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LETTER FROM THE EDITOR

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REGULATED CHANGE EFFECTS ON BOARDS OF DIRECTORS: A LOOK AT AGENCY THEORY AND RESOURCE DEPENDENCY THEORY

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ABSTRACT

This paper investigates the effect of new governmental regulations on corporate Boards of Directors (BODs). We have reviewed the literature pertaining to agency theory and resource dependency theory, both of which have been assumed to explain the actions of BODs. We examine the predictions of both agency theory and resource dependence theory regarding both the structure and actions of BODs in times of governmental regulatory change. We then describe four historical events in which radical changes were required by certain governmental regulations, and discuss responses by BODs to each event, and present a discussion of these responses and how they adhere to or stray from the predictions of both agency theory and resource dependence theory. We conclude the paper with recommendations for the direction of further study.

INTRODUCTION

Organizational theorists have examined the role of corporate boards of directors (BODs) from many different perspectives. Two major theoretical perspectives that provide insight into the role and structure of BODs are agency theory and resource dependency theory (Hillman, Cannella and Paetzold, 2000). In addition to academic attention, BODs have received much attention from the popular press as well. The most recent proliferation of attention paid to BODs is largely due to the Sarbanes-Oxley Act and the instigating events that led to its passage in 2002. The Sarbanes-Oxley Act of 2002, among other requirements, mandates strict controls by and of corporate boards of directors. Sarbanes-Oxley was passed in reaction to a series of corporate scandals of the late 1990s and early 2000s including at Enron, Tyco International, and WorldCom. Because of the impact of the Sarbanes-Oxley Act of 2002 on BODs, many questions have arisen in regards to the roles, responsibilities, accountabilities, and structures of BODs. Is the role of the BOD primarily administrative oversight and control, or is it primarily boundary spanning and environment linking? How can the BOD best be held accountable for the actions of the corporation? Are there corporate stakeholders outside of the shareholders to whom the BOD is also to be held accountable? What proportion of the BOD should be

comprised of insiders and what proportion should be outsiders? Is the insider / outsider taxonomy the best way to categorize board members?

Although one of the most recent and salient, the Sarbanes-Oxley Act of 2002 is not the first government mandated regulation that requires major changes to be made by BODs. The 1978 deregulation of the United States Airline Industry and the 1980 deregulation of Savings and Loans associations followed by the subsequent Financial Institutions Reform, Recovery & Enforcement Act of 1989 are two additional examples of times that regulatory actions by the United States government caused major changes to be made by BODs. A third example of governmental actions requiring changes to be made by BODs is the Canadian government's 1983 amateur sports "Best Ever" program. It required radical changes of the volunteer BODs of Canada's National Sport Organizations (NSOs) (Amis, Slack, and Hinings, 2004a).

The intent of this paper is to consider the tenets of agency theory and resource dependency theory as they relate to the responses made by BODs in the face of major government regulated changes. In the remainder of this paper, we will first highlight the generally accepted major roles and responsibilities of BODs. This will provide a solid framework from which to examine the theoretical perspectives of agency and resource dependency regarding BODs. After highlighting the roles and responsibilities of BODs, we will then examine agency theory and resource dependency and their relation to BODs. Next, we consider four historical examples – the Sarbanes-Oxley Act of 2002, the 1978 deregulation of the United States airlines industry, the changes in Savings and Loans regulations of the 1980s, and Canada's Best Ever amateur sports initiative of 1983 – as the contexts in which we will examine some historical responses of BODs to these government regulated changes. We conclude the paper with recommendations for the direction of further study.

ROLES, RESPONSIBILITIES & STRUCTURE OF CORPORATE BOARDS OF DIRECTORS

Pfeffer and Salancik (1978) divided the role of BODs into administrative and environmental linking responsibilities. Pfeffer and Salancik identified two areas of administrative duties: providing expert advice and counsel to the firm's management, and exercising monitoring responsibilities such as oversight and control over the firm's executive management team. The environmental linking responsibilities include providing access to information and other resources (Pfeffer & Salancik, 1978) and enhancing perceived legitimacy (Meyer & Rowan, 1977) of the organization. Inside board members, those who are currently, or were previously, employed by the organization (Pfeffer, 1972), generally serve the advice and counsel function while the oversight and control functions are generally served by outside board members (Baysinger & Butler, 1985). However, Daily and Dalton (1994) have shown that outside directors can also provide expert advice and counsel, especially in regards to boundary spanning and environmental linking issues such as the regulatory or competitive environment.

Westphal (1999) has shown that both inside and outside directors can play several roles simultaneously and there are advantages to having a board structure with a mix of both insiders and outsiders. This insider / outsider taxonomy of BODs is the most widely used both in and out of academia and is influenced heavily by the agency theory perspective (Hillman, Cannella and Paetzold, 2000). A different taxonomy that disaggregates the outside director category (Hillman, Cannella and Paetzold, 2000) will also be considered.

THEORETICAL PERSPECTIVE – AGENCY THEORY

As previously indicated, agency theory has played a major part in studies of BODs (Hillman, Cannella and Paetzold, 2000). The agency theory approach looks at intra-organizational processes from an economic perspective. The genesis of agency theory is often attributed to Jensen and Meckling's 1976, "Theory of the firm." Agency theory generally refers to the various ways that agents of a firm can influence the economic outcomes and "behaviors" of the firm (Fama & Jensen, 1983).

Agency theory broadly states, given that agents of an organization are responsible for conducting business in the interest of the organization, and given that an agent's own self interests will never align completely with the interests of the organization, agents of an organization will sometimes experience conflicts of interest when conducting business on behalf of the organization. Given also that people can be expected to act on behalf of their own self-interests when those interests conflict with that of another entity, and given that agents will sometimes experience conflicts of interests while conducting business on behalf of the organization, agents are more likely to act in the interests of the organization when their own interests are aligned with those of the organization or when their behavior is monitored or controlled against self-interested behavior. Thus, according to normative agency theory, corporations should either increase incentive structures that align the interests of owners and managers (Fama & Jensen, 1983) or increase monitoring, control and oversight of managers by owner principal delegates (e.g. BODs). In fact, Westphal (1999) found that "management incentives decrease the need for board monitoring as a control mechanism." In this respect, agency theory views the administrative function of monitoring and controlling top executive decisions and actions as the primary function of the BOD.

Agency theory is a powerful tool in understanding and prescribing the compensation structures of top executives and the structures and actions of BODs. Additionally, agency theory has proven to be a popular theoretical framework from which to investigate the role of BODs. Agency theory holds implicit several assumptions about human motivation and the goals of corporate ownership which deserve a closer look: 1) wealth maximization is the top priority for corporate owners; 2) the BOD is an appropriate owner principle delegate; 3) management and board actions and interactions are primarily outcomes of economic forces; and 4) the BOD acts as a single unitary actor (Zajac & Westphal, 2002). Of course there are other assumptions of

agency theory, for example, that management interests will conflict with owners' interests. The ones assumptions listed above and discussed below, however, are important to examine to highlight the fact that, although agency theory is an important and useful theory, there are other organizational theories (such as resource dependency theory) that are just as important and useful in understanding the roles and responsibilities of BODs.

The first assumption of agency theory listed above, that wealth maximization is the primary goal of corporate owners, can be seen in the normative agency theoretical framework that often prescribes long-term, financial-outcome based incentives such as stock ownership, performance based stock options, or stock appreciation rights for senior executives. The logic behind these prescriptions is to ensure that management's self interests will be aligned with the principal owners' interests. This is expected to be the case if they share the same financial goals and incentives. Fiss and Zajac (2004), however, found that infusing shareholder wealth maximization goals into firms in Germany led to short-term acceptance of the wealth maximization goals and then subsequent adoption of additional, non-wealth maximization-related goals. A generalization of this phenomenon might lead agency theorists to consider interest alignment mechanisms beyond the traditional wealth maximization mechanisms primarily prescribed by normative agency theory.

The agency theory assumption that the BOD is the most appropriate owner principal delegate is interesting to consider. Agency theory generally states that the agency costs associated with managerial conflicts of interest are held in check by the BOD. The BOD, however, is only a delegate group of the stock owner corporate principals as a whole. For most publicly held and traded corporations, the amount of share ownership held by the BOD represents only a fractional proportion of all shares outstanding. It is worth considering that, as a group, the BOD may experience just as much conflict of interest as do the managers they are to hold in check. To mitigate this possibility, agency theory generally advocates that BODs have a large proportion of outside, independent members. But, as Westphal points out, the active role in board member nomination that is often played by CEOs can "render boards passive" and submissive to the power of the CEO (1999).

Inside board members are those who are currently, or were previously, employed by the organization (Pfeffer, 1972). In contrast, outside directors are not corporate insiders. Additionally, independent directors are those outside directors that are not tied to the corporation through some contractual business arrangement or inter-firm board interlock situation. Whereas agency theory generally views outside, independent board members as better to control and monitor managers' decision-making and behavior, we will see later that from a resource dependency perspective, inside directors and outside inter-dependent directors can also play a positive role in the structure of BODs(Westphal, 1999).

The agency theory assumption that management and board actions and interactions are primarily outcomes of economic forces is closely related to the wealth maximization assumption. However, beyond assuming the adequacy of aligning managerial financial incentives with the

financial incentives of owner principals, as does the wealth maximization assumption, this assumption also often ignores the social and political aspects of manager and board member relations. Westphal (1999) has shown, however, that board member and CEO friendly relationships often play an important role in non-control and monitoring functions of the BOD without sacrificing the functions of controlling and monitoring. Specifically, Westphal (1999) found that the collaborative advice and counsel function of the BOD is increased with increased CEO and board member friendships, while the controlling and monitoring activities of the same relatively friendly boards are no less than in less friendly boards. They also found that firm performance was not diminished for corporations with boards with high levels of CEO board member friendships when compared with those corporations with lower levels of CEO board member friendships. For the most part, agency theory largely ignores these social aspects of BODs.

The fourth and final assumption of agency theory applied to BODs listed above is that the BOD acts as a single unitary actor (Zajac & Westphal, 2002). Although agency theory generally treats BODs as though they act as one individual actor, BODs are affected by social, psychological, and political processes that are inherent in all small groups. The monitoring and controlling intentions of one board member may differ from those of other board members and the resultant monitoring and controlling actions of the BOD as a whole are products not only of combined individual intentions but of social and political small group processes as well. In a rare study of intra-board processes, Westphal and Milton (2000) examined demographic minorities in BODs and found that their level of influence within the BOD is related to their prior experience as board members on other boards as well as their social relationships with other board members on the focal board. This provides even further evidence that, although an important and very useful theory regarding the roles and responsibilities of BODs, traditional agency theory, with its highly economic focus, does not offer a complete explanation of BOD related phenomena.

Having looked at some of the implicit assumptions of agency theory, and some of the limitations of these assumptions, it remains important to understand that, in most applications, the explanatory and predictive power of agency theory in regards to BODs remains firmly intact. What then might agency theory explain or predict in regards to BODs in the face of government regulations requiring changes of or by BODs?

It would be expected, at least in the short-term, in the face of government regulations requiring organizational change, such as the Sarbanes-Oxley act of 2002, that making moves toward compliance with regulations is the best approach to protect shareholder wealth. If the organization were to refuse to comply or was slow in complying with the regulation, the government could impose costly financial fines on the organization. Once the BOD has made movements toward compliance, or enacted full compliance, they may then be expected to assess whether compliance makes long-term financial sense for the corporation. If the BOD decides that full and actual compliance is not in the long-term best financial interest of the organization,

then the BOD might be expected to act in one of the following ways: 1) continue with surface level compliance but decouple every day administration from compliance (Meyer & Rowan, 1977), 2) continue with compliance but take actions in an attempt to change the new regulations (Child. 1972), or 3) retreat from compliance with a willingness to take the smaller financial risks associated with noncompliance. Traditional agency theory alone, with its emphasis on economic processes and shareholder wealth maximization, would not predict in this case that the BOD would choose to passively continue in compliance if the long term economic effect on the organization could be foreseen as negative. Additionally, structural changes in the BOD would not necessarily be predicted by traditional agency theory alone in this case.

THEORETICAL PERSPECTIVE – RESOURCE DEPENDENCY THEORY

Whereas the administrative functions of the BOD can best be examined through the lenses of agency theory, the environmental linking functions of the BOD are best examined through the lens of resource dependency theory. Recall that the administrative functions of the BOD include providing expert advice and counsel to the firm's executive management and exercising monitoring responsibilities such as oversight and control over the firm's executive management (Pfeffer and Salincik, 1978). Recall also that the environmental linking responsibilities of the BOD include providing access to information and other resources and enhancing perceived legitimacy (Meyer & Rowan, 1977) of the organization.

Resource dependency theory states that organizations act in ways associated with their level of dependence upon various resources (Pfeffer & Salancik, 1978). Organizations act upon their environments in attempts to reduce dependency on certain resources and to maintain independence over other resources. Organizational power, from this perspective, arises from the ability to cope with uncertainty and minimize uncertainty for other organizations, the control over scarce resources, and the substitutability of the controlled resources (Pfeffer & Salncik, 1978). From this perspective then, the BOD can serve as a resource dependence reducing body for the organization. A BOD that can collectively bring to the executive management team environmental linking relationships, knowledge, or information that reduces uncertainty has power and adds power to the organization. BODs with collective access to scarce resources such as financing also add power to the organization. This power that the BOD brings to the firm is increased when the resources they bring to the firm are not easily substituted by other alternative resources. An example of this would be a board member's relationship with a unique client or supplier that would be difficult or even costly to replace.

The resource dependency view of the BOD dates back to Selznick (1949) and his historical research on the Tennessee Valley Authority. What Selznick found was that when faced with strong opposition, the Tennessee Valley Authority would include members of the opposition on its governing board. This strategy, termed cooptation, was a way to minimize external uncertainty by exercising some level of control over the source of uncertainty. This is

an early example of an organization utilizing its BOD as a resource procuring body that can be used to gain an advantage within its environment.

Inspired by Selznick's (1949) Tennessee Valley Association research, Pfeffer's (1972) article, "Size and Composition of Corporate Boards of Directors: The Organization and its Environment," examined further the idea of the BOD as an environmental linking body. Pfeffer hypothesized that if BODs act as environmental linking bodies, then when an organization is faced with greater external resource dependencies it will maintain a larger BOD with a greater proportion of outside directors. He found support for positive correlations between number of directors and corporate resource dependencies related to sales and finance. He also found support for positive correlations between the proportion of outside directors and corporate resource dependencies related to finance and regulation. He interpreted these results to indicate that firms' BODs are structured in relation to the firm's external resource dependencies. In the same study, Pfeffer found that when the structure of BODs was different than the normative structure that he had observed for a given level of external resource dependence, corporate financial performance declined proportionately to the amount of the misalignment from the normative board structure (1972).

Hillman, Cannella and Paetzold (2000) noted that most other research regarding the structure of BODs has historically had an agency theory bias. Considering that an agency theory perspective is most appropriate for examining the administrative functions of the BOD, this perspective is adequate within this administrative function context. Within this framework, the typical BOD taxonomy makes a distinction between inside directors and outside directors as described above. In the spirit of Selznick (1949) and Pfeffer (1972), Hillman, Cannella and Paetzold (2000) offered a new kind of taxonomy for considering the resource dependency, environmental linking responsibilities of BODs. In their taxonomy, Hillman, Cannella and Paetzold (2000) retain the typical inside director category but disaggregate the outside directors into three distinct categories. Each director category in Hillman, Cannella and Paetzold's (2000) taxonomy serves a distinct resource dependency minimizing purpose. They hypothesized that inside directors play the role of meeting the internal resource dependency needs of the organization. As current or former officers of the firm, inside directors are able to provide knowledge and expertise regarding the strategy and day to day management needs of the firm. Outside directors are disaggregated into business experts, support specialists, and community influentials by Hillman, Cannella and Paetzold. Business experts, such as current or former officers or directors of other organizations, can provide for the strategy and competitive resource needs of the firm. Support specialists, such as attorneys, bankers, or accountants, can provide for the technical expertise or relationship resource needs of the firm that are directly related to their areas of specialty. Community influentials, such as politicians, clergy members, and university professors, can provide for the resource dependence needs of the organization that are related to non-stockholder stakeholders of the firm. All categories of outside directors, according to Hillman, Cannella, and Paetzold, may also provide for the legitimacy needs of the firm (2000).

Hillman, Cannella, and Paetzold (2000) found support for each of their hypotheses. In doing so, they provided further evidence of the resource dependency theory's relevance to BODs.

So what might resource dependency theory predict about BODs facing radical governmental regulatory change? Certain board actions and board structure configurations might be predicted. First, a BOD that is efficiently performing its resource dependency roles might be able to anticipate the change before it occurs. In this case, the board might be expected to take action in regards to the regulation even before it goes into effect. Early proactive steps might include an attempt to either stop the legislation from occurring (if it is seen as negative to the corporation), assist in pushing the legislation through (if it is seen as positive to the corporation), or modify the legislation to the advantage of the firm before it is passed. Once the legislation is passed and in effect, a resource dependence efficient BOD can be expected to be very active in providing advice and opening doors to the executive management team in regards to complying with the new legislation. In addition to these proposed actions of the BOD, the BOD structure could also be expected to change. As Pfeffer (1972) and Hillman, Cannella, and Paetzold (2000) found, a resource dependence efficient BOD would be expected to modify its structure by adding additional outside directors in the categories of business experts, support specialists, or community influentials as the new resource dependencies may require.

We have reviewed much of the literature pertaining to agency theory and resource dependency theory. We have proposed some BOD actions and structural changes in the face of radical governmental regulations that might affect the Board, and what these two theories might predict in the case of these changes. We now turn to a brief examination of four historical events in which governmental regulations required radical changes to be made by BODs. For each of the historical events -- the Sarbanes-Oxley Act of 2002, the 1978 deregulation of the United States airline industry, the 1982-1989 regulations of Savings and Loans, and Canada's 1984 Best Ever amateur sports initiative -- we will describe the pertinent regulation(s), responses made by BODs, and then discuss how these responses adhere to or stray from the predictions made by agency theory and resource dependency theory.

SARBANES-OXLEY ACT OF 2002, CHANGE, & BOARDS OF DIRECTORS

The Sarbanes-Oxley Act of 2002 (SOX) was passed in the wake of a series of corporate scandals of the late 1990s and early 2000s including those at Enron, Tyco International, and WorldCom. Due to these corporate scandals and the proliferation of corporate bankruptcies and financial restatements by publicly held and traded United States corporations, Senators Paul Sarbanes (D-Md.) and Michael Oxley (R-Ohio) led a campaign for legislative reform of corporate governance. The ensuing legislation came to be known as SOX. The two most daunting requirements of SOX are found in Sections 302 and 404. In short, Section 302 requires independent auditors to certify financial statements, while Section 404 requires executive

management to report annually on the effectiveness of internal controls. Because the act authorizes heavy fines and imprisonment of executive officers for noncompliance, publicly held and traded U.S. firms have taken the act very seriously, and compliance has not been easy. "The first full year of compliance was one of hand-wringing and pulling one's hair out as a result of unclear and sometimes conflicting requirements (Zabrosky, 2005)." Compliance with SOX has proven to be costly. Estimated total compliance costs for all of U.S. firms during 2005 range from $6.1 billion (Bulkeley & Forelle, 2005) to $15.5 billion (Hoffman, 2005).

How have U.S. corporations responded to SOX, with its steep compliance costs and heavy noncompliance fines and repercussions? With the amount of money spent on compliance, it appears that companies have rushed to comply. We are unaware of any truly scientific empirical studies that have determined whether or not compliance has been decoupled from day to day management of firms. Indeed, measuring this would prove to be difficult, for who would admit that their company's compliance with the act is only surface-level? Jeff Rodek (2004), CEO and Chairman of the BOD at Hyperion Solutions, stated that, "Many [CEOs] spoke of compliance as something that happens separately from and takes away from running a sound and profitable business." It appears as though, at least in some cases, decoupling SOX compliance from the true day to day actions of the company has occurred. Other organizations appear to be taking true compliance with SOX more seriously. Again, Jeffrey Rodek (2004) states, "The idea that compliance and performance are linked is very much in the spirit of Sarbanes-Oxley. There is a good business case for beefing up compliance and governance." At least at Hyperion Solutions, compliance appears to be taken seriously.

One interesting effect of SOX is how it has encouraged some BODs to pursue new business strategies. Many of *Inc. Magazine's* 500 fastest growing private companies of 2005 were buoyed by pursuing SOX compliance related strategies:

> "Just when we had gotten the hang of always referring to a certain piece of legislation as 'the accursed Sarbanes-Oxley,' the Inc. 500 comes along and tells us this: Some companies are thriving by helping business adjust to and unhappily comply with SOX… SOX requirements are giving a boost to defense contractors, IT companies, and developers of security software" (Roberts, 2005).

Another interesting side effect of SOX is that the role of Chief Financial Officer (CFO) is playing a much greater role in corporations. "If the CFO had not been one of the key players in board activities before Sarbanes-Oxley, he or she certainly has come to the forefront now (Zabrosky, 2005)." BODs are spending more time and resources listening to the CFO than they did before SOX. CFOs are not only receiving more attention in the corporate board room, they are also receiving additional compensation for their more prominent roles. Whereas the median CEO compensation rose 4% during the first full year of SOX, the median CFO compensation has increased by 17% over the same time period (Thurm & Needleman 2005).

As has been shown, many resources have been diverted toward compliance with SOX and many BODs have made strategy changes related to its requirements. Both agency theory and resource dependency theory apply to what has been seen in BODs in response to SOX. Agency theory applies because it is exactly the problem of agency costs and conflicts of management and shareholder interests that SOX is directly intended to combat. Resource dependency theory is seen at work in that BODs have taken steps to reduce environmental uncertainty and have procured and devoted resources toward efforts at compliance with the Act's requirements.

1978 DEREGULATION OF THE AIRLINE INDUSTRY, CHANGE, & BOARDS OF DIRECTORS

Whereas SOX is a case of increased regulation, Hillman, Cannella, and Paetzold (2000) studied a case of deregulation and its effects on BODs. Prior to 1978, the U. S. airlines industry was heavily regulated. Hillman and her colleagues hypothesized that airline BODs during the regulated time period (before 1978) would be structured differently than after deregulation (after 1978). According to Hillman and her colleagues, resource dependency theory predicted that inside directors would be more pertinent during eras of regulation and conversely, that outside directors would be more pertinent during eras of deregulation. This hypothesis was based on the source of uncertainty. Under regulation, the external environment is quite stable and relatively certain. Uncertainty then was expected to emerge mostly from within the organization. The opposite was expected to be true during deregulation. Uncertainty was seen as most likely occurring from the external environment than the internal environment. Therefore, Hillman and her colleagues (2000) predicted that as more internal resources were necessary during regulation, then more inside directors would replace outside directors during this time period. Alternatively, as more outside resources were needed during deregulation, then during this period, more outside directors would replace inside directors.

Recall that Hillman and her colleagues (2000) disaggregated outside directors into three distinct categories, business experts, support specialists, and community influentials. They relied on further assumptions under resource dependency theory to make more fine grained hypotheses regarding the different categories of outside directors. Specifically, they hypothesized that general business experts would be more necessary during times of deregulation than times of regulation and that, therefore, more business experts would join BODs after deregulation than before deregulation. They also hypothesized that support specialists, being more oriented toward the internal environment of the firm than the other categories of outside directors, would replace existing directors more often during regulation than deregulation. Finally they hypothesized that community influentials, being the most externally focused of all director categories, would be added to BODs more often during times of deregulation than times of regulation.

All of Hillman, Cannella, and Paetzold's (2000) hypotheses were supported by the data. This influential study provided evidence that resource dependency applies to BODs at least as much as agency theory. It also showed that the typical agency theory influenced taxonomy of BODs as insiders or outsiders may not be sufficient when considering the resource dependencies of the firm. The new taxonomy offered by Hillman and her colleagues (insiders, business experts, support specialists, and community influentials) was found to possibly be a better way of delimiting the director categories when studying resource dependency forces playing on the firm. Finally, Hillman and her colleagues added even more evidence to that already provided by Selznick (1949) and Pfeffer (1972) that BODs act upon the resource dependency needs of the firm within its environment.

1980-1989 REGULATIONS OF SAVINGS & LOANS, CHANGE, & BOARDS OF DIRECTORS

The time period from 1980 to 1989 was a turbulent one for Savings and Loan (S&L) institutions in the U.S. This time period was marked by massive deregulation, followed by what is known commonly today as the S&L Crisis marked by an increasing number of failures within the S&L industry, and finally increased regulatory attempts to curb financial losses and put the S&L Crisis to an end. Before 1980, the S&L industry was highly regulated, and conservatively managed. During that time period, the traditional business model of S&Ls consisted of providing moderate interest housing mortgage loans funded by low interest deposit offerings. As long as the housing mortgage loans earned a modestly higher interest rate than the rates they paid out on deposits, and as long as the deposits were, in aggregate, large enough to fund the housing mortgage loans, S&L institutions were profitable. The industry was marked by governmental regulation that protected S&L institutions from competition with other financial institutions such as banks as well as competition from other S&Ls across geographic regions (Warf & Cox, 1996).

By the 1980s, the federal government began taking a decidedly more laissez-faire approach to businesses. In 1980, the Depository Institutions Deregulation and Monetary Control Act was passed. In 1982 the Garn-St. Germain Act was passed, and during the same time period, the Federal S&L Insurance Corporation (FSLIC) began covering deposits of up to $100,000, substantially greater than the previously covered maximum of $40,000 (Warf & Cox, 1996). Additionally, the previous rule restricting S&Ls from serving customers outside a 100 mile radius of their corporate offices was repealed. According to Warf and Cox, "Deregulation and increased FSLIC coverage, in short, created a virtually risk-free climate in which the benefits of investments would be privatized and the costs would be socialized (1996)." Unfortunately, the S&L institutions were not prepared for the new competitive environment. This fact, coupled with other environmental factors led to the S&L Crisis (Warf & Cox, 1996).

The other environmental factors in the mix of the S&L Crisis included skyrocketing interest rates and heavy speculation in commercial real estate investments. With rising interest

rates and increased competition S&Ls found that they were beginning to pay greater interest on deposits than their fixed mortgages were returning. As an industry, S&Ls ventured into the higher yield commercial real estate mortgages. However, speculation on commercial real estate began to slow and S&Ls found themselves in need of alternative, high yielding investments. Many S&Ls turned to junk bonds. Many of the junk bonds (especially those tied to commercial real estate and oil speculation) began to fail, and with them so did many of the S&L institutions. During the time period 1985 to 1993, a total of 974 (4.1%) failed in the U.S. The debts left by the failed S&L institutions were so great (approximately $1 trillion) the FSLIC could not bail them out and subsequently went bankrupt in 1989 (Warf & Cox, 1996).

In response to the S&L Crisis, the federal government passed the Financial Institutions, Reform, Recovery and Enforcement Act of 1989 (FIRREA). The goals of FIRREA included: 1) improve supervision over savings institutions, 2) limit the use of junk bonds by savings institutions, 3) improve and standardize the accounting practices of savings institutions, and 4) create the Savings Association Insurance Fund (SAIC) (Madura & Wiley, 2000). At the time, the FIRREA was considered the most far reaching legislation over financial institutions since the Great Depression.

The above may give some indication as to why 4.1% of all S&Ls failed between 1985 and 1993. But what about those S&Ls that were able to survive the turbulent time of deregulation and subsequent strict regulation? The answer may be partially explained by the structure of the BOD. Scott Lee conducted a study of the BODs of 86 S&L institutions (Gerbig, 2002). Twenty-six failed during 1983 to 1995 and the remainder survived through 1995. What Lee found was that those that survived generally had more independent board members than affiliated board members. The opposite was true for those S&Ls that failed. Lee attributes these findings to: 1) independent, outside directors being better able to defend the interests of shareholders than insiders, and 2) insider directors doing a poor job of providing wise counsel during the time of crisis and volatility (Gerbig, 2002). These findings and interpretations support both agency theory and resource dependency theory.

CANADA'S 1983 BEST EVER SPORTS INITIATIVE, CHANGE, & BOARDS OF DIRECTORS

In an attempt to improve Olympic performance, Canada initiated its Best Ever program in 1983. The goal of the program was to win more international sporting events and progress was measured by the number of Olympic medal wins (Amis, Slack, & Hinings, 2002). The path to the goal required that all of Canada's national sport organizations (NSOs) undergo radical structural changes. Before the Best Ever initiative, the traditional NSO design was an informal organization led and actively managed by volunteers assisted by a professional support staff. The new organizational structure mandated by the Best Ever program was to be bureaucratic. Day to day management was to be carried out by a large staff of paid professionals and the

volunteer directors were to take a much less active role in management and concentrate mainly on setting policy. Under the new structure, decision making was to be accomplished by the paid professionals (Amis, Slack, & Hinings, 2004b). By 1996 much of the emphasis on Olympic performance by the Canadian government had waned in the wake of evidence of widespread use of illegal performance enhancing drugs. The pressure to conform to the prescribed archetypal organization structure had diminished, and so had most of the governmental funding of the NSOs (Amis, Slack, & Hinings, 2004b). Although the NSOs were not for profit corporations and their BODs were comprised of volunteers,their BODs were still affected by government regulations.

Amis, Slack, and Hinings found several variables that played roles throughout the orchestrated change process (2002, 2004a, & 2004b). Of interest here, they found that: 1) values, 2) interests, 3) power structure, 4) capacity for change, and 5) sequence of change each play their own role in radical regulatory mandated change. In regards to values and change, they found that "a radical transformation will not be possible in an organization with an elite value structure inconsistent with the prescribed change," and "a radical transformation will only be possible if the dominant value set held by nonelite organization members is consistent with the prescribed changes" (Amis, Slack, and Hinings, 2002). In other words, for real radical change to occur, both the elite (BOD and senior executives) as well as the dominant nonelite must be on board with the values behind the prescribed change. In regards to interests, they found that the BODs of the NSOs that successfully completed the required changes considered the interests of the organization and its subunits throughout the change process (Amis, Slack, and Hinings, 2004b). In regards to power structure, they found that in the NSOs that did not successfully complete the required changes the concentration of power remained with the BODs throughout the change process. In regards to change capacity, they found that the NSOs that were able to successfully make the required changes had leadership who could articulate a clear vision, whereas those NSOs that failed in the change attempt lacked a clear vision from leadership (2004b). Finally, in regards to sequence, they found that successful change began in the "high-impact organizational elements (2004a)." By way of generalizing their findings, BODs should: 1) maintain values consistent with the direction of the organization, 2) consider the interests of all stakeholders, 3) be willing to share power when necessary, 4) be able to clearly articulate the vision for the organization, and 5) be willing to make the necessary changes within their own governing body before attempting to roll the change out to the entire organization. Both agency theory (as seen in the importance of interests) and resource dependency theory (as seen in the importance of power) were found to be important in the changes made of the NSOs from 1984 to 1996.

CONCLUSION

We have looked at various predictions that agency theory and resource dependency theory would make regarding the structure and actions of BODs during times of government

regulated change. We have also looked at four historical events of government mandated change and the recognized structural changes and actions made by BODs at the time. The predictions of both agency theory and resource dependency theory were largely supported by the historical actions of BODs reviewed herein.

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ON THE APPLICATION OF ANALYTIC HIERARCHY PROCESS IN INSTITUTION-WIDE STRATEGIC PLANNING

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ABSTRACT

First, we present a critical review of Liberatore and Nydick's approach (see Liberatore & Nydick, 1997) for applying AHP in institution-wide strategic planning (IWSP). The review highlights the inadequacies of their approach and the mistakes that can be made by ordinary strategic planners and users of AHP. A new framework for applying the AHP in the prioritizations of objectives/goals, strategies, and action plans and that addresses all the inadequacies of Liberatore and Nydick's approach is developed. The development of the framework is based on extensive modifications, expansions, and extensions of their approach. A list of seven major criteria and of several sub-criteria and attributes are developed for evaluating objectives/goals, strategies, and action plans in the framework. The framework is illustrated with a typical institution-wide strategic plan. It is an innovative framework. It will enhance strategic planners' abilities - particularly those in educational institutions - to develop very good and high-quality strategic plans and to properly and effectively prioritize their strategic objectives and the strategies and action plans for achieving the objectives. It will enjoy useful adoptions and applications by institutional strategic planners.

Keywords: Action plans, analytic hierarchy chart, mission, objectives, prioritization, rating scales, and strategies.

INTRODUCTION

Institution-wide strategic planning (IWSP) is an institution-wide planning process by which a college or university develops its mission/vision, goals, and strategies; determine the necessary priorities, procedures and action plans and make decisions on how its resources can best be allocated in order to achieve the mission/vision.

According to Lerner (1999), strategic planning in organizations originated in the 1950s. It migrated to higher education from the corporate world about 40 years ago (Fain, 2007). Its use in higher education has exploded or become mainstreamed over the last 20 years (Dooris, 2003; Fain, 2007). There is a lot of benefits that colleges and universities can derive from IWSP. Many of these benefits have been highlighted by Fain (2007), Green et al. (1979), Lerner (1999), and Schendel & Hatten (1972).

Strategic planning in a higher institution is a complex process that involves many steps, active participation of the institution's key stakeholders, collection and analyses of quantitative and qualitative data, forecasting, prioritization of issues and plans, planning and allocation of resources and/or budgeting and budget allocations. To produce a good and high-quality strategic plan that will effectively carry an institution to its dreamed future, the performance of all these steps and activities/tasks must be based on the applications of group/management techniques, analytical methods, and quantitative techniques.

The AHP is one of the techniques that have enjoyed very little application in strategic planning, despite the fact that it has garnered enormous popularity and world-wide acclaim as a very powerful and useful planning, decision-making, and problem-solving tool. The AHP can be used effectively for selecting/prioritizing issues, goals, objectives, strategies, and action plans and for allocating resources during any strategic planning process. In literature, apart from research works by Arbel & Orger (2003), Kahraman et al. (2008), Kangas et al. (2001), Liberatore & Nydick(1997), Osuna & Aranda (2007), Saaty (1976), and Yuksel & Dagdeviren (2007), we have not come across any research on the application of AHP in strategic planning. Four of these authors - Kahraman et al. (2008), Kangas et al. (2001), Osuna & Aranda (2007) , and Yuksel & Dagdeviren (2007) – focus on the application of AHP for prioritizing the SWOT factors and for evaluating and prioritizing strategic alternatives with respect to the factors during the development of basic strategic plans.

