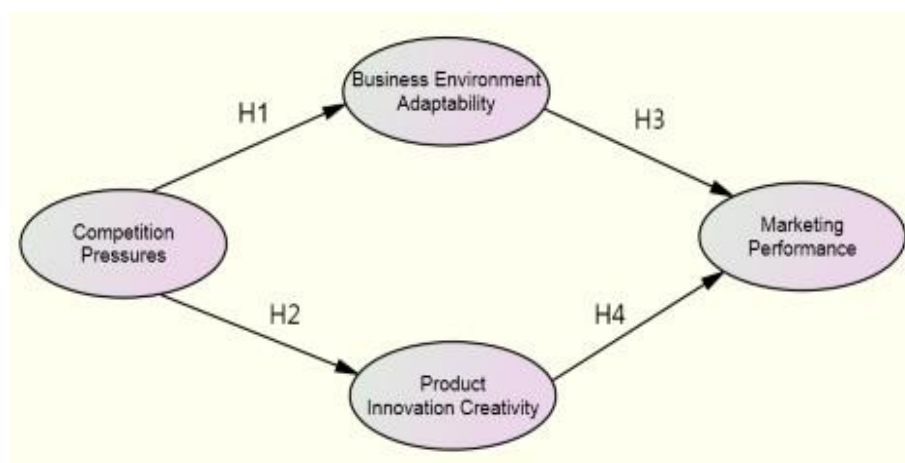
Product innovation shows the new product introduction, development and success in the market. Product innovation can be design change, product component and architecture. Product innovation is potential thing to create thoughts and imagine that will finally create loyal customers. Product innovation is an important way for an organization to be adaptable with market, technology and competition change.

Based on empirical data above, the relationship between product innovative creativity and marketing performance are as follow:

H 4: The higher Product Innovative Creativity, the higher Marketing Performance of SME will be

Based on theoretical ground and proposed hypotheses, it can be build model as figure 1.

Figure 1
EMPIRICAL MODEL



METHOD

Sample in this study is the owners and managers of small to medium sized enterprises that specialize in batik industry in Indonesia. Purposive sampling is used as a tool to take samples with certain criteria. Respondents in this study are chosen with criteria as 3 years minimum experience, already have full time employees and have export oriented marketing range. Data for this study is collected by distributing questionnaires to manager and owner of creative industries in Indonesia. There are 168 respondents. Data is analyzed by using Structural Equation Modeling (SEM) and AMOS 16.0 program that requires minimum amount of respondent as 100 (Hair et al., 2010).

Competitive pressure is a situation triggered by macro external changes in environment, as competitive environment complexity, new comer, supplier and lower price substitute product (Porter, 1985; Beneitoa et al., 2002; Yang Lee, 2009). Indicators used to measure competitive pressure are competitive rate tightness (cp1), new entrepreneurs in the market (cp2), material competition (cp3), customer competition (cp4), and lower substitute product (cp5).

Business environment adaptability is the ability to adapt with uncertain environment such as customer preference change, market change, competition, government policy change and technology (Covin & Slevin, 1988; Stamp et al., 2008 Ahmad et al., 2010 McGinnis & Kohn, 1993). Indicators used to measure business environment adaptability are the ability to measure customer preference (ea1), market change (ea2), competition (ea3), government policy change (ea4) and technology (ea5). Innovative creativities are new thoughts to perform new ideas that can support business success (Murphy, 2002; Van Geenhuizen & Indarti, 2005; Nurhayati, 2009). Indicators used in this study to measure innovative creativity are being creative in service (ic1), product design development (ic2), new technology use (ic3), search for market opportunity and product distribution (ic4), and respond the changes in product and market preference (ic5).

Marketing performance is a concept to measure marketing achievement in an organization. Each organization has to know its achievement as their successful reflection in market competition. Slater & Narver (1995) describe the result of organization strategy that can be measured by using indicators such as customer satisfaction (mp1), new product success (mp2), sales growth and profitability (mp3).

RESULT AND DISCUSSION

Descriptive Statistic

Based on descriptive statistical report, we get a clear description of our respondents. Sixty percent of sampled respondents are from Pekalongan as batik central industry in Indonesia, while twenty percent of respondents are from Jogja, twenty percent from Solo and the rest from Bali. Although balinese batik is not deeply well known in comparison with other batiks in Indonesia, the development of it has recently grown at significant level, in accordance with the development of foreign tourists arrival. Based on the sexes, seventy percent of respondents are female and thirty percent is male. In addition, we get clear description of educational background of respondents. As a matter of fact, eighty percent of respondents get a scholar degree that has relatively young age under thirty years old. It shows parental success in educating their children to maintain and reserve national culture.

Structural Equation Model

To see validity convergent from construct indicators, we perform confirmatory factor analysis (CFA), by examining standardized loading factor to see if there is value below 0.5. Loading factor value below 0.5 will be dropped from these analyses since it is not valid to measure latent constructs. Indicators that must be dropped from model is rate tightness (cp1), customer competition (cp4), competition (ea3), government policy change (ea4), because these four indicators have loading factor value below 0.5 (Byrne, 2010). Having dropped invalid indicators, we will rerun the model.

The author uses critical ratio skewness criteria as ≤ 2.58 at 0.001 significant rates in normality evaluation. Data for study is assumed normal if it has critical ratio (cr) skewness value below absolute value as ≤ 2.58 . Output result shows that there is no critical value above 2.58., as a result we will test the hypotheses and model analyses.

Composite reliability has value above 0.7; it means that internal consistency among latent variables has good reliability (Byrne, 2010). In addition, cronbach's α value is between 0.79 and 0.94, it is above the required value as 0.70 (Hair et al., 2010 (Table. 1).

Hypothetical testing result and discussion

Data in this study is analyzed by using structural equation modeling and AMOS 16.0 software. First of all, we need to perform hypothetical testing. Hypothetical testing can be seen from chi square value, in which the less χ^2 value, the better the model, and it will be accepted based on cut-off value as $P > 0.05$ or $P > 0.10$. Chi-square value is 98.424; it means that the value is relatively small. RMSEA is index to compensate Chi-Square in large amount of samples. Small RMSEA value or equal to 0.08 is an index to decide whether the model can be accepted based on degree of freedom rate. RMSEA value from analytical result equal to 0.027 that means < 0.08 , as a result the model is fit. GFI (Goodness of Fit Index) is non-statistical measurement that has value range between 0-1, the highest value shows better fit. Recommended GFI value is 0.90 to show that the model is fit. Analytical result from GFI value is 0.936, it means that the model is fit. AGFI (Adjusted Goodness of Fit Index) value is criteria that consider measured proportion of variance in sample covariance matrix.

Recommended acceptance rate by AGFI has similar value. Recommended acceptance rate in AGFI has similar value or larger than 0.90. The result shows that AGFI value is 0.911, means that the model is fit since it is larger than recommended value. CMIN/DF is Chi-Square χ^2 statistic divided with degree of freedom so it is called as relative χ^2 . The value of χ^2 relative is less than 2.0 or 3.0 and it becomes fit identification between model and data. Data analytical result of CMIN / DF is 1.144, means that the model is fit since is suited with recommended value. TLI (Tuckle Lewis Index) is an incremental index alternative which compares tested model with base line model, in which the value as > 0.95 is recommended as barometer to accept or reject a model. Analytical result from TLI value is 0.976 reflects that the model is fit. CFI (Comparative fit Index) is value range as 0-1 that states if the value closes to 1 identifies the highest fit rate. Recommended value to estimate model fit is larger than 0.95. CFI value from analytical result is 0.980 that means the model is fit (Byrne, 2010).

Table 1 SUMMARY OF NORMALITY, FACTOR LOADING,					
Variable	Skewness	Kurtosis	Factor loading	Cronbach's α	Composite Reliability
Competitive pressure				0.94	0.89
cp2	-0.22	2.95	0.79		
cp3	-0.11	2.85	0.58		
cp5	-0.13	2.15	0.71		
Business environment adaptability				0.89	0.88
ca1	-0.08	2.86	0.98		
ca2	-0.15	2.74	0.97		
ca5	-0.25	2.55	0.96		
Innovative creativities				0.92	0.79
ic1	-0.25	2.54	0.78		
ic2	-0.15	2.55	0.67		
ic3	0.26	2.55	0.66		
ic4	-0.27	2.94	0.71		
ic5	-0.09	2.93	0.65		
Marketing performance				0.79	0.91
mp1	0.01	2.98	0.78		
mp2	0.32	3.18	0.88		
mp3	0.22	3.18	0.82		

Each goodness of fit criteria has filled the requirement except for AGFI since it produces value in expected range that means the model is fit to test the hypotheses. There are four variables used in this study, one exogenous variable and three endogenous variables. Exogenous variable is competitive pressure, while endogenous variables are business environment adaptability, innovative creativity and marketing performance. The result can be seen in Table 2.

Estimation parametric to test the influence of competitive pressure and adaptability in business environment change shows insignificant result with CR value as 1.199 and probability value as 0.231. The value does not fill the hypothesis acceptance rate as the requirement states that CR value > 1.96 at 0.01 significant rates; as a result hypothesis 1 is rejected. The result shows that competitive pressure felt by entrepreneurs does not influence business environment change adaptability. Competitive pressure in batik industry does not merely depend on competition, because batik is the product of entrepreneurs' and artists' creativity. Imported batik that enters in Indonesia is not a barrier for entrepreneurs in producing batik as a result adaptability on business environment change is not influenced by competitive pressure. Luo (1999) concepted dynamic as change rate and environment instability that is hard to be predicted. Unstable business environment occurs since the change in rule, technology, customer preference and or competitive standard. It is not in line with the result above since batik industry is a natural industry produced by entrepreneurs with traditional value and

philosophy not only fills up market preference.

Table 2
REGRESSION WEIGHTS

			Estimate	S.E.	C.R.	P
Adaptability business Environment	<---	Competition Pressure	,174	,145	1,199	,231
Innovation Creativity	<---	Competition Pressure	-,004	,130	-0,032	,975
Marketing Performance	<---	Business Environment Adaptability	,471	,185	2,546	,011
Marketing Performance	<---	Innovation Creativity	0,255	,127	2,011	,044

Estimation parametric to test the influence of competitive pressure and innovative creativity shows insignificant result, as a matter of fact it shows negative CR value as - 0.032 with probability as 0,975. The value does not fill the hypothesis acceptance requirement, as CR value > 1.96 with 0.01 significant rates, as a result hypothesis 2 is denied. It explains that the higher competitive pressure the lower entrepreneurs' and artists' innovative creativity. Creativity in batik industry is not purely creativity because competitive pressure actually pushes entrepreneurs and artists to be less creative. Creativity owned by entrepreneurs and artists is triggered by strong entrepreneurship driven not market driven. It is not in line with Hadjimanolis (2000) that explained about competitive pressure and environment competition to measure innovation in market.

Estimation parametric to test the influence of business environment adaptability on marketing performance shows significant result with CR value as 2,545 and probability rate as 0,011. The value fills the hypothesis acceptance requirement that is CR value > 1.96 , as a result hypothesis3 is accepted. The relationship between business environment adaptability and marketing performance is positive and significant. Based on the result above, it can be concluded that the higher business environment adaptability the higher marketing performance will be. It is in line with Keats & Hitt (1988) that states dynamic environment is significantly related with performance. Entrepreneur's ability to adapt with business environment change will ease them in fulfilling customer's desire and preference that will finally impact on the improvement of marketing performance.

Estimation parametric to test the influence of innovative creativity on marketing performance shows significant result with CR value as 2.011 and probability rate as 0,044. The value has filled hypothesis acceptance requirement with CR value > 1.96 , as a result hypothesis 4 is accepted. The relationship between innovative creativity and marketing performance is positive and significant. Based on the result above it can be concluded that the higher innovative creativity the higher marketing performance will be. It is in line with Menon et al. (1999) that found out positive relationship between marketing performance and marketing strategy. Calantone et al. (1994) also succeeded proving the influence of innovation on new product's success. An organization that dares to take risk in innovation will be successful in creating new product and ideas. When competitors produce new strategy they have an opportunity to grow in the market, as a result competition intensity will be higher. Innovation is viewed as organization's mechanism to adapt with dynamic environment. Changes happen in business environment have forced organizations to create new ideas, thoughts and innovative product.

The results are in accordance Resources based view (RBV) theory, in which states if organizations maximize their capability it will then improve business network relationship. Meanwhile, the result from this study also explains that organizational competitive advantage will be reached if innovative creativity is continually performed since it is one of the main capabilities in organization.

CONCLUSION

Based on result and discussion above, it can be concluded that from four proposed hypotheses, there are two supported hypotheses and two unsupported hypotheses. First hypothesis states that competitive pressure does not significantly influence business environment change adaptability, while competitive pressure does not influence innovative creativity. It is caused by the certain skill of making batik fabric. This skill needs high creativity from entrepreneurs and artists. Creativity will be risen up and pushed by entrepreneur driven and not the market driven. Adaptability in business environment change significantly influences marketing performance. The ability to predict market and customer preference will ease the entrepreneurs to create a desired product, so it will be useful for organization. Too responsive entrepreneurs on business environment change will not get benefit since they will have a bulk of unsold product while the market has already change its preference and trend. High innovative creativity needs a large sum of capital to create new designs, technology and machines to follow fashion change in the market. The ability of batik entrepreneurs and artists in creating innovative creativity will significantly influence the business environment change adaptability and push marketing performance of batik SME in Indonesia.

Batik is a kind of art and cultural heritage derived from royal environment, and then it spreaded out evenly to the entire community in Indonesia, however it still has its strong cultural element. Future study should investigate the influence of royal culture as moderating variable between exogenous and endogenous variables relationship.

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MANAGING KNOWLEDGE IN THE AGE OF GLOBAL CAPITAL

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ABSTRACT

The knowledge-based view of the firm has gained currency in organizational theory since the 1990s. In this paper, we evaluate it in a historical perspective, and suggest that the new theories of the firm as a receptacle of knowledge emerged in the context of the intensified knowledge communication within organizations in the early 1990s, and organizational practices that appropriated public property through the regime of intellectual property rights. We contend that organizational theory and practice are both in a state of dynamic mutual interaction, with theory often playing a lagging role. In other words, organizational actions precede, and are retroactively described (and legitimized) by theoretical developments. We then we subject knowledge- based theories of the firm to scrutiny, and conclude that they resort to simplistic definitions of knowledge. Using information from other social sciences, we identify some of the facets of knowledge that need to be considered in order to make our theories more meaningful.

INTRODUCTION

For scholars and professionals in the field of business management, the challenges of the twenty first century appear to be especially daunting. On one hand, the recent past has seen a tremendous acceleration in the rate of trade between countries, the growth of MNCs, and fundamental changes in work practices leading to increased productive efficiencies in organizations (UNCTAD, 2013). On the other hand, the future poses intensified challenges. Will organizations of the future be "wiser" than they were before (Sims & Sauser, 2013)? Will newer forms of technology be deployed by organizations to increase their grasp of the market (Block, 2014)? How can organizations better interlink their product delivery systems to offer more integrated services to their customers (Clark, Huckman & Staats, 2013)? How will they respond to the challenges of a diverse workforce by instituting systems that are equitable and just (Scheel, Rigotti & Mohr, 2014)?

In this paper, we advance the contention that organizational theory and practice are both in a state of dynamic mutual interaction, with theory often playing a lagging role. In other words, organizational actions precede, and are retroactively described (and legitimized) by theoretical developments. We examine one such instance, which is the emergence of the knowledge-based formulations of the theory of the firm in the 1990s. We suggest that the new theories of the firm as a receptacle of knowledge emerged in the context of the intensified knowledge communication within organizations in the early 1990s. In that time, as we crested the socially constructed temporal milestone into the new millennium, we saw a sudden intensification in management theory of "knowledge- based" perspectives in organizational

theory, especially in strategic management. Knowledge management became the subject of special issues in a variety of influential journals, the exclusive topic of a plethora of academic websites, and a number of consultants began to market executive programs aimed specifically at managers wishing to take advantages of knowledge routines within firms³. This trend continues till today, as we talk about knowledge management in new organizational configurations (Wagner, Hoisl, & Thoma, 2014), absorptive capacity (Huang, Lin, Wu & Yu, 2015), dynamic capabilities (Knudsen, Levinthal & Winter, 2014), and intellectual property (Liu, & La Croix, 2015).

Why did organizational theorists suddenly develop this burst of interest in the concept of “knowledge?” After all, the view that firms should be studied primarily as effective carriers of capabilities is not a new concept, dating back to the works of Edith Penrose (1959), and the resource based view of the firm (Barney, 1991). Why then this need to drastically rethink the premises under which firms exist and operate? Is there a theoretical basis for this perspective, or is knowledge management merely a fad, and management theory (and practice) is falling victim to its own theories of isomorphism (Powell and DiMaggio, 1991)?

We believe that there is indeed a historical basis for the growing importance of knowledge as a concept in management theory. We further contend that this interest in knowledge-based perspectives is directly related to the new concerns of management as it seeks to preserve its property rights in a new industrial climate. In other words, we contend that knowledge-based theories of the firm represent tools to assist corporations to manage labor in an era of the new international division of labor.

The rest of this paper is organized into three sections. In the first section, we discuss the issue of knowledge communication within firms across geographical distances, especially as they relate to the transfer of knowledge within MNCs. We also examine the new technological and organizational arrangements that need to be deployed to facilitate better coordination of diversified firms. In the second section, we unpack the concept of knowledge by examining how it has been represented in a variety of social science traditions, and what our theories can learn from these alternative representations. In the process, we critique existing operationalization of knowledge in management theory. In the final section, we engage in a discussion on the potential meaning of knowledge-based theories. We end by offering a set of caveats that both theorists and practitioners need to heed if knowledge-based theories of the firm are to become more inclusive and egalitarian.

KNOWLEDGE COMMUNICATION IN THE NEW AGE

Over the past few years, management theorists have been preoccupied with the role of the firm as an efficient carrier and distributor of knowledge (see Klarl, 2014, for a review). In particular, these theories have been applied to MNCs (Sofka, Shehu & de Faria, 2014), and suggest that the inefficiencies of trade across geo-political boundaries can be transcended by a large, spread-out organization, which can then be a conduit for knowledge flows. Knowledge transfer has not only been subjected to theoretical examination, but has also been empirically measured (see Wijk, Jansen, & Lyles 2008, for a thorough review). This theoretical interest in knowledge communication parallels extraordinary development in the movements of capital across national boundaries all over the world.

In the last quarter century, especially following the collapse of the command economies of Eastern Europe, many countries across the world have affected significant policy shifts toward “neoliberalism” at the expense of import-substitution policies. These neo-liberalist

policies were developed as a means to attract foreign capital, primarily through an increased proliferation of investments by multinational corporations (MNCs) (Kant, 1996). The trend of globally dispersed investment by corporations continues till today. For example, the inflows of foreign direct investment, a key marker of MNC investment approached \$2 trillion in 2013, with over \$500b reported as mergers and acquisitions (UNCTAD, 2013), leading to a more concentrated global economy. The top 500 MNCs of the world showed revenue growths in excess of 10% and profit growths in excess of 15% in 2012 despite the global economic downturn (Fortune, 2013), and their revenues routinely exceeded the GDP of most nations; if firms and nations were listed together (annual revenues alongside national GDP), each of the top five corporations in the world (Royal Dutch Shell, Walmart, Exxon Mobil, Sinopec and China National Petroleum) would be ranked as a top 30 nation. Not only have FDIs grown, existing MNCs in these regions have begun to increase the communication between headquarters and subsidiaries. This has exposed the local industrial landscape to a bewildering influx of production methods, new technologies, and new management practices, all of which constitute newer ways of *thinking* and *doing*. It is an effort to comprehend these phenomena, and bring them into the ambit of “theory”, that has led to the renewed interest in knowledge transfer in management theory.

One side effect of theorizing about knowledge flows has been that researchers have been forced to re-evaluate their fundamental theories of the firm. Most knowledge theorists, despite the apparent heterogeneity of their subject matter, share dissatisfaction with “static” theories of the firm, in particular the transaction cost perspective.

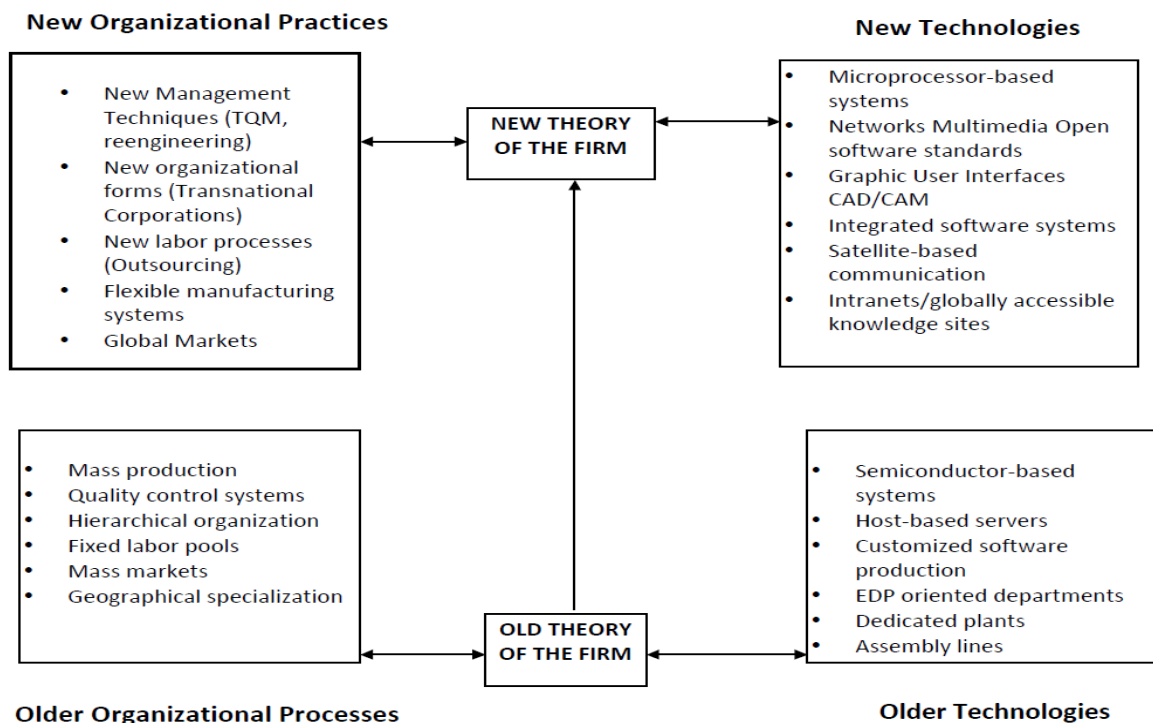
It may be recalled that most management theorists have hitherto relied on the transaction cost perspective to understand the existence of the firm. Under the premises of this theory, economic activities are internalized into hierarchies (firms) when contractual and market-based arrangements fail, primarily as a consequence of bounded rationality on the part of actors, asset specificities in transactions, and the possibility of opportunistic or “morally hazardous” behavior by contractual partners (Williamson, 1985).

In the 1990s, a new breed of researchers sought to bring a new understanding of MNCs to bear in postulating an entirely new theory of the firm. Advocates of the knowledge-based theory of the firm (Kogut and Zander, 1996) attempted to use the phenomenon of knowledge *communication* to explain the very existence of firms. Through this theory, they attempted to move explicitly from earlier, contractual theories of organizing into more processual, knowledge-based perspectives. They argued that instead of a series of contractual arrangements, firms could be reconceptualized as *efficient storehouses of knowledge*, knowledge that cannot be stored within individuals, but that emerged in a tacit way when organizational members communicated with each other. They specifically rejected the opportunism hypothesis of transaction cost economics (Conner and Prahalad, 1996), viewing organizations more as entities of cooperation, collaboration and communication. While the advocates of the transaction cost approach to organization theory valiantly sought to defend their theoretical position from the onslaught of the knowledge-based researchers (Foss, 1996), it is safe to say that knowledge intensive theories have carried the day, especially in an era where the talk of dynamic capabilities has become hegemonic in organizational research (Helfat & Winter, 2011).

Our fundamental thesis in this paper follows from this development within the theory of the firm. We argue that it is not coincidental that the older theories of the firm came under attack at this particular juncture. In many ways, these debates were related to fundamental changes in work practices in organizations, often facilitated by technological changes. In the 1990s,

organizations became larger and more geographically dispersed, primarily because newer techniques of organizing and information management made it *possible* for them to expand. These techniques included newer technologies such as computers and flexible machinery, newer models and techniques of management such as TQM and reengineering, newer organizational forms such as the transnational corporation, newer labor processes such as outsourcing, newer forms of markets such as specialized niches, and the overall globalization of production, consumption and capital accumulation. For instance, let us focus on two aspects of this transformation, namely the changes in information technology and the re-organization of workflows across international boundaries. Figure 1 details some of the new technologies and new organizational processes that began to be routinely deployed by organizations in the recent past. And many of these newer modes of organizing will have profound impacts on the way we will characterize the firm. Outsourcing, for instance, rendered the boundaries of the firm fuzzy. The use of software products such as intranets made it possible for organizations to achieve worldwide coordination in various organizational activities, by sharing product launch-plans, information about production and benchmarking. Thus, as Figure 1 suggests newer technologies and practices in the firm demanded newer theories to understand it.

Figure 1
CHANGES IN ORGANIZATIONAL THEORY/PRACTICE IN THE 1990s



The control of the subsidiaries of these geographically dispersed firms was predicated upon the extensive use of information technology. A number of key changes in this area were useful in facilitating newer communication systems within firms. At the purely technical level, we saw the move from traditional semiconductor-based systems to microprocessor-based systems, from host-based to network-based systems, the creation of open software standards, use of multimedia technology, computerized participation systems within organizations modeled after vendor-customer partnerships, object-oriented programs which allowed for a factory mode (as opposed to craft-mode) of software production, graphic user interfaces, and integrated software applications (Tapscott and Caston 1993). Thus, technology was instrumental in pushing the boundaries of the corporation across product markets, geographies and cultures. These technologies especially worked to the advantage of the MNC in the past few decades. This has had tremendous implications for organizational scale and scope. Organizations became much bigger, simply because they had the tools to monitor a larger span of control, both at the level of geography and at the level of product market diversification. For instance, while in the 1990s, the largest corporations in the world tended to be manufacturers like GM, with annual revenues of less than \$200b, we now see corporations like Walmart, which do not manufacture a thing, flirting with \$500b in annual sales in 2014, while service corporations like Google show an year-on-year growth of 20% and more, a trend that shows no signs of slowing.

Apart from the impact of new technologies and new organizational processes on day-to-day operations, we should also be mindful of another important role that knowledge communication played in the geographically diversified firm. According to more interpretive theorists of the firm, organizations may be also seen as cultural phenomena, which change, develop and legitimize themselves primarily through interactions between various sub-groups (Garsten, 1994). These interactions and communicative processes are essential to create a context of shared meaning within organizational members, and an organizational culture.

Such a creation and sustenance of a shared organizational identity and culture had often posed a number of problems in the past, especially for MNCs. MNCs necessarily have to rely on innovative ways of long distance communication as a way of developing and sustaining a coherent and shared meaning system. To that end, large corporations have taken the lead in deploying technology for organizational communication, often expending a lot of resources to create sophisticated communication systems within the firm. These communication systems are used to fulfill a variety of key organizational objectives. Not only do they facilitate the development of *formal integrative mechanisms*, whereby all organizational activity can be coordinated, but they also create *vertical socialization mechanisms*, where hierarchical transmission channels are created and sustained. They may also be used to facilitate *decentralization*, by eliminating or reducing the need for headquarters to resort to direct control of subsidiaries (Chanson & Quélin, 2013; Gupta and Govindarajan, 1996). Indeed, the MNC has been theorized by many scholars as a superior mode of organization precisely because of its ability to affect efficient knowledge flows across political boundaries. It achieves this by utilizing networks of information involving multi-location data-inputs, centralized as well as dispersed information processing, and constantly evolving modes of data analysis and knowledge-processing capabilities (Kogut and Zander, 1993).

It is through the successful management of organizational identities and cultures that MNCs have managed to achieve an exponential growth and geographic spread in the recent past. The swift increase in scope and power of MNCs as economic units in the last quarter of the 20th century can scarcely be overstated. By the early 1990s, the top 300 MNCs accounted for

over 25% of the world's productive assets (Barnet and Cavanagh, 1994). MNCs became particularly adept at deploying knowledge in a variety of ways, including new product development routines (Subramaniam, Rosenthal and Hatten, 1996), overlapping project activities (Takeuchi and Nonaka, 1986), cross-functional teams (Griffin and Hauser, 1992) and innovative structural linkages (Dinur and Inkpen 1996). Examples of these included new product launches, new production process incorporations, adoption of newer methods of quality assurance, changing of routines related to vendor management, the incorporation of new information systems and technologies into the organization, or newly instituted management practices specifically introduced at the behest of the headquarters into the subsidiary.

While it was obvious to the organizational theorist of the 1990s that product development, inter-unit communications and project management involved the exchange and communication of knowledge, what exactly was this knowledge? How could one we measure it? How, for that matter, could we define it? Theorists certainly needed a working definition of knowledge they were to subject it to any critical scrutiny. In the next section, we will describe their attempt to develop that definition of knowledge through an analysis of this concept in a variety of other social sciences.

KNOWLEDGE AS DESCRIBED IN OTHER SOCIAL SCIENCES

Thus far, we have established that the communication of knowledge has been central to the rapidly expanding firm of the recent past, and would be equally important for the firm of the new age. However, in order to understand the specific challenges that face the firm of the new age, especially with respect to knowledge, it becomes essential to subject this term to some scrutiny. After all, the term “knowledge” has varied meanings depending upon the various perspectives and positions from which it is studied. In our case, we wish to explore only those aspects of it that are related to its *communicability*.

While knowledge communication in organizations involves technology, it represents a far more complex phenomenon than mere technology transfer. As discussed earlier, the communication of knowledge, even within the organization, has the potentially to radically alter ways of *thinking* and *doing* for the organizational subjects. It may therefore be more pertinent to evolve a more complex construct of knowledge, and for that, we rely on the wisdom of several other social sciences to refine this construct.

The concept of knowledge has been very intensely studied in the field of cognitive psychology. Most cognitive psychologists make a key distinction between declarative knowledge (data) and procedural knowledge (rules, scripts, routines) (Graf, Squire and Mandler, 1984). Organizational theorists (Hedlund, 1994) deployed these constructs to make a distinction at the organizational level between “cognitive” knowledge and “imbedded” knowledge. In an organizational context, declarative knowledge communication could include exchange of financial data, demand and production forecasts, market feedback etc. However, procedural knowledge is far more complex, imbedded and tacit. It usually manifests itself in organizational routines (Nelson and Winter, 1982). Procedural knowledge communications include the transfer of new product and process innovations, information and control systems, and management practices.

