USING ASSESSMENT AS A METHOD FOR SURFACING TACIT KNOWLEDGE TO INFLUENCE BUSINESS STRATEGY: A CASE STUDY

THESIS

Presented to the Graduate Council of the University of North Texas in Partial Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

Lori J. Reisenbichler, B.S.

Denton, Texas

December, 1998

In a small, owner-managed, knowledge work firm, assessments were completed on the owners as a method to complete job analysis—surfacing tacit knowledge such as personal characteristics, cognitive style, values and philosophy that contributed to success. Business strategy is often strongly influenced by the tacit knowledge and competencies of the owners, and their unique perspective on the company and marketplace.

Traditional assessment tools were used in a non-traditional way in this case study: (1) as a method of job analysis, not a result of it, and (2) for the purpose of creating a strategic business plan for the company's growth and expansion, not to assist the participants in adapting to a pre-determined business strategy.
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CHAPTER I

INTRODUCTION

Common Assessment Practices

Assessment has been used since the early part of this century for employment testing. After World War II, there was a significant increase in the number of managers within corporations in American. As corporations attempted to find appropriate candidates for these jobs, a particular interest in assessing managerial talent and potential emerged (Garner & Wigdor, 1982). Many large corporations took the lead in installing comprehensive testing programs, and by 1954, a Fortune survey revealed that 63% of a sample of major corporations used personality tests in selecting managers (Whyte, 1954, as cited by Garner & Wigdor, 1982). These tests were most commonly used to select individuals from within the company for promotion into manager development programs, or to select individuals from outside the company to hire as at managerial levels.

The most extensive uses of psychological tests in business are for employee selection and for determining if an individual should be promoted (Butcher, 1985). A recent survey of industrial and organizational psychologists indicated that the assessments most commonly used by their clients were for selection (53%) and promotion (20%). Other types of assessments named by industrial and organizational psychologists were preliminary employment screening, succession planning, performance appraisal,
back-to-work evaluation, outplacement or career counseling (Ryan & Sackett, 1987).

Executives are the top managers in corporate America; however, they are less likely than middle managers to be subjected to the assessment process. The term "executive" comes from times when managers were supposed to execute the owner's will. The separation of ownership and control opens the way for discussion about the desired form of the executive (Czarniawska-Joerges & Wolff, 1991). What are the skills and personal characteristics necessary for an effective executive? Are they different than those for an effective manager? What's the difference between a manager and a leader? These types of questions have captivated many researchers, corporations and other interested parties.

One study specifically attempted to define "executiveship" but found that only one or two studies included any material exclusively relevant to higher level executives (Bynam & Thornton III, 1982).

A survey of I/O psychologists revealed that less than one-fourth of their clients for assessments were executives or upper level management (Ryan & Sackett, 1987). Based on a Dallas-based consulting firm's estimate in 1997, approximately one-third of the assessments performed for clients are targeted to executives. While it appears that more corporations are asking their executives to participate in individual assessments for selection and development, generally speaking, the most common use for assessment in the current business environment is primarily for the selection and development of middle managers in large corporations.

A wide variety of techniques are used by those practicing individual assessment (Miner, 1970, as cited by Ryan & Sackett, 1987). Many assessment psychologists agree
that the prediction of future behavior must be based on selected samples of behavior (Kelly, 1954, as cited by Ryan & Sackett, 1987). Assessment for many positions operate primarily by using exclusion criteria - that is, by detecting characteristics of the individual that may hinder success on the job (Butcher, 1985, as cited by Ryan & Sackett, 1987).

**Job Analysis**

The general consensus on assessment is that the process depends upon the first step - a thorough job analysis. Using a variety of methods, job analysis is generally either job oriented or worker oriented (Gael, 1988). Job oriented job analysis methods include task inventories and other instruments designed to focus on the substantive features of the job. Worker oriented job analysis methods include popular techniques such as the Position Analysis Questionnaire (PAQ) and the Critical Incidents Technique (CIT) (Gael, 1988). Most worker-oriented approaches are based on the notion that a finite set of characteristics can be used to describe a job and account for variability in job performance effectiveness (Prien, 1969, as cited by Gael, 1988). However, descriptions of worker characteristics cannot always be reliable for drawing inferences about job properties. Many human characteristics may account for success in a variety of positions (Gael, 1988). In fact, respondents to a survey of I/O psychologists indicated that a formal, standardized job analysis was not the norm for selecting assessment methods. Most assessors attempted to gather information about the individual-job fit that were not typically a part of standard job analysis (Ryan & Sackett, 1987).

The purpose of job analysis methods, whether standard or not, is to examine jobs and/or workers and summarize these into dimensions or categories of tasks, characteristics
or knowledge, skills and abilities (K SAs) that constitute a job. Using this model, jobs are viewed as sub-units of organizations, using a system framework (Gael, 1988). Even discussions of individual-job fit assume a framework of an organization that has predefined "jobs" into which an individual either fits or not.

However, as American industry changes and as knowledge workers fill more of the available new "jobs", the term seems somewhat inadequate. Knowledge workers are professionals that can be defined by the extent to which they fit characteristics defined by Kerr, Von Glinow and Schriesheim (1977, as cited by McCall, 1988):

- **Expertise**: They have prolonged, specialized training.
- **Autonomy**: They have the right to decide on the means and ends in their work.
- **Commitment**: They are devoted to their work and to their profession.
- **Identification**: Their lot is cast with their profession and their fellow professionals.
- **Ethics**: They aspire to be unemotional and unselfish in the conduct of their professional activities.
- **Collegial Maintenance of Standards**: They take responsibility for setting and enforcing standards for their profession.

While most of the research done on managing professionals is focused on scientists and engineers, (McCall, 1988) some of the findings are applicable for all professional knowledge workers. Most importantly, devotion to the profession often supersedes commitment to the organization and its goals (McCall, 1988). Understanding a knowledge worker is different than understanding his or her "job". In fact, many of the
"jobs" for knowledge workers will expand to the capacity of the person in the "job". In this respect, the knowledge worker determines the scope of his or her contribution to the organization (their "job"), instead of the more traditional model where the organization has a job into which the worker fits.

When focusing on an owner-manager in a knowledge work firm, the implications are magnified. There is no distinction between their commitment to their work, the profession, and the organization. There is little danger that the owner will decide to change to work for another company - it is more likely that he/she will change the existing organization. In this respect, knowledge workers who are owners are capable of tremendous energy toward their goals. It is also less appropriate to think in terms of a knowledge worker/owner's "job". The scope of an owner's activities toward reaching his or her goals is better described as their life's work, not their "job". And one owner's life's work will be fundamentally different than another owner - even if they perform the same functional tasks. Standard job analysis methods, because of their dependence on "jobs" as a framework, are deficient in their ability to grasp the particular unique personal characteristics, cognitive style and values of a knowledge worker who is also an owner-manager. Self-report assessment instruments can be used effectively to complete the job analysis process for this population (knowledge worker/owner-managers) by surfacing tacit knowledge their personal characteristics, cognitive style and values.