After critically reviewing the AHP and some other methods and techniques like goal programming (GP), multi-attribute utility theory (MAUT), and scoring models that are used for systematic evaluation of alternatives, Liberatore & Nydick (1997) discuss the applicability of AHP for a variety of academic planning and evaluation problems in higher education and demonstrate the applicability via two case studies/examples. One of the cases is on the ranking of research papers for research awards. The other one relates to IWSP.

The other two authors, Abel & Orger (2003) and Saaty & Roggers (1976), apply AHP for addressing special strategic problems. Abel & Orger (2003) present an application of AHP methodology to the evaluation of bank mergers and acquisitions strategy while Saaty & Roggers (1976) apply the AHP to construct a composite and likely future for higher education in the United States during the period 1985 to 2000.

While it is very important to prioritize SWOT factors as have been done by Kahraman et al. (2008), Kangas et al. (2001), Osuna & Aranda (2007, and Yuksel & Dagdeviren (2007), we are of the view that the evaluation and prioritization of the key elements of strategic plans should not be limited to the prioritization of only these factors. For any strategic plan to succeed, the relevance of its strategic objectives/goals, strategies, and action plans to the achievement of the mission or vision must be seriously evaluated. In conventional strategic planning, objectives/goals, strategies and/or action plans are developed for the main purpose of achieving an organization's mission or vision. It is the vision or mission that sets long-time and laudable objectives/goals for an organization and focuses it on the achievement of the goals or objectives.

Goals/objectives, strategies, and action plans should be evaluated with respect to their importance in achieving the mission.

Among the research works that we have come across so far on the application of AHP in basic strategic planning, the work by Liberatore & Nydick (1997) is the only research in which the "AHP" is applied to prioritize actions plans via their implicit importance or relevance to objectives and strategies (AHP is put under inverted comma here because, as will be seen in the next section, what the author applied is not the real AHP). Thus, the principal objective of their paper or of their applying the "AHP" is to select and prioritize the action plans an institution must focus on in order to achieve or operationalize its mission. For this, we find their approach very interesting and see it as a novel and useful approach.

Nonetheless, as will be seen in the next section, after a closer look at their approach, we discover a lot of opportunities for making some major and innovative improvements on it in order to make it more applicable and adoptable. The improvement process has the potential of producing a new and very useful framework for the proper applications of AHP in prioritizing the goals, objectives, strategies/action plans of a strategic plan.

Hence, in this research, we will critically review Liberatore and Nydick's approach for applying AHP in IWSP. The review will highlight the inadequacies of their approach. Some of these inadequacies relate to some mistakes and errors that can be committed by ordinary strategic planners and users of AHP. Thus, highlighting the inadequacies will be very useful to strategic planners and AHP users and encourage the application of the powerful technique in strategic planning.

Although their work was published in 1997, it is still the only published work we have ever come across on the application of the AHP, or of something close to the AHP, in prioritizing objectives/goals, strategies, or action plans with respect to their importance in achieving an institution's mission or vision. This makes their research to still be very important and relevant today as it was in 1997. Therefore, a critical review of the approach will be found very useful and relevant by today's strategic planners and users of the AHP.

After critically reviewing their approach and discussing its inadequacies, we will develop a framework for applying the AHP in prioritizing strategic goals/objectives, strategies, and action plans. The development of the framework will be based on extensive modifications, expansions, and extensions of Liberatore and Nydick's approach. Instead of using a single criterion for prioritizing action plans as done in their approach, we will develop and use more than one criterion. An extended version of the institution-wide strategic plan used by Liberatore & Nydick (1997) will be used to illustrate the framework. The formulated objectives in the strategic plan used by the authors for illustrating their approach have the same set of strategies. The objectives in the strategic plan that will be used in our illustrations will have different sets of strategies. In practice, a strategic plan in which all objectives have the same set of strategies is rare to come by.

The fact that our framework will be based on extensive improvements, extensions, and expansions of Liberatore & Nydydick (1997) will make it a very useful and valuable tool for IWSP.

REVIEW OF LIBERATORE AND NYDICK'S APPROACH FOR APPLYING THE AHP IN IWSP

Liberatore and Nydick's approach is developed for any university that may wish to apply AHP to formalize its strategic planning process and reach a consensus on the action plans that will be pursued over a five-year planning horizon. Their approach is based on the MOS (mission-objective-strategy) model. Unfortunately, the process followed by the authors (see Figure 1) in doing this is actually based on the application of the tree diagram not on the AHP. In other words, they believed they were applying the AHP while, in fact, they were actually applying the tree diagram.

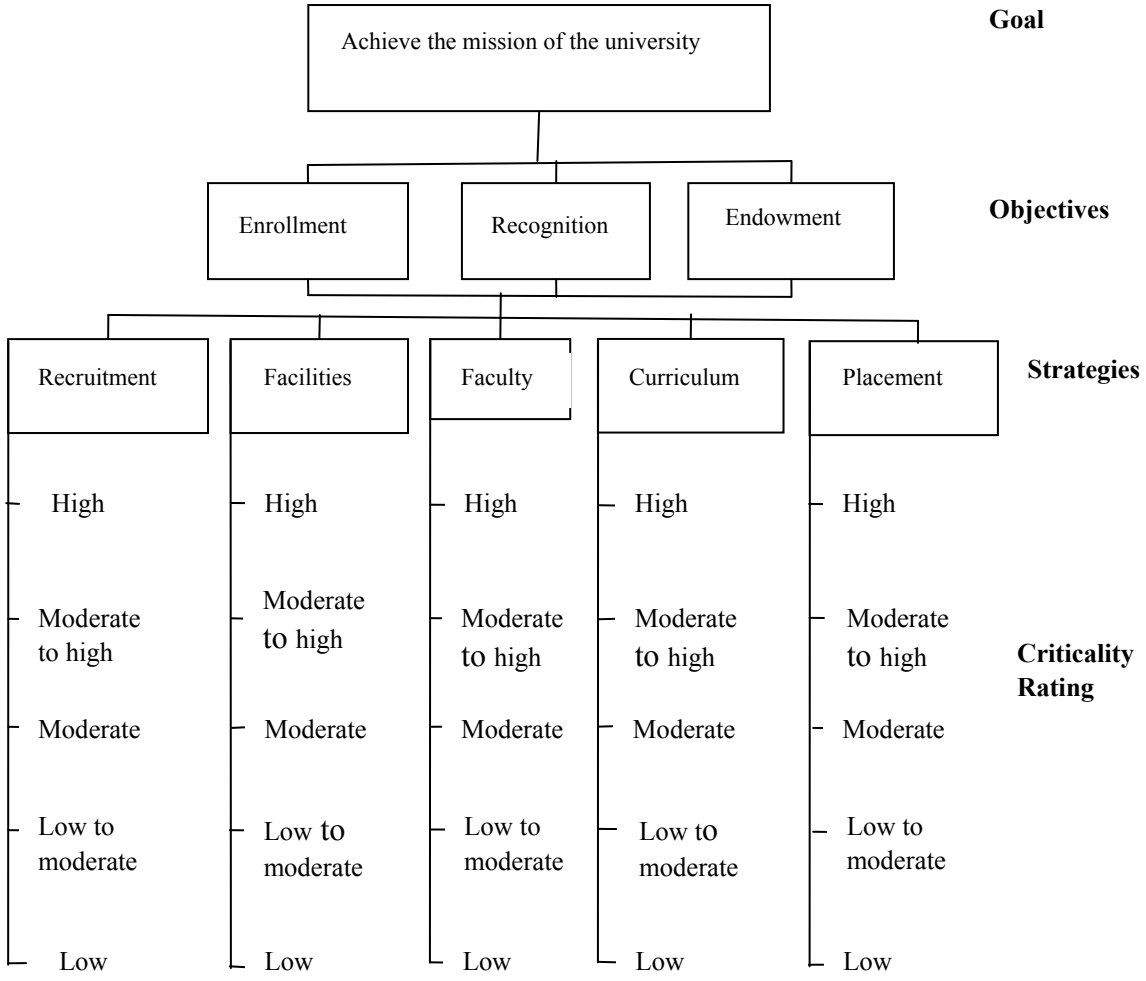
In strategic planning, a tree diagram is used to identify the goals to be achieved in order to achieve the mission/vision; the objectives to be achieved in order to achieve the goal; the strategies needed for achieving objectives; and the action plans for achieving strategies. On the other hand, the analytic hierarchy chart (AHC) (i.e. the AHP hierarchy chart) is made up of different levels consisting of goal/objective, criteria, sub-criteria, and alternatives (Saaty, 1980). Their "AHC" does not have a single criterion on it (see Figure 1). The only criterion used in their approach is "importance to the achievement of the mission of the institution" and this criterion does not appear on their "AHC". That is, the criterion is used implicitly. The AHP is a multi-criteria decision method. All its criteria, sub-criteria, and attributes are expected to appear on its AHC.

The objectives and strategies presented in levels 2 and 3 respectively are nothing more than what should be achieved at these two levels of any tree diagram in order to achieve or operationalize the mission. Thus, their "AHC" performs exactly the functions of a tree diagram. That is, the functions of identifying the objectives for achieving mission, the strategies for achieving objectives, and the action plans for achieving strategies. This and the fact that there is no single criterion on their "AHC" perfectly make it a tree diagram.

They develop intensities and connect them with strategies. In AHP, intensities are defined for scaling sub-criteria or attributes (See Saaty, 1980, 1986). Looking at their "AHC" (or tree diagram), it is difficult to know that the intensities are defined to scale the implicit criterion, "importance in achieving the mission" used in their approach and not for scaling the strategies. This confusion arises from the fact that the criterion does not appear on their "AHC".

Objectives, strategies, and action plans should not be evaluated and/or prioritized based on only one criterion as done by the authors. In addition to the "importance in achieving the mission" there are many other important criteria that should be used for prioritizing these key strategic elements if a high-quality, realistic, and actionable strategic plan is to be developed.

Figure 1: Liberatore and Nydick's Sample "AHC" (or Tree Diagram)



After obtaining the total score for each action plan in their example, the authors stated that ranking the action plans in descending order of their total scores is one method for deciding which action plans to pursue. We believe that this is only okay for the case of the strategic plan the authors use in their illustration. As can be seen in Figure 1, their case is a special case in which all objectives have the same strategies. As mentioned earlier, a strategic plan in which all objectives have the same strategy is very rare to come by. Their approach can lead to misleading results when we have a general case in which each objective has its own different set of strategies and the number of strategies in each set varies across objectives. In such a general case, the relative weights of importance of an objective's strategies will not have the same value. Since the action plans support their own separate strategies and each of them is rated under the strategy it supports and since the relative weights of importance of the strategies do not have the

same value, the action plans' scores will not be comparable. Therefore, using the scores to rank all of them together, as the authors have done, can lead to very misleading results.

Hence, the prioritization of action plans, as the authors suggest, cannot lead to good selections and prioritizations of objectives and strategies to pursue. If the right objectives or strategies are not selected, the implementation of any set of actions plans, however high their rankings, cannot lead to good accomplishment of the mission.

An approach that addresses all the inadequacies and problems highlighted above will be presented in the next section.

THE FRAMEWORK FOR THE APPLICATION OF AHP IN IWSP

In this section, we present our own framework for the application of AHP in IWSP. The framework consists of seven major steps. These are:

i. Development of criteria for evaluating objectives, strategies, and action plans.
ii. Decomposition of the criteria into sub-criteria/lower-level criteria and attributes.
iii. Development of intensities or rating levels for the attributes/lowest-level criteria.
iv. Presentation of a typical institution-wide strategic plan (TIWSP) to be used for illustrating the framework.
v. Presentation of an analytic hierarchy chart (AHC).
vi. Determinations of weights for criteria, sub-criteria, and attributes via pair-wise comparisons.
vii. Development of rating scales and rating of objectives, strategies, and action plans.

The full descriptions of each of these steps are given in the sub-sections that follow below. The typical institution-wide strategic plan will be used in illustrating some of the steps.

Development of Criteria

Unlike Liberatore and Nydick's approach, our framework involves the use of many criteria. Hence, in this section, we develop a list of seven major criteria for evaluating objectives, strategies, and action plans. The criteria are collected from different literature sources, including Doran (1981) and Guskey & Bailey (2010). The criteria are presented and briefly defined as follows:

a. Acceptability:

The objective/strategy/action plan must be acceptable to the institution's stakeholders. It must earn good buy-in from them. They must see it as potentially rewarding to them and to the institution.

b. Achievability/Attainability:

Must have a fair chance of being achieved. The institution must have the capability and the resources for achieving it.

c. Aggressive/Challenging:

Must be aggressive and challenging to catch the aspirations of the people and get the most out of them. It should drive high level of performance. This criterion is necessary to ensure that the achievability/attainability criterion does not bring the objective/strategy/action plan to a level in which it becomes too simple, inadequate, trivial, and therefore not effective in helping the organization to achieve its mission/vision, objective, or strategy.

d. Importance/Relevance:

Must be important or relevant to the achievements of the institution's mission, vision, objectives, or strategies.

e. Measurability**:**

An institution's strategic objective, strategy, or action plan must be measurable so that its progress and success can be tracked.

f. Specificity:

Strategic goals must be unambiguous and specific so that everyone can understand it and its purpose. It must be clearly stated.

g. Time-based:

A strategic plan must have a clear timeframe of when it should start and when it should end. Without a timeframe, it is impossible to say if the goal, strategy, or action plan is met and when it is met.

The good thing about the set of criteria above and their attributes is that they are not only very suitable for evaluating objectives and strategies, they are also suitable for evaluating action plans.

Decomposition of the Criteria and Development of Rating Levels

Each of the criteria have been listed in the different literature sources from where it is collected without breaking it down into lower-levels of details by decomposing it into sub-criteria/attributes that define it more clearly. This is due to the fact that, to the best of our knowledge, the AHP has never been applied in evaluating or prioritizing objectives, strategies, and action plans using these criteria. In fact, we have never come across where they are used to evaluate these key strategic elements using any of the other analytical decision tools or scoring methods.

We have carefully broken down each of the criteria. The criteria and their respective lists of sub-criteria and attributes are respectively presented in columns 1, 2, and 3 of Table 2. The decompositions of most of the criteria do not extend beyond the second or sub-criteria level. For these criteria, their sub-criteria are also their attributes. It is only the decomposition of one criteria, achievability/attainability, that extends beyond the sub-criteria level to the attribute level.

We are using the AHP's absolute measurement method for ranking/prioritizing objectives, strategies, and action plans. We are of the view that the absolute measurement method is a better prioritization tool in IWSP than its alternative – the distributive method. An institution may propose many objectives (up to 10 or more) for the achievements of its mission. After prioritizations, some of these objectives may need to be dropped due to their low priorities. It is only the absolute measurement method that can preserve the ranks of the remaining objectives after one or more objectives are dropped. With the distributive method, the ranks will change after an objective is dropped and this may lead to complete reprioritizations of the remaining objectives. This makes the absolute measurement method the right method to apply here.

In applying the method, we develop intensities for each of the major criterion's attributes/lowest-level criterions. The intensities for each attribute/lowest level criterion are presented in column 5 of Table 2.

A Typical Institution-Wide Strategic Plan (TIWSP)

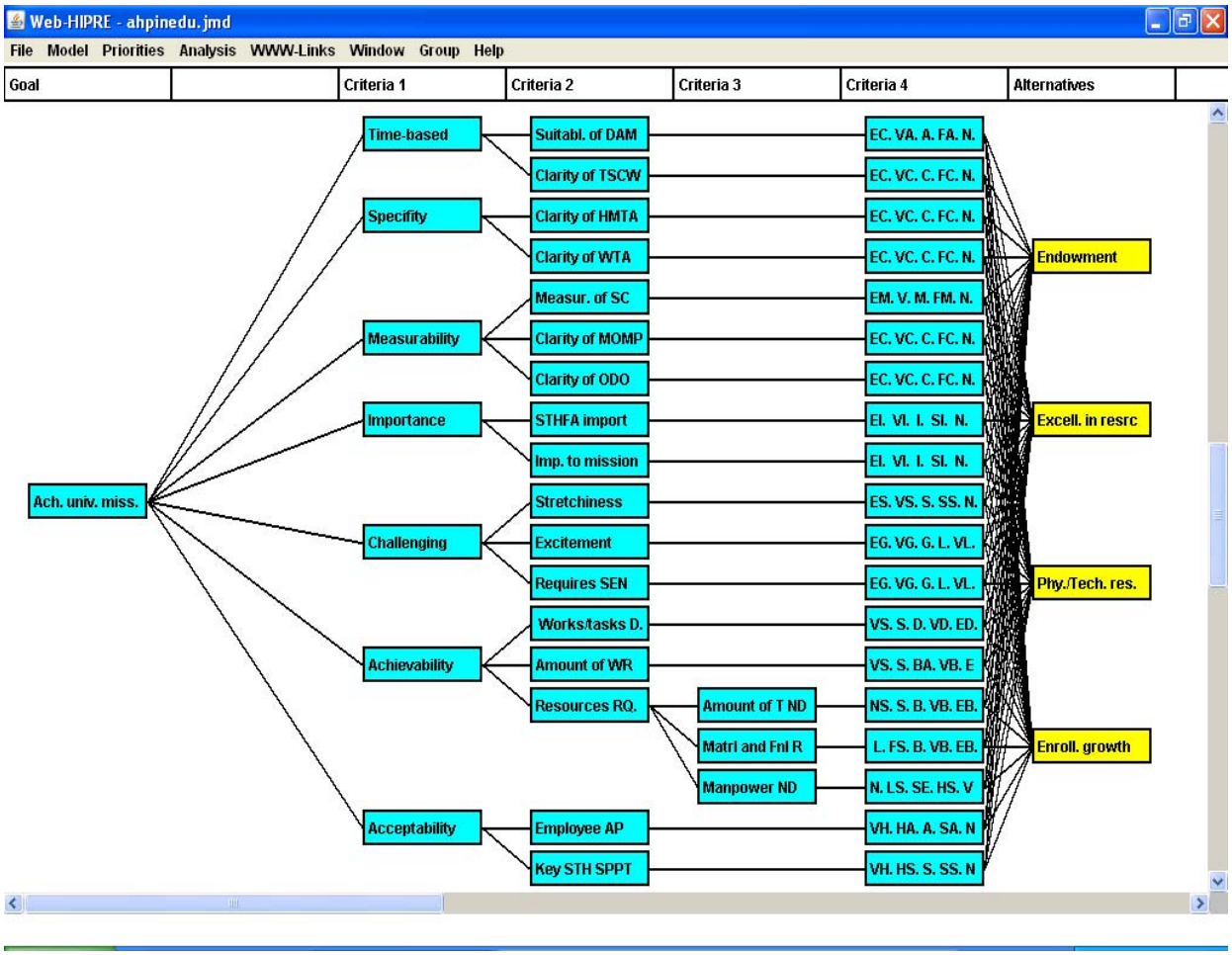
An illustrative institution-wide strategic plan is presented in Table 3. The plan has four objectives and each objective has its own separate set of strategies, unlike the case of Liberatore & Nydick (1997) where all the objectives have the same set of strategies. Two of the four objectives are the same with two of the three objectives in Liberatore & Nydick (1997).

In putting the plan together, we have integrated some of the components of the institution-wide strategic plan in Liberatore & Nydick (1997) with some components from actual strategic plans from some institutions of higher learning. This makes the strategic plan presented in Table 3 a true institution-wide strategic plan.

Development of the Analytic Hierarchy Chart

After developing the criteria and decomposing them into sub-criteria and/or attributes and after developing all the objectives, strategies, and action plans, we develop the AHC using the Web HIPRE AHP software. The chart is presented in Figure 2 below.

Figure 2: The AHC for Prioritizing Objectives, Strategies, and Action Plans



The hierarchy chart descends from the topmost level (the goal) to the major criteria at the second level and to the sub-criteria at the third level. It continues its descent down to the attributes at the fourth level and to the intensities at the fifth level and, finally, to the objectives (the alternatives, which can also be the strategies or action plans) - which are to be rated - at the lowest (or the sixth) level. Each of the intensities has five levels. Each of the levels is abbreviated for lack of space. The full descriptions of the levels are presented in column 5 of

Table 2 alongside their abbreviations. There is a big difference between this AHC chart and the one presented in Laberatore & Nydick (1997) which, as earlier indicated, is actually a tree diagram. Like the intensities, some of the other labels on the chart are abbreviated for lack of space. Each abbreviation is presented in Table 2 alongside the corresponding abbreviated element.

Determination of Criteria/Sub-Criteria/Attributes/Intensities Weights and Weighted Priorities

To determine weights of relative importance for the elements (i.e. the criteria, sub-criteria, attributes, and rating levels/intensities), every element at every level of the AHC is compared with every other element in that level with respect to their relative importance to their respective parent element in the next adjacent upper level to obtain pair-wise comparison matrices. Eigenvector solutions are obtained to each of the pair-wise comparison matrices to obtain weights for the criteria, sub-criteria, attributes, and rating levels/intensities.

The pair-wise comparison matrix for the main criteria with respect to their importance in the achievement of the mission (or with the mission as a control criterion) is shown in Table 1 below. The pair-wise comparison matrices for the different sets of sub-criteria, attributes, and intensities/rating levels cannot be presented here for lack of space. They are too many.

Table 1: Pair-wise Comparison Matrix for the Main Criteria

Mission	Accept-ability	Achiev-ability	Challeng-ing	Import-ance	Measur-ability	Specificity	Time-based
Acceptability	1.0	0.33	2.0	0.33	2.0	6.0	1.0
Achievability	3.0	1.0	3.0	1.0	6.0	9.0	3.0
Challenging	0.5	0.33	1.0	0.33	1.0	3.0	1.0
Importance	3.0	1.0	3.0	1.0	6.0	9.0	3.0
Measurability	0.5	0.17	1.0	0.17	1.0	3.0	0.5
Specificity	0.17	0.11	0.33	0.11	0.33	1.0	0.33
Time-based	1.0	0.33	1.0	0.33	2.0	3.0	1.0

The relative weight of each of the seven criteria is presented in column 1 of Table 2. The table shows that Achievability and Importance have the highest weight of 0.301 each. These are followed in succession by Acceptability, Time-based, Challenging, Measurability, and Specificity with relative weights of 0.124, 0.1, 0.083, 0.062, and 0.028 respectively.

The relative weights of the sub-criteria, attributes, and intensities can also be seen in the table. Each criterion/attribute/intensity is presented in the table along with its weight.

Weighted priorities are computed for the attributes. Sub-criteria that have no defining attributes are used as attributes. The weighted priority of an attribute is the product of its weight

and the weights of all its parent elements. The computed weighted priority for each attribute is presented in column 4 of Table 2.

Development of Rating Scales and Prioritization of Objectives, Strategies, and Action Plans

To develop the rating scales, the relative weight of each intensity in the set of intensities defined for each attribute is normalized. This is done by dividing the relative weight of each intensity in each set of intensity by the maximum of all the relative weights of all intensities in that set of intensities. These normalized weights are the rating scales for each attribute. The rating scales are presented in the last column of Table 2.

Prioritizing objectives

The objectives are prioritized before prioritizing the strategies or action plans. This is because if an objective is dropped because it is judged to be unimportant to an institution's mission, its supporting strategies (except those supporting any other objectives) must also be dropped. This also applies to strategies and their supporting action plans. Therefore, starting the process with the prioritization of objectives (instead of putting all focus on the prioritization of action plans as done by Liberatore & Nydick (1997)), reduces the numbers of the different sets of strategies and action plans that will be prioritized as we move down the process. It will also ensure that a strategy that supports an unimportant objective or an action plan that supports an unimportant strategy is not given a higher priority attention over some other strategies or action plans that support much more important objectives or strategies just because its global priority happens to be higher than those of these other strategies or action plans, unlike in the approach by Liberatore & Nydick (1997).

Each of the objectives is rated on each attribute by identifying the intensity that best describes it on each of the attributes and by assigning the rating corresponding to the intensity to it. Every rating given to each objective on each attribute is then weighted by multiplying it with the weighted priority presented for each attribute in column 4 of Table 2. Finally, all the weighted or global priorities for each objective are added to obtain the total ratio scale score or total global priority for the objective. The objectives are then prioritized according to their total global priorities.

The total global priority for each objective can be seen in column 2 of Table 3. The objectives are presented in the table in the descending order of their total global priorities. The table shows that the Enrolment-Growth objective has the highest total global priority of 0.6726. This is followed in succession by Endowment, Physical/Technological Resources, and Excellence in Research with total global priorities of 0.5990, 0.5495, and 0.48877 respectively. From the values of their total global priorities, none of the objectives can be dropped for lack of relevance or importance to the mission.

Prioritizing the strategies for achieving each objectives

After prioritizing the objectives, the strategies are next prioritized. Ideally, before prioritizing the strategies for each objective, a new AHC has to be constructed with respect to each objective, with each objective at the topmost level of its associated AHC and its strategies placed at the lowest level of the chart. New pair-wise comparisons should then be performed for the major criteria with each objective as a control criterion. This should be followed by the determination of relative weight of importance for the criteria, with respect to each objective, via Eigenvector solutions to the resulting pair-wise comparison matrices. New relative weights need not be determined for sub-criteria, attributes, and intensities as their control criteria or immediate parents remain the same. New rating scales need not also be determined for the attributes. Weighted priority should be computed for each attribute by multiplying its relative weight with the relative weights of its parent sub-criteria and criteria.

Following the same process described in the previous sub-section for rating and determining total global priorities for objectives, the strategies for each of the objectives are rated and their total global priorities determined. The total global priority for each of the strategies in achieving each objective is presented in column 4 of Table 3. As can be seen in the table, the total global priority for each strategy is relatively high. Therefore, each of them is important for the achievement of the objective it supports.

We would like to remark that to rate the strategies, new relative weights of importance may need not be determined for the major criteria if the strategic planners feel that the importance of each major criterion to each of the objectives is not different from its importance to the mission. This may be the case in many situations.

Prioritizing the action plans for operationalizing each strategy

The prioritizations of action plans come after the prioritizations of strategies. The process described above for the prioritization of strategies is applied for prioritizing the action plans. In applying the process, objectives are replaced with strategies while strategies are replaced with action plans.

The results of the prioritizations are presented in columns 5 and 6 of Table 3. The action plans for each strategy are listed in descending order of their local priorities in column 5 while the total global priorities for the action plans are presented in column 6.

The total global priorities for most of the action plans are relatively high. Thus, most of them are very important for achieving the strategies for which they are developed. They can therefore be prioritized according to their total global priorities during their implementations. However, the total global priorities for the last two action plans for the Curriculum strategy and the last action plan for the Conducive and Stimulating Intellectual Atmosphere strategy are

relatively small. These are the action plans that may enjoy less priorities or attention during the implementations of their respective strategies if resources are limited.

SUMMARIES AND CONCLUSIONS

We have critically reviewed the work by Liberatore & Nydick (1997) on the application of AHP in IWSP highlighting all its inadequacies. A new framework for applying the AHP in IWSP and that addresses all the shortcomings of Liberatore and Nydick's approach has been developed. The framework involves the use of seven major criteria and several sub-criteria/attributes. It is illustrated with a typical institution-wide strategic plan.

One of our major contributions in this research is that some common mistakes or errors that can be committed by ordinary strategic planners and users of AHP has been well-highlighted through the critical review of Liberatore and Nydick's work. This can be very helpful and useful to strategic planners and users of AHP. Another major contribution is the development of a framework for applying AHP in IWSP. This is an innovative framework that will be found very useful by strategic planners and encourage the applications of AHP in IWSP. We have never come across any other framework or procedure for the application of the real or standard AHP in IWSP. The tool applied in Liberatore & Nydik (1997) is essentially a tree diagram, not the real AHP.

The framework will enhance strategic planners' abilities (particularly those in educational institutions) to develop very good and high-quality strategic plans and to properly and effectively prioritize their strategic objectives, strategies, and action plans. It will enjoy useful adoptions and applications by institutional strategic planners.

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APPENDIX

Table 2: Criteria, Sub-Criteria, Attributes, Intensities and Their Weights and Rating Scales

Criteria	Sub-criteria and weights	Attributes(A) and weights	Weighted priority for attributes	Intensities and weights	Rating scales
Acceptability. (0.124)	a. Supported by key stakeholders (STH SPPT). (0.8)	-	0.0992	Very highly supported (VA). (0.491) Highly supported (HA). (0.281) Supported (S). (0.121) Slightly supported (SS). (0.066) Not supported (N). (0.040)	1.0 0.5723 0.2464 0.1344 0.0815
	b. Appealing to employees (AP). (0.2)	-	0.0248	Very highly appealing (VA). (0.492) Highly appealing (HA). (0.297) Appealing (A). (0.109) Slightly appealing (SA). (0.063) Not appealing (N). (0.039)	1.0 0.6037 0.2215 0.1341 0.0813

Table 2: Criteria, Sub-Criteria, Attributes, Intensities and Their Weights and Rating Scales

Criteria	Sub-criteria and weights	Attributes(A) and weights	Weighted priority for attributes	Intensities and weights	Rating scales
Achievability/ Attainability. (0.301)	a. Type of resources required (RQ). (0.727)	i. Manpower needed to achieve mission. (0.125).	0.0274	Non-skilled (N). (0.484) Less skilled (LS). (0.269) Skilled and experienced (SE). (0.147) Highly skilled with little availability (HS). (0.062) Very highly skilled and scarce (V). (0.038)	1.0 0.5558 0.3037 0.1281 0.0785
		ii. Material & Financial resources needed. (0.125).	0.0274	Needs very little or no money (L). (0.524) Needs fairly small amount of money (FS). (0.228) Needs big amount of money (B). (0.130) Needs very big amount of money (VB). (0.075) Needs excessively big amount of money (EB). (0.044)	1.0 0.4351 0.2481 0.14313 0.08397
		iii. The amount of time needed. (0.750).	0.16412	Negligibly or very small time (MS). (0.491) Small amount of time (S). (0.265) Big amount of time (B). (0.136) Very big time (VB). (0.068) Excessively big amount of time (EB). (0.040)	1.0 0.5397 0.2770 0.1385 0.0815
	b. Amount of work required (RQ) to achieve mission. (0.073)	-	0.0220	Very small amount of work (VS). (0.459) Small amount of work (S). (0.280) Big amount of work (BA). (0.140) Very big amount of work (VB). (0.084) Extremely big amount of work (E). (0.037)	1.0 0.6100 0.3050 0.1830 0.0806
	c. The difficulty (D) of the work/tasks involved. (0.200	-	0.0682	Very simple (VS). (0.444) Simple (S). (0.297) Difficult (D). (0.153) Very difficult (VD). (0.070) Extremely difficult (ED). (0.036)	1.0 0.6689 0.3446 0.1577 0.0811
Aggressive/ Challenging. (0.083)	a. Level of skills knowledge, experience (SEN) needed. (0.600)	-	0.0498	Extremely great amount of skill knowledge, and experience (EG). (0.057) Very great amount of skills, knowledge, and experience (VG). (0.0265) Good amount of skills, knowledge, and experience (G). (0.479) Little skill, knowledge, and experience (L). (0.149) No skill, knowledge, and experience (VL). (0.050)	0.1190 0.5532 1.0 0.3111 0.1044
	b. The level of excitement it brings. (0.30).	-	0.0249	Extremely great excitement (EG). (0.499) Very great excitement (VG). (0.278) Good level of excitement (G). (0.120) Little excitement (L). (0.064) Very little or no excitement (VL). (0.040)	1.0 0.5571 0.2405 0.1283 0.0802
	c. How stretching (0.10).	-	0.0083	Extremely very stretching (ES). (0.062) Very stretching (VS). (0.096) Stretching (S). (0.585) slightly stretching (SS). (0.180) Not stretching (N). (0.077)	0.1060 0.1641 1.0 0.3077 0.1316

Table 2: Criteria, Sub-Criteria, Attributes, Intensities and Their Weights and Rating Scales

Criteria	Sub-criteria and weights	Attributes(A) and weights	Weighted priority for attributes	Intensities and weights	Rating scales
Importance. (0.301)	a. Importance (Imp) to the mission. (0.667).	-	0.2008	Extremely important (EI). (0.432) Very important (VI). (0.398) Important (I). (0.086) Slightly important (SI). (0.043) Not important (N). (0.040)	1.0 0.9213 0.1991 0.09954 0.0926
	b. Importance to the stakeholders (STHFA Imp). (0.333).	-	0.1002	Feel is extremely important (EI). (0.452) Feel is very important (VI) . (0.286) Feel is important (I). (0.164) Feel that the goal is not so important. (0.062) Do not feel is important (N). (0.037)	1.0 0.6327 0.3628 0.1372 0.0819
Measurability (0.062)	a. Clarity of desired outcome (ODO). (0.222).	-	0.0138	Extremely clear (EC). (0.497) Very comprehensible or clear (VC). (0.236) Comprehensible or clear (C). (0.142) Fairly comprehensible or clear (FC). (0.080) Not comprehensible or clear (N). (0.045)	1.0 0.4748 0.2857 0.1610 0.0905
	b. Clarity of the means of measuring progress (MOMP). (0.111).	-	0.0069	Extremely comprehensible (EC). (0.467) Very comprehensible (VC). (0.288) Comprehensible (C). (0.137) Fairly comprehensible (FC). (0.070) Not comprehensible (N). (0.039)	1.0 0.6261 0.2978 0.152 0.0848
	c. Measurability of successful completion (SC). (0.667).	-	0.0414	Extremely measurable (EM). (0.446) Very measurable (V). (0.292) Measurable (M). (0.154) Fairly measurable (FM). (0.070) Not measurable (N). (0.038)	1.0 0.6548 0.3453 0.1570 0.0853
Specificity. (0.028)	a. Clarity of what to be accomplished (WTA). (0.565).	-	0.0158	Extremely comprehensible (EC). (0.406) Very comprehensible (VC). (0.255) Comprehensible (C) . (0.249) Fairly comprehensible (FC). (0.058) Not comprehensible (N). (0.033)	1.0 0.6281 0.6133 0.1429 0.0813
	b. Clarity of how much to be accomplished(HMT A). (0.435).	-	0.0122	Extremely comprehensible (EC). (0.414) Very comprehensible (VC). (0.257) Comprehensible ©. (0.240) Fairly comprehensible (FC). (0.054) Not comprehensible (N). (0.034)	1.0 0.6208 0.5797 0.1304 0.0821
Time-based (0.10)	a. Clarity of the timeframe for start and completion of works (TSCW) on mission. (0.455).	-	0.0455	Extremely clear (EC). (0.469) Very clear (VC). (0.293) Clear ©. (0.129) Fairly clear (FC). (0.072) Not clear (N). (0.037)	1.0 0.6197 0.2778 0.1496 0.0876
	b. Suitability of deadline for achieving mission (DAM). (0.545).	-	0.0545	Extremely appropriate (EC). (0.449) Very appropriate (VA). (0.291) Appropriate (A). (0.162) Fairly appropriate (FA). (0.061) Not appropriate (N). (0.036)	1.0 0.6247 0..2751 0.1535 0.0789

Table 3. Objectives, strategies, and action plans in the TIWSP and their total global priorities					
Objective	Total global priority	Strategies	Total global priority	Action plans	Total global priorities
1. Enrollment growth: Increase full-time student enrolment by 3% per year for the next five years	0.6726	1. Recruitment	0.6933	1. Increase visits to U.S. high schools by 20%.	0.718
				2. Increase the number and scope of on-campus recruiting programs.	0.593
				3. Visit selected international high schools in Latin America.	0.539
		2. Placement	0.5947	1. Increase number of on-campus recruiter by 15%	0.747
				2. Increase number of student placement to 90% within months of graduation	0.658
				3. Increase placement in the medical/law schools by 10%	0.615
		3. Curriculum	0.5581	1. Develop a five-year accounting programme	0.576
				2. Create a joint degree programme with foreign university placement	0.442
				3. Develop a core humanities curriculum	0.427
				4. Create a joint degree program with a foreign university placement.	0.343
		4. Faculty	0.5334	1. Implement a formal faculty development program.	0.669
				2. Implement a mentoring program for new faculty.	0.589
				3. Establish a series of workshops to help improve teaching effectiveness.	0.485
2. Endowment: Increase endowment by $500m over five years.	0.5990	Endowment plan	0.6143	1.Set up an endowment committee.	0.758
				2. Develop an endowment plan.	0.750
				3. Take endowment campaign to alumni, businesses organizations, philanthropists	0.653
3. Physical/ Technological resources: Development technologies and facilities to become one of the top 10 well-equiped and technologically resourced institutions in the nation.	0.5495	Technologies	0.6763	1. Equip computer labs with the state-of-the-art computer facilities	0.680
				2. Upgrade audio visual aids/facilities for class and long distance instructions	0.6799
				3. Increase number of computer labs	0.645
				4. Acquire modern telecommunication technologies/equipments.	0.628
				5. Build multi-media instructional center	0.525
		2. Facilities	0.5497	1. Build apartment-style housing for students.	0.594
				2. Build a state-of-the-art student centre.	0.579
				3. Construct a new convocation centre	0.516
4. Excellence in Research: ecome one of the top 10 research universities in the nation	0.48877	High-quality faculty	0.6143	1. Recruit and retain high-quality faculty with demonstrated and exceptional research skills	0.642
		Conducive and stimulating intellectual atmosphere	0.5840	1. Develop merit pay awards for significant accomplishments in research and publications	0.692
				2. Provide all necessary supports, facilities, and equipment for scholarly research	0.639
				3. Establish chairs of excellence to be filled by faculties with exceptional research and publication accomplishments	0.427

MENTORSHIP INTERACTIONS IN THE AVIATION OR AEROSPACE INDUSTRIES

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ABSTRACT

A good business practice supports the core competencies of many businesses, enhances distribution channels for management, increases brand equity, and influences mass customization production processes. Customization processes, moreover, would not be possible without strategic leadership direction through mentorship. When leaders make major decisions that affect the organization, seeking the input from employees is wise to gain additional knowledge. Using the philosophy of mentorship coupled with employee and stakeholder participation leads to better decisions and more successful implementation. Historical and mentoring perspectives surrounding both the aviation and aerospace industries are necessary to understand successful implementation.