Economists also studied knowledge communication with great interest. An economic perspective on knowledge communication would entail examining the costs associated with such a knowledge transfer. For example, one study of the cost of technology transfer across MNC

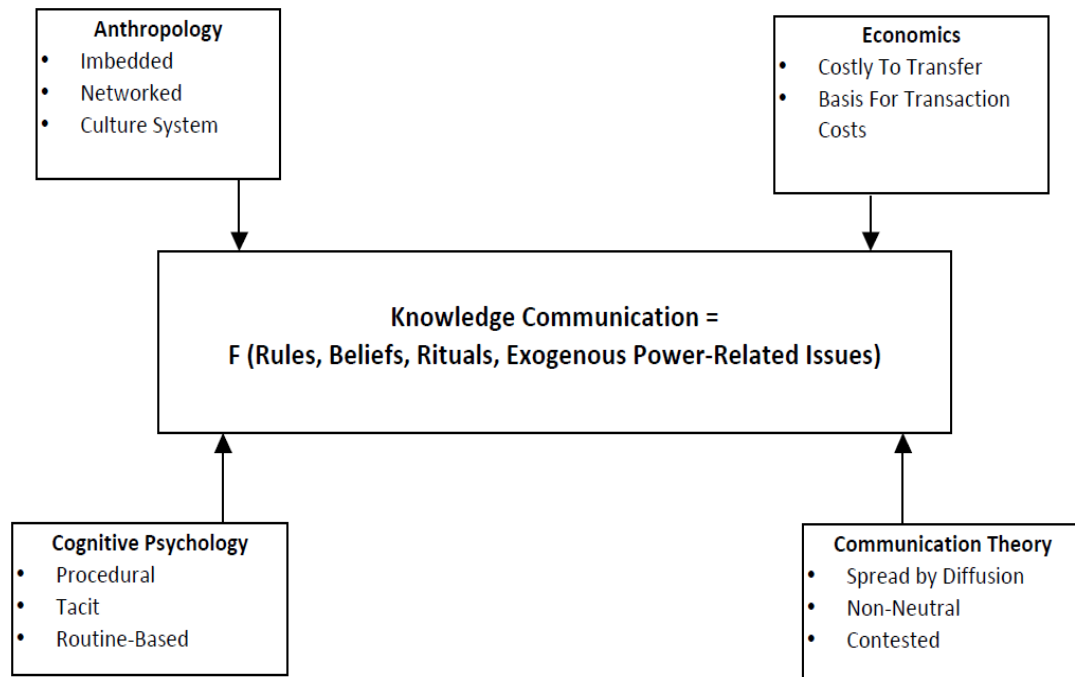
boundaries estimated it to be around 20% of the total project cost (Teece, 1977). This was a truly astonishing figure that challenges the claims of MNCs that they are efficient vehicles of knowledge communication. Moreover, the 20-percent figure was the average across a number of industries. Individual values were as high as 59% of total project cost. A mitigating factor may be the complementarity between knowledge transfers and R&D activity in the host country. Belderbos, Ito, and Wakasugi (2008) found that both of those sources of technology increased the marginal productivity of the other. Other economic theories have focused on routines of knowledge communication among non-competitive and collaborative organizations. For example, arguably one of the most tremendous transnational efforts in recorded history was the eradication of smallpox, a very complex and concerted transnational action involving the creation of an interim organization of 250,000 people drawn from over 67 countries, which engaged in participative efforts over several years. Such an experience surely has a lot to teach management theorists about knowledge transfer (Cooperrider and Pasmore, 1991).

Anthropologists studying organizations (Darrah, 1996) studied the tacit aspects of organizational knowledge systems (drawing from Polanyi (1966)). Some anthropologists (Acheson, 1994) have attempted to uncover the imbedded nature of organizational routines. They argued that after all, a firm exists in a network of other supporting institutions in mutually reinforcing cycles of influence. Knowledge then was a system of inter-linked ideas, a set of social discourses that could be debated over vast geographical distances, or a shared system of collegiality. By extension, knowledge communication is a process by which organizational identity itself is shaped (Geertz, 1988).

Communication theorists suggested that knowledge communication is achieved through diffusion, translation, imitation, or isomorphism (Czarniawska and Joerges, 1996). They also pointed out that knowledge is not a "neutral" commodity, but is extremely value-laden, contextual and contested (Putnam and Chapman, 1996). Knowledge transfer then, was more an act of *transformation* than one of *information* and involved the exercise of coercive, referent and normative power (Deetz, 1995).

This heterogeneity of perspectives regarding knowledge communication across a spectrum of social sciences indicated that knowledge-based theories of the firm had a long way to go. Knowledge is a complicated construct, and as Figure 2 makes clear, it has to be understood as a function of rules, beliefs, and rituals. Its relationship to power can never be over-emphasized. However, knowledge-based management theories rarely considered this complexity, choosing instead to simplify the term in order to make it convenient and measurable. Despite their apparent commitment to understanding organizational routines and the procedural aspects of knowledge, many of them rarely examined the complexity of knowledge flow, resorting instead to simplistic operationalizations of knowledge in empirical studies.

Figure 2
KNOWLEDGE AS CONCEPTUALIZED IN OTHER SOCIAL SCIENCES



More significantly, many of the new theories of knowledge communication represented not so much a theoretical innovation as an attempt to make retrospective sense of what had already happened in organizations. Such reverse theorizing often has the side effect of legitimizing all organizational activities through the discursive power of theory. Indeed, most knowledge-based studies of organizations were and continue to be inordinately celebratory, ordaining organizational spread as a technological inevitability. That, however, only tells half the story. Corporations have taken advantage of new technology to geometrically increase their geographic spread. At the same time, many corporations have built their fortunes on extremely questionable, often downright illegal and immoral practices. These practices not only include blatant acts such as bribery, deceit and violent behavior but also many times, involve perfectly legal behavior in indigent countries that may have been illegal in their host nations. For example, Sikka and Willmott (2010) argue that the practice of transfer pricing is a major source of tax avoidance, which aids capital flight. This information of course was available to all who cared to look in the 1990s as well (e.g. Mokhiber and Weisman, 1997). A critical analysis of global management from that time often reveals an insufficient attention to some of the more egregious inequities of corporate globalization (Mir, Mir & Hussain, 2006). Even mainstream economists were beginning to wonder if the global marketplace driven by corporate greed had proven to be little more than a “Judas economy” (Wolman and Colamosa, 1997: 1).

Some members of the popular press went so far as to denounce global capitalism as a “dangerous hybrid”, contending that while “capitalism is supposed to excel at allocating funds efficiently...it didn’t” (Newsweek, 1998: 42). More critical analyses contended that societies that fall under the yoke of corporate greed would have no option but to resist it tooth

and nail. Barnett and Cavanagh (1994:3) went so far as to declare: “the fundamental political conflict in the opening decades of the new century will not be between nations, or even between trading blocs, but between the forces of globalization and the territorially based forces of local survival seeking to preserve and to redefine community”. This quote aptly suggests that while corporate expansion was being celebrated in the works of knowledge theorists, it was certainly being contested severely at the ground level. It is for failing to take a critical look at the systems that are cast upon us that we might pay a heavy future price in terms of socio-political breakdown and the resultant trauma that will be felt by individuals, families, and communities.

TOWARD A HOLISTIC ATTITUDE TO KNOWLEDGE COMMUNICATION

Thus far, we have tried to historicize the emergence of the knowledge-based perspective in organizational studies. We have contended that its emergence coincided with a huge expansion of corporate power and impunity, as well as an era of increased conflict between powerful firms and poor people across the world. To that extent, we imply that we need to be suspicious of these theories (and their inheritors, such as the dynamic capabilities perspective) as handmaidens to corporate elites, and agents of global capital. In this context, we have tried to point toward point to the extremely complex and contextual nature of the term “knowledge”, and knowledge-based theories of the firm. We believe that certain specific historical, technological and organizational transformations have been behind these knowledge-based theories, and that these approaches have reflected newer challenges and opportunities that organizations face, particularly as they move into the new age. Moreover, knowledge is an extremely complex term, lending itself to a variety of contingent definitions. Unless a more complex and enduring analysis of knowledge is developed, management theorists will forever be flipping between the reductive generalizations of the transaction-cost perspective and the popular but deficient knowledge-based theories that dominate the landscape of management theory.

We therefore suggest that different research agendas need to be developed while studying corporations, especially by researchers who are interested in exploring the impact of these new developments on strategy. For example, from the perspective of MNCs that are intensifying knowledge transactions across national boundaries, the following questions could be useful:

1. What are the specific power relationships that guide the practices of knowledge flow from the headquarters to the subsidiary of a MNC? How is this power transmitted?
2. How are the secondary institutions (governments, international regime groups, domestic and foreign competitions, unions, trade and industry organizations) employed to anchor the knowledge communication process? How are they managed?
3. What forms of coping mechanisms are employed at the local level to deal with knowledge transfer that may appear to be threatening to local labor? How will labor at the headquarters respond to knowledge transfer to the subsidiaries, especially knowledge that may lead to the displacement of work to those regions?

Ultimately, knowledge transfer is a much-contested terrain. On one hand, older ways of thinking and doing are supplanted, sometimes unilaterally, by organizations that seek to standardize their operations across the globe and take advantage of economies of scale. On the other hand, in an era characterized by downsizing and reengineering, labor at the headquarters is often apprehensive about letting critical knowledge slip away into areas that may be sources of future competition for jobs. Often, labor in the developed world has to watch passively as most of

their productive operations are sent overseas. On the other hand, labor in the “periphery” is subjected to work-intensification, and rarely enjoys the fruits of its efforts. In the process, MNCs become more productive and profitable, but their gains are not evenly shared, leading to increased polarities in income.

Is there a way out of this cycle? It seems to be increasingly evident that the solution to this predicament is for theorists like us to help global labor to use existing democratic institutions and the institutions of civil society to make organizations more responsible. This will mean greater resort to rules, laws and public opinion to ensure that organizations become more socially responsive and ethical with respect to these stakeholders. Only through a renewal of the social contract will we be able to achieve some degree of a symbiotic relationship between labor and management in the new age.

Indeed, to a great extent in this paper, we aspire to join that effort. We suggest that a redefinition of the responsibilities of management with respect to labor is not only crucial to labor; it is crucial to management as well. For unless labor and other stakeholders are accommodated into the beneficiaries of corporate growth in the new age, we risk creating a crisis of under-consumption. After all, for the cycle of corporate growth to continue, it is essential that production and consumption balance one another. Unless the labor force is well compensated, it will cut back on consumption, leading to an industrial crisis where goods are efficiently produced, but stay on store-shelves leading to a recession (a minor version of this crisis was alarmingly visible in the 2008 economic crisis). If we are to avoid a similar crisis in the future, a renewal of the social contract is an urgent necessity.

DISCUSSION

In this paper, we have subjected knowledge-based theories of the firm to scrutiny, and concluded that they were resorting to simplistic definitions of knowledge. Using information from other social sciences, we identified some of the facets of knowledge that needed to be considered in order to make our definitions more meaningful.

In conclusion, we would like to suggest ways in which knowledge-based theories of the firm can become more responsive in the new age. A good theory must have the capacity to inform practice, rather than simply follow it. At the same time, it also needs to be close to empirical reality. Knowledge-based theories of the firm have the capability of being excellent theories on both counts. Firstly, their roots lie in the empirical reality of multinational expansion, and the fact that despite operating in a tremendous heterogeneity of cultural, political and technical environments, these corporations are able to maintain a distinct identity. Also, the reality of the tremendous magnitude of technology transfer and knowledge communication in these corporations makes the subject matter of the knowledge-based view of the firm particularly apt. Through socialization mechanisms, through integrative routines, through the use of information technology and through the mediation of management consultants, organizations have continued to rapidly expand their knowledge communication routines.

However, in order to get better at informing the organizational practice, we believe that knowledge based theorists need to accomplish two tasks. First, they need to unpack the concept of knowledge and view it as a complex phenomenon that is communicated not merely at the cognitive level, but at the level of routines, myths and ceremonies. Also, they need to take all stakeholders of the firm into account when they discuss the communication of knowledge between firms. They should avoid becoming the exclusive stewards of shareholders and top management,

and include labor as an important constituency. The interests of labor should be an important element of every theory about the firm.

ENDNOTES

1. Such as Strategic Management Journal (1996), California Management Review (1998), Organizational Science (1996).
2. See for example, <http://www.brint.com/km/>
3. One such group, Knowledge Consultants, which specializes in knowledge-work, may be found at <http://www.knowledgebiz.com/>
4. Data developed by comparing corporate statistics from http://money.cnn.com/magazines/fortune/global500/2013/full_list/ and national data from <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>.

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A STUDY ON CORE BUSINESS SHIFT FROM DIAGNOSIS SERVICE TO SYSTEMS INTEGRATION SERVICE IN MAJOR BUSINESS CONSULTING FIRMS IN JAPAN

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ABSTRACT

Many business consulting companies in Japan gradually shifted their core business from business management diagnosis service into systems integration service after 1990's when they suffered from the economic recessions in Japan. In this paper, the reasons of the shift in the major business consulting companies in Japan were discussed from academic point of view, employing the related theories such as key performance indicators in professional service firm, value network and institutional isomorphism. And then conceptual business shift mechanism was created by integrating the three theories, and it was examined by the interviews to the four consultants who had worked or worked for the business consulting companies in Japan.

INTRODUCTION

Business consulting firm is a sort of professional service firm. Many business consulting companies in Japan gradually shifted their core business from business diagnosis service into systems integration service.

As Figure 1 and Figure2 show that Nomura Research Institute, Ltd., for instance, have been increasing their employees and the ratio of IT consultant on the entire employee since 2000. Nomura Research Institute was a consulting company in Japan established by merging the think tank company (previous Nomura Research Institute, Ltd.) with Nomura Computer Systems Co., Ltd. in 1993. Accenture which was one of the world's leading organizations providing management consulting, technology and outsourcing services expanded the technology and outsourcing services including systems integration business. The ratio of the technology and outsourcing services on all their revenue reached 44% (UZABASE, 2013), as Figure 3 shows.

Figure 1
NUMBER OF EMPLOYEES IN NOMURA RESEARCH INSTITUTE
(NRI FINANCIAL REPORT)

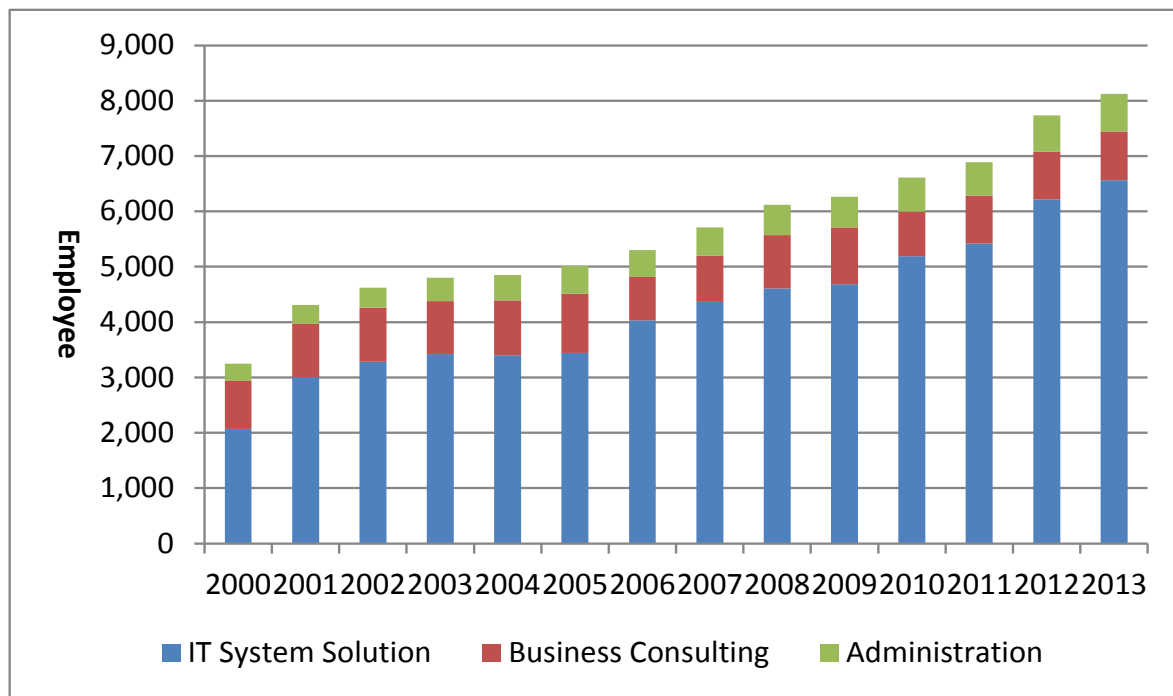


Figure 2
EMPLOYEE RATIO IN NOMURA RESEARCH INSTITUTE
(NRI FINANCIAL REPORT)

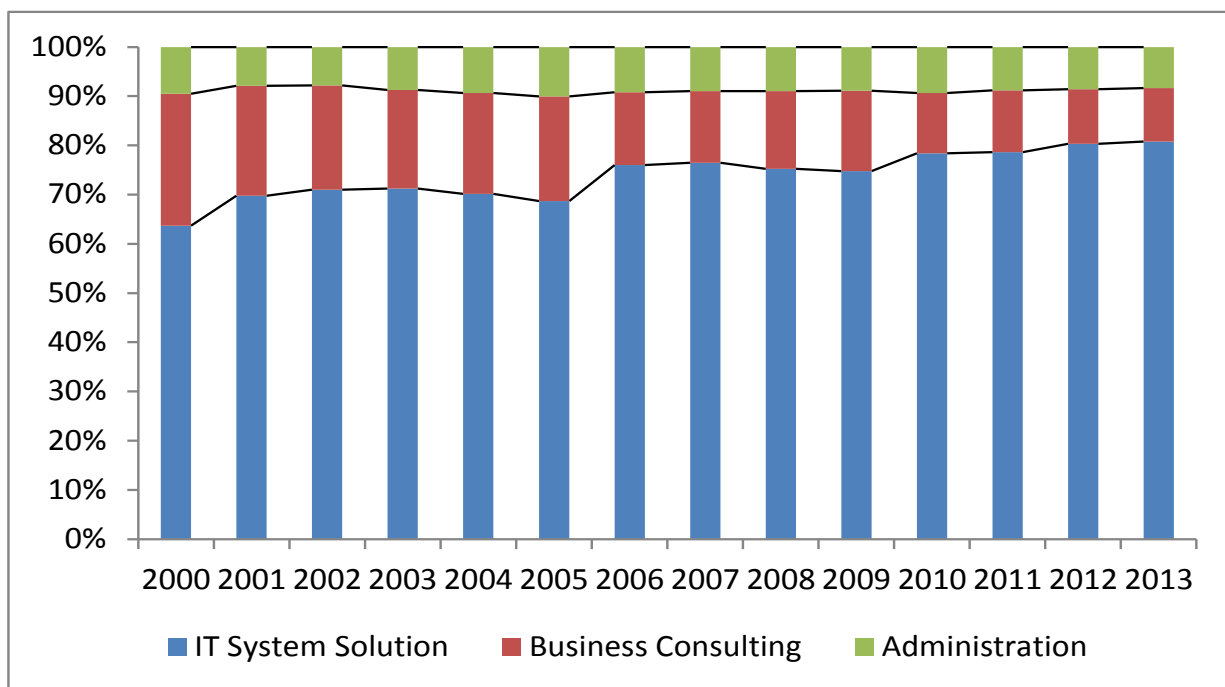
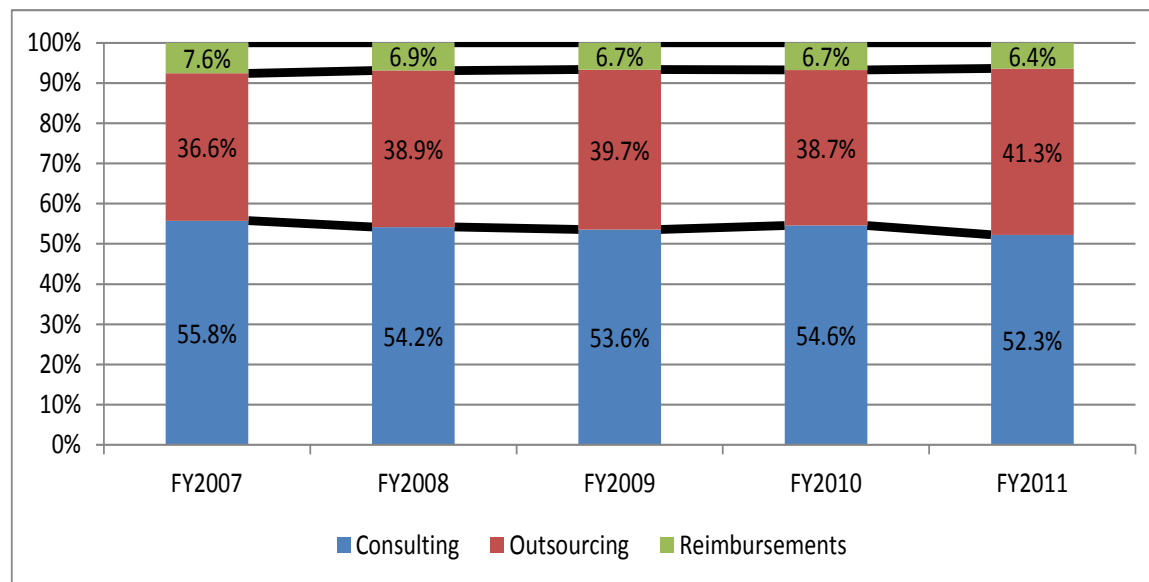


Figure 3
REVENUE RATIO IN ACCENTURE (USABASE, 2013)



Consulting company, in general, is a professional service firm which provides business strategy with their customers based on established management theories and their rich experience. For instance, they provide differentiation strategy (Porter, 1980) with their customer in order to win the market and/or beat their competitors. Nonetheless a lot of Japanese business consulting companies themselves similarly seemed to execute the same strategy, because they shifted their core business from business diagnosis to systems integration.

In this paper, the reasons why the shift from business diagnosis service to systems integration service in the Japanese business consulting companies were studied from the point of their strategy, business model and forces in the consulting industry in Japan.

The remainder of this paper is organized as follows: First, the consulting industry and in Japan and its history are studied. Then research method is described and the related study is reviewed. Next hypothesis is created by combining related studies. Then, four cases are introduced and the cases are analyzed and discussed. Finally, limitations of this study and implications for future research are described.

CONSULTING INDUSTRY IN JAPAN

According to UZABASE (2014), consulting industry covers companies that offer services commonly called consulting services and financial advisory services, and provide client companies with advice on management strategies and financial strategies, as well as support for implementing such strategies.

Players are split into groups related to strategy, research, independency, IT, accounting and M&A by major domain or parent company. Players in the strategy-related group mainly deal with large companies, and solve a wide range of business challenges from planning of medium- and long-term strategies to operational reforms of individual businesses. Research-related players engage in issues similar to those dealt with by the strategy-related players, but more orders come from public sector agencies. Independent players deal with smaller companies than

strategy-related players. Players in the IT-related group have a strong capability to solve business challenges like operational improvement by using application software such as ERP (Enterprise Resource Planning) package software. Accounting-related players are affiliated with an auditing firm. Players in M&A-related group specialize in M&A advisory and intermediation services. Part of this field competes with investment banking units of securities firms.

HISTORY OF THE JAPANESE CONSULTING INDUSTRY

According to our interviews for the consultants who worked or had worked for consulting companies in Japan, consulting industry in Japan began in 1966 and was in growth stage with booming economy in 1980s. At that time, accounting-related consulting companies imported a business concept to Japan market, and then they started to provide business diagnosis service and solution service including IT consulting and IT implementation. Since IT service company at that time generally provided only IT implementation service, such services of the accounting-related consulting companies were surprising for IT service industry. Then it became common that IT solution service was one of the service menus in the businesses consulting company.

Business consulting companies in Japan faced difficulties due to the economic depression in 1990s. Most of them dismembered, and even blue-chip business consulting companies were not able to expand their business.

Hammer and Champy (1993) introduce Business Process Re-engineering (BPR). Business process re-engineering is a business management strategy, originally pioneered in the early 1990s, focusing on the analysis and design of workflows and business processes within an organization. This was well notable for business consulting company to recover business performance of their client companies.

At that time, systems integrator also emerged in Japan. A systems integrator is a person or company that specializes in bringing together component subsystems into a whole and ensuring that those subsystems function together, a practice known as systems integration. Systems integrators worked in many fields but the term was generally used in information technology field. Although, before they emerged, most information systems had been developed by internal information systems division, or part of them had been sometimes developed by software developers, systems integrator often took responsibility for developing large scale information system on behalf of their customer with advanced technology.

In the meantime, Enterprise Resource Planning (ERP) package software also emerged, which covered functions like accounting, sales force management, procurement, production management, human resource management and payroll control. These functions were developed individually before 1990s. Since ERP allowed having an integrated view of core business processes, often in real-time, using common databases maintained by a database management system, these functions were totally integrated to develop. Company implemented ERP packages for their enterprise information systems in order to improve productivity and competitiveness in 1990s. In the meantime, the international accounting standards (IAS) also accelerated Japanese company to implement ERP package, which allowed company to convert its accounting system to international standards easily, and many accounting-related consulting companies supported to implement the international accounting standards into their customers with ERP package.

Many mainframe computers in Japanese company were replaced with open-system based computer in 1990s. They also changed their enterprise information systems from in-house software based ones into ERP package based ones. Since companies also concerned Y2K

problem, many of them solved the problem not by modifying their in-house software but by implementing ERP package.

A series of these events were good opportunity for business consulting company in Japan which suffered from low performance due to economic recession, to recover their business performance, since implementing enterprise information systems was recognized one of the service menus of business consulting company in Japan.

RESEARCH METHOD

In this paper, authors conducted qualitative study. At first, authors employed three theories such as Maister (1993), Christensen (1997) and DiMaggio & Powell (1983) to create hypothesis for explaining the core business shift from business diagnosis service to systems integration service in Japanese business consulting company. Then authors discussed case studies collected with the interviews to examine the hypothesis.

RELATED STUDIES

In the following chapter, profit management system in professional service firm (Maister, 1993), value network (Christensen, 1997) and institutional isomorphism (DiMaggio & Powell, 1983) are introduced.

Profit Management System in Professional Service Firm

Professional services are occupations in tertiary sector of economy requiring special training in arts or sciences. Professional service firms are companies of accountant, actuary, architect, dentist, doctor, engineer, lawyer, management consultant, etc. (Maister, 1993).

It is necessary for such professional service firms to have a good result in their profit and loss statement. One of the key performance indicators often used in such professional service firm is charging hour ratio which stands for ratio of 'customer chargeable working hours' on 'total working hours', therefore one of the keys for success in the industries is improving charging hour ratio. In addition, the following five initiatives are also effective for improving performance in such professional service firm; 1) rise billing rate, 2) reduce variable cost, 3) appropriate treatment for low performer, 4) increase business volume, 5) reduce indirect cost (Maister, 1993).

Value Network

Christensen (1997) defines value network as collection of upstream suppliers, downstream channels to market, and ancillary providers that support a common business model within an industry. When would-be disruptors enter into existing value networks, they must adapt their business models to conform to the value network and therefore fail that disruption because they become co-opted.

Institutional Isomorphism

DiMaggio & Powell (1983) argue that organizations, whether corporate, governmental, or non-profit, adopt business practices not because they are efficient, but because they furnish legitimacy in the eyes of outside stakeholders, as they need to maintain the confidence of these

often poorly-informed outside parties. This makes them less creative and innovative in their practices, and leads to institutional isomorphism.

There are three main types of institutional isomorphism; 1) Coercive isomorphic change involves pressures from other organizations in which they are dependent upon and by cultural expectations from society. Some are governmental mandates; some are derived from contract law, financial reporting requirements. Organizations are increasingly homogeneous within given domains and increasingly organized around rituals of conformity to wider institutions. 2) Mimetic isomorphism refers to the tendency of an organization to imitate another organization's structure because of the belief that the structure of the latter organization is beneficial. This behavior happens primarily when an organization's goals or means of achieving these goals is unclear. 3) Normative isomorphic change is driven by pressures brought about by professions. One mode is the legitimization inherent in the licensing and crediting of educational achievement. The other is the inter-organizational networks that span organizations. Norms developed during education are entered into organizations. Inter-hiring between existing industrial firms also encourages isomorphism.

HYPOTHESIS

Authors employed profit management system in professional service firm (Maister, 1993), value network (Christensen, 1997) and institutional isomorphism (DiMaggio & Powell, 1983) which were introduced in the previous chapter, in order to hypothesize mechanism of the core business shift from business diagnosis service to systems integration service in Japanese business consulting company.

Shift Mechanism from the Point of Profit Management System in Professional Service Firm

It is necessary for such professional service firms to have a good result in their profit and loss statement (Maister, 1993).

The revenue in professional service firm was generally calculated as unit price of the professional multiplies chargeable working hours. It was necessary for professional service firms to raise unit price of professional personnel and/or to increase chargeable working hours in order to achieve good business performance. It was sometimes difficult to raise unit price of professional personnel because of price competition. It was therefore more reasonable to increase chargeable working hours in order to achieve good business performance. It was necessary to expand business volume (Maister, 1993) and/or to have long-term business engagement to increase chargeable working hours.

In terms of chargeable working hours, systems integration service was suitable for business consulting companies in Japan because it took so long time to build information systems that they made long-term contract with their costumer. Thus systems integration service could contribute to increase chargeable hours of business consulting company.

Cost of professional service firm was mostly composed of labor cost. Since it was reasonable to decrease non-chargeable hours to reduce their indirect cost, professional service firm should lay off low performer (Maister, 1993) and design the task which they can achieve. In addition, long-term engagement contributed to reduce sales cost and variable cost (Maister, 1993). Since long-term engagement on systems integration service contributed to reduce

uncertainty, it could lead professional service firm to reduce administrative work because they could reduce the indirect task and its cost.

Business diagnosis service needed fewer high-skilled and experienced professionals. On the other hand, systems integration service needed not only high-skilled and experienced professionals but also more less-skilled and lower experienced professionals. Hence systems integration service was more reasonable for business consulting companies to reach good result in business performance than business diagnosis service so that systems integration service needed more variety of professional personnel and more number of professionals for longer period. This meant systems integration service could more surely lead professional service firm better business performance.

Shift Mechanism from the Point of Value Network

When would-be disruptors enter into existing value networks, they must adapt their business models to conform to the value network (Christensen, 1997). Once the perspective that systems integration service could contribute company more than business diagnosis service was established, the company generated business model and organization structure which were suitable for systems integration service.

Market need was implementing business process reengineering (BPR) and ERP package during the economic recessions in 1990s. At that time, business consulting company which had experience with enterprise information system implementation started to implement BPR and ERP package, and then they could make long term contract with their customer which was suitable for their good business performance. Consequently the managers who were involved in such business were highly evaluated because they highly contributed to the company. And then they had more power than before in company, and they could collect better internal resources which were suitable for systems integration service. Finally business consulting company shifted their core business to systems integration service.

Shift Mechanism from the Point of Institutional Isomorphism

Business consulting company in Japan faced difficulties due to the economic depression in 1990s, but some of them could recover their business performance with BPR and ERP package implementation. And then, other business consulting companies also started to implement BPR and ERP package to recover their business performance, which did not have concrete strategy but learnt the keys to recover it from the competitor's success with BPR and ERP implementation. This was mimetic isomorphism (DiMaggio & Powell, 1983). This tendency happened because of low information stickiness (Von Hippel, 1994) due to high labor mobility in consulting industry. In addition, normative isomorphic change was also driven by pressures brought about by business consultant who were highly educated.

It was assumed that many business consulting companies shifted their core business to systems integration service because mimetic isomorphism and normative isomorphism were happened in the consulting industry in Japan at that time.