Most personality assessments consist of asking the respondent to document his or her preferences and opinions along various dimensions, using a self-report test format (Ryan & Sackett, 1987). In industrial settings, the most commonly used of these tests, the
16PF and the Guilford-Zimmerman Temperament Survey (Ryan & Sackett, 1987), are well designed, valid measures of the dimensions they purport to measure (See Chapter Two for more detail on these tests). One concern of assessment professionals about personality assessment in industrial settings is the tendency of the test-taker to either provide socially desirable responses, or to provide defensive responses, either of which limit the accuracy of the assessment process. The tests cannot provide an accurate picture of the respondent's preferences and personal characteristics without the test-taker's honest and voluntary participation. There are environmental factors within organizations that could contribute to a test-taker's unwillingness to participate honestly, such as a lack of trust, a lack of confidentiality, fear of retribution, or organizational instability. Given a "safe" environment, and if the respondent is willing to participate honestly, and has some level of self-knowledge about his or her preferences and opinions, the assessment process can be beneficial. The voluntary self-report of a test-taker, based on his or her self-knowledge, is the backbone of objective personality assessment.

**Tacit Knowledge**

Knowledge about one's self is considered "tacit" knowledge - not easily visible and expressible. Tacit knowledge is highly personal and hard to formalize, making it difficult to communicate and share with others. Subjective insights, intuitions and hunches fall into this category. Tacit knowledge is deeply rooted in an individual's action and experiences, as well as in their ideals, values and emotions. Tacit knowledge also consists of schemata, mental models, beliefs and perceptions (Nonaka & Takeuchi, 1995). The acquisition of such knowledge appears to be uniquely important to competent real-world performance,
such as management (Sternberg, 1997). Self-report assessment tools rely on the test-taker's accurate reporting of his or her self-knowledge in the form of opinions and preferences. These opinions and preferences are a result of ideals, values, emotions, mental models, beliefs and perceptions so ingrained we take them for granted.

Assessment results simply categorize these preferences and opinions into dimensions to assist the test-taker in examining and understanding his or her self-knowledge. In this respect, the assessment process surfaces tacit knowledge and makes it explicit, and by doing so, facilitates communication.

**Characteristics of Successful Leaders and Managers**

There is a large body of research on the particular characteristics that correlate to success and promotion within large corporations. Between 1930 and 1950, leadership research focused on the search for individual characteristics that universally differentiate leaders from non-leaders (House & Aditya, 1997). Due to a lack of replicated results, enthusiasm for research on leadership traits waned, only to be revived again in the 1970's (House & Aditya, 1997). By this time, Bern and Allen (1974) had demonstrated that predictability based on traits is, in itself, a trait, that can be explained by the self-monitoring tendencies of individuals (Snyder, 1974, as cited by House & Aditya, 1997). Early studies of leader traits were meta-analyzed by Lord, DeVader and Alliger (1986, as cited by House & Aditya, 1997), and concluded that three traits - intelligence, dominance and masculinity - were all significantly associated with follower perceptions of leadership.
Factor analytic studies are not theoretical in their orientation, but report important correlational findings among theory-based research studies. Several studies have factor analyzed specific features of managerial positions and found correlations with performance effectiveness of managers among several dimensions, including social and interpersonal skills, group relations, personal characteristics, strategic problem solving, information handling, organizing and coordinating and managing resources. (Tornow & Pinto, 1976, Morse & Wagner, 1978, Stogdill, 1974). The results of these studies create a somewhat consistent picture of the skills necessary to succeed as a manager in corporate America.

There is a growing body of research that attempts to test some of the major leadership theories against populations other than large corporations. McClelland's Achievement Motivation Theory was developed in the 1940's but has been replicated and supported for certain populations in the 1990s. (House, Delbecq & Taris, 1997, as cited by House & Adikya, 1997). Achievement motivation, as measured by the TAT (Thematic Apperception Test), correlates positively for leaders of small entrepreneurial firms, and negatively with the effectiveness of middle managers in large complex organizations (House & Aditya, 1997).

McClelland also authored Power: The Inner Experience (1975), and argued that the leadership motive pattern enabled people to be more effective leaders at high levels in organizations. The leadership motive pattern, as measured through the Thematic Apperception Test (TAT), is described as: moderately high in need for power, lower in need for affiliation, and high in self control (or "Activity Inhibition"). An impressive long-term study of AT&T managers and their performance and promotional histories
support the leadership motive pattern as successful for non-technical managers within a large corporation (McClelland & Boyatzis, 1982). More recently, House et al. (1996) found that Leadership Motive Pattern theory was predictive of chief executive charismatic leader behavior and effectiveness in small organizations.

House and Aditya (1997) offer an excellent summary of trait theory and research to date:

1. The traits that consistently differentiate leaders from others are: physical energy above average intelligence, prosocial influence motivation, adjustment, self-confidence, achievement motivation and the motives of the leadership motive profile.

2. The effect of traits on leader effectiveness is enhanced by the relevance of the traits to the situation. For example, achievement motivation is most predictive of effectiveness when tasks are challenging, require a high degree of initiative, and require the assumption of personal responsibility for success.

3. Traits have a stronger influence on leader behaviors when situational characteristics allow it. This is termed a "weak" situation. A "strong" situation would be one in which behavioral expression of traits is suppressed.

If the situation or environment in which leadership traits emerge has a strong effect on which traits correlate to success, then it is important to distinguish between success in a large corporation and success in a small, entrepreneurial firm. Entrepreneurs create their
own environments, therefore the traits of the leader are absolutely relevant to their situation.

Entrepreneurs

Entrepreneurs are a segment of the business population that is rarely assessed in the popular sense. However, the discussion about the desired form of an entrepreneur becomes irrelevant if their venture is successful. Since they select themselves and are by definition, the top level of management, there is no practical need for using assessment for selection and development. There is no internal impetus to begin the assessment process, other than the motivation of the entrepreneur him/herself.

This is not to imply, however, that research has not investigated the entrepreneur. In the early 1980's numerous researchers searched for personality differences between entrepreneurs and non-entrepreneurs (Naffziger, Hornsby & Kuratko, 1994). Much of this research focused on entrepreneurs' high need for achievement, internal locus of control and high risk taking propensity (Brockhaus, 1982). Other findings of individual characteristics include high energy level, low conformity and high need for autonomy (Sexton & Bowman-Upton, 1986 as cited by Naffziger et al, 1994), persistence and dominance (Neider, 1987 as cited by Naffziger, 1994), desire for personal control and even one's attitude about one's self (Greenberger & Sexton, 1988, as cited by Naffziger, 1994). Cumulative research has evolved to popular opinion regarding the unique characteristics of the entrepreneur. As a group, they are thought to be very innovative, unusually energetic, risk takers, power and control seekers and characterized by an internal locus of control (Rubenson & Gupta, 1992).
Past entrepreneurship research has focused on the motivation variable and tended to ignore the ability. It is not appropriate to assume that entrepreneurs with similar motivation levels, when faced with a unique opportunity have the pertinent knowledge, skills and abilities to accomplish their objectives. (Gartner, Shaver, Gatewood & Katz (1994). General measures, such as years of experience in the industry, do not provide meaningful insights into the expert knowledge or judgement, the tacit knowledge gained by an individual, much less that individual's ability to translate the knowledge into entrepreneurial success.