Key words: mentorship, visionary mentors, aviation, leadership

INTRODUCTION

Most might argue that U.S. aerospace industry jobs are high paying and demand a certain level of technical aptitude. As more young workers enter the aerospace industry, mentorship could potentially provide a means to advance through peer coaching and personal development.“Historically, the concept of mentorship originates from Greek mythology, particularly Homer's Odyssey. During the Middle Ages, mentorship was practiced via apprenticeships” (Block, Claffey, Korow, & McCaffrey, 2005, p. 1). Smith, Howard, and Harrington (2005) quote Merriam as having stated “mentoring appears to mean one thing to developmental psychologists, another thing to business people, and a third thing to those in academic settings” (p. 2). Other scholars have suggested that the industry context influences how mentors perform (Smith et al.).

Kram (1985) described four distinct phases of mentorship: initiation, cultivation, and redefinition. The initiation phase is the time period when the mentorship forms. A prospective protgee begins to respect the potential mentor as a competent individual and a person from whom the protégé would like to receive support and guidance (Kram, 1985). At the same time, the mentor begins to recognize the protégé as someone who deserves special attention and coaching within the organization (Kram, 1985). The initiation stage is typically followed by the

cultivation phase, in which the mentorship partners learn more about each other's capabilities and optimize the benefits of participating in the mentorship (Kram, 1985).

Kram (1985) further noted that the cultivation phase would be the period in which the protégé benefits most from interactions with the mentor. The structural and psychological separation between the mentorship partners when the functions provided by the mentor decrease and the protégé acts with more independence and autonomy. The redefinition phase terminates a mentorship, and the partners evolve the relationship to one of informal contact and mutual support (Kram. 1985).

The fact that mentoring occurs just as often "organically," without either the imprimatur of an organization or the structure provided by a formal program, indicates that mentoring is more than an organizational imperative (Barry & Feeney, 2009). The concept of mentoring is a social relationship pursued by individuals expecting returns to their careers and to their human and social capital (Barry & Feeney, 2009). The realization of the expectations of organizations, mentors, and protégées is often under discussion (Barry & Feeney, 2009). Mentoring programs abound in both public and private organizations and the value of the programs to the individual and to the organization often is taken as an article of faith in every industry to understand and assist mentees with meeting expectations (Barry & Feeney, 2009).

Interestingly enough, the majority of studies of mentoring outcomes focus exclusively on perceptions. Studies have focused on more tangible outcomes (e.g., job mobility, career progress predominately-oriented studies) over perception-based variables (e.g., job satisfaction, organizational commitment; Aryee & Chay, 1994; Bozionelos 2004; Scandura 1992). Given the abundance of research on mentoring coupled with a plethora of literature on leadership development, research on aviation and aerospace industries contributed to favorable results in career advancement and improved human capital (Barry & Feeney, 2009). From a research perspective, this paper will exemplify the advantages of mentorship applied to the aerospace industry:

LITERATURE REVIEW ON THE AVIATION FIELD

Historical perspectives will show that mentorship for the aerospace industry began with the Wright brothers and have influenced the aviation industry over last century. Historically speaking and interestingly enough, the word mentor originated around the time of Ulysses. Ulysses or as he was known at the time, Odysseus gave authority of protection over his son (i.e., Telemachus) to a counselor or tutor when his son set out on many journeys. Over the years, the name Mentor--with a lower case "m" has come to mean wise and trusted teacher, tutor, and counselor.

Expanding on historical methodology, the name mentor exemplifies a situation where one would agree to take another 'under their wing' in the hopes of assisting in the advancement of their vocation. The first would then be the mentor of the second or their protégé very similar to

Telemachus who was the selected mentor's protégé. Coming full circle however, this communicative interaction being voluntary, and mutually agreed upon has become an institutionalized ploy financially displayed between individuals where society has humorously but cautiously labeled consultation, or the work of a hired consultant.

The First Airplane

The history of the state of North Carolina is linked to aviation. December 17, 1903 at Kitty Hawk, the Wright brothers flew the first U.S. airplane (Jakab, 2003). Mid 1909, the United States marveled at the tremendous feats previously accomplished by the Wright brothers. Six years had passed since that historical day in 1903, and the Wright brothers were finally poised for the domestic and international recognition that they had fought to achieve. The headlines and history echoed their names for a second time, but in Fort Myer, Virginia (Allen, 2002). On August 2, 1909, the U.S. Army accepted its first aeroplane into inventory once the Wright brothers meet certain governmental specifications (Allen).

Numerous inventors of flying machines (Ennels, 2002) challenged the Wright brothers' domination of the flying market. Just prior to 1920, the U.S. postal service initiated an airmail service that established a major position in the expansion and growth of aviation and through external motivation setting the foundation for airports worldwide (Jakab, 2003). In 1925, private carriers began delivering mail and transporting revenue passengers with the support and mentorship of the U.S. government. The initiative led to the establishment of airline companies, such as Pan Am in 1928, TWA in 1928, and Delta in 1929 (Jakab, 2003).

As the years passed, interest in airplane travel grew exponentially, but safety became a major concern. A collaborative assessment by aircraft designers at Boeing and Lockheed led to the production of safer aircrafts and the introduction of the aerospace industry. To create inclusive safety standards in these new industries, the Civilian Aeronautic Board (CAB) was established in 1938 (Corvera-Tindel, Doering, Gomez, & Dracup, 2004). The consorted efforts of Boeing and Lockheed coupled with the creation of the CAB helped increase the number of airline passengers from about 2,000 a year around 1930 to well over 16 million in 1949. The introduction of jet airplanes by 1957 allowed more people to enjoy flying while increasing aviation employment. During the initial phases of aviation, mentorship became a tool many aviators used because "mentors *tell it like it is* and provide society with insights into any industry" (Caron, 2008, p. 1).

Uncertainty of Industry Deregulation

In 1978, the Airline Deregulation Act was established and some considered it unfair ethical practices. Business ethics is a primary concern within the business community and amongst the public and private sectors (Forte, 2004). However, this Act gave all airlines the

ability to establish specific routing systems for the good of all involved. Worthy to note, one of the most memorable examples of aviation mentorship occurred in 2005. During that year, an aviation Air National Guardsman teamed up with an aviation student who wanted desperately to become a military pilot. Due in part to business ethics at the time, the guardsman is now the Adjutant General of the NHNG and the students recently graduated – military pilot (Caron, 2008).

About 30 years later, in 2006, the CAB was abolished to the dismay of some and excitement of others. To maintain a regulatory force, the Federal Aviation Administration (FAA) began mandating regulating airline safety. Since the mid 1980s, management theory as applied to the aviation and aerospace industries has evolved because of privatization, deregulation, and mentorship. Organizations need to measure involvement and satisfaction through mentorship and monitor understanding of the business strategy (Lawler, 2006) to arrive at the evasive prescription to operational growth.

Day (2000) stipulated that effective mentors build networking associations amongst employees and employers who augment collaboration and supply exchange while establishing operational and organizational worth. Furthermore, mentoring can assist businesses in maintaining a continued existence surrounding individualistic and specialized workplace improvement. Siebold (2006), however, proposed that if the strategies are not cultivated surrounding the specialized then the aforementioned relationships might become taxing interactions that create undesirable variances within an organization.

Societal issues and economic barriers surrounded deregulation of the industry and led to a period of ethical challenges in the aviation industry and labor strife in the aerospace industry. Hofstede (as cited in Swaidan and Hayes, 2005) defined ethics as a judgment on the actions of organizations. Based on what some deem as poor ethical judgment, numerous buyouts, severe downsizing, bankruptcies, closures, and several mergers resulted from deregulation. Voelpel, Leibold, and Tekie (2004) believed that companies should seek the capability to reinvent strategy through mentoring continuously to alleviate some of the disastrous outcomes. If organizational leadership can establish clear objectives and goals, gain the trust of the workforce through motivation, encouragement, and a personal mentoring investment, employees are more likely to increase his or her productivity (Buckingham, 2000). Southwest Airlines directed some of its mentorship training towards front-line supervisors or the individuals thought to have the most influence on the workforce (Taylor, 2003).

The Health of the U.S. Aerospace Industry

The health of the U.S. aerospace industry could be measured on the backlog of aircraft manufacturing orders, mentorship of internal as well as external customers, and the global exportability of products and services by the US aerospace industry. The U.S. Department of

Commerce (2008) Census Report for the second quarter of 2008 reported a $55.8B decline in the durable goods manufacturing by the U.S. manufacturing industry from the same period in 2007. The U.S. Department of Commerce's (2007) report on industry and security acknowledged 9 of 10 major defense outsourced systems were aerospace-related. From 2002 through 2006, the major 10 aeronautical systems accounted for 56.8% of the export agreements and 58.8% of the offset agreements (U.S. Department of Commerce). Globalization, outsourcing, and the decentralization of commercial aircraft production challenge organizational leaders to establish a convincing case for employees to adapt to goals and objectives driven by political and economic forces (Pritchard, 2002). The problem is that many aerospace workers believed transferring work projects abroad has an erosive effect on the national economy and on the American skill base (Pritchard & MacPherson, 2004).

The U.S. Department of Commerce Bureau of Industry and Security (BIS; 2007) reported that the U.S. companies reported, in 2004, offset transactions reached $4.9 billion, the highest for the 12-year time frame and a 38.4% increase over 2003. The U.S. aerospace industry is increasing outsourcing by "direct subcontracting, purchasing, co-production, and licensing offset transactions" (U.S. Department of Commerce BIS, p. 20) to promote sales internationally. Researchers at the U.S. Department of Commerce BIS reported that the aerospace rationale for outsourcing is focused on three areas: supplier's capacity and capability, cost reductions, and offset agreements for most international exports with mentorship factoring in as a major contributor to success. The aerospace industry is attempting to reduce waste, improve productivity, and prepare an efficient labor force to meet future technology advances (Pritchard, 2002) however; this cannot be accomplished without effective, focused, and strategic mentoring on the part of current leadership.

The process for waste elimination and efficiency improvements focuses on the introduction of lean manufacturing initiatives that complement Taylor's scientific management model (Pritchard, 2002). The lean manufacturing model follows a similar path of measuring the times, motion, and travels of employees as they accomplish their work (Womack, 2005). In the lean process, the task of the worker and the efficiency of the organization are examined to identify repeated actions and steps that result in wasted time and increased cost (Womack, 2005). In most cases, the aerospace industry needs to introduce mentoring while initiating outsourcing as a method for implementing lean practices in the operations environment (Pritchard, 2002).

The need for U.S. aerospace companies to improve the efficiency and operations management of the organizations often results in a strategy that promotes the use of outsourcing (Pritchard & MacPherson, 2004). A substantial body of research revealed that U.S. aerospace companies involved in outsourcing have been able to reduce their cost structure, which resulted in the savings being passed to the customer and consumers. A benefit of outsourcing for the aerospace industry is the cost of passenger air travel in the 21st century, which is a fraction of what it cost in 1976 (U.S. Bureau of Economic Analysis, 2005). Other researchers have demonstrated consumers and customers' demand for lower costs for goods and services may

help promote the use of outsourcing as one of the means to achieve the desired results and promote mentoring strategies that may aid the U.S. aerospace industry.

Another benefit of the U.S. aerospace industry's outsourcing strategy is the ability to expand and capture market share by having the countries that are purchasing the products and services exercise them for their indigenous consumption (Friedman, 2005). Moving the indigenous co-production and co-development of products and services that resulted from outsourced projects often requires contractual agreements between the parties as a condition of the sale by many international countries where outsourcing fulfills the obligations imposed by the international customer (Taylor, 2003).

The Internet is serving as a new distribution channel all over the world. An in-depth investigation will unveil a plethora of examples between aviation industry employers, employees, students and teachers (Caron, 2008). Moreover, various airline companies, through their IT departments, are now offering new marketing programs and new distribution channels, online ticket reservation system, and price cut promotion schemes. Increasing the inherent adaptive fitness of an organization requires embracing the concept of rapid change (Senge, 2006).

Bandyopadhyay's (2005) believed that framework for global supply chain standards, aerospace companies employ a similar approach where the focus to reduce the variability of the process and improve overall performance forms the basis for determining the quality requirement of operations management in the manufacturing environment. Bandyopadhyay noted the "framework for facilitating the process of developing an industry-specific quality standard for effective quality assurance in a global chain" (p. 294) introduced new processes that are needed to control the operations management of organizations.

The most frequent argument mentioned when considering outsourcing is the loss of U.S. technical skills and jobs (Pritchard, 2002). The rising cost of wages for U.S. aerospace workers is one of many factors requiring U.S. companies to consider alternatives to the manufacturing process. The U.S. aerospace industry is automating many of the work processes once performed by manual labor. An indication of the importance attached to the study of outsourcing is the changes in the manufacturing processes designed and implemented to improve the quality of the product, maintain consistency of the products and service, and reduce overall operating cost (Pritchard, 2002).

The argument that manufacturing jobs may be lost due to outsourcing may prove to be incorrect. Research has confirmed losing aerospace work to outsourcing creates new opportunities and higher skilled jobs are created that are more technical and advanced (Pritchard, 2002). The off-shoring, in-sourcing, and relationships attained from the global supply chain from the application of an industrial participation strategy may also create a new competitor. The development of a new competitor from the export of technology is a concern for many U.S. aerospace industry organizations that is often mitigated by partnering agreements, joint ventures,

and other forms of business relationships that promote a common approach where all parties involved in the transaction develop and strengthen the organizations (Pritchard, 2002).

Mentoring in the Aviation Field

Over time, the aviation and aerospace industries continued to develop. Over half a billion passengers were carried by U.S. airlines by 2001 and less than 7 years later, 10 of the largest carriers controlled over 90% of the market (Crouch & Jakab, 2003). Voelpel et al. (2004) stated, "In today's rapidly changing business landscape, new sources of sustainable competitive advantage can often be attained from business model reinvention that is based on disruptive innovation and not on incremental change or continuous improvement" (p. 259). Several management theorists, including Schein (2006) and Senge (2006), posited that management theory needed to incorporate the scientific principles of system dynamics to help explain and possibly predict the complexity of interactions in business environments. This organizing chaos forced businesses to find new ways to achieve operational stability and economic growth (Financial Executive, 2002).

A basic assumption throughout this analysis identified mentoring once adapted by organizations will have potential to produce tangible benefits from the nurturing of employees and leaders to build a cohesive organization (Anonymous, 1996). In the aviation and transportation industries, apparent gender-related problems exist: (a) increasing hiring of entry-level female professionals and (b) developing female professionals so that the best ones move into the elite section of the official/administrator ranks (Schachter, 2004). Schachter (2004) cited, "Organizations develop workers by identifying skills employees need for target positions and the job paths that provide those skills in appropriate increments" (p. 169). To develop female employees, the transportation industry needs information on education and job paths successful female executives use to acquire skills. One way to obtain the necessary information is to analyze strategies used by individual women who have attained career success and to note common aspects among those strategies (Schachter, 2004).

This leads one to believe that mentoring can be beneficial (Minter & Thomas, 2000). Furthermore, these processes can enhance the value of employee development and heighten support towards building lasting partnerships and thus achieving organizational profitability. Mentoring, categorized as providing several distinctive roles: Professional growth and psychosocial enhancement (Kram, 1985). In professional growth, mentors provide vocational support, such as coaching, analysis, advising, and visibility for their protégés. As a career coach, the mentor counsels the protégé on how to pursue and develop his or her career (Kram, 1985). Employees are encouraged to inform their mentor about assignments they are working on, and his or her respective mentors should provide helpful information on respective ventures and assignments when applicable or a win-win situation.

Mentoring has been and may be continually successful in the aviation industry. Moreover, it has been and may be continually successful in the aerospace industry. According to Doug Pearson (a test manager), 3 weeks of test flights on the F-35 Lightning II aircraft went remarkably well. Additional test at the Air Force base located at Edwards AFB in California incorporated one dozen mid-flight engine cutoffs. These tests were put into place to replicate engine failure in times of battle and warfare. Of the cases tested, the Pratt and Whitney engines started immediately. Another interesting aerospace occurrence (October 2008), involved the Atlantis space shuttle. The agency inadvertently postponed a repair mission when it was discovered that the Hubble telescope stopped transmitting critical data. Through a directed communicative mentoring interaction between maintenance technicians and senior management as well as the aforementioned two false starts, long-distance computer patches profitably recharged and revitalized the Hubble Space Telescope.

Several scholars argued that leadership development lament the failure of traditional programs to achieve desired results in the business environment (Conger, 2003; Sztucinski, 2002). Consequently, mentoring develops strong leaders and lasting relationships. Sonnentag (2002) cited the following:

> Mentoring relationships are conceptualized to be relationship of long duration - up to 5 yrs or more. Furthermore, research has shown that often there is substantial emotional commitment by both parties over an extended time, and that these relationships evolve in distinct phases. (p. 295)

Lark (2008) opined that mentoring saves businesses money, lower taxes, and produce long-term residual results. Lark said that mentors increase productivity and stay at their jobs longer. Mentoring helps organizations sustain operational profitability and growth. Because of mentoring and mentorship, knowledge trumps hierarchy, and every idea can be taken farther. New and interesting is better that established and safe, go for broke, or do not go at all (Berlin, 2005). Employees develop confidence and expertise early in their careers, which strengthens opportunities to participate directly in research and developmental projects and or assignments as in the Hubble Telescope troubles (Alfred, 2006).

METHODOLOGY AND FINDINGS

In a recent qualitative study that analyzed the contributions for mentoring in American Aerospace Industry, the study analyzed the perspective of 20 mentors and their mentees in a formal program (McPhaul, 2009). McPhaul's (2009) analysis revealed common themes that determined "80% of responses focused on career guidance" (p.121). Further analysis of the data collected by McPhaul identified "50% of respondents agreed that mentors effectives" is of great importance to the mentee (p. 121).

McPahul (2009) study revealed, "30% of mentors and 35% of mentees responded that listening and communication skills were most valuable aspects of mentoring" (p. 123). In a Delphi technique study, the role of mentor and protégé by Gomez (2008), a 20-member panel review questions on the role of 48 protégé competencies. The results of Gomez' study offered a reversal on mentorship based on the panel discussion who challenged the "need for mentoring or having a mentorship program" (p. 59).

Sikes' (2003) study in visionary leadership complements the findings derived from many resent studies on mentoring and mentorship relationships. Douglas' (2008) study on the study of outsourcing on the organizational loyalty, introduces the plausibility, and need for honest communication. The 20 participants in Douglas' study resulted in Aerospace workers defining employee loyalty as the willingness to exert considerable effort on behalf of a company, a willingness to remain an employee of a company, a commitment, or dedication to that company, and a certain amount of reciprocity with a company.

Similarly, data were collected from 5 aviation managers by Brigette's Technology Consulting and Research Firm to acquire an understanding how mentoring assisted in achieving operational stability in the aviation arena. Three research questions guided the current research.

1. How long were you in the aviation field? What was your last position?
2. As a mentee in the aviation field, explain your emotional commitment level.
3. As a mentor in the aviation field, what management process helped you make better decisions benefiting the organization as well as the mentees?

Prior to asking the first question during each tele-interview, the following definitions of rational and emotional commitment offered by North Carolina Office of State Personnel (OSP, 2008, para. 7-8) were read to the participants:

> There are two kinds of commitment: *rational* and *emotional*. Rational commitment is the factual, intellectual reasoning that leads employees to remain in an organization or particular jobs (e.g., salary, health benefits, work hours, vacation/sick leave, parking, etc). Rational commitment is a driver for retention. On the other hand, emotional commitment reflects the *feelings* that employees have about their jobs, such as whether the work performed is of value to the organization, or the type of interaction with the supervisor, etc.

Position and Duration in the Aviation Field

Of the 5 male participants, 3 were African Americans, 1 was Caucasian American, and 1 was Hispanic American. Participants' managerial job tiles included former maintenance

chief, former chief of transportation/aircrew support (E6, Tech Sgt), Sr. program integrations manager, manager airport customer service training and standards, and facility manager senior planning & development. Industries included prior military (U.S. Marine Corps, U.S. Air force), NASA, Atlantic Southeast Airlines, and the City of Atlanta: Department of Aviation. The average years in the aviation field for the participants include 14 or more years, and in the current position 5 or more years (see Table 1).

Table 1: Years in the Aerospace Industry			
	1 to 6 Years	7 to 12 Years	>13 Years
Number	3	1	1

The participants considered several areas of their respective organization where shared responsibility and common goals focused on project and program management best practices. The areas identified by participants 1 through 5 were, general management, program management, operations, and military regulations and applications (see Table 2). Each study participant reflected on the numerous positions that were available during their career in the aerospace industry. One study participant identified the diversity of professional opportunities that are available to individuals that are motivated and seek mentoring from peers.

Table 2: Aerospace Industry Profession of Managers				
	Management	Program management	Operations	Other
Number	2	1	1	1

Emotional Commitment Level

The emotional and rational factors that were considered by the participants were based on their current and past experiences in the aerospace industry are outlined in Table 3. Interactions with coworkers and challenges associated with current responsibilities were emotional factors that prompt most of the participants to remain in the aviation field.

Table 3: Emotional Commitment to the Aerospace Industry					
Emotional Descriptor	Participant				
	1	2	3	4	5
Friendships	X		X		
Interactions		X		X	X
Specialization	X		X		
Challenges	X		X		X
Comradety	X			X	
Pay and benefits		X			X
Science & technology				X	

Table 3: Emotional Commitment to the Aerospace Industry					
Emotional Descriptor	Participant				
Engineering applications			X		
Accomplishments		X			X
Execution of tasks	X			X	

Management Process that Resulted in Better Decisions

The management processes and applications that benefit the organization as well as the mentees were identified by the participants during their career in the aerospace industry are outlined in Table 4. The study participants identified leadership skills that are common in the individuals that work in the aerospace industry. One participant identified the technical and higher level mathematics as determinants for work assignments in the aerospace industry.

Table 4: Management Processes in the Aerospace Industry					
Emotional and rational descriptor	Participant				
	1	2	3	4	5
Program management					X
TQM			X		
Quality control tools				X	
Research	X			X	
Mission assurance				X	
Leadership skills	X	X	X	X	X
Management skills			X		X
OJT/field training		X			X

Findings based on the perspectives of 5 male aviation managers revealed how mentoring assisted in achieving operational stability in the aviation arena. One manager commented on the many challenges surrounding mentoring in the very large aviation industry, but most indicated that challenges were overcome through communicative interaction(s). The mentoring process improved through continuous education, and some junior staffers benefited in regards of knowledge enhancement resulting in promotions. Commenting that mentoring via communicative interactions was successful, 1 manager incorporated the concept in briefings to children with the mentor directed recommendation intentions of staying in school and more importantly staying in the fields of science technology, engineering, and math.

CONCLUSION

Caron (2008) confirmed that the literary direction as pointed out throughout this paper, "mentorship is a valuable learning tool." As noted by historical research supported by findings from the study, a myriad of examples emerged surrounding mentorship between students,

teachers, and professionals in the aviation industry. Block et al. (2005) quoted, "Mentorship incorporates support, guidance, socialization, well-being, empowerment, education, and career progression" (p. 1).

Mentors can be, and in most situations, are valuable sources of information about the "real world" directing and providing insights about the industry to mentees (Caron). Greatest leaders are constantly teaching by example and reflecting character in their performance (Havice, 2003), and if not, as future mentorship leaders should be. "Educating mentors toward their leadership role is beneficial and should be instituted before mentorship programs are adopted" (Block et al., p. 1). The subject about which many a heated discussion has ensued is how best to develop current and future leaders with exemplary organizations selecting and grooming future leaders in a myriad of ways. Fulmer and Goldsmith (2001) stated, "It is becoming increasingly clear that developing leaders is not a luxury; leadership development is a strategic necessity" (p. 3).

Dr. Brenda Nelson-Porter (personal communication, December 15, 2008) coined, "Visionary Mentorship," which involves being committed to securing any opportunity to enhance knowledge. Opportunities involve furthering educational opportunities, researching, and story sharing through networking and net weaving, interviewing, and coaching or mentoring sessions (Nelson-Porter). "Preparing the [future visionary mentors] and leaders of tomorrow is one of the most important jobs for the leaders of today" (Cornelius & Dively, 2008, p. 1). Being that effective visionary mentors or leaders are willing to share their knowledge external of the classroom and decision-making responsibilities external of the workplace with persons being mentored according to Nelson-Porter, the 5 male managers in might be classified as visionary mentors.

In the book, *Getting Mentored in Graduate School*, Johnson and Huwe (2003) divided the work of visionary leaders into two functions: career and psychosocial. Findings from the study identified career functions, such as "sponsorship, exposure and visibility, coaching, protection, and challenging assignments" as indicated by Johnson and Huwe (p. 19). Visionaries lead junior staffers into situations appropriate to accomplishing goals through personal interactions highlighting the challenges associated with achieving the goals as indicated by Fulmer and Goldsmith (2001), which is supported by findings from the study.

Interestingly enough, the five tele-interviewee's incorporated findings equal to Douglas (2008), McPahaul (2009), and Gomez's (2008) findings. The 5 participants expressed applauds for mentoring, stating similar conclusions to Douglas (2008) and McPahaul (2009) that communicative interactions were foundational to positive outcomes. One participant sided with Gomez's reversal stipulations citing enormous challenges due to the size of the aviation industry, however, and different from Gomez, after overcoming the presented challenges, the rewards were extremely beneficial. All participants commented that mentoring, whether from a mentee or mentor perspective was beneficial when necessary communicative involvement was present.

The resulting from data collected in this study supports the need for visionary leadership to advance the aerospace industry to meet the challenges of tomorrow. Data presented in this study suggest leaders should embrace managerial processes to develop the future aviation workforce, particular in regard to female managers. The greater challenge for future leaders supported by data recommends focusing on developing and implementing management skills and specializations through research, OJT, and TQM, which are sustainable in developing the future aerospace American workforce.

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CONCERNING THE SOCIETY MEMBERSHIP COUNT: AN ANALYSIS WITH EXTERNAL FACTORS

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ABSTRACT

The Chartered Property and Casualty Underwriters (CPCU) society a non-profit organization primarily consisting of CPCU designation completers. The CPCU professional examinations and designation is the most recognized certification system in the area of property and casualty insurance. This paper studies the trend movement of the CPCU society membership, in particular the declining trend in recent years. Therefore, the objective of this research is to understand the cause of this attrition and the identification of possible factors for this declining trend. A notable finding of our research is the direction of the association between the overall insurance industry employment trend and the trend of the CPCU society membership. Understanding the direction of association and its magnitude has important implications in managerial decision making process for strategic planning. We focus our attention on other associative factors such as, the number of CPCU exam takers and the amount of membership charge (dues).

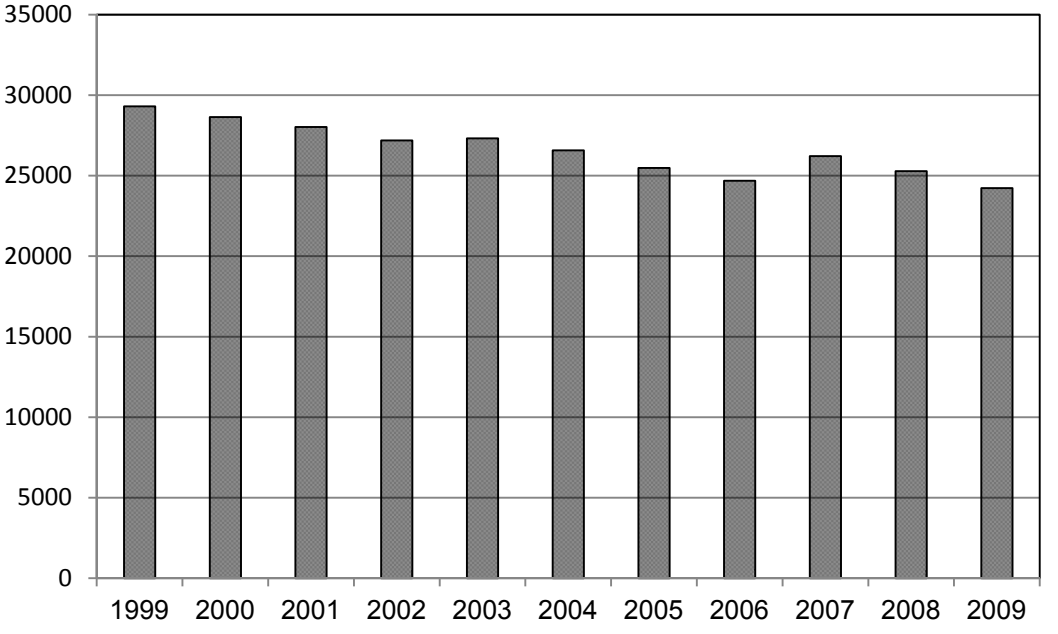
INTRODUCTION AND BACKGROUND

The Chartered Property and Casualty Underwriters (CPCU) society is a non-profit organization and primarily consists of CPCU designees. The CPCU examinations and designation is the most recognized certification system in the area of property and casualty insurance. This Society is a community of property and casualty insurance professionals who promote excellence through continuing education and knowledge. The Society's more than 25,000 members from every region in the United States, and also other parts of world, such as, Europe, Japan, Korea, and Bermuda hold the Chartered Property Casualty Underwriter (CPCU) designation. This designation requires taking and passing rigorous college level courses, meeting experience requirements, and also agreeing to be bound by a strict code of professional conduct.

In general, the CPCU designation is attained by completing eight college-level equivalent courses. Once a professional has earned the CPCU designation, they are automatically enrolled in the CPCU Society for a brief introductory period. Following that, usually within six months, new designees are then invoiced membership dues. The primary function of the Society is to facilitate networking among industry professionals and provide continuing education venue. The CPCU Society offers tremendous opportunities to its members that help them to excel in their career. The Society also promotes the value of the CPCU designation to the insurance industry and to the community. A few of the benefits of being CPCU society member:

a. Continuing educational opportunities through seminars, workshops, and symposia help to improve member's skills and knowledge.
b. Professional development programs such as, leadership training, public speaking and other courses to help enrich career objectives.
c. Global Networking helps to interact on a global level by joining one of 148 chapters in the United States, Bermuda, Europe, Japan, and Korea.
d. The CPCU Society's job network to post résumé and review job openings. This is also a critical resource for insurance industry employers.