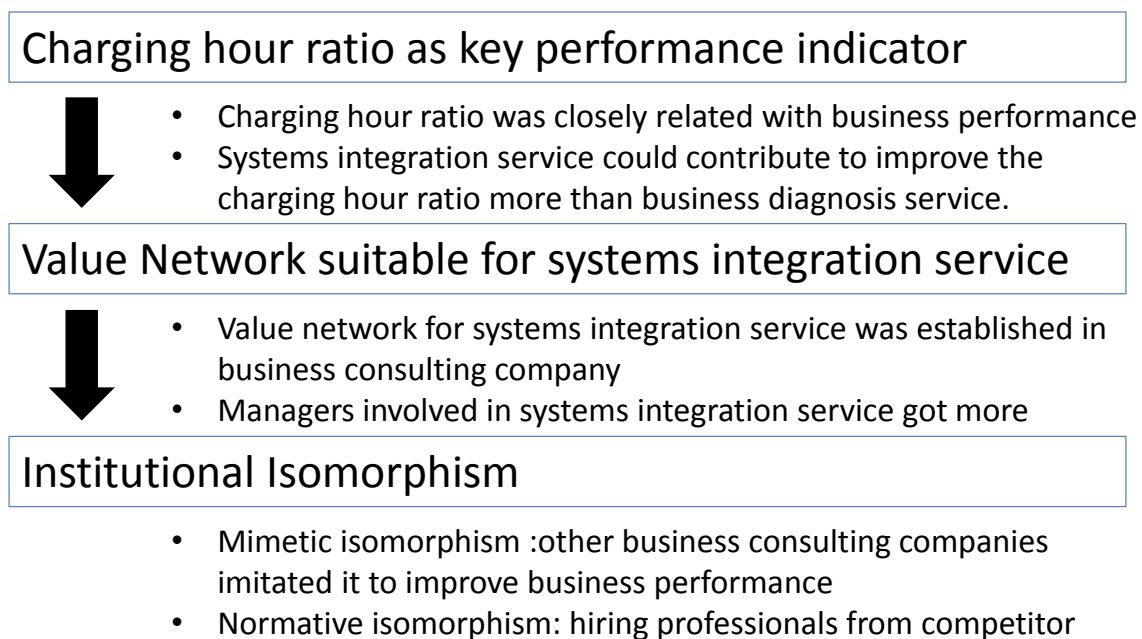
Hypothetical Business Shift Mechanism

As being discussed, many business consulting companies shifted their core business to systems integration service because of the following reasons.

- 1) Charging hour ratio was one of the most important indicators in business consulting company. Systems integration service could contribute to improve charging hour ratio more than business diagnosis service.
- 2) Systems integration service was recognized as a contributable business for business performance improvement in business consulting company because it improved and recovered business performance even in economic recessions. Hence value network suitable for systems integration service was established in business consulting company, and then managers who were involved in systems integration service got more power and collected better internal resources than ones in business diagnosis business.
- 3) Mimetic isomorphism and normative isomorphism were driven in business consulting industry. Some business consulting companies succeeded in imitating systems integration service to recover business performance, and then more other business consulting companies imitated it. To do so, some companies hired professionals from competitor easily because of high labor mobility.

The core business shift from business diagnosis service to systems integration service in Japanese business consulting industry was occurred under the mechanism, as Figure4 shows.

Figure 4
HYPOTHETICAL MECHANISM OF BUSINESS SHIFT



CASES

In the previous chapters, authors created the hypothetical mechanism for the core business shift in Japanese business consulting industry, with reviewing history of Japanese business consulting industry and employing the related studies.

In this chapter, authors introduce four business shift cases in four Japanese business consulting companies in order to examine the hypothetical mechanism.

Data Collection

The case data was collected by four interviews conducted by the author. The interviews were conducted from July to September, 2013 in Tokyo. All the interviewees were business consultants who had worked or worked for business consulting company in Japan. The profiles of the four interviewees are shown in Table1.

Table 1
LIST OF THE INTERVIEWEES

No	Date	Name	Company Name	Title
1	July 2013	Y.M.	Strategic Business consulting company R	Senior Manager
2	September 2013	A.M.	Accounting -related consulting company D	Senior Manager
3	September 2013	A.M.	Operation consulting company L	Consultant
4	September 2013	A.M.	IT-relate consulting company H	Manager

Questionnaire

The author asked the interviewees open questions. The question items were following;

- 1) Did your company shift core business from business diagnosis service to systems integration service?
- 2) Why did the business shift occur, if it occurred, from customer perspective, competitor perspective and company perspective?
- 3) Is the hypothetical mechanism in Figure3 appropriate in your opinion?

RESULT

According to the interviews, all the business consulting companies but Company R shifted their core business from business diagnosis service to systems integration service.

Company R did not need change their business strategy because they maintained good business performance even when the economic recessions happened. Company executives also believed that they had to concentrate on business diagnosis service as policy. Their competitor such as strategic business consulting company also did not shift core business, because their customers required them strategic consulting service. Regarding their charging hour ratio, it was one of the important performance indicators, but they did not take it into consideration for managing business performance because they had more consulting projects than they could deliver. Overall the interviewee mentioned that the hypothetical mechanism in Figure3 seemed to be appropriate but it did not apply to Company R.

Company D shifted their core business from business diagnosis service to systems integration service in order to achieve company growth which shareholder required, even when the economic recessions happened, because system integration service had good potential to grow. And then they recognized that their competitors also shifted their core business from business diagnosis service to systems integration service in order to maintain company growth during economic recessions in 2000s. Their customers also required them to provide not only accounting auditing related service but also systems integration service, because many of their

customers did not have enough skill and knowledge of information systems implementation. Regarding Figure3, the hypothetical mechanism was supposed to be verified if influence of the shareholder was considered with it.

Company L also shifted their core business from business diagnosis service to systems integration service in order to achieve company growth which company executives required, even when the economic recessions happened, because system integration service had good potential to grow. Their customers also required them to provide not only operation improvement advisory service but also systems integration service, because many of their customers did not have enough skill and knowledge of information systems implementation. Regarding Figure3, the hypothetical mechanism was supposed to be verified if policy of the company executives was considered with it.

Company H also shifted their core business from business diagnosis service to systems integration service in order to achieve company growth which shareholder required, even when the economic recessions happened, because system integration service had good potential to grow. Regarding Figure3, the hypothetical mechanism was supposed to be verified if influence of the shareholder was considered with it.

Summary of the interviews are shown in Table2.

Table 2
SUMMARY OF THE INTERVIEWS

		Company R	Company D	Company L	Company H
Core Shift	Business	Not occurred	Occurred	Occurred	Occurred
Business Environment	Company	No need to change their business strategy because they kept good business performance even when the economic recessions happened. The company executives also believed that they had to concentrate on business diagnosis service as policy.	Shifted their core business from business diagnosis service to systems integration service in order to achieve company growth which the shareholder required, even when the economic recessions happened, because system integration service had good potential to grow.	Shifted their core business from business diagnosis service to systems integration service in order to achieve company growth which the company executives required, even when the economic recessions happened, because system integration service had good potential to grow.	Shifted their core business from business diagnosis service to systems integration service in order to achieve company growth which the shareholder required, even when the economic recessions happened, because system integration service had good potential to grow.
	Competitor	The competitors like strategic business consulting company also did not shift the core business, because their customer required them strategic consulting service.	The competitors also shifted their core business from business diagnosis service to systems integration service in order to maintain company growth during economic recessions in 2000s.	No Data	No Data
	Customer	Required them strategic consulting service.	The customers also required them to provide not only	The customers also required them to provide not only	No Data

			accounting auditing related service but also systems integration service, because many of their customers did not have enough skill and knowledge in information systems implementation.	operation improving advisory service but also systems integration service, because many of their customers did not have enough skill and knowledge in information systems implementation.	
Figure 3	Key Performance Indicator (Charging Hours Ratio)	Charging Hours Ratio is one of the important performance indicators, but they did not take it into consideration for managing business performance because they had more consulting projects than they could deliver.	Managed based on Charging Hours Ratio	Managed based on Charging Hours Ratio	Managed based on Charging Hours Ratio
	Value Network	No Data	The managers who were involved in systems integration service got more power, and they could collect better internal resources.	The managers who were involved in systems integration service got more power, and they could collect better internal resources.	The managers who were involved in systems integration service got more power, and they could collect better internal resources.
	Institutional Isomorphism	No Data	Hiring from other systems integrator	Hiring from other systems integrator	No Data
	Validation	Seemed to be appropriate but it did not apply to Company R.	Seemed to be appropriate if the influence of the stakeholder was considered.	Seemed to be appropriate if the influence of the stakeholder was considered.	Seemed to be appropriate if the influence of the stakeholder was considered.

DISCUSSION

Based on the interviews to the four consultants who had worked or worked for the business consulting companies in Japan, the hypothetical business shift mechanism was mostly verified, because there were business consulting companies which shifted core business from business diagnosis service to systems integration service, and then to the shift which key performance indicator, value network and institutional isomorphism were related.

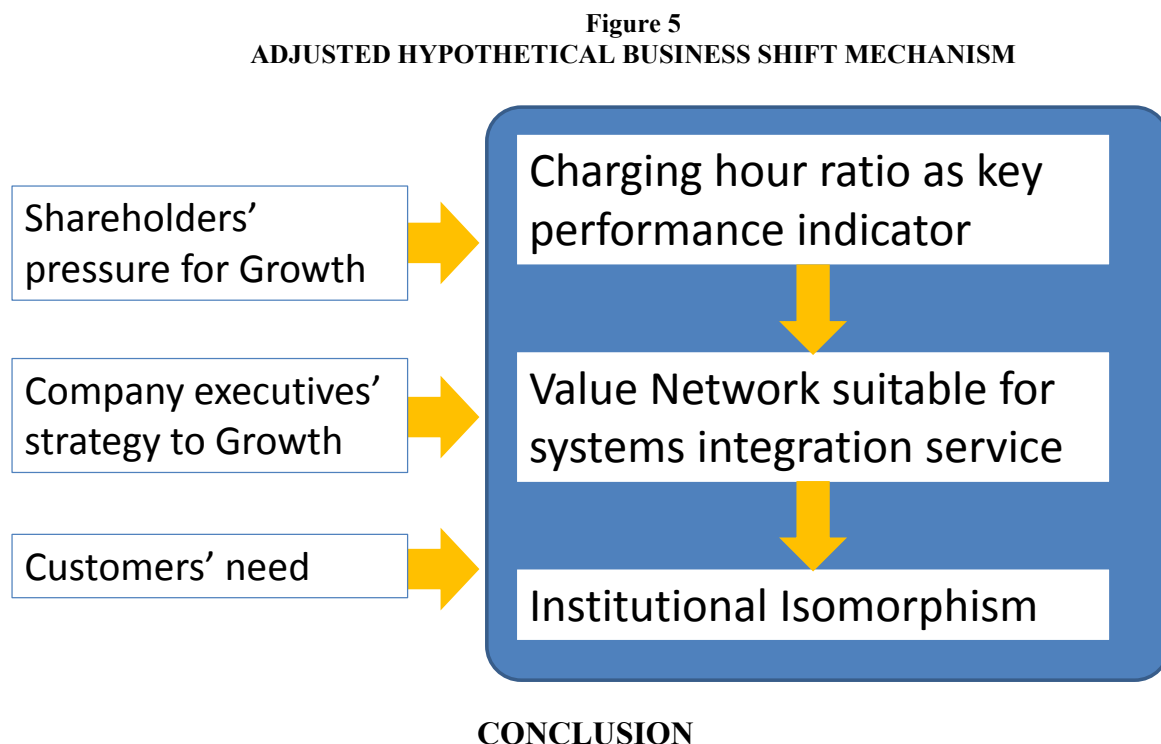
Since three out of the four interviewees mentioned that the need for systems integration service and will of stakeholders such as shareholders, company executives, and customers were very important to start systems integration service, this point should be considered to adjust the hypothetical business shift mechanism described in Figure 3.

IMPLICATION

There could be four key important factors in the core business shift on the business consulting companies in Japan from business diagnosis service to systems integration service, like:

- 1) Need of customers, shareholders and/or company executives for systems integration service: The shift from business diagnosis service to systems integration service could not occur without need of customer for systems integration service, and/or pressure of shareholder and/or company executives for company growth. These factors initiated the shift and accelerated the shift from business diagnosis service to systems integration service.
- 2) Charging hour ratio as a key performance indicator: Charging hour ratio was one of the most important indicators in professional service firm including business consulting company. Systems integration service could contribute to improve charging hour ratio more than business diagnosis service.
- 3) Value Network suitable for systems integration service: Systems integration service was recognized as contributable business for business consulting company to improve and recover business performance even in the economic recessions. Thereby the value network for systems integration service was established in business consulting company, and thus the managers who were involved in systems integration service got more power and collected better internal resources than ones in business diagnosis business.
- 4) Institutional isomorphism: Mimetic isomorphism and normative isomorphism were driven in Japanese consulting industry. Some business consulting companies succeeded in imitating systems integration business to recover business performance, and thus more business consulting companies imitated it. To do so, some companies hired professional personnel from competitors easily because of high labor mobility.

Figure 5 shows the adjusted hypothetical business shift mechanism for the core business shift from business diagnosis service to systems integration service in Japanese business consulting industry.



Many business consulting companies in Japan gradually shifted their core business from business diagnosis service into systems integration service after 1990's when they suffered from the economic recessions in Japan. In this paper, the reasons of the shift in the major business consulting companies in Japan were discussed from academic point of view, employing the related theories such as key performance indicator in professional service firm, value network

and institutional isomorphism. Thus the conceptual business shift mechanism was created with the three theories, and it was examined with the interviews to the four consultants who had worked or worked for the business consulting companies in Japan.

There are limitations in this paper. This mechanism just shows hypothesis for further research on business shift from diagnosis service to systems integration service in Japanese business consulting industry because this finding depends on just four interviews. It is therefore needed to study in further research to qualify the hypothesis. And it should be carefully examined whether the hypothetical mechanism can be applied to other industries and/or in other countries.

It is also necessary to collect more quantitative evidence to further support the finding because this study is mainly qualitative. To this end, more studies are needed to generalize the finding beyond this study.

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GROWTH AND CONSOLIDATION OF STRATEGIC MANAGEMENT RESEARCH: INSIGHTS FOR THE FUTURE DEVELOPMENT OF STRATEGIC MANAGEMENT

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ABSTRACT

The purpose of this article is to evaluate the dynamics of the main lines of research that have emerged from the development of the strategic management discipline since its inception to the present day. Our analysis determines the level of maturity of each line of research in terms of their internal consistency and its influence to other lines to understand the past and trace the future development of the discipline. The methodology is based on the combination of content analysis and social network analysis to analyze the articles published in the SMJ since its inception in 1980 until 2013. One of the key contributions of this paper is the use of an analytical toolkit that helps to visualize the dynamics of the subfields and recognize the growth and demise of subfields. We evaluate each lines of research in terms of centrality (influence on other lines) and density (internal coherence of each line). Our findings suggest that the strategic management field has grown up considerable over a set of core lines of research but it is diversified into several clusters of research. The internal dynamics of the clusters show increasing coherence. We believe the future development of strategic management as an academic field of research can be supported using the internal analysis of each of its research lines with respect to the objectives and future strategies defined by the community through the Strategic Management Society.

INTRODUCTION

The strategic management as an academic discipline began to take shape in the early years of the 1960s and early authors such as Anshen et al. (1973) and Meyer (1978) noted the need to direct research efforts to shape the theoretical corpus of strategic management. In May 1977, Professors Dan Schendel and Charles Hofer run at the University of Pittsburg a conference entitled "The State of the Art Business Policy and Planning Research" which represented an important milestone in the consolidation of strategic management as an emergent academic field (Saunders et al, 1980).

Schendel and Hofer (1979) recommended the segmentation of strategic management in research lines, which was fundamental to foster research on these topics: strategy concept, strategy formulation, strategy evaluation, strategy content, goal formulation/structures, social responsibility, environmental analysis, public policy, strategy implementation, formal planning systems, strategic control, strategic management process, board of directors, general management roles, entrepreneurship and new ventures, multibusiness/multicultural firms, strategic management in not-for-profit organizations, and research methods. Then, the Strategic Management Journal appeared in 1980 and quickly became the flagship of the scientific community in this area (Guerras-Martin et al, 2013). The growth of scientific production and the increased number of international journals on strategic management fostered the consolidation of

the research lines and also led to the emergence of diverse additional lines of research such as competitive advantage and resource based view of the firm among others. The initial efforts gave birth to the current structure and defined the internal dynamics of the strategic management field.

Many efforts have been devoted to trace the evolution of the discipline in order to contribute to its future development. For example, Ramos-Rodríguez and Ruiz-Navarro (2004) determined the changes in the intellectual structure of the discipline by analyzing co-citations. Later on, Nerur et al. (2008) employing of co-citations with multidimensional scaling and factor analysis expanded the results obtained. They employed publications and authors as the units of analysis. Both works are attempts to define the intellectual structure of the strategic management field using quantitative methods under the assumption that papers or authors who are frequently co-cited are somehow intellectually related. These works present interesting insights of the discipline and contributed to know how strategic management has developed between 1980 and early 2000s as well as defining distinct subfields and their relationships through the citations. However, the results do not address the consistency and interconnectedness between the lines of research that form the theoretical basis for the strategic management field and how advanced is each research line.

Other authors, e.g. Boyd et al. (2005), analyzed the development of the field of strategic management in the first 25 years of life. Interestingly, the authors found that many strategy faculty members never publish in their career and article writing activity, as well as success, may be determined by the orientation and prestige of the institution where faculty is based. Moreover, they found that strategic management has characteristics of a young and advanced discipline simultaneously due to weak consensus and low productivity but the research outcomes are based on merit, respectively. However, the conclusions provided are general and not focused on the lines that conform the discipline, which have different levels of maturity.

Therefore, there is a need to take stock of the development of the research lines that conform the strategic management field nowadays if we want to offer interpretation, evaluation, and challenges to existing areas of strategic management research. This paper will not only reflect the current state of the field but also have the potential to stimulate and guide future research efforts by illuminating and offering insight into the core strategy concepts and theoretical streams. To address what we know and do not know from the existing research and direct attention to development of the theories within and across the different subfields, we perform a content analysis of all articles published in the SMJ from its inception until 2013 by combining bibliometric and social network analysis. In short, this paper aims to answer the following research questions: What are the current research lines that form the theoretical framework of strategic management? How advanced are the research lines that make up the intellectual structure of strategic management as an academic field of research?

METHOD

We have conducted a content analysis of all articles published in the Strategic Management Journal from its founding to December 2013. The criteria for focusing on the Strategic Management Journal (SMJ) in this review are: 1) SMJ has been employed in source similar studies such as Nag et al (2007); Furrer et al (2008); and Ronda-Pupo et al (2012); 2) SMJ is recognized as the most influential journal on strategic management in the world (Azar et al, 2008; Franke et al, 1990) and is among the most influential journals in the field of business management (Tahai et al, 1999); and 3) the journal has contributed to the formation and development of the research community on strategic management in the world (Ronda-Pupo et

al, 2010). Other journals, such as Academy of Management Journal or Academy of Management Review, are not included because not all articles published in these journals address issues related to the discipline (Nag et al, 2007).

The collection, preparation and analysis of the data followed a five steps process.

First, we downloaded all articles and research notes published in SMJ from the database ISI Web of Knowledge. Then, we obtained the citation count using Social Sciences Citation Index. Since SMJ covers a time span of 33 years we decided to segment this time frame into 3 stages of approximately 11 years to trace the dynamics of the evolution of each line of investigation.

Second, using content analysis, we created a matrix of co-occurrence with concepts that appeared two or more times in the titles and/or abstracts of each paper. We defined a lower boundary of ten appearances for each term since a term appearing less than ten times in 33 years is not relevant. To avoid the possible omission of important concepts and to ensure the reliability of the terms we used the lexicon of the field of strategic management from previous work such as Nag et al. (2007: 942, table 2); Furrer et al. (2008: 7, table 2) and Ronda-Pupo et al. (2012: 187, Appendix 1a). We have added to the analysis 249 key words that co-appear in the abovementioned papers. The terms corresponding to each research lines can be observed in the appendix.

Third, the co-occurrence matrix was normalized using cosine. We employed VOS (van Eck et al, 2010), which is a multi-dimensional scaling technique, to cluster the terms, and manually ensure the correct assignation of terms to clusters. The objective of clustering terms was to identify groups that are tightly linked and may correspond to areas of interest or display strong levels of activity (Callon et al 1991). The terms in the matrix of co -occurrences were grouped into 14 research lines that make up the current field of strategic management (see appendix 1). The number of times each term appeared can be observed in appendix 2.

Fourth, using social network analysis, we calculated the internal cohesion of each research line considering the density of the network that conform each line. Density is the strength of the links that tie together the terms that makes up an investigation line. Then we compare the centrality of the research line in relation with other research lines to develop a map of the strategic management field. Centrality measures the strength of an investigation line's interaction with other lines of investigation. Both operations were performed with Pajek (Batagelj et al, 1998). Then, we created a map clustering the terms belonging to a particular line of research and defining their importance in terms of centrality and density (Callon et al 1991). The x axis corresponds to the centrality of the research line and the y axis to its density, thereby forming four quadrants. The intersection point corresponds to the median of the centrality value, and the median of the density value. The top right quadrant shows lines which are central and with high density. The quadrant on bottom right side depicts lines that are central but they are still underdeveloped (low density). The top left quadrant presents peripheral but highly developed (high density) lines. Finally, the quadrant on the bottom left displays peripheral and under developed research lines.

Fifth, we followed Callon et al (1991: 166) for the spatial location of each research topic related to their level of development in the intellectual structure of the discipline. On the one hand, lines of research with high centrality are considered central to the field given their strong connection with other lines of research. On the other hand, lines of research with high density, or intense internal links, displayed high degree of development. We analyzed the dynamics of each

line of investigation during the three stages to understand the evolution of the field and offer interpretation, evaluation, and challenges to existing areas of strategic management research

RESULTS AND DISCUSSION

There are 3,549 articles and research notes published in SMJ, which have received 49764 citations. Strategic management is a field that has been consolidating rapidly with contributions from researchers all over the world.

Table 1 shows the values of centrality and density of each of the lines of research identified through social network analysis. Kuhn (1996) suggests that research activities and outcomes vary as a function of the level of maturity of a field. On the one hand, disciplines in the early-stage are expected to exhibit weaker levels of consensus among researchers, lower levels of research productivity, and research outcomes are often determined by factors such as prestige rather than merit. In other words, we expect to see disciplines with low centrality and density degrees when they are in the early stages of development. On the other hand, communities with more developed paradigms have stable structures and fewer debates over problems and standards of solution (Kuhn, 1996) so they may have higher density but their centrality differs. Centrality may be high if the discipline is considered highly relevant, but it may be low if the discipline occupies a niche within the broader community. We can observe in table 1 the diverse levels of development (density) and importance of the research lines (centrality) of diverse research lines, as well as their development over a period of 33 years. The highest values for centrality and density are highlighted in each set. Firm Performance, closely followed by the Theory of Firm, has the highest level of centrality in the early years of the field as the initial foundations were strongly based in economics. Then the attention of the field moved towards Strategic Management Processes, closely trailed by the area of Organizations and the Environment between 1994 and 2003, and the Resource-based view of the firm (RBV) between 2004 and 2013. While centrality of the research lines remains stable over time (see mean and median in Table 1), the field becomes mature as density increases substantially in the first 23 years. It is interesting to notice the slightly decline in the last 10 years as a potential indication of the emergence of new lines and potential renewal in the interest of the academic community. However, the overall assessment of the level of development shows the different disciplines comprising the strategic management field are still young, except Industrial Organization that has higher levels of density over time.

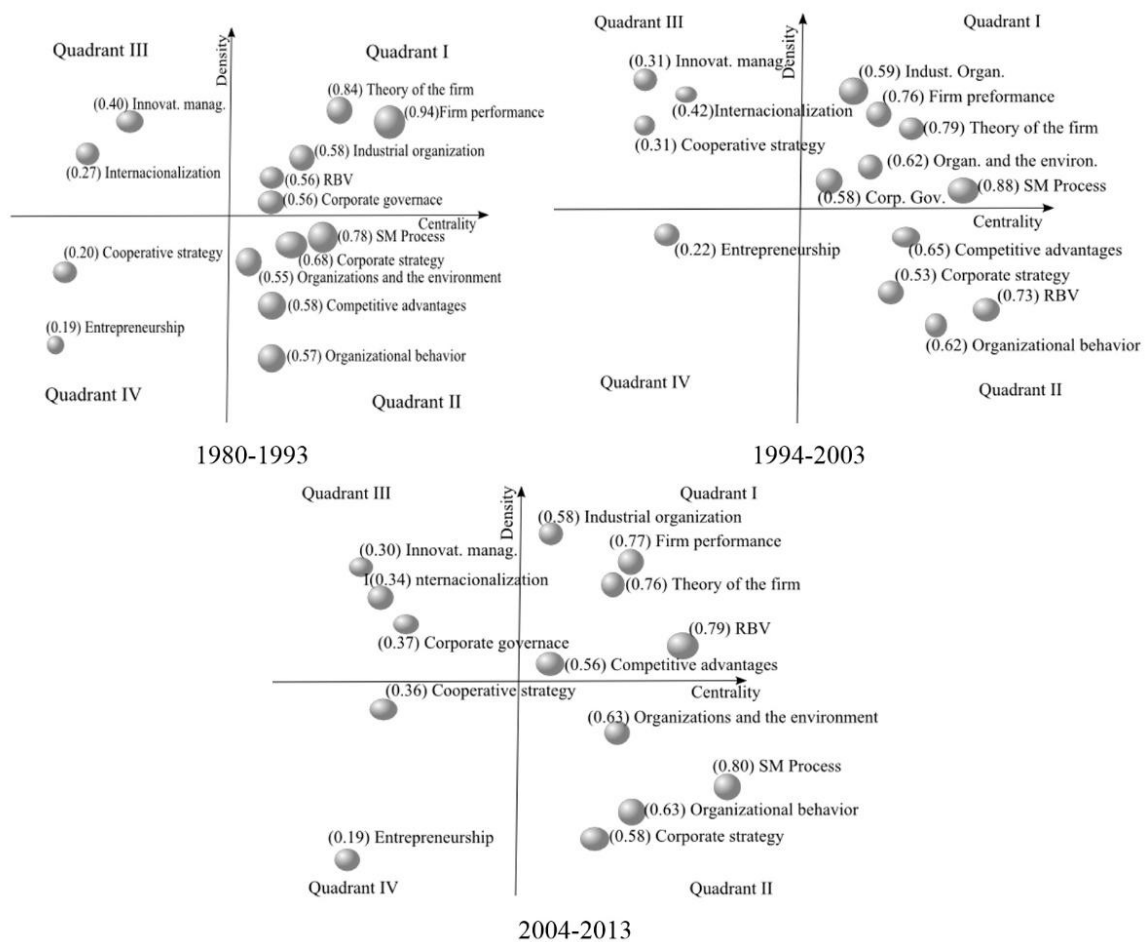
Table 1
RESEARCH LINES – CENTRALITY AND DENSITY

Nº	Research lines	1980-1993		1994-2003		2004-2013	
		Density	Centrality	Density	Centrality	Density	Centrality
I	Competitive advantage	0.186	0.581	0.457	0.656	0.447	0.566
II	Cooperative strategy	0.238	0.204	0.555	0.312	0.422	0.360
III	Corporate governance	0.311	0.568	0.500	0.585	0.484	0.376
IV	Corporate strategy	0.216	0.688	0.181	0.539	0.169	0.585
V	Entrepreneurship	0.133	0.192	0.380	0.224	0.238	0.192
VI	Firm performance	0.448	0.941	0.666	0.765	0.641	0.776

VII	Industrial organization	0.418	0.581	0.727	0.593	0.709	0.581
VIII	Innovation management	0.380	0.409	0.619	0.314	0.666	0.306
IX	Internationalization	0.361	0.275	0.606	0.429	0.636	0.347
X	Organizational behavior	0.100	0.573	0.411	0.624	0.338	0.631
XI	Organizations and the environment	0.210	0.552	0.521	0.826	0.394	0.693
XII	Resource based view	0.318	0.569	0.461	0.735	0.476	0.797
XIII	Strategic management process	0.217	0.787	0.532	0.884	0.353	0.804
XIV	Theory of firms	0.450	0.843	0.657	0.791	0.561	0.767
	Median	0.275	0.571	0.527	0.609	0.462	0.583
	Mean	0.260	0.502	0.496	0.550	0.436	0.513

Figure 1 presents the map of the strategic management field in terms of centrality and density. Lines of research in quadrant I, such as Theory of Firm, Firm Performance, Industrial Organization, and RBV, have a strategic importance for the field since they have been investigated systematically over a long term. Lines of research in quadrant II, such as Organizational Behavior and Corporate Strategy, are central to the field but they need significant investment to become mature. Quadrant III represents lines, such as Innovation Management and Internationalization, that appear peripheral but the strength of their links indicates significant investments by a group of scholars to develop them. The lines in Quadrant IV are both peripheral and little developed, as they are located in the margins of the network. Their situation resulted from the evolution of the field over the three stages, e.g. cooperative strategy (Nielsen, 1988), or were not considered relevant, e.g. Entrepreneurship has launched its own journal in 2007.

Figure 1
MAPPING OF THE STRATEGIC MANAGEMENT LINES OF RESEARCH



DISCUSSION

From the standpoint of the analysis performed, each subfield can be defined in two different ways (Callon et al, 1991). First, it may be a point in a general network of different subfields comprising the field of Strategic Management, one that is characterized by its position or centrality. Centrality measures the intensity of the links of a subfield with other subfields (Callon et al, 1991). Numerous and stronger links indicate a set of research problems are considered central by the scientific community. Second, it can also be evaluated as a cluster, made up of words linked with each other defining a more or less dense network, which indicates its coherence and robustness. Density describes the strength of the links that tie the words making up the subfield together (Callon et al, 1991). It can be observed in two ways: stronger links are more coherent, integrated and mature subfield but weaker links may show the still emergent characteristics of the subfield. Thus, density indicates the capacity of a subfield to survive or develop over time (Callon et al, 1991). The double analytical perspective (centrality vs. density) helps to appreciate the dynamics of the field. Using this analytical lens, the development of the field can occur in different ways: 1) a reorganization of the relationships between subfields (centrality) with a stable internal composition (density); 2) a redefinition of

the subfields that conform the discipline (changing the internal composition); 3) the appearance of new subfields either progressively or from the fusion of existing clusters); or 4) the disappearance of subfields by elimination or partition (Callon et al, 1991).

Figure 1 illustrates the dynamics of the strategic management field as it develops over time by reorganizing relationships between subfields (centrality) and their internal composition (density). The evolution of the strategic management discipline shows the development of its theoretical body through the fragmentation in several lines of research. On the one hand, the increasing centrality and network density between the research lines (only two lines are categorized as outliers in quadrant IV – figure 1) shows an inclusive and multidisciplinary approach sustaining the field. Many reviews explaining the integration of research lines (e.g. Porter, 1981; Conner, 1991; Eisenhardt and Zbaracki, 1992; Hitt et al, 2001; Grant, 2003; Chng et al, 2012) are clear evidence of this development in the field. On the other hand, the field has stable building blocks: Theory of Firm, Firm Performance, Industrial Organization, RBV, and Competitive Advantage, and stable position of diverse field centrally, e.g. Strategic Management Processes, Organizations and the Environment, and aspects of Organizational Behavior, or with peripheral with stable compositions, e.g. Innovation Management and Internationalization. It is interesting to observe that two subfields considered peripheral in our analysis have received strong support in recent years by the community launching their own journals: Strategic Entrepreneurship Journal in 2007 and Global Strategy Journal in 2011 while they are, simultaneously, being kept independent.

CONCLUSION

The paper presents a longitudinal analysis of the strategic management field through the development of its subfields using content and network analyses. One of the key contributions of our paper is to offer insight in the relationships existing in a discipline by using an analytical toolkit. The toolkit can help scholars to visualize the dynamics of the subfields comprising a field and recognize the growth and demise of subfields in the interest of the academic community. Two key concepts are fundamental in our toolkit: Centrality and Density. Centrality measures the intensity of the links of a subfield with other subfields to indicate if a subfield is considered central by the scientific community. Density describes the strength of the links that make up the subfield together so stronger links show coherence, integration and maturity but weaker links may show emergent characteristics of the subfield.