Recent studies suggest the area of personal philosophy or values have some application for entrepreneurs. Solomon and Fernald (1990) found that the top three terminal values held by entrepreneurs are pleasure, true friendship and a sense of accomplishment. All three are supported by other studies (Anderson, 1978, Welsh & White, 1983). Instrumental values important to entrepreneurs are ambition, broadmindedness, and honesty (Brazeal, 1996). Again, similar results have been found in previous studies (Rokeach, 1983, Welsh & White, 1983).

Entrepreneurs start businesses and take final responsibility for them; managers are not always founders, and often do not take total responsibility for the success or failure of the enterprise, and are more focused on the daily running of the business. One should expect that the set of variables explaining entrepreneurial success is different from the set of variables explaining managerial success (Konijn & Plantenga, 1988). Since most assessment tools are used in large corporations and use normative databases made up of
There is a recent phenomenon of large corporations, understanding the competitive advantage of channeling entrepreneurial expertise toward new ventures nestled within the bureaucratic structure (Brazeal, 1996). In this respect, there may be some interest within large companies to identify managers that have individual characteristics that would better prepare them for the entrepreneurial environment of a new venture. There may be an emerging "norm" of a profile that correlates to a more entrepreneurial manager. But within the small, owner-managed organizational structure, there has been no practical application for assessment procedures for the entrepreneurs. The traditional purposes and tools of assessment have not been a good "fit" for this population.

**Small Businesses**

Successful, small, owner-managed companies share similar characteristics. There is persistent evidence that the start up firm is an extension of the founder (Chandler & Jansen, 1992; Dyke, Fischer & Reuber, 1992; Mintzburg, 1988; as cited by Chandler & Hanks, 1994). There is a significant correlation between the founder's self-assessed entrepreneurial and managerial competencies and the performance of start-up firms (Chandler & Jansen, 1992). In fact, it is the extreme competence of the founding entrepreneur that eventually becomes a problem for the company in later growth stages. The most entrepreneurial firms tend to have the most autonomous leaders (Miller, 1983, as cited by Lumpkin & Dess, 1996). That is, in small firms, high levels of entrepreneurial activity were associated with chief executive officers that maintained strong central authority and acted as the firm's knowledge leader by being aware of emerging
technologies and markets. Commonly, entrepreneurial or start-up firms share these characteristics:

1. overly dependent on one or two key individuals;
2. are highly centralized;
3. lack adequate middle management skills and
4. exhibit a paternalistic atmosphere (Rubenson and Gupta, 1992).

These are not commonly considered the characteristics of growing, expanding successful companies. It is easy to conclude that in order for a firm to continue growing, there must be an appropriate phase to move the founding entrepreneur out and bring in a professional manager. This view assumes that entrepreneurs are unwilling or unable to develop their managerial skills to keep up with their firm's growth.

In the 1950's, proponents of the New Look movement popularized the view that personality affects the way an individual functions in all areas of life (Messick, 1969, as cited by Goodenough, 1985). The term "cognitive style" was introduced to describe dimensions of the cognitive-personality functioning. In the 1970's McKenney and Keen (1974, as cited by Goodenough, 1985) described differences in how managers reach decisions, and concluded that stylistic differences in cognitive functioning may reflect more general differences in personality functioning. Research in industrial settings about how these differences in cognitive style affect managerial performance is limited.

An interesting study compares entrepreneurs' cognitive problem solving style, using Kirton's framework (categorized as either adaptive or innovative) to the cognitive styles of managers (Buttner & Gryskiewica, 1993). Results indicate that entrepreneurs fall
into both categories, but that as a group, they are consistently more innovative than corporate managers. Within the entrepreneur group, adaptive problem solvers tended to handle more administrative tasks and were more prevalent in firms that were at least eight years old. The more innovative entrepreneurs spent more time investigating new products or services and were more prevalent in firms less than two years old. The implication is that innovative entrepreneurs may find it difficult to actually operate the businesses they start. It may benefit these entrepreneurs to find a partner or management team with an adaptive cognitive style. Rubenson and Gupta (1992) studied high growth firms in the Fortune 1000 to determine whether the founding entrepreneurs depart relatively early in their organizational life cycle. They found a mean tenure of founders of over twenty years in high growth firms. Clearly, this sample may not be representative of the many firms who are not successful, and does not isolate the characteristics of successful entrepreneurs who can not, or do not learn professional management skills. However, it does make a contribution by introducing the notion that successful entrepreneurs can develop into, or have some similar characteristics or skills of successful managers.

Another study demonstrates that strategic orientation, rather than cognitive style, accounts for differences among entrepreneurial CEO's, with varying results. Merz, Weber and Laetz (1994) group entrepreneurs into four categories: Focused, Adventurist, Survivor and Unfocused. They correlate average annual sales growth rate with the sales change patterns. The CEO's strategic orientation is seen as a function of two variables, the proactiveness or aggressiveness of the firm in its chosen product market, and its innovativeness or willingness to create new products or services. Sonfield and Lussier
(1997) use a similar model to identify four quadrants of entrepreneurial strategy: High Innovation-High Risk, High Innovation-Low Risk, Low Innovation-High Risk and Low Innovation-Low Risk. Using these models allows understanding of a wider range of entrepreneur characteristics that could contribute to success. The "entrepreneurial orientation" of an organization, and that organization's performance, will be enhanced by leaders who are both highly tolerant of ambiguity and have a high need for achievement (Lumpkin & Dess, 1996). Other research links proactive and innovative behaviors to the managerial style adopted by the CEO (Miller, 1987). CEO's or entrepreneurs may adopt different managerial styles as a consequence of the amount of growth desired and the amount of risk they are willing to assume (Merz, Weber & Laetz, 1994). The difference between a small business owner and an entrepreneur appears to be innovation (Carland, Hoy, Boulton & Carland, 1984). When attempting to understand entrepreneurs or small business owners, one must take into account the environment and the business strategy.

**Business Strategy**

Business strategy can be understood as the way the organization produces wealth. Management strategy is understood as the process used to implement the business strategy (Fritz, 1994). Accordingly, a successful company is one where the business strategy is sound and the management strategy directly and clearly supports it. Business strategy for a start up firm will differ drastically from the business strategy of a well-established firm in expansion phase, even if the founding entrepreneurs are present. The business strategy for two firms in expansion phase will likewise differ drastically, depending on the entrepreneurs' managerial styles, tolerance for risk, and amount of growth desired. Perry,
Stott and Smallwood (1993) offer a helpful framework for thinking about strategic alignment between business and management strategy. They suggest there are four basic types of businesses: customer-focused, product-focused, technology-focused and production-capacity focused. The focus of the business determines its strategic objectives. For example, a customer-focused business will find new business opportunities as it acquires a deeper understanding of their customers. A technology-focused business will find new business opportunities by applying the famous 3M "15 percent" solution, which allows research scientists to spend up to 15% of their time on their own projects. This is an example of using a management strategy to support a business strategy. There is no "right" business strategy for small firms, except to the extent that it contributes to their success. Miles and Snow (1994) would argue that any size firm could be successful, if the strategy, structure and processes "fit" tightly.