Graph 1: CPCU Society Members Count Over Time



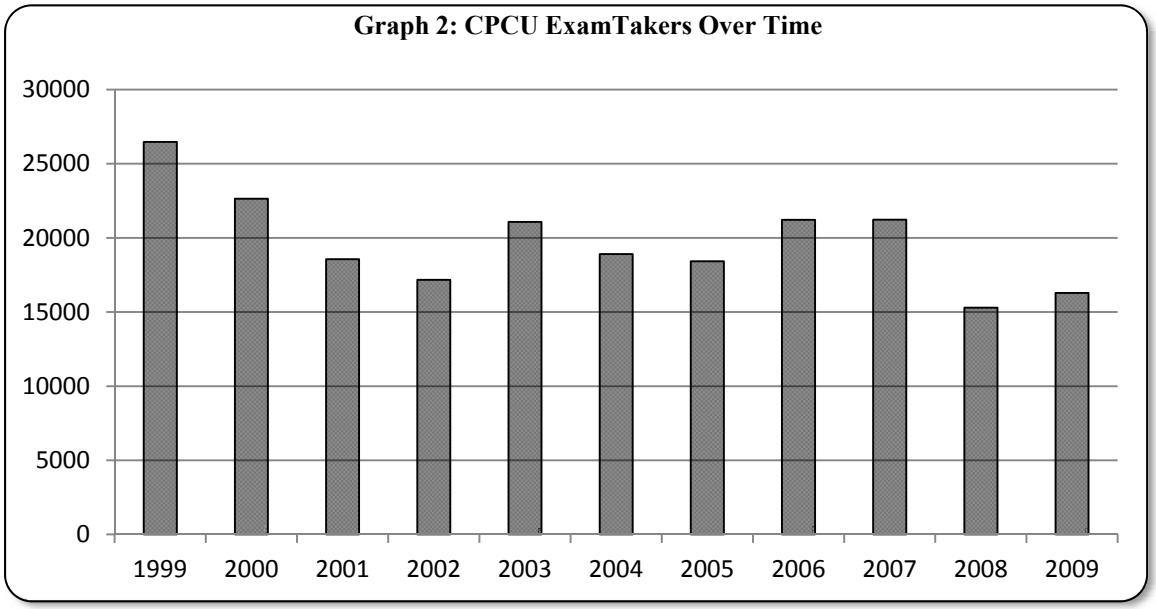
In recent years, the CPCU Society membership numbers has been in a declining phase (see, Graph 1). Therefore, the objective of this study is to understand the cause of this decline of membership and to understand the possible factors affecting this attrition. The decline of the society membership may be the result of both internal and external factors. It may also be a direct consequence of declining CPCU designees. In general, trade associations, membership societies, and other similar not-for-profit groups are no different than any for-profit organizations during economic downturn. In tough economic condition, all these organizations are trying to implement necessary steps to sustain and maintain their current business level. However, for both the members and the organizations there are some cost associated with the process. Those members who are committed to these organizations usually find the capital needed to spend for the membership dues. However, when economic conditions get tough, membership dues payments may become difficult because of financial constraints of members and their employers.

Therefore, we expect an opposite relationship between membership fees and society members' count even after adjusted for inflation.

H1: There is a negative relationship between membership fee (inflation adjusted) and society members' count.

At the external level, we would like to explore what aspects of economic buoyancy were most important in influencing the trend of membership's growth or decline. Here we study factors responsible for the decline such as growing interest in other insurance areas. There may be salary differences between job categories within the insurance industry, which may provide insights into the causality of higher attrition rate. Increased opportunities in these other fields collectively, could reduce the likelihood of people taking CPCU exams and ultimately affect the attrition rate. Understanding these relationships and their directional effect can prove valuable for strategic management of the organization in increasing memberships. We will explore the impact and significance of CPCU exam takers on the society membership count. This will provide us some hierarchical relations between external factors and the membership trend itself. This study explores ideas and identifies factors that are associated with the CPCU society membership trend. Understanding these factors is helpful in the managerial decision making process for long-term strategic planning.

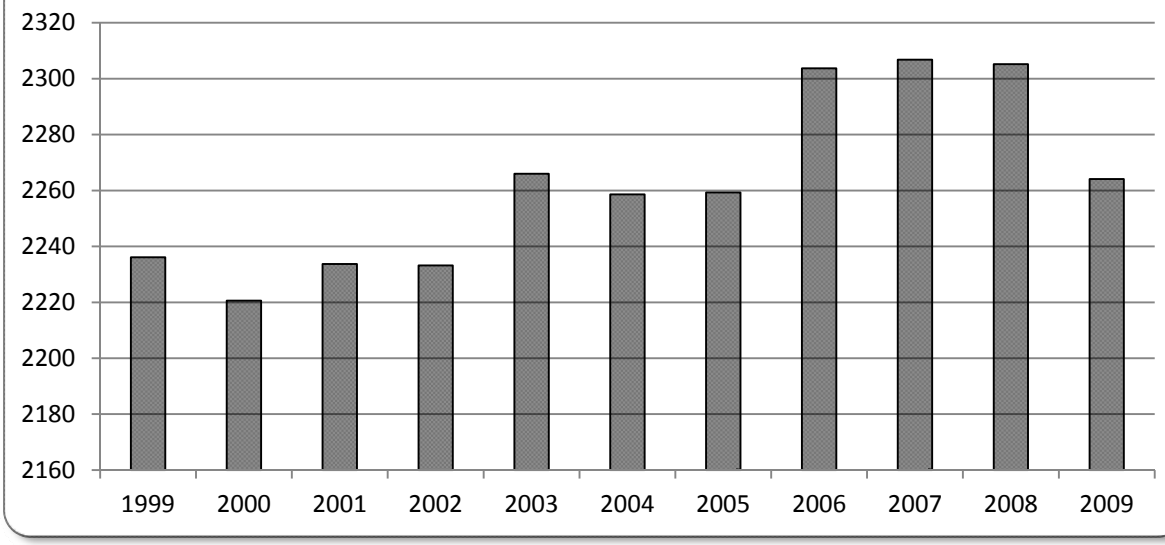
Graph 2: CPCU ExamTakers Over Time



Factors internal to the CPCU Society, such as, the privileges of being a part of the Society might not be viewed as valuable enough for members (or their employers) to continue paying for their memberships in the Society, or possibly similar privileges are provided by other associations. A company environment and its policy that supports and encourages society membership will influence the decision to become or remain a member. Other factors such as

salary level, tenure level with the company they work, job category, age, and gender may also play important role in the membership decision. These factors aggregate into important differences in the number of membership over time. Depending on the direction these changes take place, changes in the distribution of the work-force across different job categories within the insurance industry will then affect the trend in the aggregate membership of the society. In addition, it is also apparent that a variety of institutional policy changes can also affect the trend in society membership. To aid in managerial decision-making we explore ideas and identify factors that are primarily external and associated with the Society membership trend.

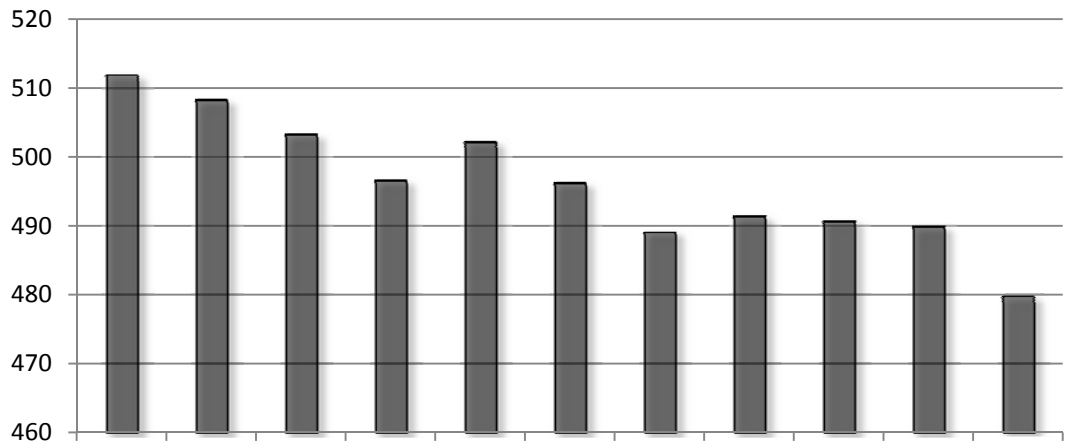
Graph 3: Total Insurance Industry Employment Over Time
(in thousands)



In investigating the causes of attrition of society members, we have conceptualized a few categories: socio-demographic factors, educational/skill, and employment in the insurance industry. CPCU chapters play an integral part in the development of the society and thus the growth /decline of the society membership count (Marks 1994). In recent years, the number of insurance industry designations has continued to grow. Although, most of these other designations may not compete directly against CPCU in terms of curriculum offered, they may compete in scarce time people have to devote for professional development. Difference in the times required to complete these programs along with the expected value earned for their completion may affect society membership count through reduced number of CPCU exam completion. According to the 2007 Society of Insurance Trainers and Educators Designation Handbook, there are over 200 designations and certifications. Comparison between educational alternatives, such as, MBA or bachelor's degree in business with respect to CPCU has been explored by Choudhury and Jones (2011). A recent study shows that51 percent of schools offering MBA stated that they had special outreach efforts for females and in 2006 public universities saw a 55 percent increase in female applicants for MBA programs (GMAC 2006). A

study done by the CPCU Society revealed that 59 percent of their members were over the age of 50, indicating even higher attrition rate possibility in the near future. Choudhury and Jones (2011) explored the effect of GMAT takers as a substitute to MBA enrollees on the CPCU society membership. They have found that gender influence on the process of society membership construct is age dependent.

Graph 4: Property and Casualty Insurance Employment Over Time
(in thousands)



Although, previous studies have focused on various factors contributing to CPCU attrition and are diversified in nature, very little attention has been given to factors, such as, industry trend. In this study, we will attempt to focus on these factors to observe a different view as opposed to previous studies. Thus, this research may contribute towards the improvement of the CPCU society membership trend by providing vital information to the managers for making a better long-term strategic plan.

DATA AND RESEARCH METHODOLOGY

The sample period is a time series of yearly data beginning 1999 and ending 2009. The data on number of CPCU society members were collected from the CPCU society, CPCU exam takers were collected from the American Institute for Chartered Property and Casualty Underwriters (AICPCU); and the inflation and industry employment data were obtained from the Bureau of Labor Statistics (BLS). As a part of our exploratory study we have considered factors by taking into considerations of the pattern of CPCU exam takers, society membership fee, employment trend in the total insurance industry, and also the employment trend in the property and casualty insurance sector. An initial approach into the analysis is to identify a direction in the trend of the number of CPCU exam takers to link them with the society members' attrition as part of a possible reason**.** Thus, the relationship of CPCU exam takers with the Society

membership count may provide one of the links in understanding the Society members' attrition. Specifically, we identify if the number of students (i.e., the pipeline) increases/decreases over time, such that, students who take the CPCU exam, in conjunction with the time required completing the CPCU program is discouraging. For example, if majority of the students pass the exam in a single attempt as opposed to making several attempts it would likely encourage more to join and complete the program. Thus, designation completion time may be one reason for a decline in enrollment for CPCU exams and consequently in the number of new designees joining the Society. Examining CPCU exam takers is designed to test the hypothesis of declining society membership trend is due to fewer number of potential CPCU designees. This will help us to understand at least one of the core causes of society members' declining trend. Thus we formulate the hypothesis that,

H2: There is a positive relationship between CPCU exam takers and society members count.

To observe the relationship between number of society members and four possible factors; two separate analyses were performed. First, correlation analysis was done (results not shown) to examine the direction of the association between factors. Second, society member counts (number of CPCU members) was regressed on these factors to observe the degree of association. In addition to the primary independent variables, we have also explored time delayed factor to observe the effect of certain factor's length of time on the membership trend. As for example, the number of CPCU exam takers (more/less) may affect society members' count one or two years later.

Table 1: Summary Statistics for the Period: 1999 - 2009 (Yearly Data).

Variables	Mean	Std Dev	Minimum	Maximum
CPCU society members count	26629.36	1636.5	24225	29303
Membership fee (inflation adjusted in current dollar value)	171.0457	6.990027	160.8472	181.4555
CPCU exam takers	19750	3192.98	15294	26464
Total insurance industry employment (thousands)	2262.48	31.08694	2220.6	2306.8
Property and Casualty insurance employment (thousands)	496.3091	9.442929	479.8	511.9

Two external factors were considered in this study to explore the relationship with the Society members' count. They are: total insurance industry employment and property & casualty insurance employment. These factors are interrelated among themselves, as some of these are sub-set of others. Thus, regression models in this study include each factor individually to observe the effect on society members' count without any interaction or confounding effect of other factors. Therefore, four separate regression models were estimated and analyzed in this study. Regression analysis was applied to assess the significance and magnitude of the

relationships between these factors over time. Hence, autocorrelation scenario invariably arises. The primary objective of this paper is to understand the dynamics of society members' count with these four factors that we have considered in this paper through single factor models.

Table 2: Regression results of society membership fee (inflation adjusted) on the society membership count.

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	8383545	8383545	4.10	0.0735
Error	9	18397747	2044194		
Corrected Total	10	26781293			
R-Square	0.3130		**Adj R-Sq**	0.2367	

Parameter Estimates

Variable	DF	Parameter Estimates	Standard Error	t Value	Pr > |t|
Intercept	1	49034.00	11072	4.43	0.0017
Society membership fee (inflation adjusted)	1	-130.98905	64.68182	-2.03	0.0735

To this end, several regression models were run using SAS software (see, SAS/STAT User's Guide, 1993) on four different factors; namely property and casualty insurance employment, total insurance industry employment, membership fee (inflation adjusted), and number of CPCU exam takers. Insurance industry employment is to measure the effect of insurance industry as a whole on the CPCU society membership trend over the years. Thus, a declining industry trend would coincide with the declining society membership trend. On the other hand, an increase in insurance industry wide employment cannot explain the declining trend in society members' count. Thus, we formulate a hypothesis that,

H3: There is an opposite relationship between insurance industry employment trend and society members count.

However, if the property and casualty insurance employment trend and total insurance industry trend do not match, then the reason may lie with this specific (property & casualty) insurance sector. Hence, we will expect that one of the reasons for declining society members' count is due to the declining trend in the property and casualty insurance employment. The hypothesis that we have formulated is that,

H4: There is a positive relationship between property and casualty insurance employment trend and society members count.

In an effort to better disentangle the effects of these factors on the society members' count, regression model included these variables independently. Additionally, Durbin-Watson statistic of ordinary least squares (OLS) estimates indicated the presence of autocorrelation in one of the models. One major consequence of autocorrelated errors (or residuals) when applying ordinary least squares is the formula variance [$\sigma^2 (X'X)^{-1}$] of the OLS estimator is seriously underestimated (see Choudhury, 1994) and affects statistical inferences. Durbin-Watson statistic is not valid for error processes other than the first order process (see Harvey, 1981, pp. 209-210).

Table 3: Regression results of CPCU exam takers on the society membership count.

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	11337288	11337288	6.61	0.0302
Error	9	15444004	1716000		
Corrected Total	10	26781293			
R-Square	0.4233		**Adj R-Sq**	0.3593	

Parameter Estimates

Variable	DF	Parameter Estimates	Standard Error	t Value	Pr > |t|
Intercept	1	20043.00	2592.55786	7.73	<.0001
CPCU Exam Takers	1	0.33347	0.12974	2.57	0.0302

Therefore, we have evaluated the autocorrelation function (ACF) and partial autocorrelation function (PACF) of the OLS regression residuals using SAS procedure PROC ARIMA (see SAS/ETS User's Guide, 1993). After evaluating the ACF and PACF, the residuals' model of the "total insurance industry" regression model is identified as purely second order autoregressive model: $\left(1 - \phi_2 B^2\right) \nu_t = \varepsilon_t$ (see Box, Jenkins & Reinsel, 1994). The final specification of the regression model thus takes the form in equation (3) below.

Specification of the regression models takes the following form:

$$Society\_Membership = \beta_0 + \beta_1 Membership\_Fee + \varepsilon_t \quad \text{..... (1)}$$

$$Society\_Membership = \beta_0 + \beta_1 Exam\_Takers + \varepsilon_t \quad \text{..... (2)}$$

$$Society\_Membership = \beta_0 + \beta_1 Total\_Industry\_Trend + \nu_t \quad \text{..... (3)}$$

and $\nu_t = \phi_2 \nu_{t-2} + \varepsilon_t$

$$Society\_Membership = \beta_0 + \beta_1 Casualty\_Industry\_Trend + \varepsilon_t \quad \text{..... (4)}$$

Where:

Society_Membership: Number of CPCU society members
Total_Industry_Trend: Number of employees in the total insurance industry
Casualty_Industry_Trend: Number of employees in the property & casualty insurance industry
Exam_Takers: Number of CPCU exam takers (yearly data).
Membership_Fee: Inflation adjusted dollar amount

EMPIRICAL RESULTS

Descriptive statistics for the various measures of dependent and independent variables are presented in Table 1. Relatively smaller standard deviation (1636.50) of CPCU member count with an average of 26,629.36 members does not indicate much fluctuations in the aggregate membership from year to year. However, Graph-1 depicts a disturbing declining trend in the CPCU society membership. Table-1 reveals that CPCU exam takers spiral down much faster than the society members by comparing minimum and maximum values. Number of exam takers went down almost fifty percent in ten years. This is causing a larger impact on the number of society members than any other factors. This suggests that due to some unobservable factor(s) exam takers number is in decline and thus prompting the society membership count to decline. Thus, the idea of this exploratory analysis is to observe the association between CPCU society members count and possible potential relevant factor(s) that are affecting it.

Simple pair-wise correlation analysis (results not shown) among the variables, reveal that "CPCU exam takers" and "CPCU society members count" are positively related at the 5% significance level with an R^2 of 42.33% (see Table-3). However, the relationship is negative between 'society membership count' and the 'insurance industry trend' with an R^2 of 85.25% (see Table-4). It is possible that understanding the importance of becoming a CPCU society member requires experience and maturity. Therefore, the relationship is reverse when considering the insurance industry as a whole and thus supporting our hypothesis #3.

Table 4: Regression results of total insurance industry employment on the society membership count.					
Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	1	20049150	20049150	23.82	0.0001
Error	8	6732143.45	841518		
Corrected Total	10	26781293			
R-Square	0.8525		**Adj R-Sq**	0.7486	
Parameter Estimates					
Variable	**DF**	**Parameter Estimates**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	1	131149.00	15379	8.53	<.0001
Total insurance industry employment	1	-46.1932	6.7935	-6.80	0.0001

Results of linear regression analysis are reported in Tables 2-5. All these models appeared to fit well in estimating the number of CPCU society members. Reported coefficients of determination (R^2) are 0.31, 0.42, 0.85, and 0.92 respectively, with highly significant F values. Results indicate that number of CPCU exam takers in general is responsible for predicting CPCU society membership trend (see Tables 3). Analysis also reveals that, increase in insurance industry trend do not necessarily indicative of increase in CPCU society membership.

Therefore, insurance industry trend may or may not affect CPCU society membership trend. Conversely, it is possible that CPCU exam takers trend does impact the trend in the CPCU society membership. Specifically, if the exam takers are completing the program increases at a higher rate than the non-completers. A number of possible explanations can be explored for this decline in number of exam takers. Nonetheless, considering that the average age of a CPCU enrollee is about 31 years, profession change could be a major aspect. Also, career enhancement through further education and training at this stage of their professional life is another possibility. Thus, this study suggests that society membership trend is primarily dependent upon number of exam takers and may not be dependent on the expansion or contraction of the insurance industry as a whole.

Table 5: Regression results of property and casualty insurance employment on the society membership count.					
Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	1	24643639	24643639	103.76	<.0001
Error	9	2137653	237517		
Corrected Total	10	26781293			
R-Square	0.9202		**Adj R-Sq**	0.9113	
Parameter Estimates					
Variable	**DF**	**Parameter Estimates**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	1	-55879.00	8101.47955	-6.90	<.0001
Property and casualty insurance employment	1	166.24389	16.32077	10.19	<.0001

CONCLUSION

This study, examines the effect of CPCU exam takers on the process of joining CPCU society and thus affecting the trend of the society members count. In particular, statistical significance and magnitude of exam takers influence on the "CPCU membership count" is observed. This prognostic power of exam takers on the membership trend is most significant and only increases with time delay. An unexpected result is that, increase in insurance industry trend is found to be not instrumental in affecting the process of CPCU society's membership trend positively. This suggests that total insurance industry influence on the process of society membership trend is independent in this sub-population. Furthermore, insurance industry effect is negatively associated with the society membership trend. Thus, providing valuable insights into the managerial decision making process for the long-term strategic planning in support of society's improvement.

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UNDERSTANDING, FINDING, AND CONCEPTUALIZING CORE COMPETENCE DEPTH: A FRAMEWORK, GUIDE, AND GENERALIZATION FOR CORPORATE MANAGERS AND RESEARCH PROFESSIONALS

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ABSTRACT

In recent years, managerial interest in corporate core competencies as competitive tools has risen greatly. Corporate managers and professionals often have several questions regarding them. First, what are corporate core competencies? Second, how can they determine which core competencies, or which aspects of them, their firm holds deeply? More generally, what does it mean for a firm to hold a competence deeply? Utilizing concrete examples, this paper answers the first question by presenting a framework describing the elements of core competencies, their internal dynamic, and their breadth. It answers the second question by providing a usable methodology for discovering the depth of a firm's core competencies. As it does so, it answers the third question by presenting a generalized conceptualization of core competence depth. The authors' hope is that this framework, methodology, and generalization will prove useful to corporate managers and research professionals interested in strengthening their core competencies and applying them more effectively.

INTRODUCTION

The construct of the core competence—sometimes called by other names such as organizational competencies or distinctive capabilities—has been widely studied (Bogner & Thomas 1994; Fowler et. al. 2000; Lei 2000; Leonard-Barton 1992; Nelson & Winter 1982; Pitt & Clarke 1999; Post 1997; Sanchez et. al. 1996; Walsh & Linton 2001; Winter 2003), especially since the publication of Prahalad and Hamel's influential 1990 article, "The Core Competence of the Corporation." Since then, empirical and conceptual research on this concept has brought about many views of what these competencies are and how they can be applied to create better products and services.

In general, core competencies have been seen as capabilities held by people within a firm that, when applied through corporate operational processes to create products and services, make a critical contribution to corporate competitiveness. For a more complete discussion of core

competencies, see Edgar and Lockwood (2008), which reviews the core competencies literature, describes their elements, and identifies research that remains to be done.

What has not been published, however, is a paper intended for intellectual leaders within corporations and their executives to help them understand the structure of core competencies, identify which key aspects of the competence their firms hold more deeply, and recognize concepts pertaining to competence depth that apply to all core competencies. This paper provides such direction in three ways.

First, the paper presents a conceptual framework, drawn from previous research, for understanding the core competencies of a firm, revealing the internal dynamic of the core competence, the elements of the core competence, and the resulting competence breadth.

Second, utilizing concrete examples arising from firms' knowledge of communication networks, documents, and computing the paper presents a useful methodological guide for applying this framework to discover the depth of core competencies held by a particular firm. This guide has several advantages. Primarily employing patent analysis and supplemented by interviews, it is inexpensive to do. It draws upon numerous internal and external perspectives as to the depth of a firm's core competencies. It also illuminates the complexity usually found within the depth of a core competence while making it comprehensible.

Third, the paper presents a generalized conceptualization of core competence depth arising from the use of this methodology. This generalization addresses two important questions regarding the underlying reality about which people holding a core competence are deeply knowledgeable: 1) what does it mean to *understand* something deeply? and 2) what does it mean to be able to *perform* a skill proficiently? Answering these questions reveals that competence depth encompasses understanding things that are relatively stable, known as entities, as well as things which are inherently dynamic, known as processes. Moreover, depth includes being able to move beyond understanding entities or processes and to do things like engaging in processes by performing skills well. It also means understanding or being able to do the basic forms of entities or processes, their versions, and the variations of these basic forms and versions. As this occurs, core competence depth grows in three important ways—horizontally, vertically, and cumulatively. (Please note that this paper is a follow-up to Edgar and Lockwood (2011), which presented a methodology for identifying core competencies' structure through determining their breadth. In contrast, this paper presents a means for discovering the deeply held aspects within that breadth that contribute to core competencies' competitive power.)

CORE COMPETENCE FRAMEWORK

The framework for discovering core competencies described below draws upon research that examined four corporations (Edgar & Lockwood, 2008, 2011), each with annual revenues in excess of one billion dollars. Oriented around providing knowledge and information in different forms, the four corporations provide an array of advanced products such as switches,

multiplexers, routers, transmitters, copiers, printers, scanners, and integrated circuits. They also offer complex services such as communication network planning, network design and implementation, and document management.

Across the four firms, five core competencies were identified as enabling these products and services. Three emerged from an understanding of the communication network. A fourth was based upon an understanding of both physical and digital documents. The fifth was based upon understandings of silicon and the creation of silicon-based integrated circuits.

The framework draws upon its underlying research to reveal three things:

1) How core competencies work (their internal dynamic)
2) What core competencies are made of (their elements)
3) The breadth of core competencies

How Core Competencies Work (Their Internal Dynamic)

The common dynamic among the above competencies was initially revealed through conceptual analysis (also known as content analysis) of corporate documents and through interviews with internal corporate professionals. The interviewees stressed the dynamic's progressive iteration. Please see Edgar and Lockwood (2011) for details of this research methodology.

The internal dynamic of a core competence can be depicted in a Core Competence Chart. For instance, Figure 1 depicts one of the three core competencies emerging from an understanding of the communication network. Here corporate understandings of the general phenomena of communication and networks converge into a thorough corporate understanding of the communication network core phenomenon. (These are shown in bold in Figure 1, as are the other examples discussed below.) Out of this emerges familiarity with specific product technologies, such as switching, and using an understanding of the general phenomenon of light, with product sub-technologies, such as optical switching. Drawing upon familiarity with the general phenomenon of computing hardware, this focused expertise brings about an understanding of the product class of optical switches.

Emerging from—and contributing back to the understandings of network technologies and product classes—are the functional skills in manufacturing optical switches to be components of communication networks, as well as the technological skill of optical switching. These skills are in turn part of a larger integrated skill set supporting the creation and management of both the elements of communication networks as well as complete networks.

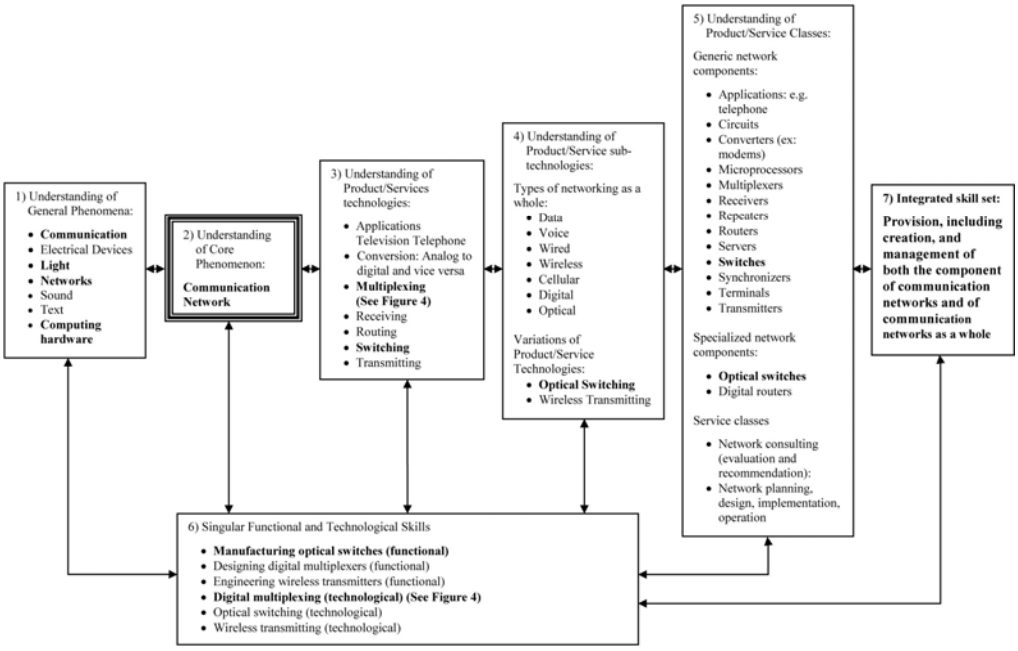
As this iterative progression occurs, people holding the competence are able to use a range of technologies related to the communication network, and to provide specific products and services arising from them. The result is complex but varied competitive power to meet the networking needs of customers.

What Core Competencies Are Made of (Their Elements)

The progressive, iterative dynamic described above occurs through the interaction of competence elements, which are the individual competence component understandings and skills held by corporate employees and managers. Competence elements can be applied and enhanced by corporate managers' decision-making or corporate employees' learning and action.

Guided by the competence literature, conceptual analysis performed upon corporate documents like annual reports and product catalogs revealed seven major elemental categories of understandings and skills that exist within each of the five identified competencies; it also revealed numerous instances of understandings and skills within each category. As it did so, it also revealed underlying, tangible items corresponding to the categories and instances of skills and understandings. Then, knowledge of the categories, instances of the categories' understandings and skills, and underlying items was subsequently refined by the interviews with corporate professionals.

Figure 1: Core Competence Chart



Fortunately, the elemental categories can be useful as a means of classifying and conceptualizing the extensive number of competence elements in the form of understandings and skills held by corporate employees. The categories can be defined as patterns, discussed below, which the individual competence elements follow. As is true with individual elements, these

categories can be applied or enhanced by corporate managers and employees through decision-making, learning, and action.

Table 1 presents the elements for three core competencies. For all three competencies, the instances, or members, within the seven elemental categories are shown as bulleted items. Only a sample of the most important instances within the categories is presented, since each competence had too many understandings and skills to present them all.

Documentary analysis and interviews of corporate professionals revealed the first five competence elemental categories to include complex understandings of different phenomena, technologies, and types of products or services (Table 1, left two columns). Similarly, they showed the last two categories to involve singular and integrated skills.

1) Understandings of core phenomenon and related disciplines (Table 1; Row 1).

A core phenomenon, the foundation of a core competence, is the thing or activity which people holding a core competence *understand* most thoroughly. Understandings of general phenomena, discussed below, converge into the thorough understanding of this phenomenon, and it is out of this thorough understanding that the other understandings and skills comprising the rest of a firm's core competence emerge. These understandings are often enriched by corporate employees' knowledge of related disciplines. Analysis revealed four variations of core phenomena. They include:

1. Something created by the company holding the competence.
2. Something the company's customers create.
3. Something that exists naturally.
4. Something that people within the firm do (an activity).

An example of the first variation occurs in Competence One (Table 1), since its core phenomenon is the communication network, which the host firm provides to customers. Related disciplines for it include computer science and mathematics. Competence Two (Table 1) is an example of the second variation, since its core phenomenon is the customer documents the host firm manages. Related disciplines supporting it include linguistics and psychology. Competence Three is an example of the third variation, since one of its core phenomena is the element silicon. Related disciplines supporting it include materials science and engineering. Competence Three is also an example of the fourth variation, since its other core phenomena are activities: the design and manufacture of silicon circuits.

2) Understandings of general phenomena (Table 1; Row 2).

General phenomena are ones that can be used in many areas of life, not just with regard to the core competence. However, they often combine to form a core phenomenon, as occurs in Competence One, where the two general phenomena of communication and networks combine to create the core phenomenon of the communication network. This also happens in Competence

Two, where the general phenomena of text and paper are combined to create the core phenomenon of the document

Table 1: CORE COMPETENCE COMPARISON

Type of Knowledge	Competence Elemental Categories	Competence One	Competence Two	Competence Three
Understandings	1) Core Phenomenon	• Communication Network	• Document	• Silicon • Design integrated circuits • Manufacture integrated circuits
	2) General Phenomena	• Communication • Electrical devices • Networks • Light	• Text • Paper • Color • Electricity • Digital format for content	• Electrical systems • Materials
	3) Product/ Service Technologies	• Switching • **Multiplexing (see Figure 4)** • Routing • Transmission	• Imaging • Marking	• Controlling content • Storing content
	4) Product/ Service Sub-technologies	• Optical Networking • Optical Switching • Optical Transmission	• Color Digital Imaging • Color Copying • Digital Printing	• Personal computing • Server computing
	5) Product/ Service Classes	• Optical switches • Optical Transmitters	• Color copiers • Digital printers	• Micro-processors • Routers
Skills	6) Singular Functional and Technological Skills	• Manufacturing optical switches • Manufacturing optical transmitters • Optical switching • Optical transmitting • **Digital multiplexing (see Figure 4)**	• Installing color copiers • Repairing digital printers • Creating color Images • Performing digital marking	• Designing microprocessors • Manufacturing routers • Microprocessing • Data routing
	7) Integrated Skills	• Provision, and management of communication networks and their components	• Provision of document management equipment, software, and services	• Provision, including creation, of computers and their components.

3). Understandings of product/service technologies (Table 1; Row 3).

Product/service technologies emerge directly from the core phenomenon. Sometimes they are activities that create it. An example occurs in Competence One, where the product/service

technologies of switching and transmission act together to form the communication network core phenomenon.

A second variation occurs when the product/service technologies are the activities that can be done to the core phenomenon. Competence Two is an example. In this, product/service technologies are actions such as imaging and marking that can be performed upon the document core phenomenon.

A third variation happens when product/service technologies are the activities that arise from understanding of a core phenomenon that exists naturally. Competence Three is an example. In this case, the functions of computing, e.g., controlling content (data) or storing it in memory, are made possible by a thorough understanding of the natural element of silicon.

A fourth variation develops when product/service technologies arise from skills necessary to do the core phenomenon. This occurs in Competence Three. Here, the functions of computing, such as controlling content, are made possible by the activities of designing and manufacturing integrated circuits.

4) Understandings of product/service sub-technologies (Table 1; Row 4).

Product/Service sub-technologies emerge from product/service technologies, usually in combination with general phenomena. Essentially, they are more specialized versions of product/service technologies. Several variations exist.

First, product/service sub-technologies can arise from the application of one general phenomenon to one product/service technology. This occurs in Competence One with optical transmission, which is performed when the general phenomenon of light is applied to the product/service technology of transmission.

Second, they can emerge through the application of one general phenomenon to multiple product/service technologies. This also occurs in Competence One, where the general phenomenon of light is applied to all the functions within a network, such as switching and multiplexing, to create optical networking. In Competence Two, this happens in the application of the general phenomenon of color to the product/service technologies of imaging and marking to create color copying.