Another important contribution of our study is the evaluation of the dynamics and evolution of the strategic management field over its life span. Table 1 and Figure 1 are compact but powerful illustrations of the field of strategic management from the initial ideas of the founders to the segmentation suggested by Schendel and Hofer (1979). Research interests, activities and outcomes changed as the field reaches maturity but not in a uniform way. Certain subfields are still young with weaker levels of consensus among researchers, e.g. organizational behavior, while other subfields show stable structures and fewer debates, e.g. theory of firm. It is clear that some subfields occupy niches lacking centrality in the field, e.g. Entrepreneurship.

We believe the future development of strategic management as an academic field should consider the objectives and future strategies defined by the academic community through the diverse societies existing in the field, e.g. Strategic Management Society. For example, the level of development of the subfields is expected to affect decisions about which articles are published and cited but subfields may never develop if the field takes a conservative perspective. The strategic management field should pay attention to the criteria for evaluating scientific

contributions to look for universalistic standards in mature subfields (Boyd et al, 2005). Exceptional actions in some subfields may be needed to foster their development, e.g. the launch of Strategic Entrepreneurship Journal to foster entrepreneurship, or the contribution from other fields, e.g. Gary et al (2008), Kazakov and Kunc (2015).

The future of the field needs to follow changes in society. Løwendahl and Revang (2008) called for a renewal to the existing Strategy Theory given a postindustrial era where complexity is paramount and extreme for managers affecting their decisions (Kunc and Morecroft, 2010). However, our findings don't show indication of a change in the subfields. Perhaps it is time to the creation of new subfields capturing the changes in society by defining them through seminal papers, as it occurred in early days of the field. Potentially a keyword list can help to consolidate the lexicon that makes up the discipline contributing to consensus, clearly delineating the intellectual structure of the discipline and amalgamating its research. However, it should not preclude the possibility of including new keywords to discover the emergence of new lines for the solution of practical problems of business practice in the world.

Our work can be expanded, by addressing some of our limitations. For example, additional co-occurrence analysis of authors (Nerur et al, 2008) can provide useful information to have a systematic overview of the field. Performing similar study in other journals covering the Strategy field will provide a broader overview of different practitioners and probably more lines of research and subfields.

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APENDIXES

Appendix 1. Lines of investigation and its key words.		
Nº	Investigation lines	Words
I	Competitive advantage	Advantage, barrier, comparative, competition, competitive, competitiveness, competitors, dominance, game, intensity, lead, leadership, move, rival, rivalry.
II	Cooperative strategy	Absorptive capacity, alliances formation, alliances, collaboration, co-operative, joint venture, networks, outsourcing, partnership, ventures.
III	Corporate governance	Board of directors, buyout, CEO, director, incentives, owner, ownership, shareholder, stakeholder, succession, TMT, top.
IV	Corporate strategy	Acquisition, corporate strategy, differentiation, diversification, diversity, divestiture, divestment, downsizing, investment, merger, portfolio, relatedness, renewal, reorganization, restructuring, ties, turnaround, vertical integration.
V	Entrepreneurship	Entrepreneur, entrepreneurial, entrepreneurship, founder, growth, spin-off, survival.
VI	Firm performance	Decline, effect, effectiveness, efficiency, failure, outcomes, performance, profit, rents, result, returns, success, wealth.
VII	Industrial organization	Customer, entry, industrial, industry, manufacturing, market, multibusiness, operation, product, scope, service.
VIII	Innovation management	Attribute, cognition, cognitive, development, innovation, learning, patent.
IX	Internationalization	Entrant, export, foreign, geographic, global, home, international, location, multinational, national, subsidiary.
X	Organizational behavior	Attempt, attitudes, behavior, commitment, concern, conflict, efforts, employee, expectations, people, perception, posture, power, rules, trade-off, values.
XI	Organizations and the environment	Adaptation, change, complexity, constraints, contingency, demands, deregulation, dynamic, environment, environmental, munificence, opportunities, risk, regulation, responsiveness, scanning, stability, threats, uncertainty, variation.
XII	Resource based view	Assets, capabilities, capacities, core competences,, deployments, heterogeneity, information, knowledge, means, resources, skills, slack, stock, strength, technology.
XIII	Strategic management process	Actions, activities, alternatives, control, decision, evaluation,, fit, focus, formulation, functional, goal, guides, implementation, initiatives, marketing, methods, planning, plans, policy, process, programs, public, SBU, strategy, streams.
XIV	Theory of firms	Agency, Bankruptcy, business, capital, cash flow, company, costs, enterprise, finances, financial, firm, funds, organization, scale, transaction.

Appendix 2. Lines of investigation, key words and values of density and centrality.									
Nº	Investigation line	Key words	Frequency			Total	Betweenness Degree		
			1980-1993	1994-2003	2004-2013		1980-1993	1994-2003	2004-2013
I	Competitive advantage	Advantage	17	171	109	297	0,089	0,245	0,097
		Barrier	0	20	5	25		0,009	0,000
		Comparative	3	11	5	19	0,000	0,006	0,000
		Competition	10	58	44	112	0,155	0,124	0,013
		Competitive	25	256	142	423	0,066	0,122	0,411
		Competitiveness	4	15	11	30	0,000	0,006	0,010
		Competitors	2	42	22	66	0,000	0,068	0,041
		Dominance	4	7	3	14	0,000	0,000	0,000
		Game	6	11	7	24	0,000	0,000	0,005
		Intensity	9	18	34	61	0,004	0,004	0,014
		Lead	6	51	52	109	0,000	0,023	0,038
		Leadership	3	18	20	41	0,000	0,000	0,000
		Move	3	10	14	27	0,004	0,001	0,001
		Rival	3	22	22	47	0,000	0,029	0,001
		Rivalry	5	19	7	31	0,000	0,015	0,000
II	Cooperative strategy	Absorptive capacity	0	10	17	27		0,000	0,000
		Alliance formation	1	51	25	77	0,000	0,000	0,000
		Alliances	11	157	255	423	0,333	0,144	0,000
		Collaboration	0	11	23	34		0,005	0,469
		Co-operative	2	23	6	31	0,200	0,005	0,076
		Joint venture	4	53	51	108	0,000	0,027	0,025
		Networks	4	131	122	257	0,000	0,075	0,043
		Outsourcing	0	6	23	29		0,000	0,000
		Partnership	1	21	10	32	0,000	0,000	0,009
		Ventures	6	95	100	201	0,000	0,047	0,152
III	Corporate governance	Board of directors	17	60	55	132	0,000	0,004	0,030
		Buyout	7	11	1	19	0,000	0,000	0,000
		CEO	7	75	118	200	0,000	0,080	0,113
		Compensation	9	28	41	78	0,000	0,022	0,055
		Director	4	20	38	62	0,000	0,081	0,061
		Incentives	3	31	39	73	0,000	0,196	0,008
		Owner	0	6	14	20		0,004	0,007
		Ownership	9	65	45	119	0,200	0,045	0,043
		Shareholder	6	40	51	97	0,000	0,109	0,015
		Stakeholder	1	17	53	71	0,000	0,002	0,002
		Succession	0	14	13	27		0,000	0,000
		Tmt	0	22	18	40		0,009	0,018
		Top	16	69	44	129	0,200	0,050	0,085
IV	Corporate strategy	Acquisition	10	118	131	259	0,219	0,093	0,344
		Corporate strategy	33	166	155	354	0,143	0,119	0,000
		Differentiation	0	24	24	48		0	0,094

Appendix 2. Lines of investigation, key words and values of density and centrality.									
Nº	Investigation line	Key words	Frequency			Total	Betweenness Degree		
			1980-1993	1994-2003	2004-2013		1980-1993	1994-2003	2004-2013
		Diversification	31	74	88	193	0,084	0,195	0,058
		Diversity	5	26	29	60	0,114	0,012	0,000
		Divestiture	4	15	7	26	0,006	0,026	0,000
		Divestment	2	5	4	11	0,000	0,003	0,000
		Downsizing	0	7	19	26		0,000	0,000
		Investment	7	80	100	187	0,000	0,007	0,140
		Merger	11	24	19	54	0,043	0,003	0,000
		Portfolio	4	11	37	52	0,000	0,000	0,045
		Relatedness	14	44	22	80	0,034	0,040	0,132
		Renewal	10	6	1	17	0,000	0,000	0,000
		Reorganization	5	3	2	10	0,000	0,000	0,000
		Restructuring	43	8	24	75	0,339	0,006	0,003
		Takeover	12	9	7	28	0,004	0,000	0,000
		Ties	0	22	58	80		0,001	0,035
		Turnaround	4	14	2	20	0,000	0,000	0,000
		Vertical integration	6	32	45	83	0,000	0,000	0,000
V	Entrepreneurship	Entrepreneur	2	3	8	13	0,000	0,000	0,266
		Entrepreneurial	4	21	26	51	0,100	0,100	0,200
		Entrepreneurship	1	22	4	27	0,000	0,100	0,000
		Founder	0	18	2	20		0,000	0,000
		Growth	4	72	51	127	0,000	0,400	0,000
		Spin-off	4	9	7	20	0,000	0,000	0,000
		Survival	4	35	32	71	0,000	0,000	0,000
VI	Firm performance	Decline	6	14	13	33	0,017	0,007	0,014
		Effect	33	248	269	550	0,169	0,035	0,109
		Effectiveness	1	7	18	26	0,000	0,000	0,007
		Efficiency	4	17	19	40	0,005	0,004	0,003
		Failure	1	24	12	37	0,000	0,000	0,018
		Outcomes	17	49	55	121	0,102	0,075	0,019
		Performance	59	534	520	1113	0,114	0,099	0,109
		Profit	11	32	15	58	0,000	0,014	0,002
		Rents	4	37	21	62	0,000	0,002	0,000
		Result	53	309	222	584	0,255	0,099	0,109
		Returns	17	50	56	123	0,010	0,010	0,019
		Success	11	41	33	85	0,067	0,024	0,008
Wealth	3	21	5	29	0,000	0,018	0,000		
VII	Industrial organization	Customer	1	58	30	89	0,000	0,003	0,078
		Entry	4	89	80	173	0,000	0,008	0,000
		Industrial	8	27	8	43	0,018	0,008	0,002
		Industry	54	303	182	539	0,050	0,023	0,047
		Manufacturing	12	62	34	108	0,000	0,223	0,026

Appendix 2. Lines of investigation, key words and values of density and centrality.									
N°	Investigation line	Key words	Frequency			Total	Betweenness Degree		
			1980-1993	1994-2003	2004-2013		1980-1993	1994-2003	2004-2013
		Market	70	281	278	629	0,351	0,023	0,064
		Multibusiness	2	3	8	13	0,000	0,000	0,002
		Operation	3	18	8	29	0,000	0,003	0,006
		Product	25	181	161	367	0,018	0,023	0,064
		Scope	7	30	51	88	0,050	0,003	0,054
		Service	6	46	51	103	0,000	0,011	0,006
VIII	Innovation management	Attribute	1	29	18	48	0,000	0,000	0,000
		Cognition	3	9	16	28	0,000	0,000	0,022
		Cognitive	3	31	12	46	0,000	0,000	0,022
		Development	19	89	70	178	0,466	0,133	0,233
		Innovation	19	72	103	194	0,000	0,066	0,055
		Learning	7	121	58	186	0,000	0,333	0,111
		Patent	1	12	31	44	0,000	0,000	0,022
IX	Internacionalization	Entrant	8	31	31	70	0,000	0,000	0,003
		Export	8	4	10	22	0,000	0,000	0,000
		Foreign	3	109	87	199	0,000	0,174	0,057
		Geographic	0	19	12	31	0,000	0,003	0,000
		Global	10	43	22	75	0,035	0,054	0,009
		Home	1	18	11	30	0,000	0,022	0,029
		International	16	85	59	160	0,214	0,132	0,142
		Location	0	27	14	41	0,000	0,003	0,029
		Multinational	5	47	28	80	0,035	0,020	0,094
		National	7	16	16	39	0,000	0,000	0,074
		Subsidiary	1	37	12	50	0,000	0,007	0,003
X	Organizational behavior	Attempt	2	29	21	52	0,000	0,013	0,002
		Attitudes	2	6	2	10	0,000	0,008	0,000
		Behavior	6	70	50	126	0,152	0,138	0,050
		Commitment	3	35	7	45	0,085	0,059	0,006
		Concern	1	16	13	30	0,000	0,000	0,007
		Conflict	1	24	4	29	0,000	0,005	0,000
		Efforts	7	31	27	65	0,219	0,016	0,042
		Employee	2	25	47	74	0,000	0,004	0,009
		Expectations	2	18	22	42	0,000	0,020	0,000
		People	3	9	4	16	0,000	0,002	0,000
		Perception	9	30	17	56	0,085	0,086	0,022
		Posture	3	6	1	10	0,000	0,000	0,000
		Power	6	49	31	86	0,000	0,134	0,009
		Rules	4	7	2	13	0,200	0,000	0,000
		Trade-off	2	5	15	22	0,000	0,000	0,015
		Values	10	148	147	305	0,085	0,119	0,109
XI	Organizations	Adaptation	3	17	22	42	0,000	0,006	0,000

Appendix 2. Lines of investigation, key words and values of density and centrality.									
Nº	Investigation line	Key words	Frequency			Total	Betweenness Degree		
			1980-1993	1994-2003	2004-2013		1980-1993	1994-2003	2004-2013
	and the environment	Change	26	166	116	308	0,091	0,062	0,222
		Complexity	3	23	13	39	0,051	0,003	0,000
		Constraints	0	13	13	26	0,000	0,014	0,001
		Contingency	2	17	16	35	0,000	0,000	0,004
		Demands	4	21	20	45	0,352	0,007	0,003
		Deregulation	2	8	11	21	0,000	0,000	0,005
		Dynamic	6	106	66	178	0,000	0,060	0,061
		Environment	16	119	77	212	0,215	0,164	0,064
		Environmental	22	83	63	168	0,120	0,083	0,104
		Munificence	1	4	7	12	0,000	0,000	0,000
		Opportunities	1	39	23	63	0,000	0,044	0,044
		Risk	8	55	52	115	0,000	0,002	0,015
		Regulation	2	19	4	25	0,301	0,006	0,000
		Responsiveness	0	7	1	8	0,000	0,005	0,000
		Scanning	4	13	3	20	0,000	0,000	0,000
		Stability	1	10	7	18	0,000	0,007	0,000
		Threats	3	12	14	29	0,000	0,007	0,011
		Uncertainty	9	32	50	91	0,454	0,037	0,035
		Variation	2	32	16	50	0,000	0,016	0,000
		XII	Resource based view	Assets	9	89	53	151	0,056
Capabilities	14			186	154	354	0,064	0,143	0,244
Capacities	2			35	2	39	0,000	0,000	0,000
Core competences	8			37	30	75	0,000	0,000	0,000
Deployments	1			5	12	18	0,000	0,000	0,000
Heterogeneity	5			36	25	66	0,000	0,000	0,000
Information	9			77	74	160	0,045	0,026	0,017
Knowledge	6			204	190	400	0,000	0,041	0,119
Means	7			13	14	34	0,000	0,003	0,008
Resources	27			266	223	516	0,401	0,363	0,100
Skills	9			21	3	33	0,117	0,001	0,006
Slack	2			11	17	30	0,000	0,000	0,000
Stock	3			44	35	82	0,000	0,001	0,011
Strength	3			14	10	27	0,000	0,001	0,001
Technology	25			71	70	166	0,117	0,001	0,067
XIII	Strategic management process	Actions	12	39	60	111	0,011	0,024	0,033
		Activities	6	22	33	61	0,058	0,068	0,084
		Alternatives	4	41	25	70	0,000	0,013	0,094
		Control	35	68	60	163	0,044	0,022	0,081
		Decision	20	116	118	254	0,082	0,045	0,178
		Evaluation	0	11	9	20		0,004	0,000
		Fit	9	20	26	55	0,000	0,004	0,006

Appendix 2. Lines of investigation, key words and values of density and centrality.									
N°	Investigation line	Key words	Frequency			Total	Betweenness Degree		
			1980-1993	1994-2003	2004-2013		1980-1993	1994-2003	2004-2013
		Focus	8	52	52	112	0,032	0,030	0,009
		Formulation	1	14	4	19	0,000	0,013	0,000
		Functional	1	10	7	18	0,000	0,000	0,000
		Goal	1	22	7	30	0,000	0,024	0,006
		Guides	3	6	3	12	0,000	0,000	0,000
		Implementation	11	21	16	48	0,021	0,013	0,016
		Initiatives	0	17	7	24		0,000	0,003
		Marketing	1	27	26	54	0,000	0,014	0,001
		Methods	6	0	27	33	0,000	0,013	0,011
		Planning	17	60	4	81	0,000	0,004	0,000
		Plans	2	11	1	14	0,000	0,060	0,000
		Policy	5	20	10	35	0,000	0,009	0,001
		Process	43	124	54	221	0,070	0,076	0,027
		Programs	2	17	10	29	0,000	0,001	0,006
		Public	5	31	28	64	0,000	0,010	0,071
		sbu	11	4	2	17	0,000	0,000	0,000
		Strategy	75	350	153	578	0,455	0,087	0,153
		Streams	3	12	10	25	0,000	0,005	0,002
		Agency	8	44	23	75	0,029	0,008	0,000
XIV	Theory of the firm	Bankruptcy	4	28	16	48	0,000	0,000	0,000
		Business	32	172	103	307	0,019	0,043	0,017
		Capital	1	14	22	37	0,002	0,050	0,049
		Cash flow	149	1276	1231	2656	0,000	0,004	0,000
		Company	44	198	66	308	0,000	0,000	0,032
		Costs	8	44	23	75	0,062	0,016	0,033
		Enterprise	7	11	3	21	0,000	0,001	0,000
		Finances	10	74	74	158	0,000	0,004	0,000
		Financial	4	20	12	36	0,092	0,062	0,088
		Firm	11	110	100	221	0,384	0,096	0,260
		Funds	13	27	14	54	0,000	0,016	0,000
		Organization	1	5	4	10	0,025	0,077	0,005
		Scale	18	74	86	178	0,002	0,040	0,000
		Transaction	8	67	51	126	0,047	0,008	0,017

Note: blank spaces mean that the key word does not appear in the time spam analyzed.

AN EXAMINATION OF CORPORATE SOCIAL RESPONSIBILITY PRACTICES AND FIRM PERFORMANCE IN U.S. CORPORATIONS

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ABSTRACT

Today, firms are evaluated not only based on their profitability, but also based on a number of non-financial metrics. Many of these measures fall under the umbrella of corporate social responsibility. CSR is a successful business strategy that has become popular with many firm stakeholder groups in the last few decades, due to technology advances that allow these groups to track and monitor corporate activities. CSR measures the social performance of a business along several dimensions, just as financial ratio analysis measures the profitability of a business. In this paper, a sample of large U.S. firms will be analyzed to determine if links exist between performance and CSR practices. It is hypothesized that CSR can be seen to have positive effects and result in a competitive advantage for these companies. Directions for future research and managerial implications will be given.

INTRODUCTION

Corporate social responsibility has become a popular term among managers, government officials and academicians in recent years. The term covers many areas of the corporate domain. One definition is from the CSR Initiative at the Kennedy School of Government at Harvard, and it is as follows:

The term “corporate social responsibility” is often used interchangeably with corporate responsibility, corporate citizenship, social enterprise, sustainability, sustainable development, triple-bottom line, corporate ethics, and in some cases corporate governance. Though these terms are different, they all point in the same direction: throughout the industrialized world and in many developing countries there has been a sharp escalation in the social roles corporations are expected to play. Companies are facing new demands to engage in public-private partnerships and are under growing pressure to be accountable not only to shareholders, but also to stakeholders such as employees, consumers, suppliers, local communities, policymakers, and society-at-large (www.hks.harvard.edu).

While these terms encompass different activities, they all share the same root: businesses responsibly using their resources to meet their current missions while at the same time considering the impacts on firm outsiders, the planet and future generations. They also refer to some sort of self-monitoring on the part of firms. In this way, companies must answer not only to their shareholders but also to many other stakeholder groups which have an interest in the business and what it does.

Technology has allowed stakeholder groups from around the world to stay abreast of organizational happenings in real time. Therefore organizations must be cognizant of their corporate image and community reputation and act accordingly. Thus CSR has become a key strategic consideration and agenda item to be managed and promoted for nearly every organization in the business community.

Altman and Vidaver-Cohen (2000) note that the term corporate citizenship was first used by American businesses in the 1980s. Matten and Crane (2005) note that corporate citizenship has become a term that is not only applied to American businesses, but it is also applied to global organizations to describe the social role that these organizations play in the worldwide marketplace.

As a result of these types of actions by companies around the globe, CSR is becoming an integral part of maintaining competitiveness in nearly all industries. Therefore it has become a topic of interest for managers, employees, customers, government officials and academics.

Given this focus on CSR by the media, governments and corporations, managers will need to address the question: Does CSR make a difference to the bottom line for companies? Along this line of thinking, the following research questions will be considered in this paper: 1. Is there a link between CSR activities and firm performance? 2. Does the measure of CSR affect its relationship with firm performance? 3. Do other factors impact this relationship?

LITERATURE REVIEW

International studies have documented the importance of CSR around the world. Crisostomo, Freire, and Vasconcellos (2010) found a negative relationship between firm value and CSR among Brazilian firms, yet they found a neutral relationship between CSR and financial performance. They advocate the use of a three dimensional measure of CSR. While de-los-Angeles, Giner-de-la Fuente and Griful-Miquela (2009) found that the relationship between CSR and business profitability was neutral for a sample of Spanish firms. From this study, Margolis and Walsh (2001, 2003) performed a Meta-analysis of multiple global studies and found a positive relationship between firm financial performance and firm social performance. Heal (2005) achieved similar conclusions in a more recent study. Husted, Allen and Rivera (2010) found that CSR is related to value creation for firms. Beliveau, Cottrill and O'Neill (1994) found that different measures of firm performance, such as accounting measures and stock market measures, responded differently to CSR measures. In their study of U.S. firms, stock market measures led CSR and accounting measures lagged CSR.

Corporate social responsibility has gained the attention of scholars as it has also become a popular topic in the business press. Habisch et al. (2005), Windell (2006) and others note that there is not one overarching and comprehensive approach to CSR, since each firm situation is different. Therefore many researchers use multiple measures to capture the full extent of CSR activities within a firm. Kanji and Chopra (2010) use a 4 prong approach to measure CSR activities. These areas include social accountability and social investment, ethics and human resources, corporate governance and economic responsibility and environment protection and sustainability. These four factors will be used in this study to assess CSR actions among firms.

According to Lee, Fairhurst and Wesley (2009), firms that acknowledge CSR in their mission and vision statements are more likely to achieve CSR goals than those that do not. When CSR is built into corporate level strategies and business level strategies, then CSR is more likely to become a part of the corporate culture and mindset of an organization. Attention to CSR will cause a company to consider the ramifications of its actions, and therefore act in conscious and deliberate ways for intentional results. One firm that embodies CSR principles in the corporate culture is Johnson and Johnson. The company's credo states that "we are responsible to the communities in which we live and work, and we are responsible to the world community as well." Johnson and Johnson's recovery from the Tylenol tampering incident of 1982 shows their commitment to their customers and stakeholders (www.johnsonandjohnson.com).

HYPOTHESES

In evaluating the links between social performance and competition, Fernandez-Kranz and Santalo (2010) found that firms in more competitive environments earned higher social performance scores. They also found that firms in more competitive industries had better pollution levels. Additionally, the researchers revealed that industries with higher imports yielded better CSR performance. They suggest that CSR should be linked to firm strategy in order to optimize the firm's scores in areas of high importance. Many firms have created the executive level Director of Corporate Social Responsibility position to oversee these initiatives. So that:

H1: Higher levels of strategic CSR (SCSR) will positively impact firm financial performance.

Human resource corporate social responsibility can involve a wide range of activities depending on the industry in which the firm operates. Some examples of such behaviors include fair recruiting and hiring practices, diversity of employees, diversity of board members, good union-management relationships, equitable training and development practices and similar issues. Firms that exhibit leadership in terms of socially responsible behaviors in the area of human resources are more likely to have employees who exhibit higher levels of job satisfaction (Terjesen & Singh, 2008). Employees with higher levels of job satisfaction are more likely to exhibit better job performance (George & Jones, 2008). Better job performance results in more efficiency and effectiveness. Thus:

H2: Higher levels of human resource CSR (HRCR) will positively impact firm financial performance.

Environmental protection and sustainability are two of the most common areas associated with CSR. These facets of CSR can include actions such as memberships or partnerships in environmental organizations, environmental certifications, commitment to reduce environmental impacts such as carbon footprints or emissions, as well as production and packaging procedures that are environmentally conscious. Fieseler, Fleck and Meckel (2010) note that many companies can increase stakeholder engagement and involvement by providing opportunities for interaction on sustainability blogs online.

In a 2009 survey of large businesses, the Buck consultancy firm found that 53% of employers stated that they had a green workplace program in place. Other popular programs included telecommuting, ridesharing, online communications and incentives such as awards to promote environmentalism (Business Wire, 2010). Dutta and Lawson (2009) note the importance of sustainability programs in global competition. In 2008, KPMG found that 80% of the Fortune 500 was producing environmental reports, and this number was up from 1998 when 35% of the Fortune 500 was producing such reports (KPMG, 2008). Thus more companies realize that global competitiveness is related to corporate sustainability. Therefore:

H3: Higher levels of environmental protection and sustainability CSR (ESCSR) will positively impact firm financial performance.

Corporate governance includes activities such as including outsiders on the board of directors, utilizing the multidivisional form to prevent collusion and promote competition amongst business units, engaging in external audits of company policies, public ownership and transparency of decision making. These practices are becoming more widespread among

corporations in order to assure stakeholders that multiple governance mechanisms are being used to ensure that a system of checks and balances is working (Barney & Clark, 2007). Reddy, Locke and Scrimgeour (2010) found that corporate governance is related to better firm performance. Hence:

H 4: Higher levels of corporate governance CSR (GCSR) will positively impact firm financial performance.

Yet another aspect of CSR is social accountability and social investment. These activities occur when firms purposefully participate in functions in order to interact with community members and make the community a better place. Specific actions related to these concepts include charitable contributions, community involvement and community partnerships. Some examples are Target Corporation (www.target.com) offering college scholarships to deserving students and Bank of America (www.bankofamerica.com) sponsoring charity walks in the communities it serves. Grayson (2010) notes the advantages that companies derive from community involvement, including enhanced employee engagement and overall business performance. The rationale behind this idea is that an organization that is involved in the community will attract talent and customers from the region. They will have a vested interest in the organization's success. Therefore stakeholders inside and outside of the organization are both working to achieve the success of firm. Such that:

H 5: Higher levels of social accountability or community-based CSR (CCSR) will positively impact firm financial performance.

Other factors also influence firm profitability. International diversification is a strategy that is based on the premise that firms operating in multiple nations can outperform their domestic counterparts due to the exploitation of economies of location across borders that their competitors cannot. Zhong and Yang (2005) point out that firm internationalize to gain factors of production and positively influence governments or regulators. Multinationals can benefit from transfer prices and arbitrage pricing which results in increased operating performance which then leads to increased financial performance for the business (Tallman & Li, 1996). Therefore:

H 6: Higher levels of foreign sales will positively impact firm financial performance.

Technology and innovation have been two significant drivers of productivity in both manufacturing and service firms. In many cases, processes such as lean management or Six Sigma have allowed firms to achieve advances in productivity. Ozelik (2010) found a positive relationship between business process reengineering projects that increased productivity and firm performance for large U.S. firms. Koumanakos (2008) found that in medium and large sized businesses, firms which departed from productivity-focused operations experienced lower rates of return. So that:

H 7: Higher levels of firm productivity will positively impact firm financial performance.

Porter's Five Forces Model (1986) illustrates that industry dynamics can have impacts on firm outcomes. Typically, more rapidly changing industries are more competitive, and more technology-intensive and innovation-oriented industries are also highly dynamic (Hitt, Hoskisson

& Kim, 1997). Examples of such industries include pharmaceuticals and cell phones. Certain sectors, such as steel and weaponry, are often deemed strategic and thus receive government protection. Hawawini, Subramanian and Verdin (2004) showed that internationally, industry effects are becoming more important in the study of firm performance. Thus:

H 8: Industry effects will positively impact firm financial performance.

Many firms enjoy enhanced reputations, increased goodwill and additional market power as a result of longevity. Some examples of firms that benefit financially from long standing operations include Ford and AT&T. Scholars have found firm age is an important moderator variable in studies of firm performance (Bausch & Krist, 2007). Ling, Zhao and Baron (2007) refer to the importance of evaluating the organizational lifecycle in studies involving firm performance. Hence:

H 9: Increased firm age will positively impact firm financial performance.

METHODOLOGY

Sample

The Fortune magazine rankings have become some of the most often cited and the most frequently used global listings in the business literature (Sledge, 2009). This is because Fortune has been tracking firm performance using consistent methodologies since the 1980s. The Fortune 500 will be used as the sample here to assess the relationship between corporate social responsibility and firm performance (www.fortune.com). The time frame for this study will be 2005 – 2015 in order to capture the most recent decade of activity. In addition to the annual rankings, data was gathered from company websites, company press releases, company annual reports, newspaper articles, advertisements in magazines and online, and Hoover's Handbook of World Business (www.hoovers.com). Due to the fact that multiple data points were needed for each business, some companies had to be eliminated from the original sample due to missing observations. Therefore the final sample includes 310 companies.

Measures

In order to effectively measure corporate social responsibility, the Kanji-Chopra model of Corporate Social Responsibility was employed. This conceptualization of CSR uses a systems modeling approach which is holistic in nature. Here, 5 components were used to assess CSR including: strategic planning, human resources, the environment, corporate governance, and social accountability in the community. The data available from the companies necessitated modifications to the model which included using 3 measures of each construct instead of 6. This change was required because data for this study was gathered from the companies and reporting centers, such as Fortune magazine (www.fortune.com). The original model included data gathered from employee surveys. However, the constructs used in both models were the same. Fernandez-Kranz and Santalo (2010) note the importance of considering strategy when planning CSR activities. Margolis and Walsh (2001, 2003) use a 5 point scale to rate CSR behavior on the part of firms. Thus the chosen index measure of CSR for this work is similar to indices used by other authors.

Each of the 5 CSR parameters was measured using a 5 point scale. This type of count measure was used by Hitt, Hoskisson and Kim (1997) to ascertain business activities. A similar 5 point scale was used by de-los-Angeles, Giner-de-la Fuente and Griful-Miquela (2009) to measure CSR in Spanish firms. Here, the company scores for each of the 5 dimensions were made using the following schema, which is adapted from the 10 point scale system used by Kanji and Chopra (2010). A score of 1 indicated no evidence of CSR activities within the parameter of interest. A score of 2 indicated that 1 of the CSR parameter activities within the parameter was evident. A score of 3 indicated that 2 of the CSR parameter activities were evident within company operations. A score of 4 indicated that 3 of the CSR parameter activities were used by the company. A score of 5 indicated that more than 3 of the CSR parameter activities were used by the company on a given facet of CSR.

Validity and reliability were assessed using 2 outside assistants to the study. The 2 assistants were asked to review the ratings of CSR activity for a subset of the firms in the sample. They were given definitions and examples of each level of CSR activity for firms outside of the sample. They then made their determinations of the ratings and reported the findings to the principle investigator. Using a subset of 20% of the firms in the sample, the assistants exhibited an 88% agreement rating for content validity with the principle investigator. This was deemed to be a positive match. The assistants demonstrated an 85% agreement rating for score reliability with the principal investigator. This too was determined to be an acceptable level of agreement. Therefore the validity and reliability of the study methods were found to be within the typical guidelines for management studies.

Firm performance was measured as dependent variables in the models. This is a common practice in the business literature (Chakravarthy, 1986; Gomes & Ramaswamy, 1999). In this paper, performance is assessed using data from the Fortune 500 for the years 2005 – 2015. The actual indicators are return on assets (ROA) and return on revenues (ROR). The dependent variables are described below.