Organizational Life Cycle

Firms with a strong entrepreneurial orientation are generally evaluated along five dimensions: autonomy, innovativeness, risk taking, proactiveness and competitive aggressiveness (Lumpkin & Dess, 1996). However, these dimensions may vary independently within the same firm, and the particular mix will provide insight into the stage of the organization's development as well as their business strategy. There is a large body of research, spanning many years, about the developmental phases of organizations and comprehensive classifications systems for the types of problems that are commonly encountered at each phase of a company's development. This research is particularly helpful when examining start-up companies, or small businesses that are owner-managed.
The standard commonly accepted characteristics for small firms include the following:

1. Older than three years
2. Sales greater than $500,000 and less than $500 million
3. More than 10 employees, and less than 500 (Merz, Weber & Laetz, 1994).

A number of organizational life cycle models have been proposed (Churchill & Lewis, 1983; Flamholdtz, 1986; Kazanjian, 1988; Kimberly & Miles, 1980; Kuratko & Hodgetts, 1989; McKelvey & Aldrich, 1983; Miller & Freisen, 1984; Olson, 1987; Quinn & Cameron, 1983; Smith, Mitchell & Summer, 1985; Van de Ven, Hudson & Schroeder, 1984, as cited by Terpstra & Olson, 1993). All seem to describe a predictable pattern of organizational growth for businesses that generally include four stages: (1) an entrepreneurial or start-up phase, (2) a growth or expansion phase, (3) a domain protection and expansion phase, and (4) a stability and institutionalization phase (Dodge & Robbins, 1992). More recent research (Miles, Snow, Mathews, Miles & Coleman, 1997) on network and cellular organizational forms appear to provide more a relevant understanding of organizational phases, particularly the fourth (stability and institutionalization) phase. In a knowledge-based economy, where the key capability of an organization is likely to be innovation and creativity, stability and institutionalization represent a death march. It makes intuitive sense that each organizational phase shares a common set of problems.

For decades, researchers have attempted to define common organizational problems. As early as 1958, Dearborn and Simon classified organizational problems into three general types: (1) sales, marketing or distribution, (2) clarifying the organization,
and (3) human relations, employee relations or teamwork (as cited by Terpstra & Olson, 1993). As late as 1990, early problem classifications have been partially supported (Cowan, 1990, as cited by Terpstra & Olson, 1993). Some researchers have used business failures as a way to determine problems (Dun & Bradstreet, 1987); Bruno, Leidecker & Harder, 1987). It has been estimated that 55 percent of small businesses fail within five years of inception, and 81 percent fail within ten years (Dawitt, 1983, as cited by Dodge & Robbins, 1992). However, none of these studies attempted to link organizational problems to the organization's stage in a life cycle.

Some studies suggest that each stage of development is associated with a unique set of problems. Marketing and finance appear to characterize the start-up phase, while strategic, administrative and managerial problems characterize the growth phase (Kuratko and Hodgetts, 1989, as cited by Terpstra & Olson, 1993). Osborne (1994) studied small businesses and compared those who successfully made the transition to the growth phases and those who remained stagnant. He found that inadequate marketing and the absence of external environment scanning contributed to their failure to grow. A recent study of small businesses determined that organization development and personnel problems surface as the second most frequently mentioned problem area for companies in growth phase (Dodge & Robbins, 1992). Kazanjian (1988) factor analyzed problems of organizational life and studied their dominance at each phase of the life cycle. While some problems emerged at each stage, such as sales and marketing, there may be more dominant concerns at particular stages. For example, securing financing and marketing may be more dominant concerns at the start up phase than in later stages of development. Anderson and
Dunkleberg (1987) surveyed 35 of the CEO's of the 100 fastest-growing public firms in the United States, who indicated that management and employee development were the greatest challenges to maintaining growth (as cited by Terpstra & Olson, 1993). Using an open-ended research format, Terpstra and Olson (1993) surveyed CEOs of the fastest growing privately held companies in the United States and asked about problems encountered during their first year of operation and during their current growth phase. The resulting classification of problems loosely supports previous research, particularly findings that during growth phase, management and organization design problems emerge as dominant (Olson, 1987).

Miles and Snow (1994) have made significant contributions to recent thinking about business strategy and organizational life cycles by describing organizational redesign and transformation as a part of most organizations' life cycle. In the past, management may have approached redesign as a process, that once completed, will establish the organization for the foreseeable future. However, the period between revolutions is becoming shorter, perhaps even disappearing into "permanent white water". For a firm to renew, develop and expand its distinctive competencies, it must know what they are.

For a small, owner-managed organization, whose founders have a strong influence on the firm, the personal characteristics and tacit knowledge of the owners has a direct bearing on the organization's distinctive competence, and therefore its ability to renew itself. In fact, Miles and Snow (1994) state explicitly that "firms that understand and articulate the sources of their distinctive competence are often more than halfway to the goal of sustained excellence". Polanyi stated that tacit knowledge is understood as
personal, context-specific and therefore hard to formalize and communicate (1966, as
cited by Nonaka & Takeuchi, 1995).

Business Strategy Linked to Founder's Tacit Knowledge

Robert Fritz (1994) uses the term "structural tension" to describe the forces at play
when an organization or individual has a clearly defined vision and an accurate assessment
of current reality. In a small owner-managed firm, the vision is a personal expression, an
outgrowth of the mental models and tacit knowledge of the owners. Since many small
firms are overly dependent on their founders' expertise, it is common to find the business
strategy linked to the entrepreneur's competence. However, the tacit knowledge and
competence of the founders will eventually provide the limits to the organization's capacity
for expansion and growth. In fact, the tacit knowledge of individuals always contributes
to organizational knowledge creation (Nonaka & Takeuchi, 1995)—it may simply be more
apparent when the organization is largely dependent upon a small number of individuals
for its survival. The entrepreneur, although typically educated within the industry status
quo, may operate outside of it (Hill & Levenhagen, 1995). A new vision or different
mental model of the given business environment must be developed and communicated to
others to gain their support.

In the entrepreneurial setting, communicating this new vision is a particularly
difficult and important task. An entrepreneur could have a valid and workable concept or
mental model and not be able to fully implement it due to the lack of an adequate means of
articulating it in evocative terms (Hill & Levenhagen, 1995). The future growth of an
entrepreneurial firm may depend on its ability to replicate this type of "on the edge" of
industry knowledge. Organizational strategy becomes an issue of what kind of knowledge should be developed, and how to develop the capability to acquire, create, and accumulate knowledge (Nonaka & Takeuchi, 1995).