Third, product/service sub-technologies can arise through the application of multiple general phenomena to one product/service technology. This occurs in Competence Two, where the general phenomena of color and electricity are applied to the product/service technology of imaging to create color digital imaging.

Fourth, they can arise through the application of multiple general phenomena to multiple product/service technologies. One example occurs in Competence Three. In this, the general phenomena of electrical systems and materials are applied to the product/service technologies of controlling and storing intellectual content such as data to support personal computing.

5) Understandings of product/service classes (Table 1; Row 5).

Product/service classes are types of products and services made possible by product/service technologies and sub-technologies, often in combination with an understanding of a general phenomenon. An example occurs in Competence One. Here the product technology of switching, the sub-technology of optical switching, and the general phenomenon of light enable the production of optical switches.

6) Functional and Technological Skills (Table 1; Row 6).

A core competence's skills—the ability to do something—can exist in functional or technological forms. Functional skills are made possible by understandings of classes of products and services (Table 1, Row 5). Examples of functional skills include manufacturing optical switches (Competence One) and designing microprocessors (Competence Three).

Technological skills, in contrast, are made possible by understandings of technologies related to specific products or services. Differing from the technological understandings shown in Rows 3-4 of Table 1, these skills are the capability of people to use the technology itself. For instance, in one of the firms, the people contributing to Competence Two have an understanding of the product/service technology of imaging (Row 3), but they also can *apply* this to the next step and actually create color images (Row 6).

7) Integrated skills (Table 1; Row 7).

This is the ability to do an activity caused by the functional *and* technological skills discussed above. This integrated skill consists of the individual skills and the relationships between them. An example is the ability to provide entire communication networks (Competence One). These networks arise from the integration of functional skills in manufacturing optical network components (switches and transmitters); however, they also emerge from the integration of technological skills in optical switching and transmission.

Within the above structure of seven competence elemental categories, note that general phenomena (Category 2) can take two forms. Sometimes they are relatively unchanging, stable objects, such as the general phenomenon of paper is for the core competence based upon the document. Other times, however, they involve relatively dynamic, changing things that occur repetitively, such as the general phenomenon of light is for the core phenomenon based upon the communication network. Either way, general phenomena can be considered the "raw materials" of core competencies because understandings of them are repeatedly incorporated into understandings of core phenomena, product/service technologies and their variations, and classes of products and services.

Core Competence Breadth

Based upon the core competence structure revealed by content analysis, interviews of corporate professionals, and an analysis of corporate patents, Edgar (2000; Edgar & Lockwood, 2010) found that one particularly strategically relevant attribute of the core competence can be described precisely: its *breadth*. Competence breadth is the *number of members* across seven competence elemental categories. For example, in Table 1 the breadth of Competence One is illustrated by the number of bulleted members within the entire Competence One column. Thus, the breadth of Competence One includes 20 understandings and skills.

Therefore, whenever a company adds members to any of these seven categories, the breadth of the company's core competence increases. If a firm has a core competence based upon the core phenomenon of the communication network and it adds an understanding of the product/service technology of switching or the skill of manufacturing optical switches, then it has increased the breadth of its core competence. Conversely, if it loses an understanding or skill, it has decreased the breadth of its core competence. Breadth is depicted in the Core Competence Chart in Figure 1 with each understanding or skill a bulleted member. Adding a new member would represent broadening the competence and vice versa.

Vitally important to its competitive power, increasing breadth is the means by which a competence extends the range of products and services it supports. As in the example just given, as a competence broadens, it might add a technological understanding like switching and a functional skill like manufacturing, thereby enabling the firm to provide a new product class by manufacturing optical switches.

Framework Summary

Employees' competence-related understandings include ones of general and core phenomena; supporting product or service specific technologies; and classes of products and services arising from the understood technologies. The skills within a competence can be specific ones, as well as integrated ones encompassing multiple functional or technological skills. Functional skills emerge from understandings of types of products or services, while technological skills arise from understandings of technologies. Adding further understandings and skills to a competence increases its breadth and vice versa. Utilized together, the different understandings enable the competence's specific and integrated skills, and the skills in turn reinforce the corporate understandings of phenomena, disciplines, general or product/service specific technologies, as well as of types of services and products.

Represented by a Core Competence Chart (Figure 1), this core competence framework identifies how core competencies work and what they are made of. It shows that core competencies are a set of progressive, iterative understandings and skills held by corporate employees that collectively operate at the core level, providing the intellectual foundation for corporate competitiveness.

DEPTH ANALYSIS METHODOLOGY

This framework's contribution is to describe the elements, dynamic, and intellectual breadth of a core competence. However, much of the competitive power of a core competence arises from understandings and skills within the competence's breadth that are deeply held by employees of a firm. (Core Competence depth can increase as an individual employee enhances his or her individual competence understandings and skills. It can also increase as the number of employees holding competence understandings and skills grows. The latter case is what is known by practitioners of the Malcolm Baldrige National Quality Award as increased deployment—increasing the percentage of employees that know and practice an approach to work.) This occurs because, whereas breadth extends a competence's range, depth enhances a competence's

intensity. The deeper a competence is held, the better and more thoroughly the products and services it supports can be provided.

Core competence depth can also be represented in a Core Competence Chart (Figure 1) if one imagines that the Figure had a third, underlying dimension and that one could "drill" down into the understandings of and abilities in all of the individual bulleted technologies, general or core phenomena, product/service classes, or skills. Having greater competence depth means knowing more about one or more particular bulleted category members and vice versa. This can also apply to the bulleted members in Table 1. The difference between the two is that the Chart depicts in depth the understandings and skills of one competence. In contrast, the Table supports comparisons of diverse competencies within a firm or across them by presenting only their key understandings and skills.

What is needed, therefore, is a methodology for explicating these deeply held aspects of a core competence. Ideally, the method should be thorough, relatively inexpensive to do, and draw upon experts on the competence's underlying phenomena, technologies, product/service classes, and skills.

The methodology presented here meets these criteria by utilizing an analysis of the firm's patents, supplemented by interviews with its key executives and research professionals. Patents are especially useful for competence depth analysis because the United States patent database has a subject classification system which displays an item's components, capabilities, and any objects upon which it frequently acts, along with their sub—components, sub-capabilities, and sub-objects down through several intellectual layers. It also provides standardized descriptions of the subject categories, called patent classes, in the classification system. Please see http://www.uspto.gov/web/patents/classification/index.htm for access to this classification system. Visitors can use this internet site to find patent classes by patent number (from 002, apparel, to 987, organic compounds); they can also search the classification description for each patent number.

To determine Core Competence depth, the methodology described here and presented in Table 2 first discovers the breadth of a core competence and depicts this in a Core Competence Chart (See Table 2, Step A). Figure 1 is an example of such a chart. The methodology next links patent classes to key understandings of or skills in the individual general phenomena, technologies, and product or service classes underlying the core competence, e.g. the bulleted members of the seven elemental categories in Figure 1 (Table 2, Steps B-E). It explicates the depth of competence knowledge regarding these key individual bulleted understandings and skills in some detail in depth statements (Table 2, Step F). Then it depicts the total depth of the competence across these statements in a depth summary (Table 2, Step G). Next, it uses interviews of key corporate personnel to verify and refine the depictions of competence depth presented in the depth statements and depth summary (Table 2, Step H). Finally, completing the "loop" begun in Step A, it inserts these results into the Core Competence Chart (Table 2, Step I), providing an extensive overview of the competence's breadth and depth.

GENERALIZATION OF CORE COMPETENCE DEPTH

Utilizing the core competence framework indicates the need to apply a generalized, systematic understanding of competence depth to the details of the reality underlying a core competence. Such a generalized conceptualization can also be applied to determine the details of the depth of individual competence understandings and skills (Table 2, Step F), which in turn supports depiction of depth across the competence (Steps G-I).

The investigators found that the generic depth of a core competence consists of the extent to which people within a company have understandings of its related, underlying core phenomena, general phenomena, product/service technologies, or product classes and the extent to which they can perform the competence's individual skills and integrated skills. This section discusses how people holding a core competence can understand these things deeply or be able to do them more proficiently.

Table 2: DEPTH ANALYSIS METHODOLOGY

A: Determine Core Competence Structure Using the Framework presented in the first section of this paper, the core competence's structure—its elements, dynamic, and breadth—are determined, since competence depth only exists only in relation to these. This can be done using a methodology we have described previously (Edgar & Lockwood 2011) that uses the analysis of corporate documents and interviews with key corporate managers and research professionals. Document analysis preliminarily identifies the instances of the seven elemental categories, depicted as bulleted items in Figure 1. The interviews verify and refine these results. The result is a Core Competence Chart as depicted in Figure 1.
B Identify Firm's Patents. The set of patents issued to the firm for a relatively recent period (e.g. the past 10 years) is identified. (See the discussion below on core competence interviews for situations in which firms hold few or no patents.)
C. Identify Patent Classes with Patents. Within the firm's patent set, the subject classification numbers and corresponding subject headings, called patent classes in the U.S. patent classification system, having patents within them are isolated. In the patent system, each subject class has sub-classes documenting the sub-components, capabilities, and objects of the subject class, often down to several intellectual layers.
D. Isolate Patents Classes with Numerous Patents The numbers of patents assigned to each isolated subject class and its sub-classes are determined, and the classes and sub-classes having a large number of patents (e.g. more than 20) are isolated.
E. Link Key Core Competence Skills and Understandings to Patent Classes with Numerous Patents. *For each core competence, the different underlying general and core phenomena, technologies, product/service classes, and skills corresponding to each isolated patent subject class, and, if needed, sub-classes, are determined. This "linking" step highlights the depth of some of the understandings and skills comprising the breadth of each core competence, as revealed by Step A. It can be helped greatly by using the U.S. patent system descriptions provided for each patent class or even by examining firm's patents themselves.*

Table 2: DEPTH ANALYSIS METHODOLOGY
F. Prepare Depth Statements of Individual Competence Understandings and Skills. *The information gathered in Steps B through E is compiled into a depth statement for each key competence understanding or skill in which the firm holds numerous patents, represented by individual bulleted category members in a Core Competence Chart (Figure 1). For an example of a depth statement, see Figure 4 below. Each depth statement defines the item underlying an understanding or a skill, identifies it to be an entity and/or a process, highlights the versions and variations the item covers, and provides details concerning the patents held by the firm concerning the item. During this step, conceptual tools such as Entity and Process charts (Figures 2-3) and Depth Structure Charts (Figures 5-8) can help elucidate the underlying item's components, capabilities, and objects, and their resulting basic form, versions and variations. It is in preparing depth statements that a generalized conceptualization, discussed in the next section of this paper, is applied to reveal the details of competence depth for specific, "local" understandings and skills, represented by particular bullets in Figure 1. To balance the subjective views of researchers, we recommend that recommend that Steps A through F be done by a team of at least two investigators.*
G. Compile Depth Statements into Depth Summary for Entire Competence. *For each competence, these statements are compiled into a depth summary describing cumulative, "global" depth across many of the core competence's understanding and skills, represented by multiple bullets in Figure 1. An example of such a depth summary is presented in Appendix 1.*
H. Corporate Managers and Researchers Review and Revise Competence Chart, Depth Statements, and Depth Summary. *The core competence chart, depth statements, and depth summary for the competence are then reviewed by key corporate managers and research professionals during semi-structured interviews. Following a "tree and branch" approach (Rubin & Rubin, p. 159), these interviews ask a series of diverse but related questions (the "branches") arising from the underlying topic (the "trunk") of competence depth. See Appendix 2 for a sample instrument to use for these interviews. This review of patent analysis' results is important for revealing several aspects of core competence depth: nuances of the depth of specific competence understandings and skills represented by patents; specific deeply held competence understanding and skills not represented by patents; and a competence-wide, cumulative depth of the competence.*
I. Describe Core Competence Breadth and Depth in Core Competence Chart Using Results of Previous Steps. *The findings and responses of Steps F-H's depth summaries, depth statements, and interviews can be inserted into a Core Competence Chart. This is shown in Appendix 3. Numbers of patents can be displayed in parenthesis next to their corresponding bulleted understanding or skill, with a higher number of patents indicating greater competence depth and vice versa. Also, deeply held competence skills and understandings not represented by patents but revealed by interviews can be depicted in bold. The result can be to "close the loop" begun in Step A and provide a nuanced portrait of a core competence's elements, dynamic, breadth, and depth.*

Previous research (Edgar 2000; Edgar & Lockwood, 2008, 2010, 2011) revealed five core competencies held across four firms, and approximately 7,000 patents spanning the five competencies were examined using this depth analysis methodology. One of these five competences, reflected in approximately 2,000 patents held by is host firm, is used here as an example.

Entity and Process

We found that these general phenomena, technologies, product/service classes, and skills underlying core competencies can be classified as either entities or processes. An entity can be thought of as a relatively stable thing containing component parts and relationships among them. It has capabilities to perform activities but may remain inactive for sustained periods of time. Processes, in contrast, can be thought of as a set of repetitive, dynamic component activities and objects acted upon by them. The activities of some processes are performed by people as skills, either directly by hand or indirectly through technology while other processes occur in nature.

Our research revealed that product or service classes underlying core competencies are usually entities. In contrast the skills underlying them are usually processes. The general phenomena, core phenomena, and technologies related to them can often be either entities or processes. Consequently, three important questions emerge:

1) What does it mean to understand an entity, regardless of the elemental category the understanding occupies within the competence?
2) What does it mean to understand a process?
3) What does it mean to engage in a process proficiently if that process is a skill?

Question 1: Understanding an Entity

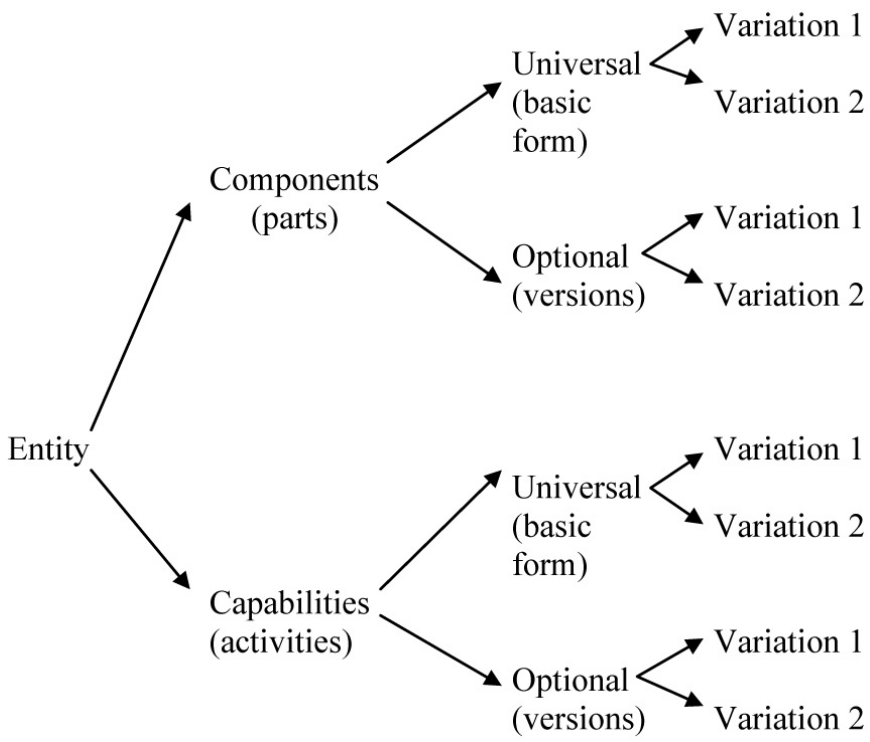
Entities contain components and have capabilities which the components, working together, can perform. Components mean the parts of the entity while its capabilities mean the activities the entity can be used to do. Some of these components and capabilities exist in all occurrences of the entity, in which case they can be said to be universal. Some of these, in contrast, exist in only some occurrences of the entity, in which case they can be said to be optional. The presence of only universal components creates the *basic form* of the entity itself, and the presence of only basic sub-capabilities creates the basic form of the entity capability. In addition, the presence of optional components and optional sub-capabilities creates *versions* of the corresponding entity itself or entity capabilities. Moreover, the basic form or versions of an entity's component or capability can have multiple *variations*. This can be depicted graphically in an Entity Chart, as in Figure 2.

For instance, one competence involved deeply held expertise in electrical devices necessary to operate communication networks, represented as Competence One in Table 1. The entity of an electrical device has the basic component parts of circuits and connectors, which have the basic capabilities of moving and directing electrical current. But it can also have optional components, such as a power regulator (conditioner) with the capability of controlling current levels. Each optional component part and capability can be thought of as a version of an electrical device. Moreover, the entity of an electrical device in its basic form can vary by having

more or less powerful circuits and connectors that send or direct current. Similarly, in its version form, an electrical device can vary having a conditioner that regulates extremely high or low levels of current.

Therefore, to answer the first question posed above, having an understanding of some entity like an electrical device means being thoroughly *aware* of any of its basic or optional components (e.g. circuits or conditioners) and capabilities (power transmission and regulation) as well as the relationships among them—its basic form and versions. Understanding an entity also means having an extensive awareness of any variations (e.g. transmitting or regulating lower or higher amounts of power) existing across the basic form or versions of the entity's components and capabilities.

Figure 2: Entity Chart



Question 2: Understanding a Process

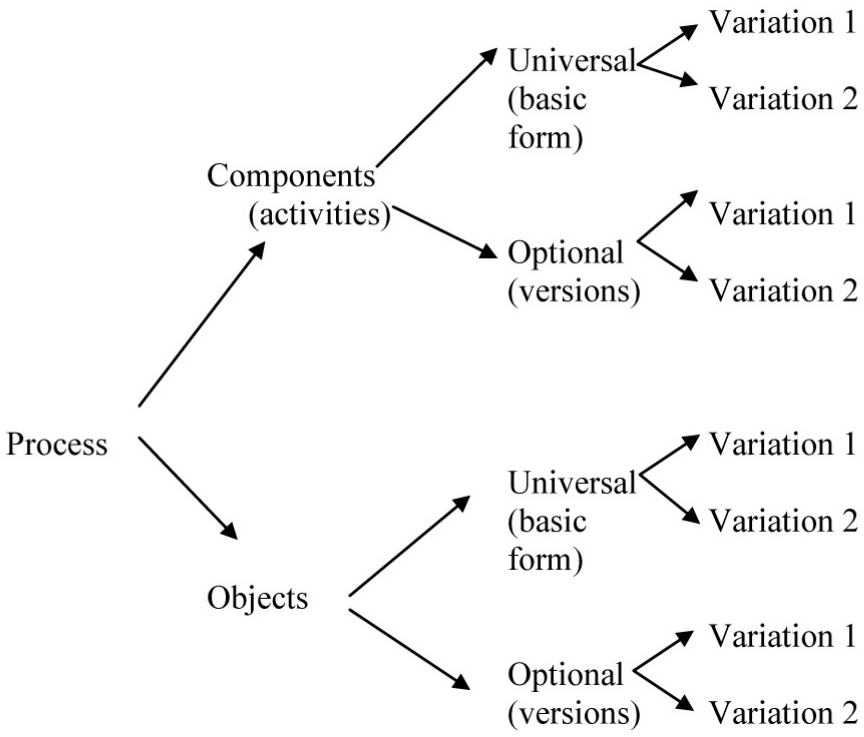
As is true with entities, processes contain components, but in contrast to entities, they also contain objects. Rather than being parts or elements of the whole, however, components here are the activities that occur within the process because as they occur together, the process

operates to accomplish work upon the objects. Some of these component activities and objects exist in all instances of the process, in which case they can be said to be universal. Some of these, in contrast, exist in only some instances of the process, in which case they can be said to be optional. As with entities, the presence of only universal component activities and objects creates the basic form of the process. Conversely, the presence of optional component activities and objects creates *versions* of the process. The basic form or the versions can in turn exhibit variations. This can be depicted graphically in a Process Chart, as in Figure 3.

For example, the competence based upon the communication network involved deeply held expertise in the process of multiplexing. This involves the activities combining separate object data signals into one, transmitting them to a destination, and then disassembling them for use there. Multiplexing is used in many instances of communication networking, such as when residential telephone signals from one city are consolidated and sent simultaneously to another city along high capacity transmission lines.

In its basic form, the process of multiplexing includes activities of combining and routing different object data. But it can also have optional component activities, such diagnostic testing of data streams, and optional objects, such as different forms of data like electricity or light.

Figure 3: Process Chart



Each optional combination can be thought of as a version of multiplexing. Moreover, in either its basic form or a version, multiplexing can exhibit variations such as routing or testing more or less complex digital or optical data.

Therefore, to answer the second question posed above, having an understanding of some process means being aware of any of its basic or optional component activities and objects, meaning its basic form and versions, as well as the relationships among them. It also means having an awareness of any variations existing across the basic form or versions of the process' activities and objects.

Question 3: Engaging in a Process (Performing a Skill)

To answer the third question posed above, proficiently engaging in a process as a skill involves not only awareness of the component activities of the process, but also the ability to *do* the activities making up the process effectively. It means being able to go beyond understanding them to performing well the activities inherent to the basic form, versions, and variations of the process. Effectiveness might mean performing the skill quickly but if often means performing the skill with few or no mistakes.

This distinction related to effective action—doing—is a vital one because people in corporations can understand many processes without being able to do the activities within these processes directly. For example, people within a firm making communication devices like telephones will likely have an awareness of the activities within the process of multiplexing, but they might not directly engage in its activities. In contrast, employees within a firm that manufactures multiplexing equipment (e.g. switches) have this awareness and do engage in the activities themselves, albeit indirectly through technology, as they perform quality tests on the equipment.

Depth Statement Example: The Process of Multiplexing

These concepts regarding basic forms, versions, and variations underlying individual competence understandings and skills—represented in the individual bulleted category members of both Figure 1 and Table 1—can be operationalized using the United States patent classification system. Utilizing this generalization of core competence depth, Figure 4 presents an example depth statement of patents—drawn from Table 2, Step F in the methodology described above—depicting the realities underlying the understanding of and skill in multiplexing embedded in one firm's core competence.

One way to understand Exhibit 1 is that it presents what one would find by "drilling" down into two of the bulleted members related to multiplexing in the Core Competence Chart of Figure 1. The first can be found Box 3 of Figure 1 depicting an understanding of various versions

of multiplexing, and in Box 6 depicting skill in its digital version. They can also be found in Table 1 (Competence One, Rows 3 and 6).

In Exhibit 1, the depth statement's first two paragraphs provide a narrative overview of the item underlying the competence's corresponding understanding or skill. After indicating its appropriate Patent Class (Number 370, Multiplex Communications) in the first paragraph, the depth statement defines the patent class as a process or entity: multiplexing is a process of consolidating an object—data in different forms—transmitting it, and reversing the consolidation once the transmission is complete. Next the depth statement—drawing upon the patent subject class description and even the patents themselves—indicates the purpose of the patent's sub-classes, especially with regard to the processes' versions and variations. The patent sub-classes cover the basic form, and all versions or variations of the multiplexing process by representing all of its universal and/or optional component activities and objects upon which it performs. Such a statement places the depth of a competence's knowledge into a larger context as to whether the depth covers all or only some of what is known about the topic.

In the second paragraph of the depth statement (Exhibit 1), the core competence's patents related to the patent class, multiplexing, are specifically described. The patents protect the firm's expertise in multiplexing's component activities of controlling data flow, diagnostic testing, fault recovery, and data routing. Then the statement indicates whether the core competence includes only an understanding of a process by people within a firm or a skill in engaging in the process as well. For multiplexing, this firm has both: its people are aware of how to do multiplexing and they can also engage in multiplexing. Finally, the statement indicates the larger systematic, thorough understanding which is supported by the more focused expertise described in the depth statement. In this case, this understanding of multiplexing supports a core competence based upon the thorough understanding of the communication network core phenomenon.

Exhibit 1

Example of Core Competence Depth Statement (Process of Multiplexing)

Multiplexing (Patent Class 370)

Multiplexing is the process of consolidating two or more information signals into one transmission medium and then transmitting them simultaneously so that the distinct signals which have been combined can be recovered at the receiving place of the transmission. As such, the patent class' sub-divisions represent the basic form and all versions or variations of the processes' component activities and objects.

The competence's patents are concentrated in multiplexing a component's activities of controlling data flow, diagnostic testing, fault recovery, and data routing. The patents represent the firm's expertise in both understanding the process of multiplexing as well in practicing the skill of multiplexing by engaging in the process. This supports a core competence based upon an understanding of the communication network core competence.

Vertical Depth: 4 Layers:

1) 15 (7.50%)
2) 67 (33.50%)
3) 64 (32.00%)
4) 54 (27.00%)

Total: 200 (100%)

Horizontal Depth: 25 subdivisions (patent sub-classes), 12 of them with competence patents

1. 1 (under 1%)	2. 10 (5.00%)	3. 10 (5.00%)	4. 10 (5.00%%)	5. 10 (5.00%%)
6. 3 (1.50%)	7. 6 (3.00%)	8. 15 (7.50%)	9. 40 (20.00%)	10. 65 (32.50%)
11. 10 (5.00%)	12. 20 (10.00%)			

Total: 200 (100%)

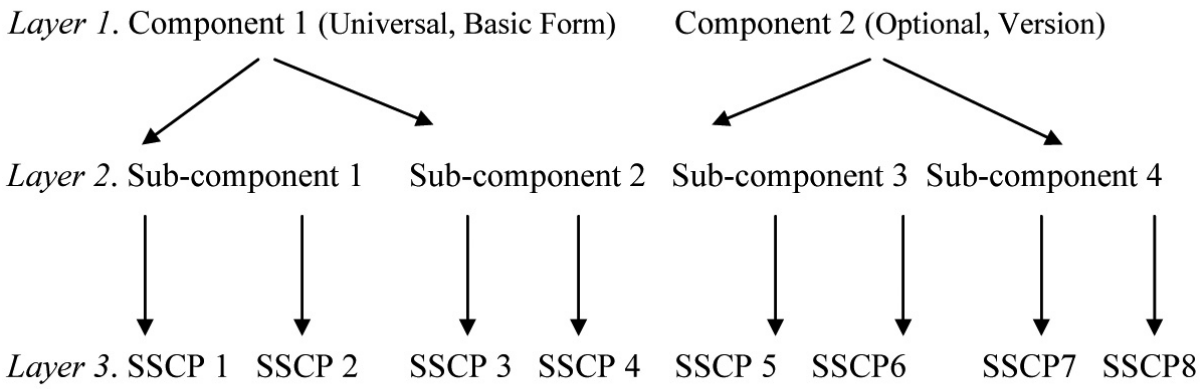
The firm's expertise is rather vertically deep, with about 92.5% of its patents at the second intellectual layer or below. However, its expertise is quite horizontally narrow, with nearly three-fourths of its patents in only 4 of 25 available sub-divisions.

Dimensions of Competence Depth

To summarize, the deepening of a core competence's knowledge of an *individual* process or entity brings a thorough understanding of or ability to do more of the variations within the basic form or versions of the process or entity. As depicted next in the depth statement of Exhibit 1, this increase in localized knowledge depth within regard to a single competence understanding or skill can occur in two ways—vertically and horizontally.

Core competence depth is based upon the reality that understood entities will have their own component parts and their corresponding capabilities, and processes—either understood or engaged in—will have their own component activities and their corresponding objects. Each of these components may in turn have its own respective sub-components, potentially leading to an internal structure of great complexity. Any of these might be universal or included in an option and so create basic forms, versions, and variations of the entity or process. This structure of components as parts for entities can be shown in a Depth Structure Chart, such as in Figure 4:

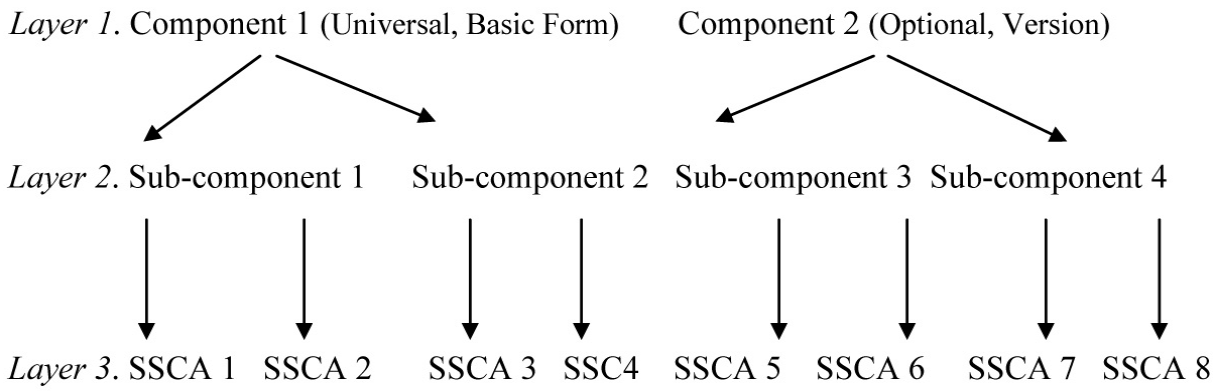
Figure 4: Depth Structure Chart of Entity Component Parts



Note: SSCP =Sub-Sub-Component-Part

This same layered structure also applies to the component activities of processes, which are what accomplish work, as shown in Figure 5.

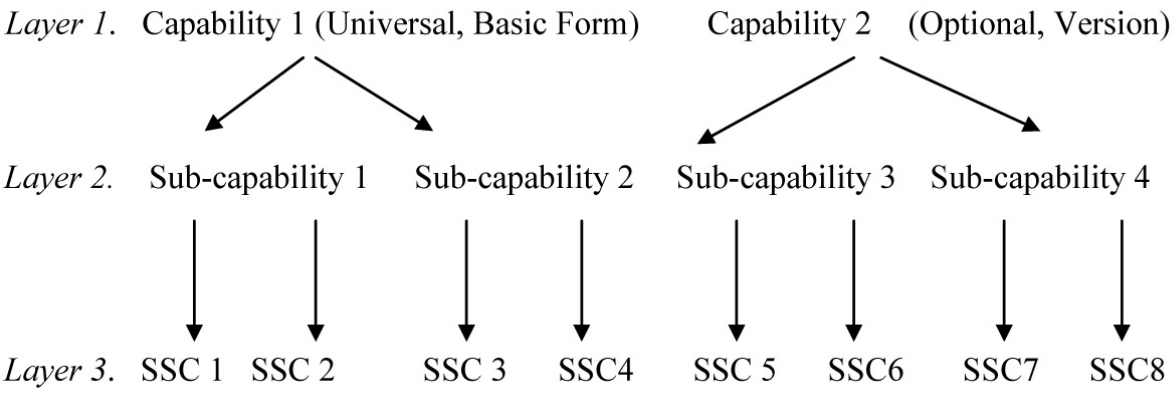
Figure 5: Depth Structure Chart of Process Component Activity



Note: SSCA =Sub-Sub-Component-Activity

The structure applies to the capabilities of entities, which are what enable entities to act in accomplishing work, as shown in Figure 6.

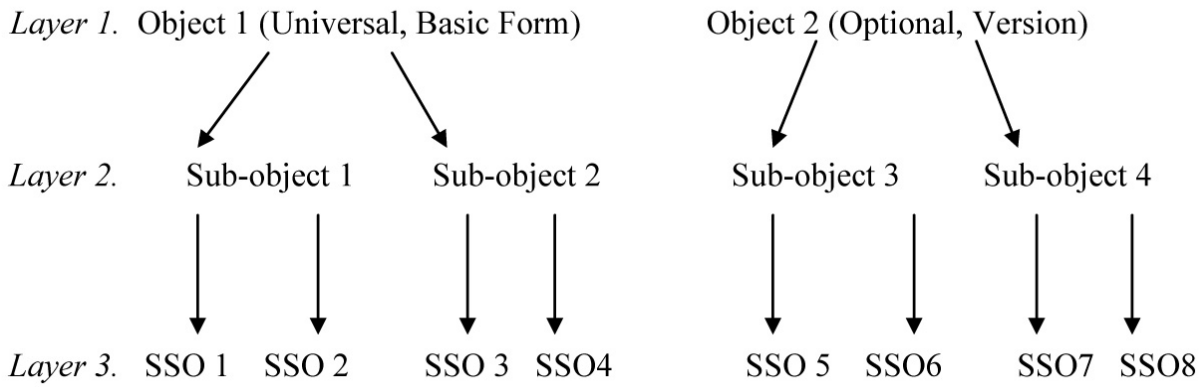
Figure 6: Depth Structure Chart of Entity Capabilities



Note: SSC =Sub-Sub-Capability

This layered structure can even apply to the objects of processes, which have the processes' work performed upon them, as shown in Figure 7.

Figure 7: Depth Structure Chart of Process Objects



Note: SSO =Sub-Sub-Object

The layered structural approach shown in each of Figures 4-7 contains three intellectual layers of aggregation and eight vertical chains of composition, revealing two different kinds of competence depth. For instance, as depicted generically in Figure 4, employees of a firm might have an understanding of the entity of electrical devices, which have universal component parts of circuits (Layer 1, Component 1) and optional component parts of power regulators (Layer 1, Component 2). The circuits and regulators have sub-components (Layer 2), which also have their own respective components (Layer 3). The employees could have understandings and sub-understandings that encompass items at Layer 1, 2, or 3 of circuits or power regulators. The more items they understand at Layers 2 or even Layer 3, regardless of the vertical chains the items occupy, the more what we term to be *vertical depth* of the competence increases.

In contrast, the employees' could have understandings that encompass items within some to all of the eight vertical chains. For instance they might have understandings of circuits (Vertical Chains 1-4) but not regulators (Chains 5-8). The more items they understand across the vertical chains, regardless of the intellectual layers the items occupy, the more what we term to be *horizontal depth* increases. (Perhaps counter-intuitively, in Figures 4-7 the number of horizontal layers, taken together, indicates potential vertical depth within the competence, and the number of vertical chains, also taken together, indicates potential horizontal depth. In each of these examples there are three horizontal layers and eight vertical chains. Moreover, remember that most entities and processes will be much more complex than ones depicted in Figures 4-7 because their sub-components, capabilities, and objects will be far more numerous, resulting in many more versions and variations.)