Return on Assets – This is a measure of profitability taken from the Fortune 500. It was used by Grant (1987) in a previous study. *Return on Revenues* – This is a measure of profitability taken from the Fortune 500. It was used by Lancioni (1989) in empirical work.

The study includes 9 independent variables. Five are quantitative measures of CSR, three are quantitative control variables and one is a dummy variable representing industry that measures categorical relevant factors. Control variables are used to avoid misspecification error in the models. Each of these measures has been used previously in the international business literature. Firm size was not used as a control variable as all firms in the Fortune 500 were large.

Strategic based CSR – This is a count measure of activities in the following areas: Does the company's mission statement reflect CSR? Does the company's corporate or business level strategy contain CSR activities? Does the company have a code of ethics that includes CSR? George and Jones (2008) note the importance of including CSR in company literature and policies in order to promote its importance within the organization.

Human Resources based CSR – This is a count measure of activities in the following areas: Does the company exhibit diversity within management and the employee base? Does the company show evidence of and commitment to engaging in fair labor practices? Does the company offer CSR training and development? These practices are key for companies that want to involve all employees in CSR actions, according to the Society for Human Resource Management (www.shrm.org).

Environmental based CSR – This is a count measure of activities in the following areas: Does the company have environmental certifications and or partnerships? Is environmentalism in operational processes such as product, packaging, promotion, and path? Does the company show evidence of efforts to reduce emissions, pollution or its carbon footprint? These actions were noted as important environmentally by Green Biz, an online content provider that focuses on sustainability as it relates to businesses and technology (www.greenbiz.com).

Governance based CSR – This is a count measure of activities in the following areas: Does the company exhibit outsiders on the board of directors? Does the company provide information needed by stakeholders in a transparent way? Does the company participate in outside assessment programs or external audits? In their discussion of how to encourage good corporate governance, Hall and Jones (1999) advocate using these actions.

Community based CSR – This is a count measure of activities in the following areas: Does the company engage in programs that benefit the community? Does the company make charitable or philanthropic donations? Does the company take action towards sustainability of its operations and relationships in the community? The organization CSR Quest (www.csrquest.net) uses this approach to determine if firms are responding to community needs appropriately.

Foreign Sales – This measure was the percentage of firm sales outside of the headquarters country location. This measure was used by Sullivan (1994) to determine the degree of internationalization among firms.

Productivity- This is a commonly used measure of competitiveness. A common determinant of productivity is sales per employee. This measure was chosen following Nobeoka, Dyer and Madhok (2002). The log of sales/employee was used here.

Industry – Industry participation was taken from the Fortune 500 (www.fortune.com). Firms were broken down in to 20 industries, thus 19 dummy variables were employed to assess the effects. This variable was employed by Tarzijian, Brahm and Daiber (2008).

Age of Firm- Age of the firm has been used in a number of performance studies in the business strategy literature (Jayaraman, Khorana, Nelling & Covin, 2000; Ling, Zhao & Baron, 2007). Often, this variable is used as a moderator along with the constructs of interest. Older firms enjoy more established relationships with business partners, customers and the community, and often have access to more resources. Thus firm age likely affects strategic firm decisions, such as CSR.

RESULTS

The results are presented in this section. First, descriptive statistics for the sample are included and then the findings from the hypothesis testing are given. Table 1 presents the means, standard deviations and intercorrelations for the variables.

Table 1
PEARSON CORRELATION COEFFICIENTS

Variable	Mean	s.d.	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. ROA	10.18	6.34									
2. ROR	13.69	8.12	.82								
3. STR	4.55	2.00	.13	.29							
4. HR	2.09	1.54	.08	.27	.37						
5. EC	4.71	2.66	.29	.10	.14	.26					
6. GC	2.84	1.05	.18	.05	.06	.54	.28				
7. CC	4.37	3.47	.37	.26	.23	.40	.14	.20			
8. FS	1.06	.36	.22	.19	.09	.25	.26	.47	.17		
9. PRO	1.34	.49	.15	.09	.11	.27	.19	.26	.35	.38	
10. AGE	27.55	9.57	.06	.23	.40	.33	.50	.34	.18	.19	.26

n = 310; ** p < .01; * p < .05; + p < .10;

To determine if multicollinearity was present, variance inflation factors were calculated. No VIFs came close to the threshold of 10 as indicated by Neter, Wasserman and Kutner, (1985). No violations of normality were detected by outliers on the residual plots and the normal probability plot.

In Table 1, one of the correlations has an absolute value greater than .81. This is the correlation between the two dependent variables. No violations of the assumptions of regression were observed. Both dependent variables exhibited a binomial distribution and the independent variables exhibited a normal distribution with the exception of the dummy variables. Examination of the pairwise correlations showed that the correlations among the variables were relatively low.

The results of the multivariate regression analysis follow. Table 2 presents the findings from the Return on Assets model while Table 3 presents the findings from the Return on Revenues model.

Table 2
RESULTS OF REGRESSION ANALYSIS
RETURN ON ASSETS – MODEL 1

Independent Variable	Prediction	b	std. err.
Strategic CSR	(H1+)	.035*	.009
Human Resources CSR	(H2+)	.044*	.137
Environmental CSR	(H3+)	.038*	.256
Governance CSR	(H4+)	.006**	.005
Community CSR	(H5+)	.090+	.148
Control Variable			
Foreign Sales	(H6+)	.031*	.019
Productivity	(H7+)	.007**	.033
Industry	(H8+)	.842	.265
Age of Firm	(H9+)	.711	.184
R ²	.361		
Adj R ²	.385		
F	5.129*		

n = 310: ** p < .01; * p < .05; + p < .10

The results provide confirmation for most of the hypotheses in the study. In Table 2, the Return on Assets model showed support for Hypothesis 1 (Strategic CSR) at the $p < .05$ level, and evidence for Hypothesis 2 (Human Resources CSR) at the same level. Similarly, support for Hypothesis 3 (Environmental CSR) was shown at the $p < .05$ level. The model demonstrated evidence of Hypothesis 4 (Governance CSR) at the $p < .01$ level and some support for Hypothesis 5 (Community CSR), evidence was found at the $p < .10$ level. Results for the control variables were mixed. A foreign sale (Hypothesis 6) was found to be significant at the $p < .05$ level. Productivity (Hypothesis 7) was found to be significant at the $p < .01$ level. Neither Hypothesis 8 (Industry) nor Hypothesis 9 (Age of Firm) was found to be statistically significant. The predictive value of the model was good, with an adjusted R² of .385 and an F value of 5.129.

Table 3
RESULTS OF REGRESSION ANALYSIS
RETURN ON REVENUES – MODEL 2

Independent Variable	Prediction	b	std. err.
Strategic CSR	(H1+)	.025*	.451
Human Resources CSR	(H2+)	.084+	.023
Environmental CSR	(H3+)	.009**	.186
Governance CSR	(H4+)	.026*	.259
Community CSR	(H5+)	.007**	.005
Control Variable			
Foreign Sales	(H6+)	.044*	.147
Productivity	(H7+)	.005**	.268
Industry	(H8+)	.856	.335
Age of Firm	(H9+)	.793	.190
R ²	.372		
Adj R ²	.390		
F	6.487*		

n = 310; ** p < .01; * p < .05; + p < .10

Table 3 shows the findings from the Return on Revenues model. Support was found for Hypothesis 1 (Strategic CSR) at the $p < .05$ level, while some support was found for Hypothesis 2 (Human Resources CSR) at the $p < .10$ level. Hypothesis 3 (Environmental CSR) garnered strong support at the $p < .01$ level, while Hypothesis 4 (Governance CSR) exhibited support at the $p < .05$ level. Hypothesis 5 (Community CSR) provided evidence at the $p < .01$ level. The control variables showed similar results in both models. Hypothesis 6 (Foreign Sales) and Hypothesis 7 (Productivity) each were supported here, at the $p < .05$ level and the $p < .01$ level, respectively. Neither model supported Hypothesis 8 (Industry) nor Hypothesis 9 (Age of Firm). In total, the ROR model had an adjusted R^2 of .390 and an F value of 6.487.

DISCUSSION

Using multiple measures of CSR, large U.S. firms exhibit statistically significant relationships with organizational performance. All of the findings were in the hypothesized directions, indicating positive relationships among the variables. However, each independent variable did not show identical relationships across the sample, indicating that the measures of performance may have impacted the results. Additionally, the measures of CSR chosen here may have affected the outcomes. Nonetheless, it is important to note that each of the 5 prongs of CSR: strategic, human resources, environmental, governance and community, showed a statistically significant relationship with Return on Assets and Return on Revenues for large U.S. firms during the time period 2005 – 2015. Thus, the findings provide evidence for executives and managers to employ CSR practices in their firms to improve financial performance. The results are important, and they should prompt more research in this area.

The control variables provided substantial information as well. In each of the models, foreign sales explained some of the variance in firm performance. This means that for MNCs, business executives should maximize foreign sales and internationalization programs while concurrently pursuing CSR strategies, both of which will enhance the company's bottom line and internationalization programs. One other control factor, productivity, showed a positive relationship to firm performance also. As a function of competitive strategy, productivity is a concern for all managers, and based on the findings here, it is linked to CSR policies. Thus utilizing productivity enhancing practices while employing CSR programs can be a viable strategy that can aid companies in improving firm performance. Therefore internationalization and productivity are two key areas where business people need to focus their attention in order to remain competitive in their respective industries.

Other control variable results were revealing. In each model, the variables for industry did not show significance. This may be a function of measurement using dummy variables. On the other hand, it may be due to the fact that as business becomes more global, industry is less of a contributing factor in performance outcomes. As for age of the firm, the hypothesis that older firms would be more likely to use CSR practices was not evident. Younger firms may be more flexible and able to adapt to changing market conditions. Thus managers in new firms, established firms and mature firms can achieve benefits by using CSR strategies, regardless of firm age. The key is to find CSR practices that are valued by stakeholders.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

One possible limitation of the study would be the timeframe. The period of study included a number of natural disasters, including Hurricanes Katrina and Sandy in the United States. The 2010 New York Stock Market Flash Crash, which was the largest one day drop since Black Monday in 1987, also affected this period (Egan, 2014). In addition, during the decade a number of terrorist attacks occurred throughout the world. These events reduced economic growth around the world, business activity and most likely CSR actions from firms. Another major factor during this time was the global recession of 2008-2009, which had significant impacts on world markets. Certainly these events impacted businesses and CSR strategies in a negative way.

Additional research could incorporate a different time period to determine if the findings are generalizable. The sample could be increased to include small and medium sized firms. Also the sample could be expanded to a global sample to evaluate the relationships. Additional analyses of the concepts would provide useful information.

CONCLUSION

This paper demonstrates the fact that CSR is a multifaceted concept where each of the five prongs of CSR exhibits a statistically significant relationship with firm performance among large U.S. firms. In a related study, Fernandez-Kranz and Santalo (2010) evaluated firm social performance and competition. They discovered that businesses in more competitive industries enjoyed better social reputations and above average environmental performance. They also noted that firms in industries with more competition had greater CSR variance within the industry, and thus concluded that CSR is related to firm strategy. Hence, it is important for CEOs and other top

executives to understand that CSR strategy should be a part of the overall firm strategy, and that it can be used as a competitive advantage.

Many journalists and financial experts point to the importance of corporate social responsibility not only to business employees but to customers, investors and governments. A 2010 Investor Summit on Climate Risk involved 400 institutional investors responsible for \$13 trillion in assets. They discussed strategies to increase firm performance by decreasing systemic risk for investors by incorporating sustainability practices (Thompson, 2010). Thus elements of CSR are becoming part of a new yardstick by which most businesses are being evaluated by various stakeholder groups.

This research links two important concepts for executives, managers and employees today: corporate social responsibility and firm performance. Due to the global economic recession of recent years and the focus on accountability, environmental sustainability and transparency in organizational operations, these topics are likely to stay at the forefront of the minds of consumers, business people, scholars, nonprofit leaders and government officials. This study provides an exploratory look at the links between different types of CSR and firm performance among large firms. Hopefully additional studies can shed more light on these key concepts. The more that is known about CSR and firm performance, the more likely it will be that organizations can successfully pursue mission-oriented practices and stretch goals in both areas simultaneously.

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EFFICIENCY OF THE DIVERSIFICATION STRATEGIES OF THE PRIVATE RAILWAY COMPANIES IN JAPAN

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ABSTRACT

The railway industry in Japan is distinguished from private operators and its diversification strategies from those of other countries. This study investigates the efficiency of diversification strategies of private railway companies by using a data set of Japanese private rail companies and estimating the production frontier function. I estimate the production function and technical efficiency using stochastic frontier analysis (SFA) to investigate the effect of diversification strategies on the firm's efficiency. By comparing technical efficiency between firms, this study discusses the efficiency of diversification strategies in utilizing managerial resources, based on the relative efficiency in the railway industry.

INTRODUCTION

In most industrialized countries, governments have supplied public transportation services and are responsible for supervising and managing their quantity and/or quality. However, the issue of efficiency in the transportation system has recently come into question. Public ownership, subsidies, operating deficits, and inefficient operation are the main issues of debate on urban transportation.

Many private railway companies (PRCs hereafter) were established in Europe, North America, and Japan at the turn of the 20th century. While a good number of them have gone bankrupt because of financial difficulties, PRCs in Japan are now also operating passenger railway service and engaging in different kinds of businesses, such as real estate, retail, and taxi and bus service in addition to their core railway business (Shoji, 2001; Mizutani, 2008; Kamata and Yamauchi, 2010). Indeed, the decreasing railway ridership resulting from the decline in the population of productive age (i.e. people aged 15 to 64) is currently making diversification strategies crucial for PRCs. Thus, an increase in the proportion of operating profits coming from diversified businesses becomes important not only in maintaining the sustainability of the entire firm, but also in supporting the core railway business.

Most previous research focuses on categorizing the type of diversification and its relationship with the profitability of PRCs in Japan. However, there is not much research investigating the relationship between diversification strategies and PRC's performance quantitatively. Thus, the purpose of this study is to investigate whether PRCs in Japan operate their businesses effectively, focusing on the relationship between diversification strategies and technical efficiency. The analysis includes only major PRCs operating in large urban areas.

This paper is organized as follows: first of all, I present an overview of diversification strategies of PRCs in Japan. Then, I review the previous theoretical and empirical studies on diversification strategy, performed in strategic management. I also outline empirical analysis of diversification strategies using stochastic frontier analysis and discuss the results. Finally, I suggest some concluding comments.

LITERATURE REVIEW

Relationship between Diversification and Performance

Diversification can be described by the extent of participation in different businesses and the underlying relationships between the various businesses within each firm (Nayyar, 1992). It can also be explained as the set of strategies that consists of choosing the types of businesses the firm will enter, the extent to which the firm will rely on past competences or require the development of new ones, and the total amount of diversity considered as appropriate in favor of a single strategy (Rumelt, 1974). Literature on diversification has covered a wide range of research questions and issues within its broad scope.

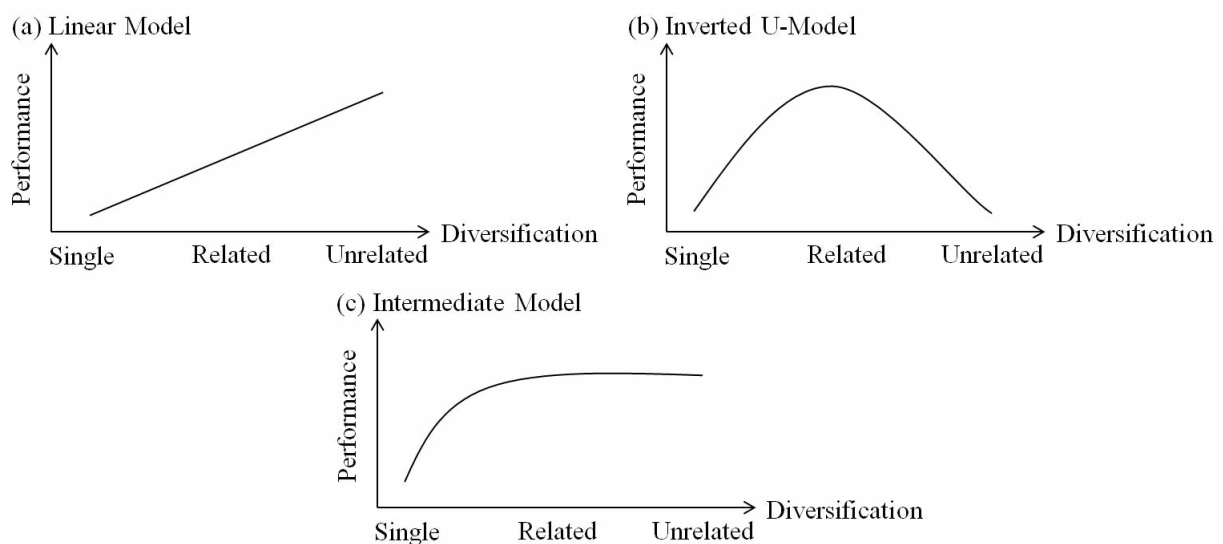
With regarding to the motivation for diversification, Ansoff (1957) claims that a firm wants to be compensated for the deterioration of current technology, to diffuse risk, to utilize excess production capacity, to reinvest revenue, and to acquire superb operation abilities. Porter (1980) mentions the effect of cost reduction through accumulation of experience. He insists that the cost reduction is amplified when the firm utilizes its experience in the process of creating a new product which is similar to a firm's current product, or when it fully utilizes accumulated experience to other related businesses. In other words, the firm considers diversifying because it can lighten the burden of additional cost by sharing common factors, such as experience acquired from the previous business for a new, highly similar one. Based on these arguments, Montgomery (1994) synthesizes the three views of the motivation for the firm's diversification, which are the market-power view, the agency view, and the resource view.

In particular, the resource view insists that a firm diversifies in response to excess capacity of productive factors, called resources. The firm also regards the level of profit and the range of diversification as stock of the firm's assets, core competences, or distinctive capabilities. These resources include factors that the firm has purchased in the market, services, and special knowledge accumulated over time. They are heterogeneous for each firm. If these resources are hard to copy for competitors and to be transferred, they work as competitive advantages. Thus, the optimal level of diversification for the firm is determined by these resources, depending on whether they are different from those of another firm or they exist generally all over the industry (Robins and Wiersema, 1995).

Types of diversification are based on the relatedness among the various businesses of the firm. Wrigley (1970) suggests a basic concept first and Rumelt (1974) modifies it to assess the extent of diversification and the nature of relatedness among the businesses of a diversified firm (Nayyar, 1992). He also categorizes the type of diversification into four categories that can each be broken down into subcategories, to arrive at a total of nine categories. The four major categories defined by Rumelt are single, dominant, related and unrelated business, and all but the single business category can be further divided into subcategories. As a result, the nine business categories are the following: 1) single, 2) dominant-vertical, 3) dominant-unrelated, 4) dominant-constrained, 5) dominant-linked, 6) related constrained, 7) related-linked, 8) unrelated business, and 9) conglomerate. Each category is determined by the specialization ratio (SR), related ratio (RR), and vertical ratio (VR), which are the ratios of operating profit for specialized, related, and vertical business, respectively. The firm is likely to choose a type of diversification by considering the types of tangible resources or assets that it possesses. Intangible assets and financial resources are also considered important. Particularly, intangible assets from research activities like R&D are likely to be more connected with the related diversification (Chatterjee and Wernerfelt, 1994).

Previous research supporting the resource view emphasizes a positive effect of diversification on profitability. Much of that also insists that knowledge-based and inimitable resources can achieve the benefits of diversification (Miller, 2006). Especially, Rumelt (1982) shows through empirical analysis that a related-constrained firm has the highest profitability among diversification categories. Palich et al. (2000) also synthesize diversification-performance literature and suggest three points of view for the profitability issue. Figure 1 shows the three types of relationship between diversification and performance.

Figure 1
MODELS OF DIVERSIFICATION-PERFORMANCE LINKAGE



Source: Palich et al. (2000)

The inverted-U model is strongly supported by many studies. It explains how a firm's performance improves as it diversifies to an appropriate level of related business, and it tends to decrease after a critical point (Bettis, 1981; Rumelt, 1982; Lubatkin and Chatterjee, 1994; Markides and Williamson, 1994; Robins and Wiersema, 1995; Palich et al., 2000). It also explains how a firm's performance improves the more it diversifies, from the single business to related businesses of appropriate level of diversification. On the contrary, if a firm diversifies into unrelated business, its performance worsens gradually (Palich et al., 2000). Therefore, properly matching a firm's resources or assets to its products or services may enhance its profitability.

Diversification Strategies of Prcs in Japan

PRCs in Japan are engaged not only in the railway service, but also in the life of users living near their routes. Although most PRCs of other countries provide only transportation services, they have also deployed various businesses, such as leasing offices and housing, operating department stores and supermarkets, and providing taxi and bus services (Mizutani, 2008). Japanese PRCs have penetrated into users' daily lives through their diversified businesses

(Shoji, 2001; Mizutani, 2008). These full-fledged diversification strategies are the most remarkable feature that differentiates PRCs in Japan from those in other countries (Shoji, 2001).

The main purpose of diversification strategies of PRCs in Japan is to increase railway ridership and to create demand to maintain operations (Shoji, 2001). They faced limitation compelling to build railway lines in underdeveloped areas where there is insufficient ridership, in order that not intervening the operation of Japan National Railway at the start of operation (Shoji, 2001; Mizutani, 2006). In Japan, railway operators are also controlled by fare regulations, such as the rate of return regulation and full cost principle, the entry and exit regulation, as well as service quality regulations, among others (Shoji, 2001). Hence, they have struggled to earn enough profit while simultaneously, deploying the railway business and the development of areas surrounding the railway route. This is also one of the purposes of diversification strategy (Shoji, 2001; Kamata and Yamauchi, 2010).

According to the Ministry of Land, Infrastructure, Transport and Tourism of Japan, in 2012, there were 177 passenger railway operators in Japan and 142 of them were categorized as PRCs. Of these, 16 firms were classified as 'major' companies operating in large urban areas. Although six JR passenger railway companies are also private companies, they are different from other PRCs because they were public companies before privatization in 1986 and three of them (JR East, JR West, JR Central) are operating mass interregional trains, called Shinkansen (bullet train). Major PRCs in Japan have mainly diversified into real estate (e.g. selling and leasing of houses and buildings) and distribution including retail business (e.g. department stores, convenience stores or supermarkets inside or around their terminal buildings and stations). The proportion of revenue from real estate and retail is quite high, so they have diversified focusing on the physical resources utilized in the railway business. They also aim to attract passengers to commercial facilities while utilizing the railway, thereby exploiting the customer asset to increase profitability. Leisure and service businesses are also important in the group company. Building maintenance and manufacturing, or maintenance of railway carriages are other main businesses of some major private railway companies, although the proportion of revenue from these is lower, due to vertical integration to reduce operating costs.

Major PRCs can also acquire many intangible assets (e.g. know-how for railway construction, local development, and trust made over the years by operating railway), as well as tangible assets (e.g. customers using the railway and the land around railway routes). They build connections with residents around their routes and gain brand assets by managing routes and surrounding areas integrally. Indeed, they have tried to improve their performance through diversification based on strategic assets, and accomplished it by utilizing railway passengers and the brand image of the railway business, and fulfilling the synergy effect among businesses (Shoji, 2001; Mizutani, 2006).

Most previous literature on the diversification of PRCs in Japan focuses on the classification of strategic type and the relation between strategic type and performance. Yoshida (1986) adopts Rumelt's method, which is modified considering the industry characteristics of the transportation industry in Japan. He analyzes the relationship between type of diversification and performance, focusing on profitability. Killeen (1999) and Shoji (2001) also classify types of diversification strategies of fifteen major PRCs using Yoshida's method. They find that the strategic positioning of these is steadily maintained, and related diversified firms can be observed in the Kansai region (including Osaka and other areas) more than in the Kanto region (including Tokyo metropolitan areas). In addition, the profitability of related diversified firms is higher than that of any other firms in the sample. This indicates that an increase in the extent of

diversification may cause a decrease of performance above a certain degree of diversification. However, Kamata and Yamauchi (2010) claim that the profitability of dominant firms is higher than that of any other types. This is contrary to the conclusion of Killeen and Shoji, who point out that changing accounting standards and including the three JR passenger railway companies (JR East, JR West, JR Tokai) may be the reason for different results.

Hypothesis

The above arguments lead to the hypothesis about relationship between the extent of diversification strategies and technical efficiency (H1). Other factors that may influence performance except diversification are also considered (H2, H3, H4).

H1 The extent of diversification of the business portfolio is positively related to technical efficiency.

H2 A high degree of labor productivity is positively related to technical efficiency.

H3 Product/market development is positively related to technical efficiency.

H4 Effective use of external financial capital is positively related to technical efficiency.

EMPIRICAL ANALYSIS

Stochastic Frontier Analysis (SFA)

The SFA model was developed simultaneously by two groups of researchers - Aigner, Lovell, and Schmidt and Meeusen and van den Broeks - in 1977. In SFA, a firm's performance is measured by the distance between the industry's efficiency frontier and its observed set of input and output in estimation of the production function. SFA is widely used in many previous studies that either analyze the efficiency of railway transportation by estimating the production function (Coelli and Perelman, 2000; Lawrence and Erwin, 2006), investigate the efficiency of yardstick regulation by estimating the cost function (Mizutani et al., 2009), or estimate cost efficiency of the UK railway (Kennedy and Smith, 2004).

SFA can also be used to test theories of various factors leading to competitive advantage in the context of strategic management. McGahan and Porter (1999) point out that corporate profit are influenced by two sources: the industry structure and the firm efficiency. In terms of firm efficiency, firms gain profits from a line of business when they operate more efficiently than their competitors. The idea to use relative efficiency as a performance measure is closely connected to the concept of competitive advantage since it occurs when an organization acquires or develops some combination of attributes that allow it to outperform its competitors. Therefore, using SFA, each firm's efficient use of resources within the existing industry structure can be investigated (Chen et al., 2015).

Distance functions are used to describe the production technology that makes it possible to measure efficiency. This approach needs no assumptions of behavior objectives (e.g. cost minimization or profit maximization), so the production technology can be described with minimum information. The functions also allow one to describe a multi-input, multi-output production technology (Coelli et al., 2005). In this study, following output distance function is used:

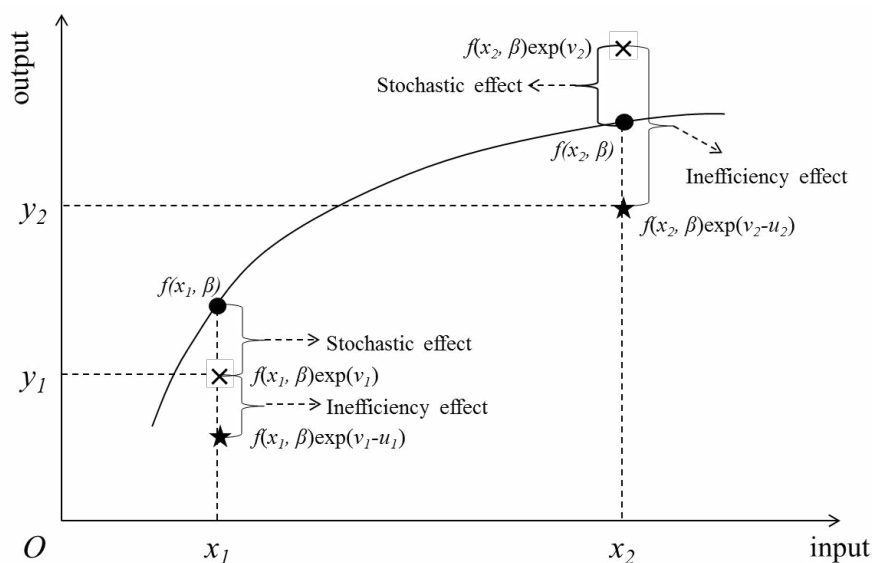
$$D_o(x, y) = \min\{\theta: (y/\theta) \in p(x)\} \quad (1)$$

Where y is an output, x is the input vector, and $p(x)$ is the production possibility set. If output y belongs to the production possibility set of x , then, $D_o(x, y)$ is less than 1 ($D_o(x, y) \leq 1$ if $y \in p(x)$). If output y is on $p(x)$, $D_o(x, y)$ equals 1. The output distance function is linearly homogeneous, non-decreasing and convex in y , and non-increasing in x (Coelli and Perelman, 2000).

The SFA model involves a production function with an error term that includes two components: a random noise effect (v_i) and an inefficiency effect (u_i) (Coelli et al., 2005). The model defined by equation (2) is called a stochastic frontier production function, because the observed output values are bounded from above by the random variable $\exp(\mathbf{x}'_i\beta + v_i)$. In equation (2), q_i is the output of the i -th firm, x_i is the logarithm of inputs, and β is a parameter. There are two error terms: one of them, v_i , is a symmetrically distributed random error term and the other, u_i , is a non-negative random variable representing technical inefficiency (Coelli et al., 2005). SFA differs from other models like OLS in that it divides the error term into two parts, inefficiency and random noise. Figure 2 illustrates features of the stochastic frontier model graphically.

$$\ln q_i = \mathbf{x}'_i\beta + v_i - u_i \quad (2)$$

Figure 2
IMAGE OF STOCHASTIC FRONTIER ANALYSIS



Source: Coelli et al. (2005), pp.244

The production function expressed by $\mathbf{x}'_i\beta$ is commonly assumed to be a Cobb-Douglas and translog production function. In this research, the Cobb-Douglas stochastic frontier model is estimated, considering flexibility and linearity.

$$\ln y = \beta_0 + \sum_{i=1}^n \beta_i \ln x_i + \frac{1}{2} \sum_{i=1}^n \sum_{j=1}^n \beta_{ij} \ln x_i \ln x_j + v_i - u_i \quad (2)$$

The frontier function is determined based on the maximum likelihood estimation (MLE) of the parameters β , and observations therefore deviate from the frontier due to the joint effect of random noise and inefficiency. Much of SFA is directed towards the prediction of inefficiency effects. The most common output-oriented measure of technical efficiency is the ratio of observed output to the corresponding stochastic frontier output (Coelli et al., 2005).

$$TE_i = \exp(-u_i) \quad (3)$$

This measure of technical efficiency takes a value between zero and one. The closer it gets to 1, the more a firm becomes efficient. It shows the output of the i -th firm relative to the output that could be produced by a fully efficient frontier using the same input vector. The first step to calculate technical efficiency is to estimate the parameters of the stochastic production frontier model. Separating the inefficiency effect from the random noise effect is made possible by distributional assumptions, which are the half-normal, truncated normal, exponential, and gamma distributions.

Technical efficiencies measured by SFA for each observation can be regressed against proposed explanatory variables simultaneously with estimating factors influencing technical efficiencies, using OLS or Tobit. If firm-specific factors influencing technical efficiency exist, they appear as firm-specific parameters of the distribution of u . In the inefficiency model, the inefficiency term u_i is assumed to be independently distributed as a normal distribution $N(Z_i\delta, \sigma_u^2)$ truncated below at zero, where Z_i is a vector of explanatory variables and δ is a vector of parameters to be estimated. Explanatory variables of the model and independent variables in the production function are uncorrelated (Kumbhakar and Lovell, 2000). Thus, the econometric structure of SFA allows for simultaneously estimating the impacts of inputs and of exogenous factors on outputs. To analyze possible sources of technical inefficiency, the inefficiency effects u_i in the stochastic frontier function can be specified as equation (4).

$$u_i = \delta \cdot Z_i + \omega_i \quad (4)$$

Data

This study focuses on diversified PRCs that provide services like retail, leisure, and real estate in addition to transportation services. The PRCs providing only transportation services and operating only freight and sightseeing railway are not considered in the empirical analysis. The sample includes 15 diversified PRCs and 3 JR passenger railway companies that were privatized in 1986 and listed on the stock markets for the 2000-2012 fiscal years. As a result, 234 observations are included in the sample. The data is gathered from the NIKKEI Financial Quest database, which contains information about the consolidated financial statements published by each company.