**Case Study Organization Background**

In this case study, the organization is an architectural firm that has been in business nine years, has current (1997) sales of $6.2 million, and approximately 42 employees in two locations. The principals are licensed architects who are young, ambitious, and particularly well suited to their functional areas, which include project management, marketing, and administration. One of the founding partners was previously employed at a health care corporate office, responsible for purchasing architectural services. As a result, the principals share a deep commitment to providing outstanding service to their clients (the health care facility owner), as well as tacit knowledge about the exact needs of this particular client base.

Their success in start up phase can be attributed to the founding partners' competencies in two crucial areas - marketing and financial control. Having been on the Inc. 500 list of fastest growing companies in the United States for three of their nine years, and having successfully penetrated their particular industry niche, they could be accurately classified in the domain protection and expansion stage of their development. With the company in the domain protection and expansion phase, it is important that the organizational issues are addressed and operational capacity and structure be established. It is clear that increasing managerial and knowledge capacity is the dominant problem
facing the organization. In this respect, they clearly support the current research as a typical small business.

The partners had pursued growth as their vision, but had not consciously considered the extremely limited capacity within the current management group to hire or develop new "partner-level" managers. Additionally, the original partners were so busy actually doing the work, they were not actively involved in teaching anyone else what they knew. As a result, their existing clients had become dependent on personal attention by one of the founding partners on every project.

Since the client organization's revenues are largely (90%) dependent on five major health care organizations, the organization is vulnerable to the fluctuations in the health care industry. They do not control their market in this respect. The client organization is interested in the continued growth of their firm. The growth strategy for the firm is twofold: to expand geographically and to develop expertise to serve clients in related but different industries.

Geographic expansion serves several functions. To increase their capacity to handle more work, to provide geographic convenience to their clients, and to protect them from the impact of economic slowdowns that commonly occur regionally. Developing expertise in related fields, such as the design of research laboratories, biomedical facilities and other high technology industries provides less reliance on the health care industry could allow them more control over their market share. Diversification is important as a business strategy in order to limit vulnerability to economic forces.

Action has been taken toward these strategies. In 1995, a second office was opened in El Paso with mediocre results. The El Paso partners were architects from the
Dallas office who the principals felt had "earned their chance" to run their own office. The principals expected these partners to be as self-generative as they had been when opening the original Dallas office. In fact, the El Paso partners have not demonstrated the same level of skills and abilities, and the Dallas partners have provided very little support or coaching. Additionally, the current business relationships in El Paso are well established and more difficult to penetrate than originally anticipated. The El Paso office has eight employees and is currently breaking even, but is still largely dependent on the Dallas office.

Further activities that support expansion are (1) a business development specialist has been hired to do market research, identify markets and help expand sales leads in the biomedical and high tech industries and (2) additional efforts are being directed toward public relations and marketing of the firm's image and expertise.

Currently, the client base is dependent upon the personal relationships and tacit knowledge and expertise of the principals, who are unable to handle any additional work. This lack of capacity is limiting the organization's ability to grow. Internally, there are few candidates that are ready to pick up where the principals leave off. The organization has been unsuccessful so far in replicating or expanding on the expertise of the principals. The future growth of the firm now depends on their ability to expand their capacity and knowledge past the three principals. A snapshot analysis follows:

- **Business Offering to Market Match:** Excellent
- **Total Market:** Stays same or increases
- **Market Share:** Increasing (within health care)
<table>
<thead>
<tr>
<th>Locus of Market Control</th>
<th>Vulnerable to industry changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competition:</td>
<td>Significant factor to growth</td>
</tr>
<tr>
<td>Regulatory/Legal Environment:</td>
<td>Significant factor to growth</td>
</tr>
<tr>
<td>Capital:</td>
<td>Excellent</td>
</tr>
<tr>
<td>Work Load Capacity:</td>
<td>Inadequate</td>
</tr>
<tr>
<td>Managerial Effectiveness:</td>
<td>Inadequate (due to inadequate capacity)</td>
</tr>
</tbody>
</table>

It is clear that the organization needs to grow in order to increase control over their markets. There are several options for growth, the simplest being:

1. Stay in health care industry, and increase capacity in Dallas;
2. Stay in health care industry, maintain the same capacity in Dallas and increase capacity in other cities;
3. Develop business in different but related industry, and increase capacity in Dallas;
4. Develop business in different but related industry, and maintain the same capacity in Dallas, and increase capacity in other cities;
5. Stay in health care industry, develop business in different but related industry, increase capacity in Dallas and increase capacity in other cities.

If the client organization chooses to develop business in other cities, the criteria for choosing a particular market must include: Proximity to existing clients, availability of skilled architects in market, and a different geographic region than Dallas for economic growth.
It is also clear that the client organization needs to expand its management team's knowledge capacity. The same tacit knowledge that contributes to success in the health care industry must be integrated in order to demonstrate the same level of service to clients in other industries. Even the current ability to continue to deliver excellent service to existing clients is vulnerable to these capacity limitations. There are several options for expanding capacity, including hiring in Dallas, developing from within the company, or hiring from other cities.

The distinctive competence of the founding partners is their tacit knowledge of their client's operational concerns, their technical abilities to design solutions to these problems, and their effectiveness at communicating this to their clients. The organization has been unsuccessful in its past attempts to develop the necessary project management, administration and marketing expertise internally primarily due to capacity limitations on the principals' time. There do not appear to be current managers that have the skills mix and self-generative force necessary to step up without formal development. Part of the development includes the creation of new knowledge, particularly the type of tacit knowledge understanding of their clients operational concerns in new industries targeted for diversification. Without this, the organization loses its distinctive competence and competes like any other architectural firm that has no experience, but wants to build a new type of building. In fact, expansion into new industries without the creation of new knowledge is contrary to the deeply held beliefs and values of the current partner team.

The partner team attended an organizational conference and participated as structural consultants (Fritz, 1994) evaluated their business. As the partners became acquainted with the tenets of structural tension, the formerly primary goal of growth was
placed secondary to the goal of increasing managerial capacity. The partners agreed that in order to fulfill their primary goal of growth (via opening new offices and expanding to new geographical regions and new niche markets), it was imperative that the partners learn to replicate the success in the home office. The partners now view the El Paso office opening as an "experiment" where the criteria for selecting the El Paso location and partners was not fully developed. Instead of hoping to find two primary individuals with the same personal characteristics as the founding partners, it was agreed that the partners needed to understand what core competencies contribute to their success. Once these were understood, they would establish a plan for how to assess others for these competencies, and how to develop them in employees with the interest and potential.