Why might a competence's knowledge encompass Layers 1 and 2 but not Layer 3 or include some of the eight vertical chains (e.g. Chains 1-4, encompassing the basic components like circuits) but not all of them? It could be because a firm's vendors provide parts, e.g.

components and subcomponents, to items in this vertical or horizontal intellectual structure. When this occurs, a firm's own deep knowledge might end and instead the firm could rely upon the knowledge of a vendor like a supplier or a sub-contractor).

Therefore, as depicted in Figure 4, a deep core competence with regard to a particular understanding of electrical devices would be one in which employees of a firm have understandings concerning items in all three of the components' horizontal layers (vertical depth) as well as in all eight of the sub-sub-components' vertical chains (horizontal depth). In this example the competence includes knowledge of the basic form of an entity like an electrical device, and it has knowledge of one of its versions.

Moreover, these dimensions—vertical and horizontal core competence depth—apply not only with regard to entities' component parts—the example just presented—but also with regard to processes' component activities (Figure 5), entities' capabilities (Figure 6), and processes' objects (Figure 7). When applied to the entity's capabilities (Figure 6) and processes' objects (Figure 7), core competence depth represents employees' understandings (and sub-understandings) of the capability (e.g. an electrical device's ability to direct electrical current) or of the processes' object (e.g. data manipulated by multiplexing).

However, as discussed earlier in the multiplexing example, when applied to processes' activities (Figure 5), competence depth could represent employees' understandings of the activities without the ability to do them, or depth could represent their skills (and sub-skills) — engage in—the activities. As discussed earlier, a firm that makes only telephones might understand the activities of the multiplexing process without doing them directly. In contrast, a firm that manufactures switching equipment will engage in multiplexing directly.

Depth Statement Example: Horizontal and Vertical Depth

The remainder of the depth statement presented in Exhibit 1 applies these concepts. Just below its two opening paragraphs, it provides a numerical description of vertical and horizontal depth of a core competence's patents supporting the process of multiplexing. The numerical data on approximately 200 patents held by the firm in Patent Class 370 reveal this competence's knowledge of the process's component activities (diagnostic testing, data routing) and objects (electricity and light) of multiplexing. The competence's vertical depth of knowledge extends down to four intellectual layers of components, sub-components, etc. of multiplexing. The competence's horizontal depth of knowledge extends across 12 sub-divisions, representing 12 vertical chains of knowledge.

Finally, in the depth statement (Exhibit 1) there are important points about the firm's vertical and horizontal depth of knowledge concerning the instance of the core competence category. This firm's competence depth in multiplexing is vertically deep, with 92.5% of its patents at the second intellectual layer or below. In contrast, the competence's multiplexing expertise is horizontally narrow, with 70% of its patents in only 4 of 25 available sub-divisions.

Therefore, the firm's overall knowledge of multiplexing—embedded in its core competence based upon an understanding of communication networks—is vertically deep but horizontally narrow: people within the firm have deep but very focused knowledge about certain aspects of multiplexing.

Cumulative Depth: Depth Summary

Completed during Step F in the depth analysis methodology presented above in Table 2, the preparation of depth statements, such as Exhibit 1, reveals depth of knowledge with regard to particular key competence understandings and skills for which a firm holds patents, represented by *individual* bulleted category members in a Core Competence Chart (Figure 1) or a Core Competence Comparison Table (Table 1). As such, depth summaries depict "local" depth of specific aspects of a competence in vertical and horizontal forms.

Next, in step G (Table 2) of this methodology, these statements are compiled into a depth summary depicting cumulative horizontal and vertical depth of patented knowledge across all the seven elemental categories of an entire core competence, represented by *multiple* bulleted members in the Core Competence Chart (Figure 1). As such, a depth summary depicts more accurately the "global" depth of a core competence. Appendix 1 shows a generic example of such a depth summary. Each row in the Appendix summarizes a depth statement covering an individual competence understanding or skill bulleted in Figure 1. Collectively the rows depict the cumulative depth of the competence across its understandings and skills.

Core Competence Depth: Interviews

Moreover, once complete, the core competence charts, depth summaries, and depth statement can be reviewed through interviews of key corporate managers and professionals to stimulate thought, debate, and conclusions about the depth of a core competence (Table 2, Step H). The interviews can help reveal deeply held competence understandings and skills that are not represented by patents, and they can provide a global perspective of the depth across the competence. See Appendix 2 for a sample interview instrument for these interviews.

Core Competence Overview: Chart

Then, in the conclusion (Table 2, Step I) of the depth analysis methodology, the findings as to a core competence's depth arising from the previous steps can then be inserted into a Core Competence Chart like the one in Appendix 3. Here horizontal and vertical depth is summarized "locally" by the numbers of patents indicated next to individual understandings and skills in one or more elemental category (specific bulleted items in one or more boxes) and by placing deeply held individual bulleted understandings and skills in bold. It is summarized "globally" by the

numbers of patents across bulleted items and by the overall set of bolded, bulleted items. The result can be a powerful portrait of core competence depth, along with its underlying competence dynamics, elements, and breadth.

DISCUSSION

Methodological Advantages

Using patents to isolate the depth of a firm's core competence has several major methodological advantages. Two have to do with its intellectual validity. First, a firm's patent is a good indication of the existence of a competence's depth because it reports knowledge which a company has formally developed and legally protected as important to its future. Second, patent analysis ensures that the knowledge and skills isolated for inclusion in the core competence are not in fact ones held by the firm's vendors. For instance, one way to determine competence depth is to perform an analysis of products or services and then infer from this the depth of knowledge the firm must have to provide them. However, it may be extremely difficult or even impossible for a researcher to determine which components of a product or service are based upon the knowledge held by people within a firm and which are based upon knowledge held by people within its vendors.

Patent analysis also makes use of the latent content analysis of patent application documents done by expert patent subject classifiers. Researchers need not rely only upon their own ability to analyze how all the concepts and skills of each technology, product class, or skill within a core competence relate to one another. They can also utilize the perspectives of independent experts outside of the firm being studied. Patent analysis is inexpensive to do. Information on a firm's patents, and the patent office's conceptual classification system, can be gained through government resources available at fairly low cost. Finally, using patents for core competence depth analysis enables a researcher to use publicly available information. This avoids inadvertently disclosing the firm's confidential information or depending upon information the firm will not reveal in order to describe its core competencies.

Methodological Limitations

However, there are important limitations to using patents to indicate core competence depth. One is that that some firms primarily use other companies' technologies to provide solutions to its customers rather than having their own huge patent portfolio. More generally, firms often will have unpatented but deeply held understandings and skills within a competence, which can be revealed through interviews of key managers and research professionals once patent analysis is complete.

Another limitation is that it is sometimes difficult to link specific patents to only one instance of a technology, product/service class, or skill. This is because the patent classes sometimes do not correspond exactly to these entities or processes underlying a core competence. To account for this, the same patents can be counted twice, with each count indicating depth in a different element of the core competence. This occurs with the multiplexing example discussed in Exhibit 1, since depth for it represents both an understanding of the process of multiplexing as well as the skill in performing the process.

A third limitation of patent analysis for determining core competence depth can be that the firms' patents might tend to support some competence elements over others. For instance they might represent the firm's expertise in product or service technologies rather than general phenomena. Therefore, it should be kept in mind that this kind of patent analysis is approximate because it reveals depth across only some parts of the competence—not all of it.

More generally, as is true with competence breadth (Edgar & Lockwood 2011), determining a core competence's depth using the methodology presented here is a subjective, demanding task—potentially as intellectually valuable to a firm as finding the competence itself. It requires balancing specialized knowledge of the competence's underlying phenomena, technologies, products, and skills with a generalized, abstract conceptualization of these as entities and processes about which people hold horizontally, vertically, and cumulatively deep knowledge. It requires balancing input from investigators, patent examiners, corporate executives, and research professions. The result can be multiple, accurate views of the horizontal and vertical depth within an individual competence understanding or skill—like ones related to the product/service technology of multiplexing. It can also be multiple, valid views of cumulative depth across a entire core competence.

CONCLUSION

This paper presents a framework describing core competencies, a method involving patent analysis and interviews for discovering some aspects of their depth, and a generalization of depth that can apply to all core competencies. The framework reveals competence breadth to be complex, encompassing seven elemental categories of phenomena (Edgar & Lockwood 2008). Usually reflecting an intricate, underlying reality of entities and processes, these include diverse understandings and skills containing sub-understandings and sub-skills, which affect each other iteratively, creating a complicated internal dynamic within a competence.

The depth analysis methodology and generalization reveal a core competence's depth to be as complex as its breadth. A core competence's depth arises from its breadth as people within a firm more thoroughly understand or can do the components, capabilities, and objects of entities or processes related to a competence's underlying core phenomena—whether the processes or entities are general phenomena; product/service technologies; product/service classes; or functional and technological skills. When competence depth increases, the employees' individual

understandings and skills grow horizontally and vertically across the basic forms, versions and variations of individual "local" processes and entities. As this occurs, a core competence grows cumulatively deeper in its understanding of and ability to do more of its underlying entities and processes. Such "global" depth across the competence in turn accelerates its competitive power, enabling the competence to generate corporate wealth by providing products and services to economic sectors, industries, and customer segments (Edgar & Lockwood 2010, 2011).

This paper has focused upon depth and breadth as they occur in core competencies related to communication, knowledge in the form of documents, and computing. However, we believe that competence depth, like its breadth, will emerge in similar patterns for other kinds of core competencies based upon very different core phenomena. For example, such core phenomena could be the engine for a competence held by a car manufacturer, a package for one held by a shipping company, or a building for the competence of a construction firm.

It is the thorough understanding of a core phenomenon, when effectively integrated and applied, that creates the depth and breadth of understandings and skills within a core competence. Breadth and depth in turn confer upon a core competence its competitive power. Competence breadth enables a firm to provide a range of products and services; competence depth enables the firm to provide each of them better and more systematically.

We hope the paper proves to be useful to corporate managers and professionals interested in more clearly identifying, understanding, and strengthening their core competencies' depth as well as in applying them more effectively. We welcome questions on and suggested revisions to the core competence framework, the methodological guide to discovering aspects of competence depth, and the conceptualization of it presented here. Collectively, we believe it is possible to understand and identify these knowledge resources so vital to competitive success.

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Appendix 1

Competence Depth Summary (Cumulative Depth)						
Elemental Category Underlying Competence	Category Item	Type of Underlying Item	Type of Knowledge Regarding Underlying Item	Horizontal and Vertical Depth Knowledge Patterns	Number of Patents for Element Instance	Relative Percentage of Patents for Element Instance
General Phenomenon	Electrical Devices	Entity	Understanding	Horizontally Narrow; Vertically Deep	52	2%
Product/Service Technology	Multiplexing (see Figure 4 for Depth Statement)	Process	Understanding	Horizontally Narrow; Vertically Deep	200	10%
Skill (Technological)	Multiplexing (see Figure 4 for Depth Statement)	Process	Skill	Horizontally Narrow; Vertically Deep	200	10%
Total Patents for Core Competence Based Upon Communication Network Core Phenomenon: 2000						

Notes:

1. Each row can be depicted in a Depth Statement, and further rows can be added to describe other items identified in the Core Competence Framework, such as understandings of product classes or functional skills. Each row represents a bulleted item in a Core Competence Chart (Figure 1).
2. The row for electrical devices is given as an additional example to multiplexing.
3. The 200 patents for multiplexing are counted twice because they support both an understanding of the product/service technology of multiplexing and the competence's technological skill in this process

Appendix 2

Sample Interview Instrument for Verifying Core Competence Depth[4]

From our study of the literature on core competencies, the intellectual strengths of companies, as well as annual reports, and product overviews and catalogs your company provides describing its activities, we have divided a firm's core competencies into seven elements. Five of them involve an intellectual understanding of different topics and two of them involve actual skills, the ability to do something, based upon the understandings of the first five elements. The basic idea is that understanding of some general technologies leads a firm to a thorough understanding of a core phenomenon, which leads to the firm's understanding of product or service technologies and sub-technologies, which leads to the firm's understanding of classes of products and services. This understanding of classes of products and services in turn leads to certain skills and these skills are ultimately integrated into a combined skill. More specifically**:**

- General technologies: capabilities that can be used across many products and services and even many areas of life. Examples: communication, networks.
- Core phenomenon: the thing which a company understands most thoroughly and out of which emerges the rest of its core competency. Example: the communication network.
- Product/services technologies: basic capabilities upon which classes of products and services are based. These emerge from the core phenomenon. Examples: circuiting, routing, switching.
- Product/services sub-technologies: specific variations of product/service technologies, such as specific types, components, or capabilities of them. Examples: wireless networks, conferencing (voice and video), paging, T-1 circuits
- Product/Service classes: types of products and services made possible by a firm's understanding of its product/service technologies (and with that, of its product/service sub-technologies). Examples: routers, switches
- Skills: abilities to do activities caused by an understanding of types of products and services. Examples: research, market, manufacture and install communication networks.
- Integration of skills: a combined skill, one the firm has because it has two or more skills. Example: the skill above, when combined with others, leads to the integrated skill of the provision, including creation, of communication networks as whole entities.

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[4] This is a generic example of the questionnaire used in interviews with corporate managers and research professionals. Pages 3-6 are referred to but omitted and reference a Core Competence Chart, two Depth Statements and a Depth Summary.

Please see the Core Competence Chart on page 3 (the next page) representing what seems to be your firm's core competence in the provision including creation of communication networks as whole entities.

Once you have reviewed this, please see the depth statements on Pages 4-5 of this Interview Instrument. These use the analysis of your firm's patents underlying the competence to depict in some detail horizontal and vertical depth of key individual understandings and skills within the competence. These are represented by bulleted items in the Core Competence Chart. Where applicable, the number of patents held by the firm is displayed in parenthesis next to the item, with a larger number of patents representing greater depth and vice versa.

Next, please review the depth summary for the competence located on Page 6 of this instrument. It provides an overview of the depth statements. Each row in this summary corresponds to one depth statement and one or two bulleted items of the Core Competence Chart. The depth summary reveals the patterns of horizontal and vertical depth across the competence's understandings and skills. It also reveals the cumulative depth of the competence,

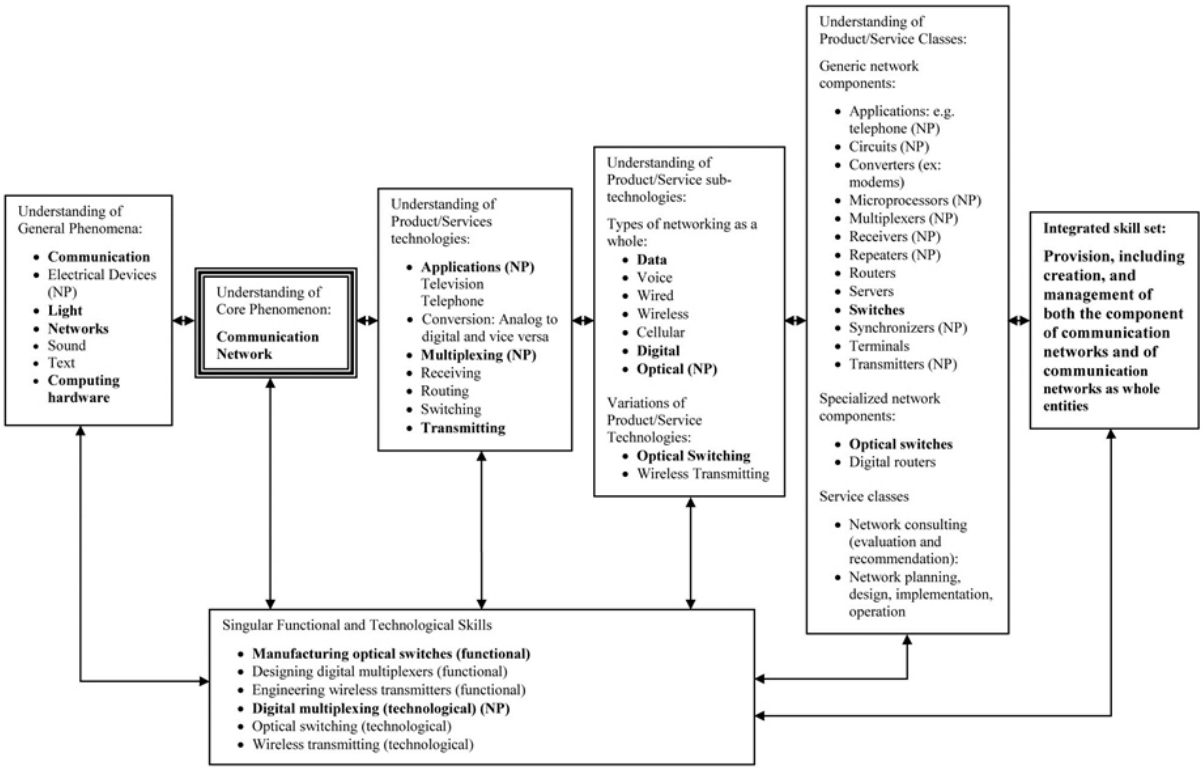
represented by the total number of patents supporting the competence (bottom row), and the relative contribution of each understanding and skill to that total (far right column).

Based upon your examination of the Core Competence Chart, individual Depth Statements, and Depth Summary, please consider your answers to following questions. We will contact you soon for your responses:

1. To what extent do you agree or disagree that these seven categories are the elements of your firm's core competence, as depicted in the Core Competence Chart? Would you add or remove any? Particularly, to what extent do you agree or disagree concerning the specific core phenomenon, product/service technologies and sub-technologies, product/service classes, and skills? Would you add any or remove any?
2. To what extent do you agree or disagree with the results of the individual depth statements? How would you refine them based upon your expertise within the firm?
3. To what extent do you agree or disagree with the results of the Core Competence Depth Summary? How would you refine it based upon your expertise within the firm?
4. What elements, if any, of this core competence are held deeply by people within the firm even though these are not represented by patents?
5. What other thoughts on the overall depth of this competence do you have?

Appendix 3

Core Competence Chart: Elements, Dynamic, Breadth, and Depth



Note: Relatively High Depth Indicated in Bold and by NP Next to Understanding or Skill

AN INTERNATIONAL MISSION STATEMENT COMPARSION: UNITED STATES, FRANCE, GERMANY, JAPAN, AND CHINA

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ABSTRACT

Mission statements continue to be the foremost organizational communication device to inform all stakeholders of whom and what are important to the company. This paper is an extension of the authors' research over the past ten years concerning the content of United States mission statements compared with those of other countries around the world. Mission statement content was analyzed from two points of view. First, the stakeholders who the firm chose to include in the mission were studied. Second, the identified goals and objectives of the firm were analyzed. The first portion of this paper reviews the changes in United States mission statements over the last ten years. Significant trends are apparent in both identified stakeholders and goals and objectives, since mission statements must be constantly revised and improved over time as the firm and its environment change. The results of the 2011 mission statement review are compared with earlier studies by the authors in 2001, 2008 and 2010.

This paper extends the authors' research by including mission statements from four non-English speaking countries. The largest twenty-five companies (as ranked by Forbes) in France, Germany, Japan, and China were compared to the largest firms in the United States. These 125 mission statements are included in the appendix of this paper. A comparison of these five countries' mission statements provided some interesting similarities and differences by country involving both the stakeholders and goals or objectives identified in the statements. These items are discussed in the final portion of this paper.

INTRODUCTION

Since the 1970s, mission statements have been the organizational communication that best describes what the firm is about to all stakeholders. According to Drucker, the mission statement is the "foundation for priorities, strategies, plans, and work assignments" (Drucker, 1974). According to Peter Drucker, it is the mission statement that distinguishes one organization from another. It also provides the firm's "reason for being" that is communicated to all interested stakeholders. In addition, Drucker states that a mission statement is essential to the formation of the company's objectives and strategies.

Mission statements are, typically, fairly short containing only one or two paragraphs. Mission statements include all of the central characteristics of the company including the firm's purpose, unique qualities, values, critical stakeholders, and basic goals/objectives. Mission statements have been called creed statements, statements of philosophy, statement of beliefs, and statements of business purposes (David, 2005) David states that these statements should reveal both what a firm wants to be as well as whom it wants to serve. Therefore, the stakeholders named and the goals and objectives identified are analyzed in this paper by the authors.

David also states that the firm's "reason for being" should be clearly stated in a firm's mission statement (David, 2009). He argues that a well written mission statement should provide important information such as the products and services offered by the firm, the primary target markets served, and the firm's concern for growth, efficiency, employees, stockholders, the environment, and long-term profitability. David has identified nine essential components of a well written mission statement. These include a mention of customers, products or services, markets, technology, concern for survival, growth, and profitability, philosophy, self-concept, concern for public image, and concern for employees (David, 2005). From the authors' experience, there are very few mission statements that include all of these items. Many of the mission statements included in the appendix of this paper contain three or fewer of these areas.

Many other authors have offered similar views on the purpose of a mission statement. Annie McKee feels that missions must describe what an organization is, what it does, and what it stands for (McKee, 2012). McKee also believes that without a well defined and established mission statement, the firm may lose its overall focus. In addition, she states that a dynamic mission statement aids managers in making decisions, motivating employees, and integrating short-term and long-term goals and objectives. Jeffery Abrahams reviewed over 300 mission statements from the largest U.S. firms and found that these communications represent an enduring statement of purpose for the companies and reflect their values and priorities (Abrahams, 1999). It is understandable that a mission statement is one of the most important communications for the company and must be thoughtfully developed.

Samuel and S. Trevis Certo argue that the creation of a mission statement is a vital part of the strategic management process (S. & S.T. Certo, 2012). The strategic management process requires the establishment of an organizational direction which typically first requires the creation of an accurate mission statement. This view is shared by Hitt, Black, and Porter (M.A. Hitt, J.S. Black & L.W. Porter, 2012). They also believe that the strategic management process requires a statement that articulates the fundamental purpose of the organization which often includes several components or parts. These can include the company philosophy, company identify or self-concept, principle product or services, customers and markets, geographic focus, obligation to stockholders, and commitment to employees (C. Rarick and J. Vitton, 1995). Many authors believe that an accurate mission statement cannot be prepared without an analysis of both the firm's external environment and its internal resources and abilities.

The authors agree that mission statements are critically important for an organization as it describes to all stakeholders its strengths, purposes, and goals/objectives. In this paper, the authors have decided to compare U.S. mission statements with four non-English speaking nations. The intent is to compare mission statement content concerning the stakeholders

identified as well as the recognized goals and objectives of the organization. Earlier research of the authors is presented first in the following paragraphs.

PREVIOUS MISSION STATEMENT RESEARCH

The authors began their mission statement research over ten years ago. Three earlier articles have been previously published in the *Academy of Managerial Communications Journal* (King, 2001) and the *Academy of Strategic Management Journal* (King, Case & Premo, 2010), (King, Case & Premo, 2011). The authors' 2001 study involved the Fortune 100 firms in the United States for that year. Table 1 summarizes the results of that study. The mission statements were reviewed for content in two areas. First, the stakeholders identified by the company were summarized. Stakeholders included employees, shareholders, customers, suppliers, and others. Second, the firm's goals/objectives stated in the mission statement were analyzed. These included, among others, an emphasis on core values, attempts to produce a quality product or service, striving for industry leadership, and concern for the environment.

Table 1
2001 FORTUNE 100 - MISSION STATEMENTS THAT INCLUDED

Stakeholders	Percent	Goal/Objective	Percent
Customers	61	Quality	25
Stockholders	34	Core Values	25
Employees	21	Leadership	17
Competitors	9	Global	15
Suppliers	6	Technology	14
Governments	2	Environmental	9
Communities	6	Profits	6
		Ethics	3

The left column of Table 1 summarizes the identified stakeholders. By far, customers and stockholders were mentioned most often in these 2001 mission statements (61% and 34% respectively). Employees ran a distant third with only 21% of the missions identifying this stakeholder. The right side of Table 1 lists the most frequently identified goal or objective of the firm. In this case, producing a quality product or service and establishing a set of core values were each found in 25% of the 2001 mission statements. Maintaining a leadership position (17%) and providing global operations (15%) were the next most commonly mentioned goals and objectives. It is apparent that customers were considered to be the most important entity identified in the mission statements of 2001. Since these missions existed prior to the passage of the Sarbanes-Oxley Act on July 30, 2002, the importance of ethical behavior was not emphasized as only three firms included that goal/objective.

The authors' analysis of mission statements continued in 2008 when the 50 largest U.S. firms were studied (from Fortune 100 list). Table 2 shows the number of firms that included the various stakeholders and goals/objectives first identified in the 2001 study.

Table 2 2008 FORTUNE TOP 50 - MISSION STATEMENTS THAT INCLUDED			
Stakeholders	**Percent**	**Goal/Objective**	**Percent**
Customers	31	Quality	26
Employees	17	Global	17
Communities	15	Ethics	15
Stockholders	14	Environmental	8
Core Values	7	Leadership	7
Suppliers	5	Profits	6
Government/Laws	2	Technology	1

In 2008, the most often identified stakeholders were customers and employees. The top two goals/objectives included in the missions this year were striving to produce a quality product or service and the emphasis on global operations. There were some significant differences in the mission statements of 2001 compared with those in 2008. For example, the use of current technology was mentioned in only one of the top 50 firms in 2008. Also, competitors were mentioned in 9% of the firms reviewed in 2001 and in 2008 none of the top 50 firms mentioned this stakeholder. In order to better review the results of these two studies, Table 3 converts the information from raw numbers (used in Tables 1 & 2) to percentages for easier comparisons.

Table 3 PERCENTAGES OF U.S. MISSION STATEMENTS CONTAINING THE FOLLOWING WORDS		
Stakeholders	**2001 Study**	**2008 Study**
Communities	6%	30%
Competitors	9%	0%
Customers	61%	62%
Employees	21%	34%
Govt./Law	2%	4%
Stockholders	34%	28%
Suppliers	6%	10%
Goal/Objective		
Core Values	25%	14%
Environmental	9%	16%
Ethics	3%	30%
Global	15%	34%
Leadership	17%	14%
Profits	6%	12%
Quality/Value	25%	52%
Technology	14%	2%

A number of significant trends can be identified over these eight years. First, in the stakeholder area, the use of the term “community” or “communities” increased significantly. Firms recognized the need to mention the people and places (communities) where they conducted operations in their mission statements. From only 6% in 2001 to 30% in 2008, these large organizations recognized the need to care and support local communities. For example, in

2008, Valero Energy's mission emphasized the firm's desire to take a leadership role in the communities where they live and work through company support and employee involvement. Customers continued to be the most mentioned stakeholder with over 60% of the firms including them in both years. Employees were mentioned more often in 2008 than in 2001 (34% compared to 21%).

There were also some significant trends as far as identified goals/objectives are concerned. For example, the importance of ethical behavior increased ten-fold over this period. From 3% in 2001 to 30% in 2008, it is obvious that the passage of the Sarbanes-Oxley Act passed in 2002 had a considerable impact on missions of these large organizations. Likewise, the number of firms that included concern for the environment increased from 9% in 2001 to 16% in 2008. As discussed above, this is no doubt related to the increased attention given to community.

Other trends in the goals/objectives mentioned in these statements involve the production of a quality product or service and the desire to conduct operations on a global scale. The firms that identified the production of quality products or services increased from 25% in 2001 to 52% in 2008. This is reasonable as many firms consider their foremost goal to be providing a quality product to the identified customer base (both included in >50% of missions in 2008). The practice of this "marketing concept" is apparent as companies realize that long term success is dependent upon the satisfaction of customer needs and wants.

The authors next reviewed the mission statements of the 25 largest firms in the U.S. in both 2010 and 2011. The 2010 study included a comparison of the largest corporations in Australia, Canada, and Great Britain (King, D.L., Case C.J. & Premo, K.M. (2010). The authors compared the mission statements of these four English speaking countries in an effort to discover similarities and differences. The most recent study by the authors summarized the 2011 missions of the largest 25 firms in the United States with those of France, Germany, Japan, and China. This analysis serves as the basis for the final segment of this paper. The appendix contains these 125 mission statements from the above mentioned countries. Prior to that analysis, Table 4 presents a comparison of U.S. mission statements for each of the authors' four studies.

Table 4
PERCENTAGES OF U.S. MISSION STATEMENTS CONTAINING THE FOLLOWING WORDS

Stakeholders	2001 Study	2008 Study	2010 Study	2011 Study
Communities	6%	30%	40%	28%
Competitors	9%	0%	0%	0%
Customers	61%	62%	68%	64%
Employees	21%	34%	24%	16%
Govt./Law	2%	4%	8%	0%
Stockholders	34%	28%	28%	24%
Suppliers	6%	10%	12%	8%
Goal/Objective				
Core Values	25%	14%	8%	8%
Environmental	9%	16%	8%	4%
Ethics	3%	30%	28%	28%
Global	15%	34%	32%	28%

Table 4 PERCENTAGES OF U.S. MISSION STATEMENTS CONTAINING THE FOLLOWING WORDS				
Leadership	17%	14%	20%	20%
Profits	6%	12%	16%	16%
Quality/Value	25%	52%	56%	44%
Technology	14%	2%	0%	0%

Table 4 shows that the most commonly included stakeholders over this ten year period include customers, communities, stockholders, and employees. Customers are mentioned in the mission statements far more than any other stakeholder (64% in 2011, 68% in 2010). Concern for the community in which the firm operates has become a frequently included stakeholder increasing from only 6% in 2001 to 40% in 2010 but dropping to 28% in 2011. The inclusion of stockholders in the mission statements has decreased somewhat from 34% in 2001 to 24% in 2011. Employees have been mentioned less frequently dropping from 34% in 2008 to 16% in 2011. Finally, suppliers were mentioned in approximately 10% of the mission statements over this ten year period.

A review of the goals and objectives mentioned in these statements shows that the most common include the desire to produce a quality product or service that represents a good value to customers, a concern for ethics and ethical operations, an emphasis on global operations, and a desire to be an industry leader. The "marketing concept" is apparent since the desire to produce a quality product or service that represents a good value to customers is included in the missions more than any other goal or objective (56% in 2010 and 44% in 2011). In 2011, ethical behavior and maintaining global operations were included in 28% of the statements. Being a leader in the industry was mentioned in 20% of the missions in both 2010 and 2011. Finally, a desire to remain profitable was included in 16% of the statements in 2010 and 2011. This, no doubt, is related to the concern for stockholders. The final portion of this paper summarizes the 2011 mission statements of the largest 25 companies in France, Germany, Japan, and China. The similarities and differences in the mission statements of the United States and these four countries will be reviewed.

A FIVE COUNTRY MISSION STATEMENT COMPARISON

Table 5 includes the percentage of firms in the United States, France, Germany, Japan, and China that includes a specific stakeholder or goal/objective in their mission statement. The largest 25 firms in each of these countries were selected based on information provided by the Fortune Company. The appendix of this paper includes the 125 related mission statements. A few firms did not provide an English conversion format and were not usable. Five primary stakeholders were identified which included community, customers, employees, stockholders, and suppliers. Other stakeholders who were mentioned very infrequently were excluded. A total of 12 goals/objectives were identified. These included use of core values, maintaining efficient and effective operations, environmental concerns, ethical emphasis, maintaining global operations, desire for growth/expansion, striving for innovation, leadership emphasis, concern

for profits, production of a quality product or service that provides value to customers, concern for product safety, and maintaining customer trust.

Table 5
PERCENTAGES OF MISSION STATEMENTS INCLUDING THE FOLLOWING TERMS BY COUNTRY

Stakeholders Mentioned	U.S.	France	Germany	Japan	China
Communities/Community	28%	4%	4%	4%	4%
Customers	64%	40%	44%	52%	40%
Employees	16%	8%	12%	12%	32%
Stockholders/Stakeholders	24%	12%	20%	12%	28%
Suppliers	8%	0%	0%	0%	4%
Goal/Objective Mentioned					
Core Values	8%	4%	4%	0%	20%
Efficient/Effective	4%	16%	12%	4%	8%
Environment/Earth Friendly	4%	12%	12%	12%	12%
Ethics/Ethical Operations	28%	16%	4%	12%	24%
Global/Worldwide	28%	40%	24%	36%	36%
Growth/Expansions	0%	20%	16%	8%	20%
Innovation	16%	12%	36%	28%	16%
Leader/Leadership	20%	44%	36%	12%	12%
Profits/Profitability	16%	20%	12%	0%	12%
Quality/Value/Service	44%	12%	36%	28%	40%
Safety/Safe Product	8%	0%	0%	8%	12%
Trust	4%	8%	0%	12%	0%

A review of the stakeholders mentioned in the mission statements of these five countries provides a number of interesting observations. First, it should come as no surprise that customers are the most commonly included stakeholder in each of these countries. Customers were included in 64% of U.S. missions followed by 52% for Japan, 44% for Germany, and 40% for both France and China. A concern for communities in which the firm operates is common in the U.S. with 28% of missions mentioning this stakeholder. Only 4% of the mission statements in each of the other countries included the community concept. Employees are mentioned in more Chinese missions (32%) than any of the other countries by a significant margin (U.S. 16%, France 8%, Germany and Japan 12% each). Stockholders are also mentioned in more Chinese mission statements (28%) than any of the other countries (U.S. 24%, France 12%, Germany 20%, and Japan 12%). Only U.S. (8%) and Chinese (4%) mentioned suppliers or vendors in their mission statements.

Each of these five countries included customers, employees, and stockholders most frequently as identified stakeholders. The following table shows the top three stakeholders for each of these countries in order of their frequency. Note that China is the only exception to the customers, stockholders, and employees ranking. Also, for Japan, stockholders and employees were both included in 12% of the missions.

able 6 STAKEHOLDER RANKINGS BY FREQUENCY					
	United States	**France**	**Germany**	**Japan**	**China**
1.	Customers	Customers	Customers	Customers	Customers
2.	Stockholders	Stockholders	Stockholders	Stockholders	Employees
3.	Employees	Employees	Employees	Employees	Stockholders

A review of the goals/objectives incorporated in Table 5 provides some interesting observations. First, there is a large variety of goals/objectives included in these mission statements. The authors identified 12 different goals ranging from providing a quality product or service that provides value to customers to maintaining the trust of all stakeholders. The most frequently included goals/objectives vary by country. The following paragraphs include a review of the goals included in the missions of the largest firms in each country.