Previous studies on diversification strategies define inputs as capital and labor. The variables generally used for capital and labor, are fixed assets and the number of employees (Baek, 2004), capital stock and production worker hours (Schoar, 2002), as well as total physical capital and wage bill (Piesse and Thirtle, 2000). Thus, in this study, I use the book value of fixed assets as the variable for capital and the number of employees at end of the term as the variable for labor. To avoid repetition of the labor factor, labor cost is subtracted from the operating cost.

For output variables, net sales (Baek, 2004) and firm sales (Nesta, 2008) are used in previous research. Therefore, it seems reasonable to use the sales of a firm as output variables.

The inefficiency model is specified with the following explanatory variables: diversification index, labor equipment ratio, product/market development, and book leverage. Of these, three variables except diversification index are included as control variables. I use the entropy index ($DI = \sum P_i \ln(1/P_i)$, P_i = the share of the i -th segment from the firm's total sales) to describe the extent of diversification (Palepu, 1985). The labor equipment ratio is the ratio of tangible fixed assets subtracting construction work in progress accounted to the total number of employees. Product/market development is measured by the ratio of capital expenditures to total sales and related to the firm's investment to improve facilities. Book leverage is the ratio of total debt to total assets. All variables are deflated by the 2005 GDP deflator. Table 1 presents the detail of data and descriptive statistics.

Table 1					
DESCRIPTIVE STATISTICS					
		Mean	Std. Dev.	Min	Max
Output	Total sales (million yen)	776306	679614	0	3098843
Input	Fixed asset (million yen)	1516507	1639945	0	6937278
	Operating cost (million yen)	581323	460601	0	2329659
	Labor cost (million yen)	48817	60147	0	278332
Inefficiency effect model	Diversification index	1.3405	0.3204	0	1.845
	Labor equipment ratio	565.12	393.63	0	2326.06
	Product/market development	0.1024	0.0456	0	0.2519
	Book leverage	0.8063	0.1522	0	1.2595

Each company categorizes their business segments by their own standards, because there is no unified definition in the present accounting standards in Japan. Therefore, to standardize segment categories, different segments of each company are regrouped into four categories: transportation, real estate, retail, and others (i.e. leisure and service, etc.). Each category is considered as the main diversified business of PRCs by previous research (Killeen, 1999; Shoji, 2001; Kamata and Yamauchi, 2010).

EMPIRICAL RESULTS

The parameters of a stochastic frontier function are estimated simultaneously with the inefficiency model in a pooled data framework. In the inefficiency model, a negative efficiency score parameter estimate shows that the variable has a positive effect on efficiency. Table 2 presents the estimates of the stochastic frontier production function and the inefficiency model.

Table 2 PARAMETER ESTIMATES OF STOCHASTIC FRONTIER PRODUCTION FUNCTION AND INEFFICIENCY MODEL		
Dependent variable: Total sales		
Independent variables	Coefficient	Standard deviation
Production frontier model		
Fixed asset (β_1)	0.0486 ***	0.0150
Labor costs (β_2)	0.0651 ***	0.0062
Operating costs (β_3)	0.9169 ***	0.0194
t	-0.0283 ***	0.0009
Constant (β_0)	56.9934 ***	1.8966
Inefficiency model		
Diversification index (δ_1)	-0.0289 *	0.0160
Labor equipment ratio (δ_2)	-0.0001 ***	0.0000
Product/market development (δ_3)	-0.2494 ***	0.0793
Book leverage (δ_4)	0.3309 ***	0.0413
Log likelihood	396.39	
No. of observations	234	

In the production frontier model, all independent variables are statistically significant at the 1% level, thus the production function describes the production frontier of companies appropriately. The sum of the first-order coefficients (which are elasticity coefficients) for input factors (fixed assets, labor cost, and operating cost) is greater than one, satisfying the assumption of the production function and implying increasing returns to scale. This result reflects the existence of large fixed assets of railway industry which is PRCs' core business.

The estimates in the inefficiency model are of particular interest to this study. Note that all coefficients of in the model are significant and three of them are negative, except for book leverage. In particular, the diversification index is negative and statistically significant. This indicates that H1 is supported and a higher diversification level significantly leads to less inefficiency controlling other factors that may affect inefficiency.

The more diversification strategies a firm uses, the more efficient it is, as shown in the inefficiency model. Economies of scope can be considered the reason of improved efficiency, especially for PRCs diversified into service businesses rather than manufacturing. Nayyar (1993) points out that diversified service firms can get benefit from economies of scope in many situations and the benefit is attributed to sharing unique factors of production such as common technologies and managerial capabilities, which are considered strategic assets for the firm.

Markides and Williamson (1994) claim that a diversified firm can improve its performance through relatedness caused by core competences, which are the pool of experience, knowledge and systems that exist elsewhere in the same company. Core competences are developed through the experience of building strategic assets in the existing business. They are also used to accumulate and create a strategic asset in a new business. In other words, simply sharing strategic assets cannot create competitive advantage. The firm can get an advantage from

diversification by sharing not only strategic assets, but also core competences as catalysts for building and accumulating strategic assets.

Major PRCs in Japan can develop core competences through their experience operating railway transportation. Because they started railway operation in underdeveloped areas where ridership is insufficient, they have strived to understand users' needs in order to attract them to the railway. They can also gain passengers' trust by operating the railway over time and by deploying businesses related to passengers' daily lives (e.g. real estate consultant, housing) (Shoji, 2001). Their competence in building relationships with passengers may enable its other service-focused segments (e.g. retail, restaurant and hotel), to gain competitive advantages exploiting economies of scope.

Considering the control variables, the parameter of labor equipment ratio, which is representative of labor efficiency, is negative and significant, so *H2* is supported and efficient use of labor may attenuate inefficiency positively, although its impact is not very large. The parameter of product/market development, which is the firm's effort to enhance assets, is also negative and significant statistically. Therefore, product/market development influences the firm's technical efficiency positively and *H3* is supported. However, since the coefficient of leverage is positive and significant statistically, *H4* is not supported and the use of external financial capital influences negatively on the efficiency of a firm.

CONCLUDING REMARKS

The principal contribution of this study is the quantitatively analysis of the relationship between diversification strategy and performance using econometric models. Based on the estimation of the distance function, this study can provide some insights for diversification strategy of private railway companies and recommendations for future research. This study investigates the effects of diversification strategies of PRCs in Japan during the 2000–2012 fiscal years, in view of the firms' technical efficiency. The stochastic frontier analysis (SFA) is used to estimate technical efficiency of firms and the ineffective model is estimated to explain the factors influencing technical efficiency simultaneously.

Empirical results indicate that PRCs in Japan achieve economies of scope in the creation of diversified businesses. In estimating the inefficiency model, diversification strategies influence a firm's efficiency and the extent of diversification strategies is related to efficiency positively. This implies that PRCs exploit economies of scope through diversification strategies and utilize their core competences effectively in order to diversify.

There are also aspects that can improve this research in future works: first, although diversification strategy may play an important role in enhancing the firm's performance, some questions remain with respect to whether diversification strategy enhances a firm's performance through improvement of strategic efficiency. While diversification influences strategic efficiency positively, it is not certain whether the effect of improved performance originates from the effective strategy or economies of scope obtained by simply operating multiple businesses. As discussed above, the distinct benefit of diversification, like competitive advantage, is driven not by the simple utilization of resources, but by the intangible and inimitable resources of a firm. Thus, to ensure the effect of diversification strategies, it is important to investigate the effect of diversification strategy on a firm's efficiency, separating from economies of scope.

The influence of technical efficiency on performance is described roughly in relation to the degree of diversification. However, the types of diversification are also one of the key factors to performance, as discussed in many previous studies. Therefore, comparing the types of

diversification strategy is necessary to deeply understand their relationship with performance. Also, in order to identify the effect of diversification strategy, it is necessary to compare with non-diversified firms in terms of technical efficiency and performance. It is also desirable to investigate the change in technical efficiency over time in order to reflect the strategic change. In addition, it is recommended to investigate the relationship between technical efficiency and the firm's profitability to confirm the importance of effective strategy.

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SHARED LEADERSHIP AND ITS DYNAMICS: A NEGLECTED MECHANISM

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ABSTRACT

Research on temporal dynamics has been gaining more attention in recent years. However leadership, one of the important ingredients for teams, organizations, and task-performing processes, has been lacking in studies of temporal dynamics. This article attempts to focus on the mechanism of shared leadership in an attempt to integrate temporal dynamics and leadership.

The concept of shared leadership was coined about one hundred years ago, but it was not until the 1990s that researchers began to direct their attention to it. Empirical studies that explored the relationship between shared leadership and team effectiveness, and investigated the effectiveness of shared leadership utilized a theoretical approach. However, little is known about how members in a group share leadership roles or functions in the task completion process.

Researchers in the field of shared leadership have struggled theoretically and empirically to address the dearth of studies related to the process of shared leadership. The results of extant research have shown that there are both facilitators and barriers that influence the process of shared leadership, and moreover the process of shared leadership changes because of the facilitators and barriers. Previous research has revealed factors influencing the process, but the existing research has directed little attention to the transition from a situation where group members share leadership to a situation where one person predominately exercises leadership in a group. Thus, research is needed to understand the mechanism of transition and factors related to it.

The purpose of the study is to explore the factors that influence transitions where the distribution of shared leadership decreases. In order to achieve this, I draw on past literature in group development and shared leadership, and illustrate transition with an example. Moreover, advancing the research, the present study offers some insightful theoretical and practical implications. Especially, in regard to the theoretical implications, this article responds to calls for research to explore the relationship between temporal dynamics and leadership. In addition, with regard to the practical implications, the present study offers factors, that under some situations, promote the aforementioned transition. Furthermore, the study suggests practical implication for managers in charge of goal attainment in a limited period, and suggests ideas for future research on issues still needing to be tackled.

INTRODUCTION

Recognizing the need for study on the influence of temporal dynamics (e.g., Hackman, 2012; Wageman, Gardner, & Mortensen, 2012), researchers in the field of leadership have sought the process in which people in a group exercise leadership along with the process (Zaccaro, & Klimoski, 2002). In order to capture the process or dynamics of leadership, previous studies have explored leadership dynamics in a various settings (cf. Hackman, 2002). For instance, some of situations are top management teams (e.g., Srivastava, Bartol, & Locke, 2006; Wageman, Nunes, Burruss, & Hackman, 2008), the entrepreneur teams (e.g., Ensley, Hmieleski, & Pearce, 2006;

Hmieleski, Cole, & Baron, 2012), and virtual teams (Hambley, O'Neil, & Kline, 2007; Kirkman, Rosen, Gibson, Tesluk, & McPherson, 2002).

In order to capture dynamics of leadership, this study focuses on the concept of shared leadership (cf. Pearce, & Conger, 2003), because if the author focuses on one person who would exercise leadership in a group, it makes more difficult to discuss how leadership emerges and changes during the process of a group activities. Moreover, I show that because of changes of the nature of work (i.e., the trend to knowledge work; cf. Pearce, 2004), it is becoming much difficult for one person to exercise leadership alone. According to Pearce (2004), "it is even more difficult for any one person to have all of knowledge, skills and abilities for the tasks" (p. 47). In short, researcher has difficulty determining who has leadership role in advance (cf. functional approach: Morgeson, DeRue, & Karam, 2009; Zaccaro, Rittman, & Marks, 2001).

This paper addresses two issues. First, after reviewing the theoretical methods that the existing research employed and discussing what extant research has investigated, the study points out that previous research has been likely to overlook the process in which people share leadership roles and functions in a group. Secondly, I argue that due to the first point, the researchers need to explore the possibility that there are some opportunities where it is likely one person that exercises leadership.

The remaining sections of the paper are structured as follows. First, I outline how the concept of shared leadership has been discussed. Second, the present study reviews what the existing research has explored empirically by a theoretical approach. Third, drawing on the results of extant research, this article provides the neglected issue in shared leadership, and explores the neglected issue theoretically. Fourth, given the discussion, a series of potential theoretical and practical implications are discussed, as well as a series of limitations. Finally, advancing the research, this study suggests some points to be tackled in future research.

THE LITERATURE

The Concept Of Shared Leadership

Some researchers have mentioned that ideas similar to the concept of shared leadership have been discussed before. For example, Pearce and Conger (2003) showed that there had had been some theoretical ideas underlying the notion of shared leadership. According to Pearce and Conger (2003, p.6), the earliest researcher who mentioned the similar idea to the concept of shared leadership was Mary Parker Follett (1924). She introduced the idea of the law of the situation, and showed under some situations; people follow the person who is not appointed leader.

Although this related idea was identified about 90 years ago, it was not until about the 1990s those researchers have been increasingly interested in the concept of shared leadership (cf. D'Innocenzo, Mathieu & Kukenberger, 2014). Table 1 (adopted from D'Innocenzo et al. (2014)) shows some of definitions to which previous researches have referred. Table 1 shows the current situation in which researchers have stated different dimensions of shared leadership. Researchers have mentioned the slight different definitions of shared leadership, however, previous research has proposed that there are some features underlying the different definitions of shared leadership among the previous studies. Although the interest has been increasingly on shared leadership, there exist no united definitions about shared leadership.

Table 1
The Chronological Order Of Shared Leadership Definitions Used By Approach

Date	Authors	Definition Used	Approach Used (Blank columns are theoretical studies)
2002	Pearce, & Sims	Leadership that emanates from the members of teams, and not simply from the appointed team leader	Aggregation
2002	Erez, LePine, & Elms	Leadership can be shared over time whereby team members share (albeit not at once) in responsibilities involved in the leadership role . . . by clarifying who is to perform specific role behaviors (i.e., leader and member)	Aggregation
2002	Sivasubramaniam, Murry, Avolio, & Jung	Collective influence of members in a team on each other; how members of a group evaluate the influence of the group as opposed to one individual within or external to the group	Aggregation
2003	Cox, Pearce, & Perry	Shared leadership is a collaborative, emergent process of group interaction in which members engage in peer leadership while working together	
2003	Fletcher, & Kaufer	A set of practices that can and should be enacted by people at all levels rather than a set of personal characteristics and attributes located in people at the top	
2003	Pearce, & Conger	A dynamic, interactive influence process among individuals in groups for which the objective is to lead one another to the achievement of group or organizational goals or both	
2004	Pearce	Shared leadership occurs when all members of a team are fully engaged in the leadership of the team and are not hesitant to influence and guide their fellow team members in an effort to maximize the potential of the team as a whole	
2006	Ensley, Hmieleski, & Pearce	Team process where leadership is carried out by the team as a whole rather than solely by a single designated individual	Aggregation
2006	Mehra, Smith, Dixon, & Robertson	Shared, distributed phenomenon in which there can be several (formally appointed and /or emergent) leaders	Social Network Theory
2007	Carson, Tesluk, & Marrone	An emergent team property that results from the distribution of leadership influence across multiple team members	Social Network Theory
2014	D'Innocenzo, Mathieu, & Kukenberger	Shared leadership is an emergent and dynamic team phenomenon whereby leadership roles and influence are distributed among team members	Meta-Analysis
2014	Hock, & Kozlowski	Shedding leadership with team members is based on the premise that leadership should not be the sole responsibility of a hierarchical leader, but should be collectively exercised by empowering and developing individual team members	Aggregation
2014	Nicolaides, LaPort, Cheng, Tomassetti, Weis, Zaccaro, & Cortina	A set of interactive influence processes in which team leadership functions are voluntarily shared among internal team members in the pursuit of team goals	Meta-Analysis

D'Innocenzo et al. (2014) identified five themes that previous research on shared leadership had had in common. The first theme is the locus of leadership. It states whether the locus of leadership is inside or outside teams, and especially the latter is related to the study on team leadership (cf. Zaccaro et al., 2001) and self-managed team (cf. Manz, & Sims, 1993). The second theme is about the authority of leadership, that is, whether or not leadership is formal within organization. According to D'Innocenzo et al. (2014), the first and the second theme are about the sources of shared leadership.

In addition, the third is “the extent to which team members participates in leadership” (pp. 4-5). For the third theme, previous studies have employed two approaches: the aggregation approach and the social network theory approach (cf. D'Innocenzo et al., 2014). The aggregate approach of shared leadership assumes that shared leadership entails several leadership styles (cf. Pearce & Sims, 2002). Pearce and Sims (2002) suggested shared leadership entailed aversive leadership, directive leadership, transactional leadership, transformational leadership and empowering leadership. On the other hand, the social network theory approach is literally the methodology based on the social network theory. The approach attempts to capture the concept of shared leadership by using the concepts of density and centrality, and shows how people connect each other and who mainly exercises and shares leadership.

The fourth theme is the dynamic quality of shared leadership. This theme is related to the assumption that leadership is static. The concept of shared leadership struggles to capture dynamics in which different people perform the leadership role along with task-performing

processes and during the team's life cycle (e.g., Erez, LePine, & Elms, 2002). Thus, the research on shared leadership needs to pay attention to the influence of time on dynamics and the temporal shift of leadership roles among team members. Thus, the concept of shared leadership is partially contrasted with the traditional leadership concept (i.e., vertical leadership) in that shared leadership assumes that all members, not only the person who is at the appointed position, can exercise leadership. The final theme is the involvement of multi roles and functions. It suggests that to facilitate the task completion, shared leadership consists of multiple leadership roles and responsibility. Thus, shared leadership assumes that whether same or different, members in a team perform multiple leadership roles for completing the task. The aforementioned themes are typical characteristics found in previous definitions, however, the salient difference between vertical leadership and shared leadership remains unclear.

In order to make the notable difference between vertical leadership and shared leadership clear, this article sheds light on the study that discussed the relationship between shared leadership and vertical leadership. As for vertical leadership, there are two salient characteristics. The first is that vertical leadership assumes the downward influence from the top or the person who is in the hierarchical position (i.e., managers). On the other hand, shared leadership considers the multidirectional influence. In other words, shared leadership literature captures three different influences; downward and upward, lateral, and diagonal (cf. Pearce, Conger, & Locke, 2008). The second is, as aforementioned, that shared leadership assumes that members in a group can exercise leadership. This point is related to the first in that members include not only managers, but also subordinates in a group. Hence, shared leadership supposes that there is a lateral influence between subordinates.

Given the characteristics mentioned above, in this article, the author proposes the following definition: Shared leadership is an emergent and dynamic phenomenon in which, regardless of the direction of influence, team members share leadership roles, functions, and influences.

The Result of Prior Empirical Studies

As the interest in temporal dynamics has been gaining more attention in recent years, researchers have acknowledged the importance of shared leadership and investigated the effectiveness of shared leadership. Moreover, the exploration of the influence of shared leadership, previous studies have sought to identify those situations in which the influence of shared leadership is effective or ineffective. The accumulated results related to shared leadership have shown the effectiveness of shared leadership, however, this article argues that the previous study has been likely to overlook the mechanism related to the centrobaric concept of shared leadership. In short, extant research has directed little attention to the issue of how members share leadership within a group or during task-performing processes. In this study, I review the previous empirical researches that have investigated the effectiveness of shared leadership and identified the certain situations in which shared leadership behaviors are effective or ineffectively. Furthermore, the study points out that previous research has focused little attention on the mechanism in which members in team share leadership role or functions.

To demonstrate empirically the effectiveness of shared leadership, the previous research has employed either the aggregation approach or the social network theory approach. In addition, the previous research has shown that shared leadership is related positively to team performance, and that shared leadership is effective or ineffective under some circumstances. Among the accumulated studies, researchers have mainly focused upon team performance (e.g., Carson,

Tesluk & Marrone, 2007; Nicolaidis, LaPort, Chen, Tomassetti, Weis, Zaccaro & Cortina, 2014; Erez et al., 2002; Hoch & Kozlowski, 2014; Mehra, Smith, Dixon & Robertson, 2006; Hmieleski et al., 2012; Ensley et al., 2006; Muethel, Gehrlein & Hoegl, 2012). For example, Nicoaides et al. (2014) supported that shared leadership has a positive effect on performance based on the result of the meta-analysis. Furthermore, they found that when task interdependence was high, the relationship between shared leadership and performance got stronger positively.

Further, in addition to the investigation of the relationship between shared leadership and team performance, some previous studies have struggled to find the situations in which the influence of shared leadership is weaker. For instance, Muethel et al. (2012) investigated some factors that had influence on the effectiveness of shared leadership in dispersed teams. From the results, they first found that teams with high female to male ratio had positive relationship with shared leadership behaviors, because “women might be particularly likely to demonstrate shared leadership behaviors, as they prefer team-oriented leadership styles”(p. 531). Second, drawing on a socialization perspective, they demonstrated that team’s high mean age was negatively related to shared leadership behaviors. A socialization perspective states that older members might be used to hierarchical leadership style (i.e., vertical leadership). Finally, the results of the study supported national diversity positively related to shared leadership behaviors from an information-processing perspective.

As the current study noted, researchers on the study of shared leadership have sought to investigate the effectiveness of shared leadership and how shared leadership behaviors are effective or ineffective in some situations. However, in light of these concerns, it is not surprising that relatively limited research attention has been directed toward the mechanism of shared leadership. In other words, researchers have focused little attention on how members share leadership along with the task completion process or among members in different situations. Thus, the study suggests that the mechanism of shared leadership process needs to be explored and discussed theoretically. In the following section, the study reviews a few studies that explored the mechanism, and further demonstrates that there has existed an implicit assumption held by researchers in the field of shared leadership.

The Mechanism Underlying Shared Leadership

During the last several decades, there have been some studies that explored the missing (i.e., the mechanism) of shared leadership. Those studies have demonstrated how shared leadership developed during temporal task-performing processes or within the team members. In this section, via reviewing the studies that explored the mechanism, this article suggests that extant research, even the literatures that dealt with the process of shared leadership, has not fully focused on the mechanism. Overall, the study suggests that researchers need to pay further attention to the neglected side of the mechanism, that is, the process in which the situation of shared leadership changes into the one where one person predominately exercises leadership, rather sharing leadership among people.

As for whether leadership can be shared, researchers suggest theoretical and empirical explanations. For example, Seer, Keller and Wilkerson (2003) addressed the research issue. Drawing on the role making theory and social exchange theory, they offered theoretical framework for how influence can be shared. Moreover, based on the theoretical model, they suggested that there were some facilitators and barriers for shared leadership. Some of the facilitators were group size, generalized exchange norms, tasks that require role differentiation and exchange relationship. On the other hand, some of the barriers mentioned were implicit

leadership theory, group's demographic composition, and the different preference in status seeking.

In addition to the theoretical explanation for the process of shared leadership, researchers have struggled to demonstrate how people share leadership by focusing on the influence of time empirically. For instance, Avolio, Jung, Murry, and Sivasubramaniam (1996) investigated how different the effectiveness of shared leadership would be at different level of team development. Via two samples of the undergraduate students, they posited that leadership was related positively to the level of group development. The result showed that as groups developed, leadership within teams would be shared.

Moreover, in light of the changes in the process of shared leadership over time, Drescher, Korgaard, Welp, Picot, and Wigand (2014) explored how shared leadership changed over time by focusing on the concept of trust. Building on literature of dynamic leadership and adopting the functional leadership approach, they showed that shared leadership had a positive relation with the group effectiveness, and the relationship between shared leadership and group effectiveness was full mediation. According to Drescher et al. (2014), "not all groups demonstrated growth in shared leadership" (p. 8). In other words, the results showed that shared leadership could not always be distributed among group members over time.

While Avolio et al. (1996) and Drescher et al. (2014) investigated the relationship between group development and shared leadership, Hoch and Morgeson (2014) explored the process by focusing on the relationship between vertical leadership and shared leadership. Drawing on the social learning theory (cf. Bandura, 1977) and the *falling dominos* effect (cf. Bass, Waldman, & Avolio, 1987), they investigated some hypothesis related to the relationship between two types of leadership (i.e., vertical leadership and shared leadership) and the effectiveness of them via a sample of 62 projects teams from three different organizations. The results supported some of hypothesis and revealed that some behaviors of shared leadership mediated the relationship between vertical leadership and team effectiveness. In other words, the results of Hoch and Morgeson (2014) showed that vertical leadership behaviors could enhance the distribution of leadership (i.e., enlargement of shared leadership) within teams and organizations.

As the article reviewed above, previous research has collectively investigated and supported that as groups' task processes goes forward or groups develop, compared to the beginning, people share leadership roles and functions increasingly (cf. Drescher et al., 2014). In short, researchers have suggested how members would facilitate shared leadership behaviors. But, does the mechanism of shared leadership mean just the process of facilitation of sharing leadership roles and functions? In order to reply to the question, the study suggested that until recently, scholars have focused scant attention on how the situation of shared leadership changes into the one where one person predominately exercises leadership within team or during the task completion process. In the following section, drawing on empirical and theoretical research, the current study suggests that there exists a possibility that the aforementioned ignored mechanism would occur and posits that researchers need to direct attention to it.

DISCUSSION

The present article suggests that even though extant research has directed little attention to the mechanism in which the distribution of shared leadership decreases, such a mechanism occurs. In seeking to show the possibility of the mechanism, this article focuses on the literature of group development (e.g., Gersick, 1988,1989; Tuckman, 1965; Tuckman, &

Jensen, 1977). Researches in the field have mainly explored how groups develop over time, or how groups perform over the task completion process, and the results of the literature have shown the useful insight for discussing the neglected process of shared leadership. Drawing on the results of the conceptual and empirical researches, the present study reveals the need for exploring the mechanism in which a person predominately exercises leadership, rather sharing it among members.

To address the aforementioned purpose, the present study focuses on the concept of urgency. Some researchers have discussed the influence of urgency on group development and the members' behaviors (e.g., Berkowitz, 1953; Gersick, 1988, 1989, 1994; Gersick, & Hackman, 1990). As for the relationship of leadership and urgency, via the mixed methods of qualitative and quantitative study, Berkowitz (1953) demonstrated that when the urgency of situation was low, members in a group were likely to share leadership among them. Although Berkowitz (1953) showed that the influence of urgency related to leadership roles within a group, how urgency influenced leadership remained unclear.

Gersick (1994) examined the relationship between pacing behavior and leadership behavior over task-performing processes. The results of the study demonstrated that when leaders assumed their own schedule, they were more likely to do pacing behavior while considering the end of task-performing processes. Given the results of Gersick (1994), as task-performing processes comes to the end of the task completion, the issues that leaders should address become more obvious, compared with the beginning. But, it is true to members in a group. In other words, it becomes easier for members, as well as leaders, to assume what is to be done by the end of the task completion, as task-performing processes goes forward. Moreover, Lim and Murnighan (1994) examined Gersick's group development model (i.e., the punctuated equilibrium model), and stated that as the deadline of task-performing processes came closer, members tended to act even quickly.

The results of Gersick (1994) and Lim and Murnighan (1994) showed that in order to make the task completion process progressed; members decided what to be done in the limited period, even if they felt stressed by the influence of urgency. In such a situation, since it enables members to decide what to do more quickly, it seems rational to show behaviors in the way that used to be. In short, when task-performing processes comes to the deadline (i.e., they feel urgency), they tend to take actions that they used to (cf. Gersick, 1988, 1989).

Considered the rationality of consistent behaviors, how could it influence the process of shared leadership? As the current study mentioned, according to the results of Gersick (1988, 1989), members in a group tend to follow prior behaviors. Thus, they are more likely to follow one person who takes leadership in directing task-performing processes, because, compared to other members, he or she can make it clear what to do. Therefore, the current study posits that as task-performing processes comes to the deadline (i.e., when urgency becomes higher), group members tend to rely on the person who has exercised leadership in directing the group activity. Moreover, it results in the situation where one person is likely to take predominantly leadership roles in a group (i.e., vertical leadership), rather to share leadership roles with other members (i.e., shared leadership).

The study exploring the process of shared leadership theory has investigated what mechanisms foster the distribution of shared leadership behaviors within a group. The results of the studies have shown some empirical and theoretical findings, however, researchers have directed little attention to the mechanism in which people tend to be dependent on one person who predominately exercises leadership within a group, and the trigger that makes such a

mechanism happen. In order to explore the mechanism, the present article focused on the concept of urgency, and offered how urgency can be the trigger.

LIMITATIONS AND IMPLICATIONS

The present article represented an attempt to deal with the process of shared leadership. Extant research has shown that shared leadership positively related to the performance, and that the effectiveness of shared leadership was effective or ineffective under some situations. However, there have existed the deaths of studies related to the process in which group members share leadership roles or functions (i.e., the process of shared leadership). Given the existing results of the research that explored the process of shared leadership, this article suggested that the previous research have been likely to focus upon how members in a group share leadership roles and functions. Furthermore, in a consequence, the article posited that the existing research have tended to overlook the process in which people are more likely to be depend on the person who mainly exercises leadership in a group.

In order to explore the mechanism, the article focused on the concept of urgency, and attempted to show how urgency influenced the process of shared leadership, via drawing on the results of the literature of group development. The results of the literature of group development have shown that urgency affected behaviors of group members. Considered the results of group development literature, this article suggested theoretically that as the deadline comes closer (i.e., when members recognize the urgency), in order to get task-performing processes done in the coherent way, members in a group tend to be dependent on the person who has played leadership roles or functions that were related to the direction of task-performing processes.

As with all researches, the current study is not without limitations. First, drawing on the results of the literature of group development and shared leadership, this article showed that there are some factors that enable people to rely on the person who predominately exercise leadership in a group. But, this article discussed one of the factors (i.e., the influence of urgency) conceptually, not empirically. Therefore, in the future, the research needs to show the influence of the factors empirically. The second limitation is that this study demonstrated only the influence of urgency, thus there are other factors that have the same influence on the process of shared leadership. For instance, as Follett (1924) already mentioned, the experience can be one of the factors. Referring to the work of Follett (1924), Pearce and Conger (2003) mentioned that “rather than simply follow the lead of the person with the formal authority in a situation, one should follow the lead of the person with the most knowledge regarding the situation at hand” (p. 6). When someone in a group has many experiences rather than other members, it would be more likely for them to rely on the person, because the person with experience could direct the group with a clear vision that others do not have. In terms of such factors that influence the process of shared leadership, researchers need to explore the mechanism.

Although this article has the limitations mentioned above, there are several important theoretical and practical implications from this research, especially in regard to exploring the process of shared leadership and exercising leadership in temporal task-performing processes. As for the theoretical implications, the study has two implications. First, this article responded to calls for research such as Zaccaro and Klimoski (2002) and Hackman (2012). Extant research has investigated the effectiveness and the antecedents of shared leadership, however, little research has directed attention to the process of the interface of shared leadership and temporal group process (cf., Zaccaro, & Klimoski, 2002). The study suggested how shared leadership could change into vertical leadership during task-performing processes.

Second, the study offered the possibility that under some situations, rather sharing leadership roles and functions, one person in a group could mainly exercise leadership. Previous research has attempted to explore the mechanism of shared leadership, however, they have tended to overlook the aforementioned possibility. Although a few existing research have demonstrated the facilitators and barriers, little is known about how the facilitators and barriers have influence on the process of shared leadership. In contrast to the previous research, via focusing on the concept of urgency, this study explored theoretically how those factors affects the mechanism of shared leadership.

In addition to the theoretical implications, the study has also practical implication. Given the discussion of this article, managers and team leaders should consider the influence of urgency. As task-performing processes goes forward, it might be effective for managers to predominately take leadership roles, rather than sharing roles with members, because the influence of urgency would make people rely on the person who take leadership role in directing the group. In the field situation, these individuals tend to be managers; therefore managers should pay their attention to the timing when they start predominately exercising their leadership over task-performing processes.