The owners agreed to participate in a research project conducted by the researcher, for the purpose of better understanding their success, the factors that contribute to it, and to establish a business strategy to increase managerial and knowledge capacity within the company. The researcher is the spouse of one of the founding partners, and the issue of bias was discussed at length with the partner team. Because the researcher has long term personal relationships with all of the partners, a level of trust existed which facilitated open communication between the partner group and the researcher. The other founding partner has relied on the researcher for assistance with business issues related to human resources concerns in prior years. Based on the partners' past experiences with the researcher, they expressed a comfort level with the researcher's ability to hear potentially negative information about her spouse and to remain objective. Because of the researcher's sensitivity to the issue of bias, an outside third party consultant
was hired to supervise the researcher on this project. The partners were supportive of the researcher's efforts to mitigate the effects of bias and agreed, in fact, to reimburse the researcher for fees paid to the third party consultant for supervision. The issue of bias on the part of the researcher was addressed specifically with the third party consultant, particularly in the interpretation of the partner team dynamics, or individual assessment results.

The partners expressed in a group discussion that they felt the researcher took precautions to overcome favoritism (such as qualifying statements, checking perceptions, maintaining confidentiality) that they felt were somewhat unnecessary. They had become comfortable that they could express themselves honestly to the researcher without negative ramifications. The partner group expressed that they are confident in their ability to communicate honestly within the group. Consequently, there were no "hidden" issues that the researcher could potentially surface that the partners had not already discussed with one another. Their trust in each other simply extended to the researcher.

Through one of the founding partners, the researcher has a financial interest in the success of the organization, which placed her in the role of advocate rather than objective third party observer. The group of partners viewed the advocate role as an advantage. In a group discussion, they expressed the viewpoint that they probably would not trust an outside third party consultant to do the work because of their unfamiliarity with the process, and their lack of trust in someone they did not know. The position of the researcher as an advocate for the business was viewed as an advantage that outweighed any possible bias.
CHAPTER II

METHOD

This section will provide information about the process followed to complete the job analysis and assessment of the partner group, as well as the process followed for the partner group to evaluate the project.

Subjects

The participants were the two founding partners of the architectural firm and one partner added in 1995, who holds a minority interest. The junior partner was the firm's first employee, and consequently the partner group has worked together for approximately nine years. All are white males between the ages of 35 and 40 and all live in Dallas, Texas. All are licensed architects.

Procedures

The procedures and process followed in this case study begins with a job analysis of each of the partner's roles. During the process, it became evident that more information was necessary, which led to the assessment step. Instruments were chosen because of their perceived appropriateness in measuring each of the key competency areas identified.

Job Analysis

The purpose of the assessment process for the partners of the firm was to understand the personal characteristics, cognitive style, values, expert knowledge and
judgement and team functioning that contributed to the organization's success. This is a contrast to more traditional uses of a job analysis, which is to compare the partners against previously determined success factors. Due to this, many methods of job analysis were deemed inadequate. The interview method was selected because of the small sample size, the potential for gaining a large amount of information about all aspects of the partner's role and relationships within the partner team. The disadvantages of the interview method, namely time and a lack of anonymity (Gael, 1988) were considered less important than the advantage of the opportunity to gather information on a wide range of issues from each partner. Due to the small sample size and the partners' lack of concern about anonymity, individual interviews were the most appropriate method for gathering this information.

The other disadvantage to the interview method is interviewer bias, which was a concern, because the interviewer is married to one of the founding partners. Every attempt was made on the interviewer's part to consider all information presented without undue regard to any previously formed opinions about the business or the partners. The interviewer met regularly with a third party for supervision, with the express intent of detecting any possible bias, and compensating for it. The partners were aware of the supervision arrangement and were supportive. The partners were aware of the possibility of bias.

In order to prepare for the interview, each partner provided a listing of daily activities and tasks, grouped in categories that functioned as an aid to communication. These categories were not directly comparable from partner to partner, and served only to
facilitate communication. Each individual interview lasted approximately two hours, and covered the daily activities of each partner, the differences in partner roles, the similarities with other partners, the interaction patterns within the partner group, and the partner's current level of satisfaction or dissatisfaction with his role. See Appendix A for a summary of interview topics that were explored.

A group interview was also conducted, which serendipitously allowed an opportunity for observing the partners interacting while making a decision about an offer to a new senior-level manager. The group interview reviewed the results of the individual interviews and focused more on the team dynamic, the individual strengths of each partner and the role these strengths played in the success of the firm to date.

From these interviews and observations, the researcher developed a summary of activities and functions by partner. See Attachment B. These activities were then organized into five competency dimensions: (1) Interpersonal effectiveness, (2) Expert knowledge and judgement, (3) Management skills, (4) Personal characteristics and (5) Values or philosophy. These were further summarized into the activities and knowledge, skills and abilities (KSA's) that contributed to success in these activities, regardless of the partner performing the activity, and summarized by competency dimension for review by the partner group. See Attachment C.

In a group meeting, we reviewed the functions and activities by partner and gained agreement on the dimensions. The KSAs by dimension were reviewed and discussed at length. It became apparent that there were three areas that involved tacit knowledge, in that the partners became rather inarticulate about defining or describing these dimensions.
Personal characteristics, values or philosophy, and expert knowledge and judgement were deemed to be tacit knowledge dimensions. The partner group also believed these were the most important success factors. Management skills and interpersonal effectiveness were believed to be dimensions that could be developed in employees with potential. At this point in the process, the partners believed that personal characteristics and values were either a fit or not, and an important basis on which to make selection decisions. As far as expert knowledge was concerned, the partners felt an employee with the right personal characteristics and values could learn the necessary knowledge to function effectively in their organization.

**Assessment Used to Complete Job Analysis**

Since none of the partners, nor the researcher could describe the specific personal characteristics or the values and philosophy that were two competency areas deemed to be tacit knowledge, it was clear we could needed more information about the partners on these dimensions. We were unable to further describe or define these success factors, so the researcher recommended we use an assessment process to help clarify these issues, and measure competency levels in the other dimensions: management skills and interpersonal effectiveness.

The assessment tests were administered in three separate group settings. The total administration timeframe from the first test to the last test was ten days. We felt it was important to gather all the data as quickly as possible, so all partners were assessed within a close time frame, under the same organizational environmental conditions. The Assess personality surveys were self-administered individually using the computer program. The
Assess cognitive abilities tests were the first to be administered in a group setting. The second session of testing included the 16PF and the Rokeach Values Survey. The third session of testing included the Motivation Analysis Test and the Executive Profile Summary. Altogether, the each member of the partner group participated in approximately 12 hours of individual assessment testing.

When the results and computer interpreted reports were returned from various publishers, the researcher provided feedback on each of the reports individually to each partner. A group meeting of the partners followed, where each test result was discussed and compared to the perception and experience of the partners. A summary of the personal characteristics that the partner group shared was provided. Additionally, several personal characteristics represented "offsets"—where two of the partners were very high in a particular dimension, offset by the other partner scoring very low in the same dimension. These offsets were presented to the partners in the group meeting. This information was important in understanding the team dynamic, as well as the partners' interdependence. This meeting contributed to the agreement of the partners about their understanding of their success in the start up phase of the business.