U.S. firms stressed the importance of providing of a quality product or service that provides value to their customers (44%), the maintenance of ethical business practices (28%), conducting global operations (28%), and the desire to be a leader in the industry (20%). In addition, concern for profitable operations (16%) and an emphasis on innovation (16%) are also commonly included in the mission statements of U.S. firms. Other lesser mentioned goals include the use of core values (8%), emphasis on safety (8%), concern for the environment (4%), maintenance of efficient operations (4%), and maintaining stakeholder trust (4%).

French firms emphasized being a leader in the industry (44%) and the maintenance of global business operations (40%) by a wide margin over other goals/objectives. Secondary goals of French firms were the desire for growth or expansion (20%), maintaining profitability (20%), conducting efficient/effective operations (16%), conducting ethical business practices (16%), concern for the environment (12%), and being innovative (12%). The other identified goals were mentioned very infrequently or not at all in French mission statements.

German companies most frequently stressed being an innovative company (36%), being a leader in their industry (36%), providing a quality product or service that represents value to their customers (36%), and the maintenance of global business operations (24%). To a lesser extent, German firms listed a desire for growth or expansion (16%), the maintenance of efficient/effective operations (12%), a concern for the environment (12%), and the maintenance of profitable operations (12%) as identified goals in their missions. Conducting ethical operations or concern for ethics was mentioned in only one of the 25 German mission statements. All of the other countries emphasized ethics to a significantly larger extent.

Japanese firms most often reported as desired goals the desire to conduct global business operations (36%), an emphasis on innovation (28%), and the production of a quality product or service (28%). To a lesser degree, Japanese firms listed goals such as concern for the environment (12%), being ethical and conducting ethical operations (12%), maintaining a leadership position (12%), and the desire to gain the trust of all stakeholders (12%). The other goals identified by the authors were rarely included in the Japanese mission statements.

The Chinese mission statements emphasized the goals of offering a quality product or service that provides value to customers (40%), a desire to conduct global business operations (36%), and a concern for ethical business operations (24%). China was only second to the U.S. (28%) in acknowledging the importance of ethical behavior. Other less frequently reported goals

included the existence of core values (20%), a desire for growth or expansion (20%), the significance of innovation (16%), concern for the environment (12%), the attempt to be a leader in the industry (12%), the maintenance of profitable operations (12%), and the importance of producing a safe product (12%). China had the most mission statements that emphasized safety higher than the U.S. (8%) and Japan (8%).

The following table shows the three most commonly included goal/objective for each of the five countries. The table includes a number of "ties" in the ranking of goals for these countries.

Table 7
GOALS/OBJECTIVES RANKINGS BY FREQUENCY

United States	France	Germany	Japan	China
Quality	Leadership	Innovation, Leadership, Quality	Global	Quality
Ethics, Global	Global	Global	Innovation, Quality	Global
Leadership	Growth, Profits	Growth	Environment, Ethics	Ethics
			Leadership, Trust	

For example, 36% of German firms included innovation, leadership, and quality as the primary goals in their missions. Japan's third most commonly reported goals (12% each) were concern for the environment, use of ethical principles and practices, the wish to be a leader in the industry, and the desire to maintain the trust of stakeholders. The production of a quality product or service that provides value to customers was one of the top three goals for every country with the exception of France. The desire to conduct global business operations was included in the "top 3" list for every country. Concern for ethical business practices made the list in the U.S., Japan, and China. The goal of being an industry leader was included in the "top 3" for every country with the exception of China. The desire for growth or expansion made the list for only Germany.

Another interesting observation concerns Chinese mission statements. Chinese firms include the concept of "harmony" in 24% of their mission statements. This involves the harmony of between mankind and the environment or harmony between the firm and its stakeholders. The maintenance of harmony is very important in the Chinese culture and business sector. Many of the mission statements include phrases that show the desire to improve society or provide citizens with a better life. Examples of this can be found in the following mission statements.

State Grid (Beijing) Mission – "Ensure safer, more economical, cleaner and sustainable energy supply, promote healthier development, more harmonious society and better life."

China Southern Power Grid (Guangzhou) Mission –"As a state-owned enterprise, CSG takes it as its mission to undertake the responsibility of protecting public interests and to take the lead to build a harmonious society." (Partial)

Finally, the term "diversity" appeared in the missions of the U.S. (4%) and France (8%). These firms acknowledged the importance of maintaining a diverse employee population.

Although these are small numbers, it will be interesting to note if they increase in future years. This is similar to the concept of "safety" which appeared in missions only a few years ago. This goal has been increasing as organizations appreciate the importance of providing a safe workplace environment. The following section provides specific mission statement examples from each country that include numerous stakeholders and goals/objectives.

SPECIFIC EXAMPLES

From the United States, the mission statements of Proctor & Gamble (#22) and Kroger (#23) are excellent examples of the inclusion of multiple stakeholders and goals. In particular, the use of the term "community or communities" which has become very common in U.S. mission statements is noticeable in each.

Procter & Gamble

> "We will provide branded products and services of superior quality and value that improve the lives of the world's consumers. As a result, consumers will reward us with leadership sales, profit, and value creation, allowing our people, our shareholders, and the communities in which we live and work to prosper."

Kroger

> "OUR MISSION is to be a leader in the distribution and merchandising of food, health, personal care, and related consumable products and services. By achieving this objective, we will satisfy our responsibilities to shareowners, associates, customers, suppliers, and the communities we serve."

The Proctor & Gamble mission includes the goals of producing a quality product, maintaining leadership status, operating profitably, and creating value for customers. In addition, employees (our people), stockholders, communities where the firm operates are named stakeholders. Kroger also emphasizes a desire for leadership status in order to satisfy stockholders, employees, customers, suppliers, and the communities in which they operate. As a general observation, U.S. mission statements typically include a wider variety of named stakeholders and goals than the other four countries in the study.

Two good examples of mission statements from France include Vinci (#17) and Air France – KLM Group (#23). Many of the French statements were very brief and included only a few stakeholders and goals.

Vinci

> "Our objective is overall performance. Our ambition is to create value for our customers and shareholders and for society as a whole."

Air France – KLM Group

> "Air France-KLM intends to capitalize on technological innovation to become market leader for mobile and social networking applications. The Group is renewing its ambitious operational performance objectives for the benefit of its customers. The aim is to earn their preference through our service quality and our ability to manage irregularities effectively."

Vinci believes that efficient and effective operations are its primary goals. By achieving this ambition, Vinci believes that it will satisfy the needs of customers, shareholders, and society as a whole. Air France – KLM Group's objective is to utilize technological innovation to gain a leadership position. KLM Group also believes that quality service and efficient operations (which minimize irregularities) will aid it in providing customer satisfaction.

German examples include Daimler (#4) and Deutsche Bank (#13). Both of these missions include the desire to satisfy customer needs and wants (the Marketing Concept) in order to maintain continued success.

Daimler

> "Our philosophy is clear: We give our best for our customers, who expect the best, and we live out a culture of excellence based on shared values. The history of our company is marked by innovations: These are the basis and stimulus for our claim to leadership in automotive production. It is our goal to successfully meet the challenges of future mobility. We intend to thereby create lasting value for our shareholders, customers, and employees, as well as for society as a whole."

Deutsche Bank

> "We compete to be the leading global provider of financial solutions, creating lasting value for our clients, our shareholders, our people and the communities in which we operate."

Daimler feels that its company must do everything possible to provide the best product to its customers. Daimler also stresses innovation that allows it to maintain a leadership position in the automobile industry. Finally, the firm's mission states its intention of providing lasting value to stakeholders including stockholders, customers, employees, and society. Deutsche Bank's short mission also emphasizes the desire to provide value to customers, shareholders, employees, and related communities. Deutsche includes the desire to maintain a global leadership status in the financial services industry. This one sentence mission statement is very comprehensive given its brevity.

Two Japanese mission statements that include multiple stakeholders and goals are those of Toyota Motors (#1) and Toshiba (#10). These are two of the lengthier Japanese mission statements. Both of these companies emphasize the need for constant innovative technologies.

Toyota Motor

> "Toyota will lead the way to the future of mobility, enriching lives around the world with the safest and most responsible ways of moving people. Through our commitment to quality, constant innovation and respect for the planet, we aim to exceed expectations and be rewarded with a smile. We will meet challenging goals by engaging the talent and passion of people, who believe there is always a better way."

Toshiba (Tokyo)

> "We endeavor to serve the needs of all people, especially our customers, shareholders, and employees, by implementing forward-looking corporate strategies while carrying out responsible and responsive business activities. As good corporate citizens, we actively contribute to further the goals of society. By continually developing innovative technologies centering on the fields of Electronics and Energy, we strive to create products and services that enhance human life, and which lead to a thriving, healthy society. We constantly seek new approaches that help realize the goals of the world community, including ways to improve the global environment."

In addition to constant innovation, Toyota also stresses the maintenance of quality, an emphasis on safety, and a concern for the environment. The company feels that these goals can be achieved by hiring competent and talented employees. Toshiba's mission is to meet the needs and wants of customers, shareholders, and employees. The firm also strives to produce products that improve society (world community) and the global environment. Both of these Japanese companies employ a very comprehensive mission statement.

Finally, two Chinese mission statements that include multiple stakeholders and goals are those of China National Petroleum (#3) and China Southern Power Grid (#12). As mentioned earlier, the concept of maintaining "harmony" is apparent in each of these missions.

China National Petroleum

> "China National Petroleum Corporation (CNPC) is committed to 'Caring for Energy, Caring for You.' We strive for harmonious relationships between operations and safety, energy and the environment, corporate and community interests, and employers and employees. We are committed to protecting the environment and saving resources, promoting the research, development and

application of environmentally friendly products, fulfilling our responsibilities to society and promoting development that benefits all."

China Southern Power Grid

"As a state-owned enterprise, CSG takes it as its mission to undertake the responsibility of protecting public interests and to take the lead to build a harmonious society. The company tries to optimize the regional allocation of resources, coordinate power generation, transmission and distribution, and provide customers with safe and reliable electricity, and to provide qualified services and create social wealth as well as environmental benefits for the society."

China National Petroleum provides details of the area where harmony is desired such as between production and safety, energy and the environment, corporate and community interests, and labor and management. This is an interesting concept whereby harmony must be maintained in multiple areas to satisfy the needs and wants of many stakeholders and ensure successful operations. A strong emphasis on protecting the environment and safeguarding resources is also apparent. China Southern Power Grid also emphasizes the goal of maintaining a harmonious society. Customer safety and protection of the environment are also goals of this organization.

These examples provide insight into what large organizations in these five countries consider to be their most critical goals/objectives. In addition, key stakeholders including customers, employees, and stockholders are specifically identified in many of these missions. A review of these mission statements provides insight into the most important stakeholder or goal/ objective. For example, in the U.S., the "community or communities" stakeholder has been growing in importance. Likewise, in China, the goal of improving "harmony or harmonization" has been increasingly included in current mission statements.

SUMMARY OBSERVATIONS

A review of the tables presented in this paper provides information to make a number of observations concerning the content of mission statements from the 25 largest firms in each of these five countries. It is important for business and educational professionals to be aware of what is important to these organizations from around the world. The analysis of the content of mission statements provides insight into what these firms consider to be most important to them both in terms of stakeholders and desired goals or objectives. The authors believe that the following observations are important in this global review of mission statements.

1. For U.S. firms, the term "community or communities" has become more commonly used in mission statements over the past ten years (Table 4). Concern for the improvement of communities where the firm operates is frequently included in mission statements. The other four countries very infrequently include this stakeholder (only 4% each).

2. Over the past decade, customers have been the most frequently mentioned stakeholder by a significant margin.
3. Support of ethical business practices and the desire to conduct business operations on a global scale have been increasingly included in U.S. mission statements since 2001. The increase emphasis on ethical behavior is, no doubt, related to the passage of the Sarbanes-Oxley Act.
4. An international comparison of mission statements shows that customers are the most frequently listed stakeholder for each of these five countries (Table 5). Customers are most often mentioned in the mission statements of U.S. (64%) and Japanese (52%) firms.
5. Employees are most commonly included in the missions of Chinese firms (32%). The other four countries name employees in their missions much less often (8%-16%).
6. Firms in China (28%) and the U.S. (24%) mention stockholders in their missions more frequently than the other three countries. It is interesting to note that China identifies stockholders more often than any of the other four countries in the study.
7. The goal of conducting business operations on a global basis is, on average, the most frequently included objective of firms in these five countries. Global operations are in the top three goals list for each of these countries. For Japanese companies, it is the most commonly included goal.
8. For the U.S. (44%) and China (40%), the goal of producing a quality product or service that provides value to customers is the most frequently included objective. They are closely followed by Germany (36%) and Japan (28%). Only 12% of French firms include this goal.
9. Concern for the environment was included in 12% of the 2011 missions of each country except for the U.S. (4%). This is the lowest percentage for U.S. firms since the authors' studies began in 2001.
10. The U.S. (28%) included ethical behavior in company missions most often closely followed by China (24%). Ethical operations were less of a priority for France (16%), Japan (12%), and Germany (4%).
11. Maintaining a leadership position in the industry was stressed in the missions of France (44%) and Germany (36%). This concept was included in significantly fewer mission statements of the U.S. (20%), Japan (12%), and China (12%).
12. The goal of growing or expanding the organization was included in 20% of the missions in France and China. Growth was included in 16% of German missions and 8% of Japanese statements. None of the U.S. firms' missions incorporated this concept.
13. Finally, the goal of increasing "harmony" or improving "harmonization" was unique to Chinese mission statements. Chinese missions included this concept in 24% of the missions. Phrases such as "harmonious corporation" and "harmonious society" are fairly common in these missions.

There are many other comments that could be made when doing a comparison of the mission statements of these five countries but the authors feel that these are the significant ones. It is interesting to note that large corporations in each of these countries realize that the firms' customers are their most important stakeholder. Customers are mentioned in more mission

statements than any other stakeholder including employees, stockholders, communities, and suppliers. Closely related to this is the fact that overall the most commonly stated goals were the production of a quality product or service and providing that product or service on a global basis. The authors plan to continue their examination of mission statements in future years to discover evolving similarities and differences among countries from around the world.

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APPENDIX

Top 25 U.S. Companies and their mission statements (as ranked by Fortune 500)

1. Wal-Mart Stores
"Wal-Mart's mission is to help people save money so they can live better."

2. Exxon Mobil
"Exxon Mobil Corporation is committed to being the world's premier petroleum and petrochemical company. To that end, we must continuously achieve superior financial and operating results while adhering to the highest standards of business conduct. These unwavering expectations provide the foundation for our commitments to those with whom we interact."

3. Chevron
"Our Company's foundation is built on our Values, which distinguish us and guide our actions. We conduct our business in a socially responsible and ethical manner. We respect the law, support universal human rights, protect the environment, and benefit the communities where we work."

4. General Electric
"Passionate, Curious, Resourceful, Accountable, Teamwork, Committed, Open, Energizing, Always With Unyielding Integrity."

5. Bank of America Corp.
"We believe, very simply, that it is the actions of individuals working together that build strong communities ... and that business has an obligation to support those actions in the communities it serves."

6. ConocoPhillips
"Use our pioneering spirit to responsibly deliver energy to the world."

7. AT&T
"We aspire to be the most admired and valuable company in the world. Our goal is to enrich our customers' personal lives and to make their businesses more successful by bringing to market exciting and useful communications services, building shareowner value in the process."

8. Ford Motor
"We are a global family with a proud heritage passionately committed to providing personal mobility for people around the world."

9. J.P. Morgan Chase & Co.
"At JPMorgan Chase, we want to be the best financial services company in the world. Because of our great heritage and excellent platform, we believe this is within our reach."

10. Hewlett-Packard
"To provide products, services and solutions of the highest quality and deliver more value to our customers that earns their respect and loyalty."

11. Berkshire Hathaway- None published.

12. Citigroup
"Citigroup Inc. ("Citi") recognizes that foreclosures affect the individual, the family and the community. We also understand that early intervention and a full understanding of the available options are important for mitigating or minimizing the impact of foreclosures.
Citi's Office of Homeownership Preservation (OHP) is dedicated to finding solutions that preserve homeownership and help mitigate the challenges faced by borrowers. We work directly with borrowers at risk of losing their homes. We also work with any and all stakeholders who advocate on behalf of borrowers, including non-profit organizations, elected officials, government agencies, regulators and others. Our strong partnerships with these stakeholders help us to develop and implement homeownership preservation solutions and enable us to magnify our outreach and assistance to borrowers. For example, OHP's hotline for housing counselors greatly enhances their ability to work with us on behalf of our borrowers. And our borrower and counselor outreach programs, which we conduct in collaboration with partners in numerous locations around the U.S., bring help directly to at-risk communities."

13. Verizon Communications
"Verizon's commitment to top quality service is well known. Verizon is the pre-eminent service provider in the industry. Our legacy of customer service -- bolstered by the nation's largest and most reliable network -- is unparalleled. And, we continue to make strong progress in delivering on our promise to be the nation's best provider of quality local, data and long distance services."

14. McKesson
"Our mission is to provide comprehensive pharmacy solutions that improve productivity, profitability and result in superior patient care and satisfaction."

15. General Motors
"G.M. is a multinational corporation engaged in socially responsible operations, worldwide. It is dedicated to provide products and services of such quality that our customers will receive superior value while our employees and business partners will share in our success and our stock-holders will receive a sustained superior return on their investment."

16. American International Group
"As a global financial services organization, we have committed our resources to developing products and services that address the needs of our clients as well as promote a corporate culture that values integrity, diversity, innovation and excellence."

17. Cardinal Health
"We consider the highest standards of personal and professional ethics as the cornerstone of trust among our customers and ourselves. We deliver on the commitments we make. We recognize our obligation to the communities where we live and work. We hold ourselves accountable not only for what we achieve but how we achieve it."

18. CVS Caremark
"Above all else … our mission is to improve the lives of those we serve by making innovative and high-quality health and pharmacy services safe, affordable and easy to access."

19. Wells Fargo
"Our product: SERVICE. Our value-added: FINANCIAL ADVICE. Our competitive advantage: OUR PEOPLE."

20. International Business Machines
"At IBM, we strive to lead in the invention, development and manufacture of the industry's most advanced information technologies, including computer systems, software, storage systems and microelectronics. We translate these advanced technologies into value for our customers through our professional solutions, services and consulting businesses worldwide."

21. UnitedHealth Group
"Our mission is to help people live healthier lives. We seek to enhance the performance of the health system and improve the overall health and well-being of the people we serve and their communities. We work with health care professionals and other key partners to expand access to high quality health care so people get the care they need at an affordable price. We support the physician/patient relationship and empower people with the information, guidance and tools they need to make personal health choices and decisions."

22. Procter & Gamble
"We will provide branded products and services of superior quality and value that improve the lives of the world's consumers. As a result, consumers will reward us with leadership sales, profit, and value creation, allowing our people, our shareholders, and the communities in which we live and work to prosper."

23. Kroger
"OUR MISSION is to be a leader in the distribution and merchandising of food, health, personal care, and related consumable products and services. By achieving this objective, we will satisfy our responsibilities to shareowners, associates, customers, suppliers, and the communities we serve."

24. AmerisourceBergen
"To build shareholder value by delivering pharmaceutical and healthcare products, services and solutions in innovative and cost effective ways. We will realize this mission by setting the highest standards in service, reliability, safety and cost containment in our industry."

25. Costco Wholesale
"To continually provide our members with quality goods and services at the lowest possible prices."

France-Top 25 Companies and their mission statements (as ranked by Fortune 500)

1. AXA (Paris)
"We are working toward the shared ambition of attaining leadership in our core Financial Protection business, through the quality of our products and services as well as through superior performance."

2. Total (Courbevoie)
"Total's strategy, the implementation of which is based on a model for sustainable growth combining the acceptability of operations with a sustained, profitable investment program, aims at: Expanding hydrocarbon exploration and production activities throughout the world, and strengthening its position as one of the global leaders in the natural gas and LNG markets.

- Progressively expanding Total's energy offerings and developing complementary next generation energy activities (solar, biomass, nuclear).
- Adapting its refining system to market changes and consolidating its position in the marketing segment in Europe, while expanding its positions in the Mediterranean basin, Africa and Asia.
- Developing its chemicals activities, particularly in Asia and the Middle East, while improving the competitiveness of its operations in mature areas; and
- Pursuing research and development to develop "clean" sources of energy, contributing to the moderation of the demand for energy, and participating in the effort against climate change."

3. BNP Paribas (Paris)
"In all its core businesses, BNP Paribas is determined to be a benchmark banking group, focusing on customer satisfaction and actively pursuing the improvement of its earning capacity."

4. Carrefour (Levallois-Perret)
"The Carrefour group has one simple ambition: making Carrefour the preferred retailer wherever it operates."

5. GDF Suez (Paris)
"GDF SUEZ employees have contributed to the establishment of the Group's four core values:

- drive – to guarantee performance over the long term for all stakeholders,
- commitment – to associate the Group's development with respect for the planet,
- daring – to live in the present with optimism while preparing for the future with creativity,
- cohesion – to make energy and the environment sustainable sources of progress and development."

6. Crédit Agricole (Paris)
"Crédit Agricole intends to fulfil its role as a leading European player with global scale, while complying with the commitments that stem from its mutualist background. Its development is committed to responsible growth, focused on servicing the real economy."

7. Électricité de France (Paris) *No English version.

8. Société Générale (Paris) * No English version.

9. Groupe BPCE (Paris)
"Our business is founded on trust, our customers entrust us with their savings, which we plough back into economic development in the form of loans. The way to earn this trust and make it grow is quite straightforward: we must simply do our job as bankers, do it well, and do nothing but the business of banking. More accessible, more entrepreneurial, more efficient, we will then become the banking institutions most preferred by the French and their companies."

10. Peugeot (Paris)
"To be a step ahead in pioneering vehicles and services.
To be a global player.
To be an industry benchmark for operational efficiency.
To develop responsibly."

11. CNP Assurances (Paris)
"Strong risk discipline, to ensure that we are able to fulfil our long-term commitments to the insured, with an asset/liability management system introduced some fifteen years ago and regularly enhanced ever since."

- Profitability, which means applying strategies that generate a satisfactory return for policyholders and shareholders and smooth investment yields over time.
- Compliance with the highest ethical standards.

12. France Télécom (Paris)
"Commitment to bringing the digital universe to the largest possible number of people, creating a powerful and differentiating asset that unifies the image of the enterprise around the world."

13. Groupe Auchan (Croix)
"To improve the purchasing power and the quality of life of the greatest number of customers, with responsible, professional, committed and respected employees. This is based on 3 values: trust, sharing and progress."

14. Saint-Gobain (Courbevoie)
"We are constantly innovating to make homes more comfortable, cost-efficient and sustainable worldwide."

15. Veolia Environnement (Paris)
"As a world leader in environmental solutions, Veolia Environnement seeks to set the standard in sustainable development."

16. Renault (Boulogne-Billancourt)
"Drive the Change- to make sustainable mobility accessible to all."

17. Vinci (Rueil-Malmaison)
"Our objective is overall performance. Our ambition is to create value for our customers and shareholders and for society as a whole."

18. Bouygues (Paris)
"Relying on the diversity of its businesses, Bouygues will continue its strategy of long-term growth in 2011."

19. Sanofi-Aventis (Paris)
"Our ambition is to become a diversified global healthcare leader. Our strategy is built around three priorities to reach its goals and ensure sustainable growth:"

- Innovation in Research and Development
- Adaptation of Group structures

- External growth opportunities

20. Foncière Euris (Paris) * No English version.

21. Vivendi (Paris)
"To strengthen its leadership position in digital entertainment by producing and distributing content and services particularly in high-growth countries."

22. SNCF (Paris)
"Mission-long distance and high-speed rail passenger transport."

23. Air France-KLM Group (Roissy)
"Air France-KLM intends to capitalize on technological innovation to become market leader for mobile and social networking applications. The Group is renewing its ambitious operational performance objectives for the benefit of its customers. The aim is to earn their preference through our service quality and our ability to manage irregularities effectively."

24. La Poste (Paris)
"To be a real partner to each of our clients by providing a wide range of solutions, highly accessible products and services and adopting a professional approach."

25. Alstom (Levallois-Perret)
"Alstom commits to providing market leading power, transmission and transport products, systems and services to communities across the globe in a responsible and sustainable way."

Germany-Top 25 Companies and their mission statements (as ranked by Fortune 500)

1. Volkswagen (Wolfsburg)
"It is the goal of the Group to offer attractive, safe and environmentally sound vehicles which are competitive on an increasingly tough market and which set world standards in their respective classes."

2. Allianz (Munich)
"We want to contribute to creating a positive future for our business and society through combining long-term economic value, environmental stewardship, and social responsibility. We aim to do this through all our business processes, policies, and products."

3. E.ON (Düsseldorf)
"We're committed to providing cleaner & better energy. This pair of terms aims to make clear that we're convinced that affordability, supply security, and climate protection are mutually compatible elements of a corporate strategy, even in tougher economic times. We purposely chose the comparative form because this isn't about defining absolute metrics or uniform targets for all parts of the world but rather about continual improvement processes. In this sense, our products and services are cleaner if they substantially improve energy quality in terms of environmental protection and competitiveness. Our energy is better if we only engage in activities in which we can sustain a significant competitive advantage and offer superior products and services to our customers."

4. Daimler (Stuttgart)
"Our philosophy is clear: We give our best for our customers, who expect the best, and we live out a culture of excellence based on shared values. The history of our company is marked by innovations: These are the basis and stimulus for our claim to leadership in automotive production. It is our goal to successfully meet the challenges of future mobility. We intend to thereby create lasting value for our shareholders, customers, and employees, as well as for society as a whole."

5. Siemens (Munich)
"Siemens is the pioneer in energy efficiency, industrial productivity, affordable and personalized healthcare systems, and intelligent infrastructure solutions. Our strategy is derived from this vision: to constantly tap new markets with innovative products and solutions."

6. Metro (Düsseldorf)
"Metro Group's goal is to provide for the long-term appreciation of its corporate value through profitable and sustained growth. Maximum customer orientation, strategic expansion, the sales divisions' positioning and efficient processes create the foundation for this."

7. Deutsche Telekom (Bonn)
"Fix - Transform - Innovate!"

8. Munich Re Group (Munich)
"Our aim is sustained profitable growth. Our hallmarks are innovation, solidity and client focus. We put quality before quantity, enabling us to achieve profitable, long-term growth. Thanks to this long-term and far-sighted strategy, the Group has fared well in a difficult capital market environment."

9. BASF (Ludwigshafen)
"Our goal is to remain the world's leading chemical company."

10. BMW (Munich)
"The strategic objective is clearly defined: The BMW Group is the leading provider of premium products and premium services for individual mobility."

11. Deutsche Post (Bonn)
"Deutsche Post is the postal service for Germany. By making solutions even more simple, products even more sustainable and customer service even more friendly, the company intends to maintain its brand position and grow ever further by offering totally new ideas for online communications."

12. Rwe (Essen)
"The company's declared aim is to expand the electricity and gas business while reducing its own CO2 emissions."

13. Deutsche Bank (Frankfurt)
"We compete to be the leading global provider of financial solutions, creating lasting value for our clients, our shareholders, our people and the communities in which we operate."

14. ThyssenKrupp (Düsseldorf)
"We want to develop products and services for our customers that offer high energy and resource efficiency and for this we also focus on optimizing our own processes."

15. Robert Bosch (Stuttgart)
"Our ambition is to enhance the quality of life with solutions that are both innovative and beneficial."

16. Bayer (Leverkusen)
"Our mission "Bayer: Science For A Better Life." Our focus on innovation is the key to maintaining or gaining a leading position in every market in which we operate. It is also the foundation for improving the lives of many millions of people."

17. Deutsche Bahn (Berlin)
"The DB Group's common vision that "we will be the world's leading mobility and logistics company" creates clarity for employees, customers and owners in terms of where our journey is leading us and allows us to utilise our strategic resources in a targeted fashion."

18. DZ BANK (Frankfurt)
"Our objective is to offer relevant products, exemplary services and efficient processes - and thereby develop ourselves into a leading pan-European Allfinanz-Group."

19. Commerzbank (Frankfurt)
"The satisfaction of our customers is at the heart of all our activities. Commerzbank is unreservedly committed to customer satisfaction, and it is by this criterion that our success is measured."

20. Franz Haniel (Duisburg)
"Our goal is to achieve growth rates significantly above the market level – over a period of years."

21. Lufthansa Group (Cologne)
"Foremost at Lufthansa are such attributes as quality and innovation, safety and reliability. We are well positioned strategically, operationally and financially to negotiate ups-and-downs in the economy. Our corporate strategy is geared to sustainable value creation and is expressed in our commitment to shareholder value. We attach priority to profitability over size."

22. Landesbank Baden-Württemberg (Stuttgart)
"The aim of LBBW is to consolidate its position as a partner of SMEs in the regional core markets of its retail banks by deploying its market knowledge and enhancing its customer proximity and thereby also to secure the future provision of lending to the economy. To this end LBBW continues to see itself as a principal bank in the best sense of the word."

23. Edeka Zentrale (Hamburg)-*No English version.

24. Continental (Hanover)
"In the interests of the entire corporation and our stakeholders, we will pursue every opportunity to create value."

25. KfW Bankengruppe (Frankfurt)
"KfW has many tasks. As a promotional bank, KfW Bankengruppe supports change and encourages forward-looking ideas – in Germany, Europe and throughout the world."

Japan-Top 25 Companies and their mission statements (as ranked by Fortune 500)

1. Toyota Motor (Toyota)
"Toyota will lead the way to the future of mobility, enriching lives around the world with the safest and most responsible ways of moving people. Through our commitment to quality, constant innovation and respect for the planet, we aim to exceed expectations and be rewarded with a smile. We will meet challenging goals by engaging the talent and passion of people, who believe there is always a better way."

2. Japan Post Holdings (Tokyo)
"Giving stress on security and confidence that Japan Post, as a public organization, has fostered, the Group, as a private corporation, will demonstrate creativity and efficiency to the greatest extend possible, meet customers' expectations, raise customer satisfaction, and grow together with customers. The Group will also pursue managerial transparency on its own, observe rules, and contribute to the development of society and region."

3. Nippon Telegraph & Telephone (Tokyo)
"The NTT Group will further migrate reforms of its business structure mainly in the IP and Solution & New businesses, strive to reinforce its competitive edge and enhance corporate value, contribute to Japan's economic growth and solve social and global issues."

4. Hitachi (Tokyo)
"We will always breathe new life into the next era under a corporate statement "Inspire the Next," aiming at becoming a vigorous company that continuously grows in the 21st century and contributes to prosperous and comfortable society."

5. Honda Motor (Tokyo)
"We see it as our responsibility to serve humanity through our global commitments to helping protect the environment and enhancing safety in a mobile society. In every endeavor we pursue, we strive to be a company that people all over the world want to exist."

6. Nissan Motor (Yokohama)
"Nissan provides unique and innovative automotive products and services that deliver superior measurable values to all stakeholders in alliance with Renault."

7. Panasonic (Osaka)
"Panasonic aims to be the No.1 Green Innovation Company."

8. Sony (Tokyo)
"Sony is committed to developing a wide range of innovative products and multimedia services that challenge the way consumers access and enjoy digital entertainment. By ensuring synergy between businesses within the organization, Sony is constantly striving to create exciting new worlds of entertainment that can be experienced on a variety of different products."

9. Nippon Life Insurance (Osaka)
"To Be a Company that Customers Continue to Trust and Choose."

10. Toshiba (Tokyo)
"We endeavor to serve the needs of all people, especially our customers, shareholders, and employees, by implementing forward-looking corporate strategies while carrying out responsible and responsive business activities. As good corporate citizens, we actively contribute to further the goals of society. By continually developing innovative technologies centering on the fields of Electronics and Energy, we strive to create products and services that enhance human life, and which lead to a thriving, healthy society. We constantly seek new approaches that help realize the goals of the world community, including ways to improve the global environment."

11. Dai-ichi Life Insurance (Tokyo)
"Our aim is to improve our quality to the point at which we have the highest reputation with customers."

12. Seven & I Holdings (Tokyo)
"In the future, we will devote our efforts to product development and to establishing Seven & I brands worldwide by sharing business infrastructures with group companies."

13. Mitsubishi UFJ Financial (Tokyo)
"We aim to be No. 1 in service, No.1 in reliability, and No.1 in global coverage and so gain the strong support of customers and society as a premier, comprehensive, global financial group."

14. AEON (Chiba)
"At AEON, our eternal mission as a corporate group is to benefit our customers, and our operations are thus customer-focused to the highest degree."

15. Tokyo Electric Power (Tokyo)
"The actualization of the four commitments has been adopted as our social mission:

1. Promoting disclosure of information and ensuring transparency of nuclear operations
2. Creating a work environment where proper operations can be carried out
3. Strengthening internal surveillance and reforming our corporate culture
4. Promoting observance of corporate ethics."

16. JX Holdings (Tokyo)
"JX Group will contribute to the development of a sustainable economy and society through innovation in the areas of energy, resources and materials."

17. Fujitsu (Tokyo)
"Through our constant pursuit of innovation, the Fujitsu Group aims to contribute to creation of a networked society that is rewarding and secure, bringing about a prosperous future that fulfills the dreams of people throughout the world."

18. Mitsubishi (Tokyo)
"MC seeks to contribute to the enrichment of society through business firmly rooted in principles of fairness and integrity."

19. Meiji Yasuda Life Insurance (Tokyo) * No English version.

20. Mitsui (Tokyo)
"Strive to contribute to the creation of a future where the aspirations of the people can be fulfilled."

21. Sumitomo Life Insurance (Osaka) *No English version.

22. NEC (Tokyo)
"NEC strives through "C&C" to help advance societies worldwide toward deepened mutual understanding and the fulfillment of human potential."

23. Tokio Marine Holdings (Tokyo)
"With customer trust as the foundation for all its activities, Tokio Marine Group continually strives to raise corporate value."

24. Nippon Steel (Tokyo)
"Nippon Steel Group, focused on steel manufacturing, will contribute to industrial development and the enhancement of peoples' lives through creating and supplying valuable and attractive products and ideas."

25. KDDI (Tokyo)
"We are committed to an uncompromising quest for: Customer Satisfaction-by providing with our services the value that customers expect:

- A Happy Workforce-by continuing to be the kind of dynamic company that inspires all its employees with a sense of worth and fulfillment;
- The Confidence of Our Shareholders-by justifying the trust placed in us by our shareholders, business associates and all with whom we have dealings;
- The Advancement of the International Community-by bringing an ever broadening array of communications to bear in serving the development of the global community."