FUTURE RESEARCH

Given the aforementioned limitations and implications, future research is needed to address the limitations and strengthen the implications. This article presents two suggestions for future research. First, future research should attempt to examine the factors that enable people to rely on the person who predominately exercises leadership in a group. This article focused on the influence of urgency as one of such factors, however, as mentioned above, experience can be regarded as one of the factors as well. Moreover, the role of pacing behavior is critical for tasks that are temporal (e.g., Ericksen & Dyer, 2004; Gersick, 1988). In other words, the person who predominately shows pacing behavior may exercise leadership relatively more frequently rather than other members. Thus, future research needs to explore the factors that influence on the mechanism of change in leadership.

The second suggestion is related to the issue of methodology. The present study discussed the neglected mechanism of shared leadership, how shared leadership changes by reviewing extant research. In order to examine the possibility of a mechanism, future empirical research needs to be done. Future research should employ qualitative method to approach the process-issue of leadership (i.e., the mechanism of shared leadership). Issues related to qualitative method in the literature of leadership have been discussed. For example, Bryman (2004) mentioned that one of the things that are distinct between qualitative and quantitative research on leadership is that qualitative approach enables researchers to "... view over time the kinds of impacts that leaders make and how they respond to problems with which they face" (p. 752). That is, qualitative study will allow future research to investigate the process in which shared leadership changes.

There has been growing attention toward the qualitative approach to explore the process or temporal change of leadership; however, researchers need to address problems related to conducting research with the approach. Van de Ven and Huber (1990) pointed out some such problems, (i.e., the generalizability, an issue related to inference that process theory as well to a large population (cf. p. 216)). In addition, there are problems related to the qualitative approach that are specific and relevant to conducting qualitative research on leadership. For instance, the use of observation, Bryman (2004) mentioned that researchers have difficulty conducting

observations of leadership, because it requires a lot of time and may entail the issue of access and confidentiality. Future research should address the problems and attempt to examine the process of leadership phenomenon empirically.

Taken together, future research should address the two ideas suggested above. Although the two may seem independent of each other, the two are intertwined. In other words, on the one hand, future research needs to seek and identify the factors that influence the process of leadership, and on the other hand, researchers should investigate the influence of factors on the process using qualitative method. In addition, when the process of leadership changes is described using qualitative approach, it may be easier to find and examine the factors that have been neglected in the search of the process of leadership. Hence, future research should pay more attention to the two intertwined issue.

ENDNOTES

- 1 As for the concepts similar to shared leadership, researchers have argued. As examples of such concepts, Nicolaides et al. (2014) cited distributed leadership (e.g., Gronn, 2002), collective leadership (e.g., Hiller, Day, & Vance, 2006), and rotated leadership (e.g., Erez et al., 2002). Moreover, in terms of the relationship between the concepts, for instance, Ensley et al. (2006) mentioned that distributed leadership and shared leadership had had been used interchangeably. But, DeRue (2011) reviewed the relationship between the two (i.e., distributed leadership and shared leadership), and mentioned that “in the distributed model, multiple group members are engaging in acts of leading and following, but those acts are sequential and not concurrent. With shared leadership, however, the acts of leading and following are occurring simultaneously across time and actors”(p. 135). Since clarifying the similarities and differences between those concepts is beyond the purpose of this study, in the current study, I use the term of shared leadership interchangeably with the concepts similar to shared leadership.

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THE ROLE OF SERVICES IN BUSINESS INTELLIGENCE: A STUDY

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ABSTRACT

In this study, the role of consulting services in business intelligence (BI) was analyzed using a case study of IBM Corporation, which is the flagship BI vendor in Japan. Three roles of services (Suarez and Cusumano, 2009) were identified in this context: (1) services reduce the uncertainty and complexity associated with customer information; (2) services are the way to obtain feedback from customers; and (3) services constitute an important criterion in product selection. Additionally, services were found to increase the value of the BI software product itself. Based on a comparison between IBM and NTT DATA Mathematical Systems Inc. (the latter has a smaller market share than the former), a strategy for consulting services in the BI business was suggested. This strategy involves an appropriate combination of software and consulting services in order to provide value to the customers, which would, in turn, affect the market share of the BI vendor.

INTRODUCTION

Business activities can be understood as activities that “provide value to customers and ensure customer satisfaction.” Many types of values are provided to the customer, and they can differentiate the company that provides the values. There have been many studies on the role of services. For example, Senoh (2011) showed that the ways of creating customer values have been diversified dramatically and classified the relationship between goods and services into three categories: substitution (change from the possession of goods to the usage of services); complementation (enhancement of the value of goods by services); and synergy (between goods and services). In an empirical research on semiconductor trading companies, Murayama and Osada (2007) indicated that the focus of architects in semiconductor trading companies has been changing from the semiconductor itself to the optimal combinations of semiconductors or components in order to realize the required performances and functions, as it is called a “solution.” Further, they showed that some semiconductor trading companies that understood the importance of a “solution” have had highly profitable performance. Using many case studies, Cusumano (2004) indicated that software companies cannot avoid changing their business model from providing software to providing services, including consulting services. He also mentioned that the required organizational capabilities are quite different for software companies and service companies, and that it is quite difficult to own both capabilities.

Johnston and Clark (2008) categorized the attributes of services into two parts, “Result” and “Experience”. The former includes the adequate fulfillment of customer needs, emotional engagement of customers, and satisfaction with the result, and the latter is affected by their

treatment in the service process (which consists of the depth of interaction, responsiveness, flexibility, strength of friendship, accessibility, feelings of importance, abilities, and politeness). As mentioned by Sasser et al. (1978), the characteristics of services that differ from those of goods consist of IHIP (Intangibility, Heterogeneity, Inseparability and Perishability), and these have been used widely throughout the world. However, due to recent changes caused by the Internet, for example, Lovelock and Gummesson (2004) have added Ownership to IHIP.

In a discussion of the relationship between services and goods, Shostack (1977) argued that there was no pure distinction between goods and services and that every product is like a molecule which consists of a combination of goods and services – an idea later taken up in Kotler and Armstrong (2001). These days, however, goods have been given primacy, with services regarded as a subsidiary, and it was insisted that goods required additional services in order to maximize goods' ability, with the combination of goods and additional services becoming the basis of products. A few researches have nevertheless treated services the same as or more similar to goods (e.g., Rust and Oliver, 1994), but after the publication the work on "Service-Dominant logic" (S-D logic) by Vargo and Lusch (2004), the theoretical framework for the treatment of goods and services as whole services expanded dramatically. In S-D logic, competences such as knowledge and skills, or the service itself, are exchanged for services. In "Goods-Dominant logic" (G-D logic), economic units for exchange are the goods themselves. In S-D logic, on the other hand, competency it considered to have been embedded in the goods during production process, and goods produce an effect by being used. In terms of the customers' role, customers are the recipients of goods in G-D logic, whereas they are co-creators of services in S-D logic, and marketing activities are conducted as an interaction with customers. Additionally, in terms of value, the value is defined by the producers in order to maximize the prices of goods in G-D logic, whereas the value depends on the context of the service offered and recognized by customers through utilization in S-D logic. As explained above, service innovation is realized by the bidirectional and cooperative relationship between company and customers in S-D logic, and the optimal combination of goods, people and services has become of vital importance.

These previous studies indicate that the importance of services, which were considered "complementary activities" in the past, has been increasing dramatically, and that the superiority of the way in which these services are added into business model can change the profitability. In this paper, the specific roles of services in order to realize profitability will be extracted from some case studies.

OBJECTIVE

Suarez and Cusumano (2009) identified five roles of services in the platform business. Examples of platforms in this paper are the chassis systems of cars or the operating systems of computers, which are the backbone technologies that create customer value. The study raised an issue that there are few prior studies on the role of services for success in the platform market. The study identified five roles of services: (1) reducing the contingency and complexity when the customers select a platform at the early stage of the market; (2) obtaining feedback from the customers in order to improve the services; (3) upgrading the platform's values by combining a

product with complementary or competing products; (4) subsidizing the customers; (5) becoming a resource of profit instead of relying on profits from the product. Further, the study proposed two criteria that measure the expansion ranges of service providers, namely, the level of “product-specificity” and the level of “industry-specificity.” The former is defined as the percentage of total industry services that are exclusively related to the industry’s product. The latter is defined as the percentage of total industry services provided by the firms in the product segment of the industry. In the study, three factors that affected these two criteria were introduced: technological uncertainty and complexity of the product; evolution phase of the industry; and the degree of modularity of the product.

Suarez and Cusumano (2009) explained the roles of services and the expansion ranges of service providers based on several prior studies of many industries and products. However, they did not demonstrate the extent to which the roles of services and the expansion ranges could work in the range of one product because they used disjoint case studies. Additionally, the relationships between each role of services and each factor of expansion ranges of the service providers were not analyzed. Therefore, it can be concluded that their study was inadequate.

In this paper, the five roles and the factors for expanding the ranges of service providers will be analyzed using two case studies of IBM and NTT Data Mathematical Systems Inc. in the business intelligence (BI) market. Business intelligence is used for Big Data analysis and business analytics, which are currently very popular. The following research questions are addressed by this paper:

In the BI business segment, how have the roles of services and the factors of expansion ranges of service providers been developed, and how are they established?

If they are not established, why have they not been established?

How do they work in order to obtain greater profit?

SUMMARY OF BUSINESS INTELLIGENCE

Today, business intelligence (BI) has attracted the attention of the public given the increase in the power of the PC. BI is a concept, methodology, activity, or IT system that holds a significant amount of data internally and, externally and enables a company’s results to be analyzed, with the results utilized during business administration decision making (NTT Data Corporation, 2009). Figure 1 illustrates a common BI system structure. In the past, SCM (supply chain management), CRM (customer relationship management), POS (point of sales), or ERP (enterprise resource planning) systems were installed at a company but the data were managed separately for each system. In a BI system, ETL (extract, transform, and load) manages all of the data in all of a company’s systems through which the data are interrelated with one another. The data are stored in a DBMS (database management system) for DWH (data warehouse) purposes and used for statistical analyses, data mining, text mining, or simulations. The analytic results are displayed using report tools or dashboard systems and are shared across the entire organization.

Figure 1
COMMON STRUCTURE OF A BI SYSTEM

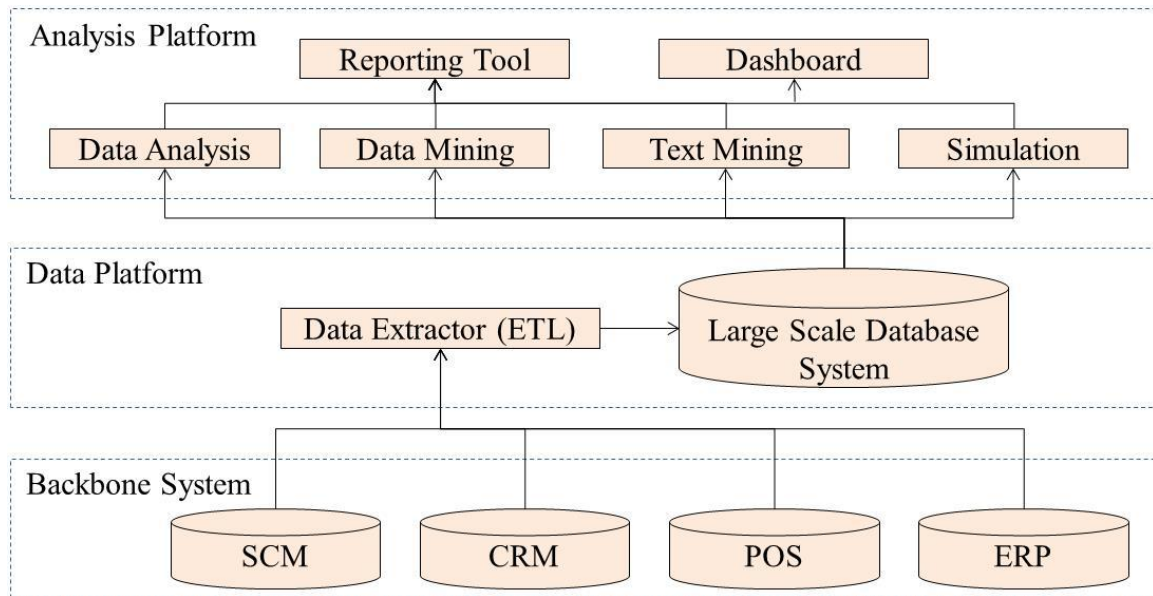


Table 1
MARKET SHARES OF BI VENDORS IN JAPAN

Market	Vendor Name	Market Share (2009 fiscal year)
Text Mining	Nomura Research Institute	43.9%
	IBM (SPSS)	15.8%
	Qualica	6.8%
	Mathematical Systems	3.2%
Data Mining	IBM (SPSS)	45.9%
	Teradata	20.3%
	Mathematical Systems	8.8%
Data Analysis	SAP	24.8%
	Oracle	15.4%
	IBM (Cognos)	12.6%
	WingArc Technologies	8.2%
	Ashisuto	8.0%
	Fujitsu	5.8%

To achieve its goals, simply installing a BI system is insufficient; therefore, how a company uses a BI system after its installation is a key success factor and an important feature of such systems. The methods for analyzing data using BI systems cannot be manual because they depend on the purpose of the installation, the business situation, or the condition of the data. Therefore, providing consulting services to develop methods for utilizing a BI system is important to customers' success, and the excellence of consulting services is said to be strongly related to the success or failure of BI vendors.

Table 1 illustrates the market share of BI vendors in Japan during fiscal year 2009 (ITR Corporation, 2010). In this paper, detailed case studies of IBM (which has the top market share in the data mining segment) and NTT Data Mathematical Systems Inc. (previously known as Mathematical Systems Inc. until 2009) are compared and analyzed. In order to obtain sufficient information to prepare the case studies, the homepages of each BI vendor, seminars that the vendors conducted, and news from newspapers or magazines were used. Further, several interviews were conducted with people in the marketing, sales, and consulting divisions of IBM and NTT Data Mathematical Systems Inc.. The collected information was validated using the multi-sources information method. The case studies were described with a "thick description" (Geertz, 1973).

CASE STUDY OF BUSINESS INTELLIGENCE VENDORS

IBM Corporation

In this section, the case study of IBM's data mining and text mining software (formerly owned by SPSS) is described. In June 1994, Integral Solutions Limited (ISL), UK introduced a new data mining software Clementine on the market. It was widely used for medical research, international exchange market predictions, and so on. Before launching the software, ISL had refined the software through collaborative Artificial Intelligence (AI) research with Sussex University in the UK from around 1989. In 1998, ISL was taken over by SPSS Corporation, which was founded in Illinois in October 1988, and Clementine became part of SPSS's product lineup. In 2000, Clementine, which had run on the UNIX operating system (OS) initially in the market, was upgraded to run on the Microsoft Windows OS with client-server formation where many users could use the software at one time. Clementine was sophisticated and was adapted to the market needs and trends. A highly user-friendly graphical user interface (GUI) was constructed for Clementine by Java at a very early stage in the BI market. This allowed the software to be easily used by people who were not computer science specialists. SPSS launched text mining software called Text Mining for Clementine in October 2002.

SAS Institute Inc., whose product is SAS® Business Analytic Platform, was a strong rival company at the beginning in the market. SPSS was a market follower of SAS. At that time, SPSS had to differentiate its products from those of SAS. The SAS data mining products targeted science and engineering areas such as pharmaceutical sciences, and SAS was recognized as the data mining software for professionals in the BI market. In this situation, SPSS decided to target researchers in the academic areas of liberal arts such as business sciences and psychology by providing intuitive and graphical usability with a GUI (SPSS's Clementine was the first software

to have a GUI). Therefore, SPSS tried to develop easy-to-use software (the logo “Easy-to-Use” was displayed for SPSS software) by focusing on only three functions of software (identified from in-depth interviews of SPSS users), namely, pattern detection, prediction, and classification, and by developing automatic analysis technologies.

Since SPSS data mining software at the beginning in the market had an easy-to-use GUI, SPSS provided only small varieties of consulting services such as “How to operate the software,” “Theory of statistics,” and “How to use the software in specific fields.” Free seminar programs before purchase were frequently held in order to help potential users understand the software. From the interviews of several SPSS users, it was found that the users compared different software products before purchase based on the information obtained in such free seminar programs.

Since it became difficult for users to analyze data because of the functional progress of SPSS’s software, SPSS launched consulting services to address the customers’ problems. Initially, the consulting services were performed by consultants of SPSS as well as those of external partner companies such as Transcosmos Inc. SPSS tried to expand the sales channels using not only its own sales force but also the external partner’s sales force through partnership development; in the process, some of the partners started to provide consulting services in order to increase the sales volume. For example, SPSS started a partnership with NTT Dynamic Telema Corporation in November 2000 and with Compaq Computer Corporation in November 2001, which conducted software sales and provided consulting services. After the acquisition of SPSS by IBM Corporation in 2009, IBM prepared a full-lineup of the BI products consisting of the “data collection family,” “statistic family,” “modeling family,” and “deployment family.”

The interviews with people at IBM revealed that the feedback process related to customer needs from the sales divisions to the development divisions is performed frequently. Good return on investment (ROI) is strictly evaluated, and proposers are required to calculate ROI precisely. Therefore, any inferior proposals to development division are scrapped. Following the acquisition by IBM, the business situations have changed as follows:

- (1) Ratio of sales by IBM has dramatically decreased (sales of partner companies have increased).
- (2) Combined sales with huge amount of IBM’s existing ICT (Information and Communication Technology) systems have drastically increased.
- (3) Consulting services have been highly enhanced by IBM’s consulting capabilities.

The first change was caused by the basic policy of IBM, which dramatically increased the customer reach. IBM learned knowledge from new partners such as JBCC Corporation, Nippon Information and Communication (NI+C), ITOCHU Techno-Solutions Corporation, Brain Child, and Advanced Integration Technology Inc. (AIT), which provide consulting services. The knowledge transferred from external partners was fed back to IBM’s development divisions to improve the software. The second change was facilitated by CEMI, which was the external interface that connected IBM’s BI software with other IT systems. CEMI was developed in October 2002. In July 2003, a system to support marketing activities using the Internet and e-mail was developed by combining IBM’s BI software with a system developed by Hitachi Information Systems using the CEMI. In April 2004, a system that realized the software

development on Clementine, named Cleo, was launched in the market. These systems were developed by SI consulting services by embedded IBM's BI software in large-scale IT systems. The third change was caused by the large number of IBM consultants in different divisions. These consultants in the SPSS division learned from the consultants of other divisions, and they worked together to provide consulting services for the BI solutions.

The users of IBM's BI software mentioned in their interviews that it had not been possible for them to utilize BI tools in their business. However, the consulting services of IBM made the utilization of BI tools possible in their business in order to attract more customers, and gain profits or operational efficiency. Additionally, users mentioned that although IBM's software was similar to that of other companies, the superiority of IBM's consulting services influenced its selection over the others. This shows the importance of consulting services in the BI market.

NTT Data Mathematical Systems Inc.

Mathematical Systems Inc. was a BI vendor founded in April 1982. The company's policy was the integration of mathematical sciences and computer sciences. The company provided several software tools and technologies for optimization, statistical analysis (S-PLUS, developed by Tibeo Corporation in US), data mining (Visual Mining Studio), knowledge database, natural language processing (Text Mining Studio), and pattern recognition. Mathematical Systems Inc. also dealt with data analysis and provided consulting services. The company did not engage in aggressive advertisement; it focused on homepage construction and free seminars only. Most of the sales came from new customers who were introduced by existing customers. Additionally, some software modules for statistical analysis and data mining were provided for the software products of external companies. The company had less than 100 people in September 2011, and most of them were engineers who were involved in R&D as well as consulting services. The consulting services were not provided by any external companies even after acquisition in 2013 by NTT Data Corporation, which is one of the largest IT solutions company in Japan.

In this section, a text-mining tool called "Text Mining Studio" is described as a case study. "Text Mining Studio" was introduced into the market in 2003 as an "add-on" software for a data-mining tool "Visual Mining Studio," and in 2006, it was sold as a stand-alone analysis software. The main target users of this software included laboratories in universities and educational institutions for subjects such as Psychology or Social Sciences. In September 2011, 220 customers bought the software cumulatively. The sales revenue of "Text Mining Studio" in 2010 was about 70 million Japanese yen, and its market share in the Japanese text-mining market was about 3%. The most significant feature of the "Text Mining Studio" was that all detailed internal algorithms in this software were disclosed openly, rendering it possible for professional analysts in laboratories or institutions to precisely understand the significance or accuracy of the results analyzed by this software. These open software modules were provided to Nomura Research Institute, Mitsubishi Electric Corporation, JustSystems Corporation, and Qualica Inc. for use in their BI software. In addition, these software modules helped researchers in writing academic papers. Based on the interviews with sales forces in NTT Data Mathematical Systems

Inc., the price of the software can be decreased since the company does not incur promotional and advertising costs, and uses only word-of-mouth communication for promotion. The price of the standard system (2.4 million Japanese yen) is almost half of that of IBM's products. "Text Mining Studio" has a highly useful user interface that requests only mouse operations for all analyses, which is suitable for academic researchers in the Psychology or Social Sciences subjects because they have adequate statistical knowledge, but not sufficient computer-software experience.

"Text Mining Studio" can be used to connect with other software using an API and all the text can be dealt with in one batch process. For example, "Text Mining Studio" can be connected with "Visual Mining Studio," or "Text-Cutter," which can split any Japanese text into a paragraph that relates to a single topic, or with the speech recognition software "Ami Voice" provided by Advanced Media Inc. for contact center solution. The API is disclosed openly for any company or user. In October 2013, "Text Mining Studio" was carried on cloud services provided by ALBERT Inc., rendering it possible to provide text-mining software as a service with monthly fees. A wide use of the cloud service of "Text Mining Studio" by small companies and individuals is expected, thus expanding its market share.

The organizational structure of NTT Data Mathematical Systems Inc. for "Text Mining Studio" comprises "Text-Mining Division," which conducts R&D of software and provides consulting services to customers, "Sales Division," "Knowledge Engineering Division," and "Scientific Technology Division." Most employees are engineers and one person must have responsibilities for several products. This implies that most software of NTT Data Mathematical Systems Inc. is consistent in operability, analyses of algorithms, and combination among several software tools.

As mentioned above, the main target customers of "Text Mining Studio" have sufficient statistical knowledge, but NTT Data Mathematical Systems Inc. provides consulting services. Unlike IBM Corporation, NTT Data Mathematical Systems Inc. does not address customers' business problems but rather teaches the methodology of statistical analysis that is suitable for them. Since customers should address their own business problems, therefore NTT Data Mathematical Systems Inc. provides a "User Conference" annually in order to strengthen customers' abilities to solve business problems. In the conference, several dominant customers introduce their processes to solve business problems using software tools of NTT Data Mathematical Systems Inc. This enables the audience to study the company's knowledge of business solutions. This attempt is typical for NTT Data Mathematical Systems Inc. because most of their customers are professionals. From the interviews with engineers in the "Text-Mining Division," sufficient knowledge can be obtained for new function development not only from the "User Conference" but also from customers when provided with consulting services. The company considers learning from customers very important to develop and improve BI software.

Interviews with several customers of NTT Data Mathematical Systems Inc. such as Kinki University, Tokoha University, Kobe University, and Gurunavi, Inc. were conducted. Most of them mentioned that they had not expected the consulting services by NTT Data Mathematical Systems Inc., because they had sufficient knowledge in statistics and did not try to conduct

advanced analyses. However, most customers received services by NTT Data Mathematical Systems Inc. to introduce the functional features and usability of the software, thus influencing the decision to install the software provided by them.

DISCUSSION AND CONCLUSION

This paper attempted to clarify the roles of services in the BI business by comparing two BI vendors, IBM and NTT Data Mathematical Systems Inc. Both have similar characteristics: the software products and consulting services were initially provided by small start-up companies and market followers; subsequently, they were bought by large companies. The results of the analysis suggest that the following four roles among the five roles of services proposed by Suarez and Cusumano (2009) work in the BI business:

- (1) Reducing the contingency and complexity when the customers select a platform at the early stage of the market (as demonstrated in the IBM case study: free seminar programs were conducted for potential customers before purchase);
- (2) Obtaining feedback from the customers in order to improve the services (as demonstrated in the IBM case study: there are frequent feedback opportunities related to customer needs for the sales and the development divisions)
- (3) Upgrading the platform's values by combining a product with complementary or competing products (as demonstrated in the IBM case study: IBM's BI software products were embedded in several larger IT systems using the CEMI)
- (4) Becoming a resource of profit instead of relying on profits from the product itself (as demonstrated in the IBM case study: IBM's highly enhanced and expanded consulting services became the key factor for customers to choose IBM's products).

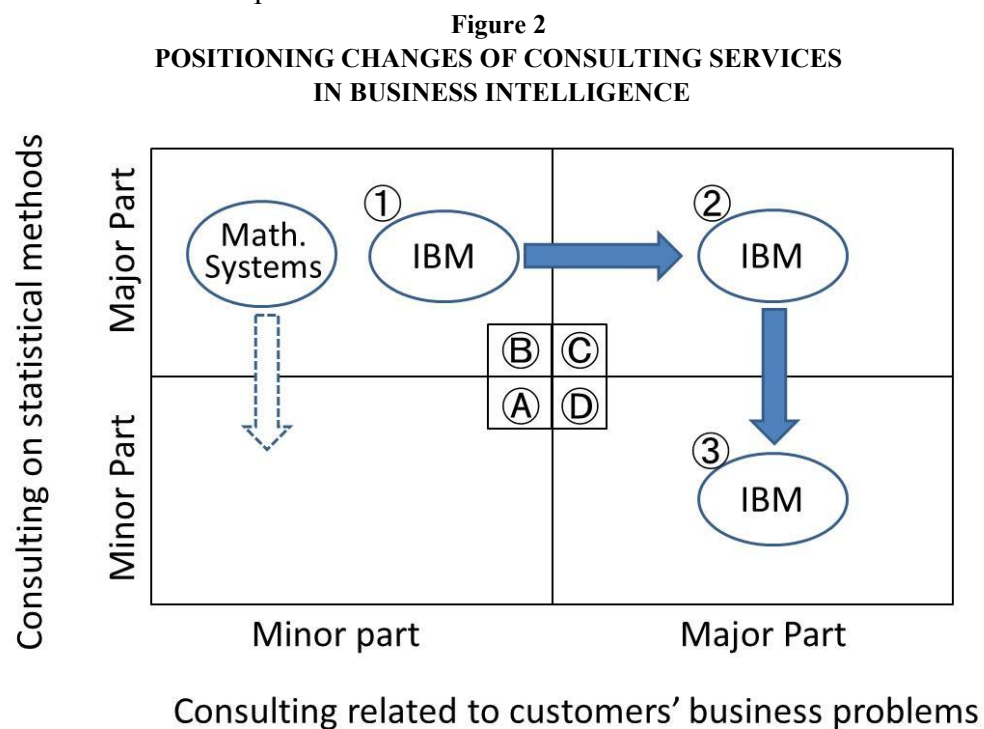
The fifth role (subsidizing the customers) does not work in the BI business. Since both the software itself and the consulting services have the same value for the customers in the BI business, subsidizing the customers is not necessary.

In terms of the expansion ranges of service providers, the results show that IBM's industry-specificity is the same as that of NTT Data Mathematical Systems Inc. However, IBM's product-specificity is quite different from that of NTT Data Mathematical Systems Inc. IBM's consulting services are provided by a wide range of external partners; however, NTT Data Mathematical Systems Inc. provides its consulting services on its own. The detailed surveys showed that IBM and NTT Data Mathematical Systems Inc. had different strategies in the initial market stages. IBM tried to expand its range of service providers, while NTT Data Mathematical Systems Inc. did not intend to ask external companies to provide consulting services. Further, IBM's large market share did not matter for the expansion of the service providers.

IBM was found to be good at consulting services aimed at solving the problems related to the customer's business, but NTT Data Mathematical Systems Inc. was good at consulting related to statistical methodologies. Figure 2 illustrates the positioning changes of consulting services in business intelligence. The functional progress of the two companies' software reduced the need for statistical knowledge on the part of the customers because the software became easier to use. Due to this reduced need for statistical knowledge on the part of the customers, NTT Data Mathematical Systems Inc. faced a reduction in the opportunities to

provide consulting services (transition from area (B) to (A) in Figure 2). On the other hand, IBM had already changed the contents of its services from statistical methods to solutions for customers' business problems (transition from area (B) to (C) in Figure 2). Because of the reduced need for statistical knowledge on the part of the customers, IBM focused on consulting services for addressing the customers' business problems (transition from area (C) to (D) in Figure 2).

If a company selects strategies similar to those of NTT Data Mathematical Systems Inc., development of better software makes it difficult for the company to provide consulting services because of commoditization of statistical methodologies. As a result, the role of services (2) shown by Suarez and Cusumano (2009) does not work well, and the company faces a dilemma (referred to as "Dilemma of Software"), which blocks customer feedback or sales increase because of better software development.



The future directions of this study are as follow. First, as mentioned above, there currently exists a differentiation caused by the functions of the software itself, which has been made significantly more difficult as all BI vendors have tried to develop high functionality software. However, NTT Data Mathematical Systems Inc. has never tried to mimic IBM's strategy illustrated in Figure 2. The reasons why NTT Data Mathematical Systems Inc. did not or could not copy IBM's strategy should be investigated. According to a quick interview with a member of NTT Data Mathematical Systems Inc. marketing department, they had tried to copy the IBM's strategy but found it impossible. Therefore, the hypothesis that the organization of NTT Data Mathematical Systems Inc. suffered "Organizational Inertia" (Kotter and Heskett, 1992) so that the management could not change to a strategy such as that developed by IBM can

be forwarded. This hypothesis should be tested carefully by a series of interviews with NTT Data Mathematical Systems Inc. stakeholders.

Second, the analysis in this paper was conducted based on only two companies, NTT Data Mathematical Systems Inc. and IBM Corporation. Therefore, more BI companies such as Nomura Research Institute Ltd., which has the largest market share in the text mining software market in Japan, and SAP, which has the largest market share in the data analysis software market in Japan, should be analyzed, and the results should be mapped on the framework shown in Figure 2. As a result, any potential correlations or rules involving market strategy and market share will be extracted and applied to the actual business practices of BI companies in the future.

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TECHNOLOGY STRATEGY AND ORGANIZATIONAL LEARNING: APPLYING POPULATION ECOLOGY TO UNDERSTANDING THE INFLUENCE ON FIRM SURVIVAL

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ABSTRACT

A comprehensive technology strategy is recognized as an important tool for managing a competitive organization. In today's fast evolving, and often volatile, business environments learning organizations must develop strategies to effectively manage their technology resources through a continual evaluation of their processes. Drawing from the technology strategy, organizational learning, and population ecology theory, this paper synthesizes the micro and macro dimensions and proposes that implementation of a multidimensional technology strategy has a direct impact on firm survival. Implications as it relates to future longitudinal research and management practices are also explored.

INTRODUCTION

Developing management strategies in response to environmental fluctuations has traditionally been a theory proposed by leading thinkers in the field (Andrews, 1987; Ansoff, 1986). However, most today would agree that static, reactionary strategy formulation is nearly impossible to maintain in an increasingly volatile business environment. Technology has created a knowledge-based society where organizations have become very effective at learning how to alter their strategic approach continuously to maintain their competitiveness. The notion of organizational learning is not a new concept, and businesses must learn to apply it to not only strategy implementation, but also to management of its technological resources. Firms that successfully and aggressively convert their knowledge into tangible performance parameters increase the likely of sustaining a long term competitive advantage.

To consider an evolutionary perspective of organizational development, academicians must take a longer time horizon to study the effectiveness of strategy formulation on firm performance. Ultimately, understanding firm survival rates provides an insightful view of whether or not certain strategic models work as expected. One of the concepts that originated the longitudinal perspective, in particular studying organizational survival, is population ecology theory (Hannan and Freeman, 1977). Using the biological concept of natural selection, the theory considers firms as a collection and suggests that they increase their chances of survival through strengthening their internal organizational structure. The increased survival rate is attributed to an inertia that provides a stability which allows a firm to withstand tumultuous environmental changes (Aldrich and Marsden, 1988; Hannan and Carroll, 1992).