The partners revisited their overall objective of increasing managerial capacity in Dallas and their business strategy for establishing partner teams in new offices. The assessment results were continually compared to the current partners' perceptions about each other, their effectiveness and their contribution to the overall partner team. The business strategy question that kept surfacing was the feasibility and effectiveness of
replicating the current partner team vs. identifying a new partner team structure that is appropriate for the growth strategy.

**Instruments**

The following assessment instruments were selected for the partner team, with supporting rationale and technical information. There was general agreement among the partner team that they would participate in extensive testing, and based on the results, make decisions about which instruments were appropriate for use on the rest of the management team.

All instruments except one were administered in a group setting, at the workplace, in a closed conference room. Interruptions were minimal and did not significantly affect the partner's ability to concentrate. The exception was a self-administered personality survey that the partners completed on their personal computers outside of work hours. The partners displayed a focused, serious approach to the testing.

**ASSESS 5.0 battery of personality and cognitive tests.** The ASSESS 5.0 is a computer driven system that was developed by Bigby, Havis and Associates in 1970, and version 5.0 was updated in 1996. The battery includes personality and opinion surveys and cognitive abilities tests. Specifically, the personality survey combines the Guilford-Zimmerman Temperament Survey (GZTS) and the Dynamic Factors Opinion Survey (DFOS) in a computer driven, self-administered program. The cognitive abilities tests included the Watson-Glaser Critical Thinking Appraisal, the Thurstone Test of Mental Alertness, and the Ravens Standard Progressive Matrices. The Assess 5.0 system has the ability to
include up to seven different cognitive abilities tests, but these three were selected because of their relevance to middle and upper management positions, and the comparisons available to a normative database of middle managers and executives.

The Guilford-Zimmerman Temperament Survey (GZTS), introduced in 1949, is one of the oldest multi-dimensional personality inventories still in widespread use (Keyser & Sweetland, 1991). It is one of the most commonly used assessment instruments in industrial settings (Ryan & Sackett, 1987). Relationships between the GZTS scales and other personality inventories are in reasonable agreement with expected results, generally high (e.g., \( r = .70 \) between the GZTS S scale and the CPI Sociability scale). Correlations between GZTS scale scores and peer and self-ratings of corresponding attributes range from about .30 to .65. The scales appear to measure what they purport to measure (Bigby et al., 1997).

The Dynamic Factors Opinion Survey (DFOS), also developed by Guilford in the 1940's, focuses on the assessment of motivational dispositions and human needs. Using factor analysis, Guilford identified ten factors, but the Assess program only uses seven. Aesthetic Appreciation, Adventure vs. Security and Need for Diversion were dropped due to their inappropriateness to work settings (Bigby et al., 1997). While some of these dimensions might have proven quite appropriate for the case study population (entrepreneurial architects), we did not have the option of adding these dimensions for our purposes.

The Assess personality battery contains 351 items measuring 16 personality characteristics. These items were selected from the GZTS and DFOS to create a
shortened, and more work-focused survey. Some items were updated and others were deleted due to a lack of compliance with government regulations such as the rules associated with the Equal Employment Opportunity Commission (EEOC) and the Americans with Disabilities Act (ADA) (Bigby et al., 1997). An example of such a deletion is an item previously included in the Energy scale that was worded, "You often run upstairs taking two steps at a time". This item was deleted because of its implications for compliance with ADA. Several constructs were evaluated and items deleted if they sounded unrelated to work situations. An example of such a deletion is an item in the Realistic/Pragmatic scale which was worded, "You like to watch circus clowns". This item was not face valid and could be construed as not job related. Several items in several scales were deleted using this rationale.

Additionally, statistical analysis was done to determine which of the remaining items could be deleted to create shorter scales without losing the predictive power of the original scales (Bigby et al., 1997). The correlations between the revised (shortened) scales and the original scales are very high - ranging from .84 to 1.0. The reliabilities of the Assess personality survey scales range from .58 to .85 (Bigby et al., 1997).

The consulting staff of Bigby, Havis and Associates performed three concurrent validation studies using the Assess battery of tests. Validity coefficients ranged from .31 to .46, well within the expected range for concurrent validity. There was no adverse impact within these studies (Bigby et al., 1997).

The Assess battery was selected because of the ability to combine cognitive abilities and personality surveys in one instrument. The partners in the case study
organization are architects, and had strong opinions about how architects differed from corporate employees by nature of their training. The differences isolated as "offsets" were thought to be a function of differences in their cognitive styles. Therefore, the cognitive abilities test, specifically the portion measuring Abstract Reasoning, were of particular interest to this partner group. Ravens Standard Matrices was selected because of its focus on abstract vs. concrete reasoning, which was an area of the partners "offsets." The Thurstone Test of Mental Alertness was selected because of its ability to identify cognitive flexibility, which the partners believed was important for the project management portion of their jobs. The Watson-Glaser Critical Thinking Appraisal was selected because of its ability to identify higher level decision making capacity.

Additionally, the personality surveys are well established, reliable and valid, and the combined (cognitive plus personality surveys) scores provide comparisons to a normative database of over 10,000 professionals (Bigby et al., 1997). Since the objective of the assessment was to better understand the personal characteristics, cognitive styles and values of the partners, the comprehensiveness of this battery was viewed as essential.

Executive Profile Survey. The Executive Profile Survey was developed by Dr. Virgil Lang, Dr. Samuel E. Krug and the Institute for Personality and Ability Testing (IPAT). It is a self-administered paper and pencil assessment of 11 dimensions, computer scored by IPAT, which reflects a respondent's occupational self-concept. The dimensions - ambitious, assertive, enthusiastic, creative, spontaneous, self-focused, considerate, open-minded, relaxed, practical and systematic --are the self-attitudes and value patterns held in common by 2,000 executives whose responses form the norm base for this test.
The 11 dimensions were determined by a factor-analytic approach based on two primary studies. It is the result of information collected from 666 executives in the 1966, then updated in 1972 by collected responses from 538 additional executives, including 71 women. A factor analysis of both studies resulted in the initial test, which was published in 1978. Each of the 11 dimensions shows decent reliabilities, ranging from .61 to .90. Validity was determined by comparing the 11 dimensions with the underlying pure factor structure that was used for the factor analysis. Validities range from .82 to .92.

This test was chosen as an assessment instrument because it would allow the partner group to compare themselves with a norm of other executives in a variety of corporate settings. Even though the normative database is somewhat dated (over 20 years old), it was regarded as representing the traditional corporate success profile. The partners were particularly interested in this instrument because of its potential to differentiate their profile (as entrepreneurs) from that of corporate executives. The owner managers had previously discounted research findings on leadership and effective management, because they believed it was not applicable to entrepreneurs, owner-mangers and small business owners.