China-Top 25 Companies and their mission statements (as ranked by Fortune 500)

1. **Sinopec (Beijing)**
   "Develop the enterprise, Contribute to the country, Reward our shareholders, Serve the society and Benefit our staff -to respect and protect the interests of stakeholders."

2. State Grid (Beijing)
"Ensure safer, more economical, cleaner and sustainable energy supply, promote healthier development, more harmonious society and better life."

3. China National Petroleum (Beijing)
"China National Petroleum Corporation (CNPC) is committed to "Caring for Energy, Caring for You." We strive for harmonious relationships between operations and safety, energy and the environment, corporate and community interests, and employers and employees. We are committed to protecting the environment and saving resources, promoting the research, development and application of environmentally friendly products, fulfilling our responsibilities to society and promoting development that benefits all."

4. China Mobile Communications (Beijing)
"Our goal has always been to enhance our corporate value, maintain our sustainable long-term development and generate greater returns for our shareholders. In order to better achieve the above objectives, we have established good corporate governance practices following the principles of sincerity, transparency, openness and efficiency, and have implemented sound governance structure and measures."

5. Industrial & Commercial Bank of China (Beijing)
"While China keeps its economy humming by adhering to the state's policy of "sustain growth momentum, effect structural adjustment, bolster reform, benefit people's livelihood," ICBC has been a main force helping engineer the first turnaround in China's economy by strengthening the connection of the credit policy with state policy of expanding internal consumption and industrial policy."

6. China Construction Bank (Beijing)
"We seek to become a world-class bank by providing the best service to our customers, maximizing shareholder value and providing excellent career opportunities to our employees."

7. China Life Insurance (Beijing)
"China Life endeavors to implement a conglomeration strategy of "rational resource allocation, clear comprehensive advantages, strong core businesses, appropriately diversified operations, high social respect and peer acknowledgement, high imbedded value, strong core competitiveness and forceful and sustainable growth. It is our goal to build China Life into a world-class financial and insurance group with "strong capital resources, advanced

corporate governance, well-established management system, stringent internal control, leading technologies, first-class team, superior service, outstanding brand, and harmonious development."

8. China Railway Construction (Beijing)
"To actively fulfill our social responsibilities and dedicate ourselves to provide quality products and services, and always in accordance with the requirements of General Secretary Hu Jintao turn CRCC into an "internationally competitive large enterprise group" to create "a century CRCC" so as to promote sound and fast economic and social development."

9. China Railway Group (Beijing)
"Stick to scientific development; build up a harmonious corporation; create enterprise value."

10. Agricultural Bank of China (Beijing)
"Following the core value of "honesty and prudence" and the business philosophy of "customer priority," the Bank provides customers with diversified, superior and efficient financial services by leveraging urban and rural presence and extensive electronic network."

11. Bank of China (Beijing)
"To be a leading international bank, delivering growth and excellence."

12. China Southern Power Grid (Guangzhou)
"As a state-owned enterprise, CSG takes it as its mission to undertake the responsibility of protecting public interests and to take the lead to build a harmonious society. The company tries to optimize the regional allocation of resources, coordinate power generation, transmission and distribution, and provide customers with safe and reliable electricity, and to provide qualified services and create social wealth as well as environmental benefits for the society."

13. Dongfeng Moor (Wuhan)
"Becoming the No.1 in China, internationally weighted auto maker in the world with convincing profit rate, sustainable development and constant value returning to shareholders, customers, employees and society."

14. China State Construction Engineering (Beijing)
"We seek a maximum profit by fair and square."

15. Sinochem Group (Beijing)
"Honest, Cooperative, Open to Learn, Diligent, Innovative and Pursuing Excellence. Sinochem endeavors to create a healthy and progressive corporate culture and bring more value for our nation, our clients and our employees. Our ultimate goal is to build up a respectable and great company with global standing."

16. China Telecommunications (Beijing)
"Corporate Mission: Let the customer fully enjoy the new information life.
Strategic Goal: Be a world-class integrated information service provider."

17. Shanghai Automotive (Shanghai)
"For the satisfaction of our customers, For the interest of our shareholders, For the harmony of our society, We will build SAIC into an automotive company with outstanding brands, brilliant employees, core competitive competencies and international operation capabilities."

18. China Communications Construction (Beijing)
"Trustworthy service to clients, High quality returns to shareholders and Consistent out-performance."

19. Noble Group (Hong Kong)
"Our success is powered by our dynamism, agility and execution, in an organization that is constantly on the move. We identify opportunities, work fast, deliver results, grow and change. Our days are busy and interesting, no two are alike. We will continue to surpass our own goals."

20. China National Offshore Oil (Beijing)
"Guided by the corporate values of "Win-win, Responsibility, Integrity, Innovation, Human-oriented," during the Eleventh Five-year Plan period, CNOOC will continue its focus on scientific growth, synergetic and cost efficient development, cultivation of a strong workforce, and competitiveness in research and development. Through sustainable growth and innovation, the Company aims to become a world-class international energy company."

21. Citic Group (Beijing)
"Be bold in making innovations and strive to make more contributions."

22. China FAW Group (Changchun)
"We endeavor to evolve today's dreams into tomorrow's reality."

23. China South Industries Group (Beijing)
"Army protection and allegiance to country, strengthening enterprise and enriching people.
Army protection is the divine mission endowed by the country and the root of position establishment. Allegiance to country is an obligatory social obligation and the root of responsibility. Strengthening enterprise is an essential requirement of sustainable development and the root of development. Enriching people is to provide excellent service to the mass and the root of value."

24. Baosteel Group (Shanghai)
"As a state-owned super large central enterprise , Baosteel must realize value retaining and increment of the state-owned assets, and fulfill the tasks assigned by the state excellently. Baosteel's value should reflect in creating values for the customers and suppliers and realizing win-win through cooperations. Baosteel vows to become the example for common development of employees and enterprise, and Baosteel's value should reflect in creating values for the employees. In the meantime, enterprises are also social citizens. Baosteel should take the initiative in undertaking its due social responsibility and exerting itself to create values for the shareholders of the listed company and the society. The pursuit of corporate value maximization is in essence the responsibility of Baosteel and Baosteel employees."

25. Hutchison Whampoa (Hong Kong)
"Hutchison has a strong commitment to the highest standards of corporate governance, transparency and accountability."

HUMAN CAPITAL DEVELOPMENT DYNAMICS: THE KNOWLEDGE BASED APPROACH

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ABSTRACT

Discussions on how to reduce cost and improve on gains in organizations have increased. As a result, effective utilization of resources in the organization has been daunted as the key to creating a competitive advantage (Wernerfelt, 1984). Human capital is among key organizational resources that are hard to imitate therefore, maintaining and developing it is crucial for organizations to stay in the forefront. Organizations have used different approaches to develop human capital. As organizations become more dynamic, so does the approach to human capital development. Technological changes, especially in the virtual world have greatly influenced different human capital development approaches. Therefore, this paper proposes to look at current human capital development approaches and their integration into the knowledge based approach. The paper will further explore the importance of human capital development approaches in achieving a strategic competitive advantage. The first section of the paper will explore the current literature on human capital development approaches in firms and their strategic necessity in the knowledge sphere of the organization. In the second section, the paper will connect human capital development approaches to the five knowledge utilization characteristics described by Grant (1996) : 1)transferability- How do human capital development approaches affect the transfer of both tacit and explicit knowledge?; 2) capacity for aggregation- how do the right human capital development approach affect the best aggregation methods; 3) Appropriability- does the human capital development approach create a possibility for return on human capital development investment; 4) specialization in knowledge acquisition- How do human capital development approach affect transfer of required knowledge; and 5) the knowledge requirements of production- does human capital development approach matter in the input and output of knowledge in human production? In the third section, the paper will seek to explore the strategic importance of human capital development approaches in expounding the nature of knowledge in a firm and how this ties to a firm existence. In conclusion, this paper will seek to look at ways in which human capital development approaches play a role in the future contribution of the knowledge based view.

INTRODUCTION

Human capital development has been described as a key economic driver (Benhabib & Spiegel, 1994; Schultz, 1961). How a society develops may result from the accumulation or absorptive power of knowledge available to them. The economic muscle emanating from human capital is depicted in the endogenous growth model where Romer (1990) articulates a positive relationship between large pulls of human capital and faster economic growth. Human learning occurs continuously and is influenced by their surroundings and contact with others. Therefore, learning becomes a critical factor at an organizational and individual level (Malerba, 1992). How you strategically operationalize learning in the real world may determine your success in the use of the knowledge acquired. Investing and rebuilding, customizing or adjusting skills has a positive effect on human capital development (lepak & Snell, 1999). Technology has boosted learning and consequently human capital development in general. Organization Human capital development approaches (HCDA's) aim to improve value, team work, consciousness among individual employees and overall collective performance. Today, technology plays a big part in human capital development as the demand for new skills and relational requirements in organizations increases. (Waldeck & Leffakis, 2007). The 1950's through 1970's saw the dominance of the production industrial economy. During this period a labor based human capital was very important to the organizational processes. However, today with change in organizational demographics, globalization, and technological changes; emergence of the knowledge based worker has taken prominence as the new model in organizations (Chinowsky & Carrillo, 2007; Merriam, Caffarella & Baumgartner, 2007). Human beings are seen as a critical aspect of any organization, where they are seen as business agents and both tangible and intangible assets in organizations exist and are sustained by people (Sveiby, 2001). Knowledge, even though intangible, can be part of the strategic process in the organization (Spender, 1996). The significance of knowledge in the organization may have gained higher written prominence in recent times but its importance has been recognized throughout history. Weber (1968) articulated that where bureaucracy exists, it is organized on the basis of knowledge rather than the basis of power only. How then does a firm develop knowledge to allow strategic gains? HCDA such as training or mentoring are a few of the ways to improve both human knowledge and competence. Technology as a value added tool has enhanced the way in which HCDA's are conducted and transferred in organizations. Technology influenced approaches of human capital development are a vital piece in the knowledge based view literature while at the same time looking at the strategic utilization of the knowledge by the organization and the individual employees. As an emerging branch of the resource based view, knowledge based view enhances the theory of the firm by addressing areas such as nature of coordination, organization structure, role of management, and the allocation of decision making (Grant, 1996). Therefore, for knowledge to create value the paper considers simple aspects that intertwine with Grant's (1996)

characteristics of knowledge utilization within the firm: Human Capital Development Approaches (HCDA), knowledge utilization and performance.

GROUNDWORK

The HCDA-knowledge- performance connection

Human capital is a strategic factor in production (Son, 2010) as it represents the cognitive competencies, skills, relational behavior and knowledge of individuals that enhance productive output (Shuller, 2000) that eventually contributes to organization productive performance (Shuller, 2000; Son, 2010). Resources based view (RBV) articulation on the internal firm resources as a form of competitive advantage (Hoskisson, Hitt, Wan & Yiu, 1999) gave value to the strategic importance of people in an organization. RBV brought to light the added value of people in organization strategic management literature by defining and linking concepts such as knowledge (Argote & Ingram, 2000; Grant, 1996), dynamic capability (Eisenhardt & Martin, 2000; Teece, Pisano & Schuen, 1997; Barreto, 2010), organization learning (Fiol & Lyles, 1985; Fisher & White, 2000), and organizational leadership (Norburn & Birley, 1988) to strategic organizational performance. Changes in both external and internal environments may affect organizational performance (Chattopadhyay, Glick, & Huber, 2001) therefore; HCDA's are used to enhance knowledge and use it to strategically attain firm value (Petty & Guthrie, 2000). The ability to increase intellectual knowledge in the organization creates increased productivity (Petty & Guthrie, 2000). HCDA such as training has been linked to skill building and knowledge building which results to organization productivity (Goldstein & Gilliam, 1990). Research done by Black and Lynch (2001) on the manufacturing and non-manufacturing sectors on the link between knowledge improvement training and productivity revealed that for manufacturing the greater the proportion of time spent in formal employee training the higher the organizational productivity. For non-manufactures the content of training programs provided by employers seems to have an important impact on firm productivity. Organizations have shifted their outlooks about HCDA from a stand-alone event to an entirely integrated, strategic component of the firm (Salas & Cannon-Bowers, 2001). Strategically, even though a firm may have a great strategic plan in place, if the human capital is not developed to a point where they have access to the relevant knowledge, skills, and attitudes to successfully support or carry out the strategic plan, the plan is watered down (Sum, 2010) With the cost of human capital development today running into billions of dollars annually (Green, Patel, Lemke & Bussenger, 2010), investments made in human capital development approaches require justification in terms of improved organizational performance (Huselid, 1995; Shuller, 2000). As a result different human capital development approaches, including action learning (Freedman, 2011; Kuhn & Marsick, 2005), just-in time training(Beckett, Agashae & Oliver 2002) , mentoring (Allen et al., 2004; Kram, 1985), coaching (Wales, 2002; Locke, 2008) and technology simulation (Read & Kleiner, 1996)

have been a key in influencing the sphere of knowledge development. Firms operating in knowledge based environment are said to be more dependent on employee knowledge (Porter, 2000). Therefore, the approach used to develop human capital has a significant contributing linking factor to the outcome of knowledge retention therefore; the performance of the firm (Sum, 2010).

Many scholars have embarked on looking at the knowledge based view of the firm (Demsetz, 1988; Conner & Prahalad, 1996; Kogut & Zander, 1992; Grant, 1996; Madhok, 1996) in the hope of developing it into a theoretical status. Knowledge is among the valuable resource to the firm that is protected and ways are sorted by the management on how to organize it and efficiently generate knowledge and capability (Nickerson & Zenger, 2004). How and what knowledge is imparted and integrated into the firm influences the competitive edge that results from use (Eisenhardt & Martin, 2000; Grant, 1996). Knowledge based view as a strategic formulator is reinforced by its main components: the people who are the knowledge carriers and the agents of the business (Sveiby, 2001); organizational structures created by the people to allow interaction as well as self-expression (Weick, 1983; Sveiby, 2001); transfer capabilities of knowledge both internal and external (Sveiby, 2001); and knowledge management (Nickerson & Zenger, 2004; Bencsik & Sólyom, 2011). The literature advances the idea that human capital development approaches is a basic entity of knowledge generation (Sum, 2010) which results to strategically using the acquired knowledge and hence evoking firm performance (Conner & Prahalad, 1996; Eisenhardt & Martin, 2000). This connected depiction triggers the model described in this paper based on Grants (1996) characteristics that are pertinent to utilization of knowledge within the firm to create value.

HUMAN CAPITAL DEVELOPMENT APPROACHES AS KNOWLEDGE BASED FACTOR

Grant's (1996) analogy on knowledge based theory of the firm is a realization of the different types of knowledge that are important to the firm. Grant established the characteristics that have consequences to management as they try to create knowledge value in the organization. In his description Grant (1996) pinpoints a number of characteristics that are pertinent to the utilization of knowledge within the firm to create this value: transferability, capacity for aggregation, appropriatability, specialization in knowledge acquisition, and the knowledge requirements of production. The given characteristics according to Grant (1996) articulate that firms exist as institutions for production of goods and services because they can create conditions under which multiple individuals can integrate their specialize knowledge. Grant (1996) looks at these characteristics in terms of whether knowledge is explicit versus tacit, its transmission and receipt, return on knowledge resource, capacity to acquire and the production of knowledge to value; in the current paper we consider the characteristics that are pertinent to the utilization of knowledge within the firm as emanating and grounded in the HCDA aspect. For knowledge to be

communicated (Pérez-Bustamante, 1999), absorbed (Cohen & Levinthal, 1990), dispensed (Argote, Ingram, Levine & Moreland, 2000), managed (Nickerson & Zenger, 2004) and valued, there should be concerted effort to improve the HCDA of the firm. Even though Grant's (1996) work was based on the assumption that knowledge creation is an individual activity and that the primary role of firms is in the application of existing knowledge to the production of goods and services, the aspect of imparting the knowledge can be generated by the organization and the failure to connect it would not portray a complete picture. Given this view, this paper is based on three assumptions: 1) knowledge creation is both an organization's and individual's activity, 2) the role of the firm is the application of knowledge repositories to the production of goods and services and 3) How knowledge is imparted in an organization is just as important as the processing and using the knowledge to create value. However, the aim is not to undermine the characteristics explored by Grant but rather to add a component that reinforces these characteristics. Similar to Grant (1996), the paper develops the characteristics of knowledge factoring in the HCDA's.

Impartibility

The global aspect of business today and ways in which different resources are shared has made the concept of knowledge transfer important. Increased research has indicated that organizations that efficiently transfer knowledge as a resource within its units have higher productivity and a higher chance of survival (Argote, Beckman & Epple, 1990; Baum & Ingram, 1998). While there are different levels of knowledge, Grant (1996) looks at two aspects: 1) knowing how with tacit knowledge and 2) knowing about facts and theories with explicit knowledge. While Grant rightly differentiates the two aspects in terms of transferability, the critical distinction made here is in impartibility and the contrivance of imparting knowledge to individuals across space, time and regions. Explicit knowledge can be easily expressed. Organizational practices can be used to help individuals articulate the knowledge they have and store it. How an organization shares this asset in the organization matters (Teece, 2000). Therefore, the aspect of improving employees through HCDA enables knowledge to be imparted and acts as the transfer mechanism. On the other hand, tacit knowledge is hard to estimate and its transfer may be slow and costly (Gill, 2000; Kogut & Zander, 1996) however, both tacit and explicit knowledge intertwine into a synergetic relationship (Gill, 2000). While looking at ways of imparting tacit knowledge, forms of expressing it need to be developed (Nonaka & Konno, 1998). Nonaka and Konno (1998) four stage model socialization, externalization, combination, and internalization give prominence to the aspect of interaction and learning for the knowledge to be shared. While tacit knowledge cannot be imparted through all approaches of human capital development directly, for example through training education (Brockmann & Anthony, 1998), some HCDA's (like mentoring and coaching) create environments that allows interaction and hence a chance to impart the tacit knowledge (Haldin-Herrgard, 2000).

Ability to consolidate

Grant's assessment on knowledge transferability depended in part upon its potential to aggregate. Transfer according to Grant involves transfer and receipt. In terms of HCDA, we look at knowledge imparting involving diffusion and receipt. The knowledge receipt analogy, which is similar to Grant's is in terms of the absorptive capacity (Cohen, & Levinthal, 1990), creates a path dependency absorptive capacity where accumulating knowledge in an organization in one period will permit it more efficient accumulation in another (Cohen, & Levinthal, 1990). Competitive advantage in knowledge consolidation can be achieved when knowledge assets (Teece, 2000) can be exploited to full value in an organization. For example, General Motors in the United States committed to more compact cars for U.S. production, may use its European subsidiaries for help where the knowledge on such information is consolidated. How then an organization disseminates bundled knowledge that may be specific to an organization depends on how well they can diffuse there knowledge through HCDA's in the firm.

Measurability

Measurability refers to the ability of the organization to be able to assess the contribution of a given resource value they own (Davidove, 1993). As individuals are imparted or generate knowledge, the organization disseminates the knowledge in order to make it more accessible and applicable (Albino, Garavelli & Schiuma, 2001). However, it is difficult to measure tacit knowledge directly because most of its components cannot be described accurately and can be communicated only by means of socialization processes (Albino, Garavelli & Schiuma, 2001). In contrast, explicit knowledge has challenges that stem from assuring adequate articulation, evaluation, application, and protection of knowledge assets (Sanchez, 2004). Since every individual is entitled to their own knowledge, how it is measured becomes a challenge given the market structures. Since much of the explicit and tacit knowledge is imparted and is specific within the firm, return on investment is measurable through the organizations HCDA components engrained in the organizational processes and output. Using HCDA evaluation tools like the Kirkpatrick (1994) evaluation model, transferred knowledge can be measured based on given characteristics

Generality in knowledge acquisition

Since the human brain has limited capacity to acquire and store knowledge it would be ample to focus on the organization as a whole, in terms of its systems, structures and processes as actors of organization memory (Hedberg, 1981; Walsh & Ungson, 1991). While individuals may act as the learning vessels, their knowledge is transferred into organization repositories (Van der Bent, Paauwe & Williams, 1999) where it can be used in human capital development

functions in the future. The structures and processes within an organization act as repositories which are not constrained by the limits of the human brain and can be used to influence the employee development through HCDA (Van der Bent et al., 1999). Therefore, the organization can act as the vessel and imparter of knowledge while individuals in the organization can master the required trades.

Productivity of knowledge

The knowledge based view sees knowledge as the most strategic resource in the production function. Knowledge is seen as an input factor in production that results in valuable output (Grant, 1996). However, we consider knowledge as good as it is acquired. If all human productivity is knowledge dependent as Grant (1996) indicates then all knowledge acquired is dependent on the type and ways of acquiring that knowledge. Therefore, input aspect of knowledge using HDCA's into the organization or the individual matters as much as the processing and use of the knowledge to attain valuable output.

Considering the characteristics discussed HCDA's create a new dimension of looking at knowledge in a firm and as a result creating a fair share of contribution to the knowledge-based view. This HCDA's influence trickles down to the firm knowledge organization and the strategic capabilities of their use.

EXISTENCE OF THE FIRM

Firms are said to act as a unit that can produce goods and services due to their ability to create ample condition for individuals integrating specialized knowledge (Grant, 1996). The aspect of tacit and explicit knowledge has been explored to explain how knowledge is created in a firm and what role it plays (Nonaka, 1994). However, few researchers have considered the human capital development approach as one of the basic influencing factor of the knowledge based view. Capital is viewed as a resource asset in many organizations (Octavian & Nicoleta, 2010) however, human capital may relate to knowledge and skill development and characteristics of productive individuals in an organization (Miller, Ippolito & Lei, 1998). The paper approaches the knowledge analogy of the firm in terms of knowledge and skill building using HCDA by individuals in a firm. Similar to Grant (1996) who emphasized the firm as an institution for knowledge application, we emphasize the aspect of the firm as an institution for knowledge building and integration.

Firm knowledge Diffusion and Absorption and HCDA

HCDA differ in terms of the medium used to train and the mode adapted to articulate information (Read, & Kleiner 1996). How a firm uses the HCDA to diffuse the knowledge may

impact the level of knowledge absorption and coordination. There is an increased amount of literature in strategic management that looks at the firm's knowledge absorptive capacity (Stock, Greis & Fischer, 2001; Tsai, 2001; Verona, 1999). Zahra and George (2002) classified absorptive capacity of a firm into four capabilities: acquisition, assimilation, transformation, and exploitation of knowledge. In their analogy Zahra & George (2002) highlighted that the acquisition capability refers to the identification and attainment of knowledge that is external to the firm. Assimilation was referenced as specific routines that allow a firm to analyze and infer the information that has been acquired. Transformation refers to the synergies that exist in combining new and existing knowledge, eliminating some unwanted knowledge or interpreting the knowledge in a different way. Exploitation refers to the integrative aspect of the acquired knowledge into the operation. Referencing the knowledge based view of the firm as a unit that has the ability for individuals integrating specialized knowledge (Grant), for production to occur in a firm, knowledge has to be acquired, assimilated, transformed and exploited. To espouse these four firm areas of knowledge absorptive capacity, a go between aspects of HCDA can be considered. Transforming data to useable information improves the strategic capability of the firm (Bukman, 2004). Raw data has little meaning and thus has little value to a firm if not transformed to meaningful units (Smith, 2001). To transform the data to meaningful information human intervention is usually needed to deduce and pinpoint various types of useful information (Lee, 2000). The human intervention requires individual capabilities on exploiting both the tacit and explicit knowledge they have acquired. Tacit and explicit knowledge can both be acquired on the job and to do so HCDA's can be used to coordinate and diffuse this knowledge (Smith 2001). Given the absorptive capabilities (Zahra & George, 2002), improvement on individual capabilities influenced by the go between facets of HCDA (such as training methods) are used to impart knowledge to the individuals making the decisions. Once the information is acquired, the firm's tacit and explicit assimilation capabilities (Smith, 2001; Zahra & George, 2002) that allow individual analysis of information can be taught through HCDA's. Learning can be conducted using different approaches of human capital development. Once information has been analyzed the integration of new and existing knowledge to the operation of a firm takes place (Zahra & George, 2002). This integration requires individual and organizational tacit and explicit knowledge to allow exploitation and recognition of opportunities by refining the existing routines. How the tacit and explicit knowledge is developed as mentioned requires HCDA that tie into approaches used to impart the knowledge. The final stage of knowledge absorption exploitation (Zahra & George, 2002) aims at harvesting and incorporating the value knowledge into its processes and operations (Tiemessen, Lane, Crossan, & Inkpen, 1997). How this information is incorporated requires individuals with strategic tacit and explicit knowledge to achieve results. Building firm knowledge for production of goods and services requires the absorptive dimension (Zahra & George, 2002) of the firm, ability to harness (Pascarella, 1997) knowledge, integrating (Tobin, 1998; Zahra & George, 2002) knowledge and interconnecting (Tobin, 1998; Zahra & George, 2002) the knowledge for use. With HCDA's used in a firm the

explicit and tacit knowledge absorbed by individuals connects intimately with the method used to impart this knowledge. In addition the HCDA's allow knowledge bundles (Fletcher, Tobias & Wisher, 2007) to be established in a firm for easier knowledge diffusion in the future.

Firm coordination and HCDA's

The coordination of knowledge in a firm gives rise to efficiency that allows competitive advantages to be derived from the functioning of different firm activities (Grant, 1996). The current growth of knowledge based perspective has led to knowledge coordination being referenced as a challenge faced by a firm as it tries to build, integrate, transform and transfer the knowledge (Grant, 1996; Kotlarsk, Fenema & Willcocks, 2008). How information is integrated is said to depend upon the features of the process of technology deployed (Grant, 1996). Grant (1996) further advocates four mechanisms of integrating specialized knowledge: 1) rules and directives, 2) sequencing, 3) routines, and 4) group problem solving and decision making. Rules and directives refer to the standard which regulates interaction between individuals and integration occurs through set procedures and rules. Sequencing refers to coordinating production activities through a set of patterned time slots. Routines refer to patterns of repetitive behavior that supports firm coordination with minimal interaction and coordination. Group problem solving and decision making refers to coordinated effort among individuals to tackle challenges together maximizing the communication aspects. What roles do the HCDA play in the firm knowledge coordination mechanism? Human capital development is considered an important factor in economic development. Therefore, the approaches used to mediate the capital development play a significant role as a medium. Interorganizational information activities require coordination to achieve efficiency and return therefore, referencing Grant's (1996) mechanisms of integrating specialized knowledge HCDA act as a strategic asset in enhancing coordination. Rules and directives whether informal or formal regulate the interaction between individuals (Grant, 1996). How the rules are communicated in a firm affects their diffusion or absorption and in turn coordination. Therefore, using HCDA rules and regulations are communicated and as a result knowledge integration can be more efficient as everyone knows the rules. On the other hand, when firm procedures are sequenced to allow efficient production of activities (Clack & Fujimoto, 1992; Grant, 1996), initial learning on how to conduct the sequence has to occur. HCDA's can be used as a medium to facilitate learning on the integrative sequential process. Even though routines are a simple sequence (Grant, 1996), the routine process itself comprises of a set of rules and processes that individuals have to learn. Without knowledge on the routines for example a bank teller cannot know the right procedure in processing a bank check. How the individual acquires the routine knowledge stems back to the organizational HCDA's used. Group problem solving and decision making on the other hand allows communication and brainstorming for knowledge integration however, once a consensus and results are produced by the group diffusion and integration to the firm can be done through

HCDA's. Another contributions of the HCDA's to the knowledge-based view stems from the cost incurred as both explicit and implicit knowledge are integrated and diffused to the firm. In addition Common knowledge (that is language, symbolic communication, common specialized knowledge, shared meaning and recognition of individual shared domain) as a knowledge integrative factor has uniform elements that are found in all individuals in the organization (Grant, 1996). HCDA's can be used to coordinate and diffuse this common knowledge (for example through approaches such as mentoring, training, and coaching) and as a result improving firm's knowledge integration.

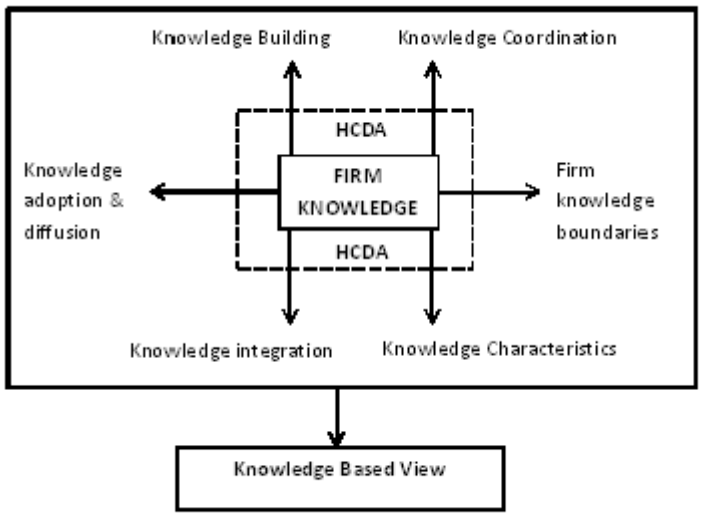
Firm boundaries and HCDA's

The integrative aspect of knowledge that fuels the knowledge based view on firm existence has shortcomings in efficiency across markets (Grant, 1996). Knowledge specialization enables an integrative link within firm's technology units (Yang, Lin & Lin, 2010). However, the nature of reconfiguration of firm boundaries through instance alliances and acquisition changes how knowledge specialization and integration occurs and is managed (Grant, 1996; Yang, Lin & Lin, 2010). The firm's ability to mitigate boundary inefficiencies and unite the necessary knowledge bases with technological related means is critical (Lane & Lubatkin, 1998; Yang, Lin & Lin, 2010). Firm boundaries whether horizontal or vertical (Grant, 1996) are faced with the challenges of information uncertainty and learning (Boot, Milbourn & Thakor, 2000; Lane & Lubatkin, 1998). Specialized knowledge prompts firms to concentrate on individual resource endowments and this blinds there venture outside the constricted domain (Yang, Lin & Lin, 2010). HCDA's that are technologically savvy (for instance advanced distributed learning or virtual training) allow firm's internal individual knowledge learning capabilities and external sharing of general knowledge bundles (Fletcher, Tobias & Wisher, 2007; Yang, Lin & Lin, 2010). Additionally, research indicates that firm knowledge collaboration even occurs when partnering firms have high technological distance between them (Yang, Lin & Lin, 2010). Human capital development approaches as platforms for knowledge diffusion, absorption and integration as discussed contribute to the imperfect knowledge sharing markets between firms by allowing efficient firm knowledge exchange.

SYNERGY OF KNOWLEDGE BASED VIEW AND HCDA'S

The discussed role of HCDA's as one of the fundamental concepts that improve debate on the strategic role of knowledge-based view on firm's existence gives a contributed effort to a more comprehensive future knowledge based theory. The Human capital development approach connection to the firm knowledge sphere is represented diagrammatically in Figure 1.

Figure 1: The Synergistic Process



Key: HCDA- Human Capital Development Approaches

Given Grant's (1996) components of knowledge based view that contributes to firms existence, knowledge whether tacit or explicit can be found in an organization's repository and in individuals per se. However, the link between the roles of knowledge in a firm's existence is part of components that explain the shell structure that allows production of goods and services. HCDA acts as a medium that allows integration, coordination, absorption and diffusion of generated knowledge. HCDA contributes to the informal and formal status of knowledge dissemination that feeds both the absorption of explicit and tacit knowledge among individuals and the organization as a whole. Interaction between organizations allows knowledge infused capabilities to be generated between interacting partners. Nevertheless the knowledge has to be made valuable through impartation to the necessary organizational units and individuals. This is possible through HCDA's. Therefore, the synergistic approach depicted by Figure 1. pin points the need for Human capital development approach in the knowledge based view analogy.
Figure 1 (above).

1. Firm knowledge (Tacit and Explicit) - this is both individual and organizational knowledge that is dormant. For it to be valuable it has to be strategically diffused into the right organizational units.
2. HCDA's - these are the methods used to diffuse valuable knowledge to the organizational units and individuals (they include; mentoring, action learning, just-in-time approach, coaching and technology simulation). Having organizational structures that support human capital development will result to HCDA that fit to the organization knowledge growth process.

3. Firm knowledge elements- elements that intertwine with firm existence will affect the firm's knowledge building process. The different components (knowledge building, knowledge coordination, knowledge adoption and diffusion, firm knowledge boundaries, knowledge characteristics and knowledge integration) have an effect on the efficiency of knowledge utilization and discerning of capabilities. As a medium HCDA provides knowledge movement around individuals and units thus enhancing efficiency on the different components.
4. Knowledge based view- ultimately the ability to integrate knowledge efficiently through all the elements that make up a firm allows growth in the knowledge based view. The human capital development approach angle develops a bridge that explains the diffusion concepts as relates to firm existence.

CONCLUSION AND FUTURE RESEARCH

This paper has identified the role of HCDA's in integrating both tacit and explicit knowledge in organization and individual that results in production of goods and services. Using the analogy of knowledge as a bottom line of firm existence knowledge coordination, integration, absorption and sharing can be cushioned by use of human resource development approaches. The absorptive nature (through HCDA's) of knowledge diffused in a firm adds to the spectrum of knowledge-based view that goes in contrast to the bureaucratic approaches that influence organization structure and decision making. Alliances and external connection of firms brings to light the usefulness technologically advanced HCDA's minimal mitigation of coordination and knowledge exchange in an uncertain market. This advances the knowledge-based approach theoretical constructs that allow understanding of innovation and trends. Future research should seek to explore the applicability of individual HCDA's in the knowledge based view realm. In addition, empirical evidence on how much knowledge diffusion and the extent of coordination can be attributed to HCDA is needed. Similar to Grant's (1996) work that sort to progress the knowledge based view of the firm, this paper attempts to bring synergy to the concept of building organization knowledge and organizational knowledge coordination and the role of HCDA.

The focus on knowledge diffusion and coordination and not creation becomes a serious limitation. Furthermore, assumption that all firms are organized to a point where HCDA are part of their structure may be deceiving in more informally set up firms. The use of Grants (1996) view on the firm also limits us to the few areas and concepts explored in his paper. A more detailed analysis inclusive of other models of creation, diffusion, coordination and application of knowledge would contribute to a future knowledge based theory endeavor.

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