This paper argues that establishing core technology resources is a primary contributor to creating a structural foundation for many organizations in today's business. This assertion

becomes significantly accurate when firms are facing environmental turbulence that threatens to disrupt normal operations. Technology management then becomes an exercise in designing strategies that strengthen the organization's technological core, rather than one that is reactive to development life cycles or environmental crisis as contingency theory suggested (Freeman and Hannan, 1989). Subsequently, firms must implement comprehensive strategies to effectively manage its technology competencies and to enhance its long term performance, and consequently, its survival rate. Through a synthesis of the literature on technology strategy, organizational learning and population ecology more perspective is provided into the appropriate level of research to understand the interconnection between the concepts.

THE TECHNOLOGY STRATEGY CONSTRUCT

Harrison and Samson (2003) posit that proper management of a company's technology directly impacts effectiveness and competitive status. This notion has been proposed by theorists in the field of strategic management who have long maintained a link between management of technology resources and creating sustainable competitive advantage (Ansoff and Stewart, 1967; Prahalad and Hamel, 1990; Rumelt, 1974; Teece, 1986). Thus, the strategic focus on development, acquisition, and management of technology has become the critical determination of competitive status, regardless of industry.

While early on researchers considered the fields of technology management and strategic management as separate areas of study that has changes over the years. Itami and Numagami (1992) stated that "Technology is the most fundamental of the core capabilities of a firm" (p.199) and that the interaction between strategy and technology had been treated as too narrowly and static, focusing more on the effect of current technology on firm strategy. At one point, in the technology management literature the primary focus was on R&D management at the firm level and the process of technological innovation at the industry level (e.g., Burgelman and Sayles, Nelson, 1988; Utterback, 1994). Others examined management of technology as a determinant of organizational structure (Eccles, 1981; Teece, 1986; Thompson, 1967).

Today, because of the significant influence that technology has on many business operations, researchers take a broader view and consider technology management as a complex activity that leaders must integrate into the strategic planning process. Itami and Numagami (1992) proposed three perspectives on the dynamic interaction between technology and strategy whereby: 1) strategy capitalized on technology; 2) strategy cultivates technology, and; 3) technology drives cognition of strategy. Traditional strategy research focused on the first perspective, which related to the rational planning model, while focus on the third becomes more process and organization-oriented. Considering that technology in some ways pervades most decisions made by organizations, researchers today, as well as practitioners, accepted that technology is a significant contributor to strategy cognition.

The integration of these two concepts, strategic management and technology management, has led to more literature on the combined construct of technology strategy. It often takes a multidimensional view and focuses on issues like the level of a firm's research and development investment, competitive positioning, technology networking, intellectual property protection, and leveraging of innovation as the primary competitive advantage (Kurokawa, Peic and Fujisue, 2005; Lin, Chen, and Wu, 2006; Meyer, 2008; Wade, 1995; Wilbon 1999). For example, the research finds that focus on R&D efforts tends to provide

advantages in technology intensive industries, particularly those participating in networks or located in clusters (Barrios, Gorg, and Strobl, 2006; Drejer, 2005; Galbraith, Rodriguez, DeNoble, 2008). Similarly, substantial investment in product development and innovations has been posited as a providing technology leadership or first mover advantages. This relates to Porter's (1985a) differentiation strategy whereby firms strive to create a perception of uniqueness. Eisenhardt and Lyman (1990) studied the speed with which new ventures in the U.S. semiconductor industry ship their first product to market. Although the technology strategy concept was not their principle focus, they did find that in smaller firms, a formal organizational structure resulted in faster speeding products to market. Also, Bandbury and Mitchell (1995) provided evidence that first-to-market enhances market share and reduces failure rates, particularly when there are many followers.

As a result of this transition toward a more holistic view of technology strategy, there have been many attempts at defining it over the years. Generally, Porter (1985b) suggested that a technology strategy must address at least three broad areas: 1) what technologies to develop; 2) whether to seek technology leadership in those technologies; and 3) the role of technology licensing. In its simplest terms, Zahra (1996a) opined that a technology strategy articulates a firm's plans to effectively develop, acquire, and deploy technological resources that contribute to its competitive position and increases performance. Ford (1988) defined it as a formal plan for technology resources that guides long term decisions related to development, acquisition, implementation, and investment. Further, Wheelwright and Clark (1992) suggested that the objective of a technology strategy is to "guide the firm in acquiring, developing, and applying technology for competitive advantage" (p. 36).

As shown, the authors provide varied efforts on some levels, but overall the definition of the concept is somewhat consistent. However, the idea that provides the most comprehensive view adapts Andrews (1987) definition for business strategy, and states that: "technology strategy is a pattern of decisions that sets the technological goals and principal technological means for achieving both those technological and business goals of the organization" (Adler, 1989, p.2).

The literature also includes several conceptual typologies relating technology and strategy that have proven useful. However, many of the typologies have minimal empirical foundation to support the theoretical assumptions. Much of the earlier conceptual literature focused on technology posture or the pioneer-follower posture only, as pointed out earlier. Adler (1989) cautions that these posture oriented approaches focus too heavily on product technology only and the fact that firms apply different postures to different technology activities. Also, the emphasis of most empirical support for these models is on high technology industries. For instance, the classic Ansoff and Stewart (1967) research studied high technology manufacturing businesses and their effects on business strategy and management structure and found that to achieve optimal profitable results firms must formulate a technology strategy based on a systematic analysis of its technological profile.

As a result of the attention received from the technology strategy ideology, Zahra and Covin (1994) concluded that the literature had at least three areas that future research should address. First, more empirical analysis is needed because the bulk of existing literature then, and now, is conceptual (Adler, 1989; Burgelman and Rosenbloom, 1989; Maidique and Patch, 1988; Morone, 1993; Porter, 1985; Teece, 1986). Several studies emerged over the years to validate the many technology strategy concepts and address the empirical deficiency

(Hampson, 1994; McCann, 1991; Zahra and Covin, 1994; Zahra, 1996a, 1996b, Wilbon, 1999; Zahra and Bogner, 2000). Nevertheless, further empirical examination is still needed as the knowledge in the field matures based on the emerging strategies firms created to handle rapid technological evolution. Second, Zahra and Covin (1994) suggested that any conceptual models proposed for analyzing a firm's technology strategy must be multidimensional. Many researchers have clearly begun to address this issue as most current models propose at least four dimensions.

The final research deficiency in technology strategy research, and the one most important to this paper, is that the performance implications of matching technology policy and business strategy are not well documented. Zahra and Covin themselves found that technology policies varied across different business strategies and other empirical investigations addressed this concern by designing studies to understand the relationship among strategic behavior, technology strategy, and firm performance (McCann 1991; Weisenfeld-Schenk, 1994). Overall, further exploration into technology strategy's impact on long term firm performance is very much needed as most of the empirical studies found in the literature are cross sectional.

In addition to the needs identified above, many technology strategy studies analyzed large, well established organizations. Several authors discussed the need for more research on technology strategy in new ventures (Dodgson and Rothwell, 1991; Zahra, 1996a). The new high technology venture plays a critical role in a technology's life cycle. Typically, small business' primary function is to diffuse new technologies along the life cycle curve determined by the technological paradigm. Sometimes the smaller firms are limited in their ability to contribute to emerging paradigms and are relegated to supportive roles, while other times the small business pioneer and lead the advancement of a technological system. This paper will explore the deficiency in small business strategy analysis as well.

Technology Strategy and Organizational Learning

As mentioned previously, early research on strategy, including technology strategy, focused on the view posited by contingency theorists (Andrews, 1987; Ansoff, 1980). That is, to enhance performance, firms should formulate strategies that match their business situation and implement changes as dictated by environmental thrusts. On the contrary, other researchers found that organizations learn over time and that the complex, dynamic nature of any organization's environment precluded deliberate control of strategy formulation and implementation and favors an emergent process (Burgelman, 2005; Mintzberg, 1990; Quinn, 1980). Related to this notion, Itami and Numagami (1992) aligns with Mintzberg's (1990) emergent theory of strategy formulation proposing that strategy evolves through the firms' process of commitment to technological development and innovation.

This evolution or organizational learning concept creates a knowledge-based organization where executives must recognize the importance of technology as a major piece of their corporate strategy puzzle. Firms must learn to adapt new methodologies that integrate how they will manage technology resources if they are to increase financial performance. By learning how to convert implied and explicit knowledge into strategic actions the aggressive organization evolves into an entity which successfully enhances its competitive advantage.

Lasker and Norton (1996) used three major principles to define knowledge management, by hypothesizing that it is: 1) the alignment of business strategy, or the

performance that pushes that strategy, to the organization's knowledge-creation process, 2) improving performance through new core competency development, and 3) maximizing intraorganizational communication. Zahra, Sisodia, and Matherne (1999) suggest that the dynamic interplay between a company's technology and strategies emphasizes the importance of organizational learning and exploits the knowledge creation process. In other words, as previously emphasized, the concept of a learning organization implies that strategy formation is an evolving process that depends on effective knowledge. While Burgelman and Rosenbloom (1989) suggested that technology strategy creation was an evolutionary process that emerges based on organizational capabilities and experiences, Metcalfe and Gibbons (1989) put it succinctly by stating that: "The competitive performance of a firm in the short run depends on the position of its technology within the relevant technology distribution. In the long run it depends on the ability of the firm to maintain a momentum of technological improvement within the constraints of a relevant agenda. Thus, we argue, that competitive performance depends not simply on success of a single innovation but rather success at a sequence of innovations and related post innovation improvements "(p. 160).

Therefore, the use of traditional "fit" or "matching" strategy models appeared inappropriate to understand how technology strategy affects long term performance and another theoretical perspective was needed. This brings us to, Hannan and Freeman's (1977) organizational ecology theories that considered the evolutionary aspects of strategic behavior and evaluated them as a population of firms that survive based on natural selection rather than rational planning. This provides the most appropriate level of analysis to study technology strategy's impact on firm performance over the longer term.

POPULATION ECOLOGY AND FIRM SURVIVAL

Much of the historical strategy research focused on adapting the firm's internal structure to the external environment. Adaptation theory proposed that organizations scan the environment for opportunities and threats, formulate strategic responses considering its internal strengths and weaknesses, and adjust the organizational behavior accordingly (Andrews, 1987). Similarly, contingency theory proposed that organizations match their organizational structure to technology-environment pairs (Thompson, 1967). Several researchers agreed with this premise positing that the key predictor of a firm's performance was the fit between its technological sophistication and organizational structure (Perrow, 1970, Thompson, 1967; Woodward, 1965; Zwerman, 1970). Some studies found that the "fit" between technology and organizational structure was a better predictor of performance than either technology or structure alone or together (Alexander and Randolph, 1985; Fry and Slocum, 1984; Schoonhover, 1981). Even for small business, Randolph, Sapienza and Watson (1991) found that the fit between technology and structure was a significant predictor of financial performance.

Overall, the general view was that contingency and/or adaptation theory's suggestion of properly aligning organizational structure with key elements of the environment through altering strategic behavior was necessary for increased performance (Lyles, 1990). However, due to the dynamic environmental changes that today's organization face, it's very impractical to suggest that a firm can maneuver fast enough in response to challenges. These theories failed to take into account the limitations and constraints on organizations' ability to adapt to environmental opportunities and threats quickly enough.

For this very reason, population ecology theory has been critical of contingency and

adaptation theories. The research suggests that interference by management, such as adjusting core activities (Hannan and Freeman, 1984) or changes that require an alteration in organizational design to match environmental fluctuations (Henderson and Clark, 1990) have a negative impact on organizational performance and long term survival. Freeman and Hannan (1989) stated that they "thought it was a mistake to build models of organizational change that rely on anthromorphic images of organizations or on heroic images of managers; [they] attempted to build a perspective that treats organizations as complex systems with strong limitations on flexibility and speed of response" (p. 426). In other words, population ecology proposes that the macro environmental conditions of an industry determine the limitations of the firms operating within it. Firms influence one another and do not operate in isolation, much like biological organism under Darwanian principles of variation, selection, and retention.

As a result, the Hannan and Freeman (1977) focused on the population of firms as the unit of analysis as opposed to individual firms, suggesting that survival resulted more from natural selection (i.e., metaphorically similar to the biological process of national selection) than any effort taken by management to adapt to its external environment. The main premise was that organizational change over time does not reflect variability in individual firms but populations of inert organizations replacing each other in a natural selection process.

In fact, some research has pointed out that management inference in efforts to adapt to environmental conditions can actually lead to bad decision making, particularly when success-based experiences have influence (Denrell, 2003; March et.al., 1991). In other words, at the organizational level, firms that have experienced success in surviving highly competitive environment tend to adopt strategies that make them better fit that environment through learning and selection. Yet, this process of adaptation which allowed firms to survive in its current environment (i.e., development of structural inertia), causes significant disruptions when the organization attempts to move into new environments, which typically causes them to fail in their pursuits. This is referred to by Barnett and Pontikes (2008) as the "Red Queen" evolution (see also Barnett and Hansen, 1996; Barnett and Sorenson, 2002). The authors further argue that because of their success in current environments, this "Red Queen" phenomenon gives organizations a false comfort level that makes them more apt to pursue new directions, often at their peril.

Structural Inertia

It is important at this time to consider one of the primary concepts of population ecology. It is an organizational tendency to maintain structures regardless of other factors or concerns (Hannan and Freeman, 1984). Inertia in organizations is established by internal and external factors that tend to exert forces on firms and limit their ability to maneuver. Examples of internal factors include sunk costs in plant and equipment, personnel, political coalitions, or policies and standards while external factors include legal or regulatory environments, fiscal barriers, market barriers, and pace of technological change. The main premise of Hannan and Freeman's (1977) argument was that individual firms rarely succeeded at making radical changes to their strategy and/or structure in response to environmental fluctuations. Firms with high structural inertia have a very difficult and slow time adapting to environmental changes and, in fact, this inertia may favor their survival chances at times. Again, Barnett and Pontikes's (2008) through their study of the "Red Queen" effect in the computer systems industry over more than 40 years confirm this notion by finding that inertia often leads to these

firms becoming the dominant players in current environments, but they fail at a higher rate when moving into a different contextual situation.

Historically, there is also anecdotal evidence to support this position. For example, Hannan and Freeman (1984) pointed out that although IBM made strategy and structure adjustments to adapt to the environmental conditions in the emerging personal computer industry in the early 1980s, inertia prohibited drastic and fast changes. This allowed entrepreneurs to develop new firms (e.g., Microsoft) with different strategies to take advantage of opportunities in the operating systems market, for example. Again, being the dominant player in the computer industry at the time, decision makers at IBM had an 'overconfidence bias' (Bazerman and Neale, 1986) which made them believe that they could compete with the smaller competitors in the quickly evolving PC market. However, as a historical note, IBM was never able to position its products to become a significant player in the market and Microsoft's operating systems products became the dominant design. Ironically, Microsoft was faced with the same inertia issues as it became the leader in the operating systems software environment. While their Windows operating systems business currently contributes to more than half of their business, the 2007 introduction of the Vista platform proved very disappointing and costly to its reputation. They continued to lose money pursuing more nimble competitors like Google in web-based applications while their Vista product faced commercial ridicule from their primary nemesis Apple, who was gaining market share. The debacle with Vista led Microsoft to distance itself from the product and create a Windows 7 platform that it hopes will repair its customer relationships. However, time will tell whether the world of flexibility offered by online services impedes Microsoft's efforts to survive as they cling to relatively old views in a changing world. These are just a couple of examples to illustrate that relatively smaller firms like Google and Apple are more flexible at adjusting to newer environments than larger, inert ones like Microsoft.

Small to Medium Sized Enterprises (SMEs) and Inertia

More recently, the Internet has created an environment that has impacted larger firms and created instability in several industries. Chao and Turner (2001) studied electronic commerce in small to medium sized enterprises and presented a four phased approach where companies move from making minor implementations of Internet technologies to utilizing it as a mechanism in its core business strategy. Contrary to larger firms, smaller organizations increase their chance of survival if they embrace environmental impositions (e.g., the Internet) and integrate them into their strategies. SMEs are better able to make these adjustments quickly and thrive due to their ease with adoption of the Internet as a core operational strategy for their business. Larger firms take longer to adopt newer technologies, which may leave them vulnerable to competitive pressures.

For smaller organizations, structural inertia is not as strong a force in adjusting to change. The relationship between firm size and technological change is dynamic and depends on the nature and rate of technological progress. Early in the industry life cycle while a particular technology is in its infancy, large firms are the dominant innovators. However, as technology becomes more advanced and readily available, smaller firms become major contenders in the industry and sometimes contribute to the demise of the early leaders. This is not a universal pattern and may not apply in all industries, but it appears to be a common scenario for most segments of the business population. In technology driven sectors of the economy, entrepreneurs have generally been the force behind inventions that have

revolutionized business practices. High technology entrepreneurs are the initiators and implementers of reform, forcing the jurassic corporations to at least attempt to reorganize and regroup to deal with the swiftness of the small technology-based business. Considering that good technological choices allow new ventures to position themselves in the market place (Shan, 1990; Zahra Covin, 1994) while poor choices can undermine their performance and survival (McCann, 1991), there is a need for more research on technology strategy formulation and implementation for the SME population.

As such, although several studies have investigated the liability of newness hypothesis and consistently support this argument (e.g., Eisenhardt and Lyman, 1990; Freeman, et.al., 1983; Carroll, 1983). Hannan and Freeman (1984) argued that inertia tends to increase with size not age. Consequently, although adaption is easier for SMEs and often result in success, attempts to reorganize in response to environmental conditions is more likely to contribute to the death of smaller firms than larger one because they lack the resources to counter the negative disruptions that tend to occur resulting from structural changes.

As a side note, an interesting paradox emerges from the population ecology theory. On the one hand, failure to adapt to environmental changes ultimately leads to organizational failure, but there are risks to adaption that threaten institutional stability which may also lead to failure. More specifically, for firms in technology-intensive industries adaptation is important to stay abreast of newer, emerging technologies; however, disruptions in organizational structure, routines, and credibility are sure to result in negative outcomes.

To understand this paradox further, Freeman and Hannan (1990) performed an empirical test of their prediction that adaptive changes in core organizational features in response to environmental conditions increased the risk of organizational mortality. The study involved firms in the semiconductor manufacturing industry where, due to the fast pace of technological change, adaptation is an apparent necessity for survival. The authors found support for their argument that the probability of mortality for all organizations in the semiconductor industry rises when new technologies were introduced. However, as the organization accumulates knowledge and experience with the new technology, the probability of mortality decreases over time.

Overall, population ecology theory is useful for analyzing technology strategy because it focuses on several determinants of organizational survival. It is implied that the stronger the structural forces are during the earlier stages of an organization's strategic development, the more likely a firm is to survive through environmental changes. In other words, strong internal structures (e.g., core technology resources) are critical in determining organizational survival because these basic structures are not likely to change drastically over time (Aldrich and Marsden, 1988; Hannan and Carroll, 1992). Also, if stable technological resources increase inertia, then establishment of a comprehensive technology strategy to effectively manage those resources will contribute to better long term performance and survival even after environmental disruptions. However, rather than alter technology systems to match life cycle or business

strategy as contingency theory suggested, firms should design technology strategies to strengthen structural inertia early in the development life cycle, thus increasing chances of survival (Freeman and Hannan, 1989).

It is important to note that the concept of inertia does not suggest that organizations do not change for it is well known that in most technology-related industries changes in strategy and direction is often a necessity to remain competitive. It is implied that firms with

higher structural inertia, this case related to core technologies, are more likely to survive necessary transformations. The primary emphasis here is on developing a flexible technology strategy which simultaneously develops core structural competencies in terms of technology-related resources, but can also explore new opportunities with minimal destruction.

EMPIRICAL RESEARCH ON TECHNOLOGY STRATEGY AND FIRM SURVIVAL

Recognizing that technological change is a critical force in competitive intensity and firm failure, it's been noted that developing comprehensive strategies to management dynamic environments is critical to competitiveness and performance. Since the origination of the population ecology concept there have been many studies that considered change and strategies in technology-based industries as the driving factor. Some have also evaluated decision making as it relates to technology resource deployment. However, the number of studies that used a multidimensional construct of technology strategy is limited.

Table 1 summarizes research that focuses on technology strategy dimensions using long term survival as the primary dependent variable. The dimensions listed are consistent with the most common ones used in the technology strategy literature and are captured from several conceptual and empirical studies (e.g., Adler, 1989; Bell and Mcnamara, 1991; Burgelman and Rosenbloom, 1989; Zahra and Bogner, 2000). The typical empirical research on these themes has been mostly cross sectional. The ones shown here use methodologies typical of longitudinal analysis in an effort to evaluate survivability, although most tend to focus on only one or two key technology management constructs.

Table 1 OVERVIEW OF KEY EMPIRICAL RESEARCH ON TECHNOLOGY MANAGEMENT, ORGANIZATIONAL ECOLOGY AND SURVIVAL		
Reference	Focus of the Study	Key Findings
Agarwal (1998)	<i>Dimensions: Product Lifecycle</i> Compared the post entry performance of technical and non-technical small firm's products over stages of differing technical activity.	Small firms enjoy higher survival rates in stages of high technological activity using the product life-cycle framework.
Barnett (1990)	<i>Dimensions: Design, market timing</i> Investigated organizational mortality of the early American telephone industry between 1912 and 1935 in Pennsylvania and Iowa.	Predicted that technological change does not favor advanced organizations when technologies are systematic. Greater the density of companies in an industry resulted in higher mortality rates in the industry.
Barnett & Pontikes (2008)	<i>Dimensions: Market timing, dominant design</i> Focused on 'Red Queen' effect on the computer industry from 1951-1994 to study survival.	Surviving in competitive environments leads to inertia which makes them less likely to succeed in new directions, even though managers are more likely to make the effort to move into new markets due to 'Red Queen' effect.
Baum et. al. (1995)	<i>Dimensions: Dominant design, networking</i> Investigated dominant design and competition on firm failure in facsimile transmission technology from 1965-1992.	Found dominant design was the primary force shaping populations dynamics in relation to organizational founding and failure.

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ORGANIZATIONAL ECOLOGY AND SURVIVAL

Reference	Focus of the Study	Key Findings
Bruno et al. (1992)	<p><i>Dimensions: Design, Positioning, Market timing</i></p> <p>Studied the success and failure of 250 technology-based companies in Northern California founded in the 1960s through the late 1980s. Focused on three outcomes: failure, merger, or continued operations and identified patterns that may have contributed to the success and failure of these firms.</p>	Factors predicting failure included product/market problems (e.g., product timing difficulties), product design problems, inappropriate distribution channels, financial issues, and management problems.
Christensen et. al. (1998)	<p><i>Dimensions: Market timing, Positioning</i></p> <p>Investigated the rigid disk drive industry considering the advantages of first to market</p>	The study found that in the rigid disk market, first to market advantage does not lead to increased survival.
Freeman & Hannan (1990)	<p><i>Dimensions: Scope of R&D/Innovation</i></p> <p>Examined whether attempts at change involving core technologies increases the risk of organizational mortality. Focused on firms in the semiconductor industry. Hypothesized that offering a new product requiring extensive changes in core technology raises risk of failure.</p>	Length of time in the industry has a Strong and significantly negative effect on probability of failure. Business conditions affected the odds of failure. Subsidiaries of larger firms had lower odds of failure than independent firms. Innovation in the industry and adopting a new technical innovation increases the odds of failure. In sum, technical change at the industry level threatened firm mortality and when new products appeared in the industry, firm mortality rate rise.
Steam et al. (1995)	<p><i>Dimensions: Location, Strategy scope</i></p> <p>Proposed that survival chances of new firms were best understood by examining effects of location, industry and strategy. Studied 1900 new firms.</p>	Found that firm survival chances were not significantly impacted by industrv. However, survival chances were associated with strategy (e.g broadly focused strategies have greater chance of survival than narrow focused) and location (e.g., firms in urban locations have greater chance of survival than rural locations) and the two way interaction of industry and strategy.
Stuart & Podolny (1996)	<p><i>Dimensions: Positioning, Networking, Location, Intellectual Property Rights</i></p> <p>Analyzed technological niche positions of the 10 largest Japanese semiconductor producers from 1982 to 1992</p>	Developed a methodology for quantifying the evolution of firms' technological positions and found that a firms may occupy a differentiated technological niche resulted from the R&D of its competitors.

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ORGANIZATIONAL ECOLOGY AND SURVIVAL

Reference	Focus of the Study	Key Findings
Tushman & Anderson (1986)	<i>Dimensions: R&D Investment, Innovation</i> Examined patterns of change and breakthrough in the minicomputer, cement, and airline industries on their origination through 1980.	Found that technology evolved through long periods of incremental change punctuated by rare technological innovations. The effects of technological change and discontinuity resulted in uncertainty that may either enhance or destroy firm competence. Firms may use R&D investments to shape environmental conditions in their favor and grow more rapidly.
Suarez & Utterback (1996)	<i>Dimensions: Dominant design</i> Studying six industries, tests relationship between competitive environment of an industry, and the survival of firms as related to the evolution of the technology on which it is based.	The probability of survival will tend to be greater for firms entering an industry before the emergence of a dominant design than for firms entering after it.
Wade (1995)	<i>Dimensions: Dominant design, networking</i> Studied producers of microprocessors from 1971 to 1989 to examine effects of technology bandwagoning.	Organizational support from the firm's community increases success of firms in technology industries.
Westhead (1995)	<i>Dimensions: Management Experience, Networking</i> Examined performances of difference types of owner-managed high-technology firms to determine which ones were more likely to grow and survive. Studied 166 firms in Great Britain.	Firm founders with management experience prior to start-up were more likely to be associated with a non-surviving business. Founders who gained experience in non-manufacturing industries were more likely to survive. Also, five characteristics were found to be associated with survival: age, employment size, regional development assistance, large-sized
Wilbon (1999a)	<i>Dimensions: Posture, Intellectual property rights, Sourcing, R&D Scope, R&D Spending, Product Portfolio, Location, Management Experience</i> Studied 168 firms that committed initial public offerings in 1992 to determine survival rates through 1999.	Showed position relationship between technology portfolio, scope of R&D, technology experienced executives, R&D spending, and geographic focus on survival using event history analysis.
Wilbon (2001)	<i>Dimensions: Intellectual property rights, Staffing, R&D Spending, Cooperative Strategy, Sourcing, Management Experience</i> Examined 34 information technology firms that completed IPOs in 1997 to determine which technology strategy factors impacted survival	Number of Intellectual property rights and robust technology related staff positively influence survival.

Wilbon (2002)	<i>Dimensions: R&D Scope, R&D Spending, Sourcing, Intellectual property rights, Management Experience</i> Investigated 95 high tech IPOs in 1992 to determine survival through 1999	Using logistic regression, found that more intellectual property rights, greater technology experienced executives, less R&D spending as a proportion of sales predicted survival
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For example, several studies found that the single factor of dominant design was instrumental in firm survival in populations of firms in technology related industries (Baum et.al., 1995; Suarez and Utterback 1995; Utterback and Suarez, 1993; Wade, 1995). Others considered more than one dimension such as Wade's (1995) study which not only investigated product design but the strategy of joining technology communities or technology bandwagoning. He found that organizational level support contributes to the market success of a technology or design. This organizational support provides a level of legitimacy for an industry which attracts more customers and increase sales for the collective. The strategic importance of this is that entry barriers are increased for potential competitors. Also, customers of the firms in the network of organizations are less likely to switch to competitors because of sunk costs and learning curve apprehension. Thus, developing a strategy for organizational support of technologies becomes important because the bandwagoning contributes to the success of the population.

Baum, et.al. (1995) also investigated the link between dominant design and competitive processes and its impact on organizational failures in the telecommunications industry. Their focus was on positive network externalities, or whether consumers value technologies because others have adopted it or something similar. Using organizational ecology in facsimile transmission technology, they found its dominant design was the primary environmental shaping forces of founding, failure and industry competition of the population of firms. In other words, evolving population dynamics were directly and indirectly affected by firms linked with the dominant design of facsimile transmission. The strategic implications are that firms that got involved with the technology before it became a dominant design failed are a much lower rate than those that got involved after.

This goes back to earlier discussions on structural inertia. Positions in technological networks build practices and routines and require investments in human and physical capital that prohibit fast organizational change (Stuart and Podolny, 1996; March 1988). To make significant change at the organizational level often requires radical adjustments in the technological network itself. This dependence leads to an inertia that constrains actions by the individual firm and the collective. The forces referred to in this research are those related to the management of core technology resources and capabilities as explicated in a technology strategy.

Even though these studies demonstrate strong relationships between technology management decisions and organizational ecology theory, the literature needs more insight on a broader strategy function. When it comes to technology management the research must make an effort to evaluate long term firm performance using more comprehensive factors for understanding strategic analysis. The limitations in the literature are the few studies that considered multiple dimensions to investigate the overall technology strategy's impact on longer term survival. For instance, Wilbon (1999) used population ecology as his foundation using survival analysis to supports the assertion that the level of a firm's technology portfolio, scope of R&D, technology experienced executives, R&D spending, and geographic focus

influence survival chances. His multidimensional construct of technology strategy studied the survival rate of small technology related firms going through the disruptive process of an initial public offering (Wilbon, 2001, 2002). However, further longitudinal empirical analysis is needed to understand how evolutionary frameworks influence the relationship among multidimensional technology strategy and long term survival in a more comprehensive way.

RESEARCH ISSUES, IMPLICATIONS, AND CONCLUSIONS

The result of this research synthesis indicates that managing an organization using an appropriate technology strategy matters with regards to long term survival. Today, managing firms of all sizes requires balancing the internal and environmental constraints to develop strategies that take advantage of the opportunities available within specific and accelerating time frames. This is particularly true of firms in technology intensive industries where decision making is a rigorous process and is becoming increasingly complex. Considering the many facets of technology strategy explored in this research alone; managers have several alternate scenarios to evaluate in determining which approach best positions them to compete. Applying a blanket technology strategy that utilizes every dimension is not an efficient use of resources, nor is it an effective tactic to achieve competitive advantage. Therefore, as Burgelman and Rosenbloom (1989) have mentioned, executives need to examine the internal and external environment and identify the forces that shape their company's technological choices. Understanding technology strategy's relationship to firm performance may assist with developing better strategies that contribute to increasing the chances of survival for firms, particularly in small to medium sized enterprises.

Future research should follow the course set out by this analysis in several ways. First, much more empirical support for the various conceptual models identifying the relationship between technology management variables and long term performance is needed. The population ecology view that early development of a firm's core technological resources contributes to long term survival needs to be further validated through research. Second, much of the existing technology management research takes a cross sectional view, neglecting the importance of understanding the long term impact of the technology strategy-performance relationship through longitudinal studies. Cross sectional research has been criticized because "Retroactive rationalization and cross-sectional research, similar to that in the strategic planning literature, suggests the superiority of particular strategies. However, such results are not sustainable" (Dutton and Freedman, 1985, p. 42). Another point is based on Metcalfe and Gibbons' (1989) research which examined the conceptual link between technology and long-run industry performance and found that competitive advantage in the long run depends on the ability of the firm to maintain a momentum of technological improvement through developing a sequence of innovations and post-innovation improvements. This suggests that technology strategy should set an agenda that proposes a continuous flow of technical innovation over the long term. Finally, the dearth of literature on new and growing ventures requires more studies to understand the relationship between technology strategy and long term firm value for this population. Since SMEs play a very important role in a technology's diffusion along its life cycle, more research is necessary to understand the dynamics that impact their performance and survival. Overall, as shown in this paper, the general implication for managers is that developing a comprehensive technology strategy significantly contributes to an increase in firm performance and survival, while not doing so ultimately leading to a weaker organization.

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