16PF Fifth Edition - Human Resource Development Report (HRDR). The 16PF was developed by Raymond Cattell over 45 years ago, and the Fifth Edition is the most recent update, completed in 1993 (Russell & Karol, 1994). The Human Resource Development Report (HRDR) is a computer-interpreted report that is produced based on responses to the 16PF Fifth Edition questionnaire. The HRDR interpretive report is a narrative summary outlining the individual's strengths and areas for development.
The 16PF Fifth Edition contains 185 items that comprise the 16 primary personality factor scales as well as an Impression Management, or social desirability scale. The test is not timed, can be administered individually or in group settings, and usually takes approximately 35 to 50 minutes. Computer scoring and the HRDR interpretive report are provided by IPAT.

The HRDR has five composite scales that are regarded as common characteristics of successful managers: Leadership, Interacting with Others, Making Decisions, Initiative and Personal Adjustment (Kramer & Conoley, 1992). Long-range (2.5 months to 8 years) test-retest reliabilities range between .08 and .89, with a mean of .52. Internal consistency reliability on the 16PF Fifth Edition range from .62 to .85, but no information on the internal consistency of the HRDR was available.

The validity of the 16PF Fifth Edition is well established. The factor analytic approach to its development, its long history of widespread use, and the numerous correlations to other personality inventories, all with validity coefficients that are significant at the p<.01 level (Russell & Karol, 1994). The validity of the HRDR is less well-established, since the interpretive comments written into the software are based on the experience of IPAT expert experience, not on actual empirical research findings (Kramer & Conoley, 1992). The validity of the scales used in the HRDR is based on a content analysis of management literature that identified 88 studies using 54 assessment instruments. Although no validity coefficients are available, IPAT does provide detailed references supporting the use of these studies (Kramer & Conoley, 1992).
The Assess 5.0 personality instruments, primarily the GZTS, correlate strongly with several of the 16PF scales. Much of the information gathered is duplicative. The HRDR was selected for the case study because of its specific developmental tone, and the dimension of "leadership potential." The partners were particularly interested in finding an instrument for long term use that would identify potential in young architectural interns. This instrument was used with the partner group as a baseline measure for future selection purposes, not for the development of the partners. Their concerns about being different than corporate managers lessens at lower levels within their organization. They intuitively believe that the characteristics for success in their organization are similar to those within a large organization.

Motivation Analysis Test. The Motivation Analysis Test (MAT) was developed by Raymond Cattell in 1962 and was updated in 1987. Unlike other personality assessment instruments, the MAT uses a series of objective tests of ergic strength to measure the dynamic or motivational trait structure of the examinee (Bolton, 1987). It measures five ergs and five sentiments: Mating, Assertiveness, Fear, Narcism-Comfort, Pugnacity-Sadism and Self-Concept, Superego, Career, Sweetheart-Spouse, Home-Parental. It can be used to assess the motive structure of adults. The paper and pencil test can be administered individually or in small groups, usually within one hour. The test is computer scored by IPAT, and an interpretive report is provided.

Split-half reliabilities for the ten scales range from .33 to .70, and test-retest reliabilities range from .39 to .69. Validity coefficients are based on the correlation between factor estimates, and range from .52 to .76.
This test was selected because of the partner's interest in determining the motivation and values they had in common. The area of career motivation was of particular interest to them. Specifically, the partners were searching for an instrument that would quantify the achievement motivation directed toward one's career goals. They wanted to be able to identify others that shared their strong motivation toward achieving their career objectives.

**Rokeach Values Survey.** The Rokeach Value Survey was developed by Milton Rokeach in 1967 and updated in 1982. It measures 36 value constructs, equally divided between the categories "instrumental" and "terminal". Instrumental values are desirable modes of conduct, whereas terminal values are desirable end states of existence. Respondents rank order the two lists of values using gummed labels which allow for rearranging. Total administration time is less than 30 minutes, and can be administered individually or in groups.

Test-retest reliabilities range from .76 to .80, and the reliability of each value score range from .51 to .88. One score equals one scale.

The selection of the 18 instrumental values began with a published listing of 555 personality trait names. Rokeach immediately deleted the negative trait names, believing that all values are positive. The remaining 200 trait names were clustered for near-synonyms. The list was reduced to 12, then 6 values added later in response to criticism. The terminal values list was determined by reviewing value literature, Rokeach's personal value system, generating suggestions by graduate students and interviews with approximately 100 adults. Again, values were clustered according to
near-synonyms and the list was reduced to 18 (Mueller, 1984). The Values Survey has been administered to thousands of respondents and correlated to a wide variety of social and individual outcomes. Some examples are predicting which smokers are more likely to quit, which adults are more likely to accept the tenets of the Civil Rights Movement, and whether middle aged women prefer instrumental or terminal values (Rokeach, 1979). This survey is widely regarded as one of the most comprehensive values surveys available (Mueller, 1984).

This instrument was selected because of its usefulness for group comparison, and one of the main competency areas identified was the shared values of the partner team. The Rokeach Values Survey represented a relatively inexpensive tool to facilitate discussion about common values. Additionally, a study by Solomon and Fernald (1990) demonstrated that entrepreneurs shared three common values: Pleasure, True Friendship and a Sense of Accomplishment. The use of this instrument allowed the researcher to attempt to replicate these findings.
CHAPTER III

RESULTS

The purpose of the assessment process was to complete the job analysis process. Inadequate information about three of five identified competency dimensions had been surfaced using traditional job analysis: (1) personal characteristics, (2) values and philosophy and (3) expert knowledge and judgement. The assessment results were expected to expand our understanding of these competencies.

Test Results

The results from all assessment tests were compiled and reported back to the partners individually, then in a group setting. Not all of the tests taken provided information that was useful to the partner group for the development of a selection system, and for identifying potential for leadership within the organization.

The Assess 5.0 battery results provided a comprehensive graphic profile that was reviewed for similarities and differences between the partners. The success profiles that were developed are largely based on Assess-defined dimensions. See Attachment D for the success profile for each partner's functional role.

The 16PF Human Resources Development Report provided a narrative report that offered two dimensions that supported the development of the success profiles: Leadership Potential and Leadership Style. Although the characteristics that supported
these dimensions were duplicated in the Assess battery of tests, these dimensions were not represented in a summary format in other instruments.

The Rokeach Values survey results provided a very consistent picture of values among the partners. All three partners answered the same for three of the top five values on each of the two scales. The top three values identified by the partners were: (1) Family Security, (2) True Friendship, and (3) Self Respect. On the second scale, the top three values were: (1) Honest, (2) Responsible, and (3) Ambitious.

The Executive Profile compared the partners to a norm of traditional executives. The similarity among the partner's results confirmed some of the dimensions measured by the Assess battery, but the comparison to traditional executives did not surface any strong pattern.

The Motivation Analysis test was selected because of its potential to identify career motivation. Results indicated that the career motivation levels for all three partners were in the low average range.

Upon reviewing their test results individually and collectively, the partners agreed to assess their direct reports. In the interest of eliminating duplication and saving time, they decided to reduce the amount of testing to the Assess battery of tests, the 16PF and the Values Survey.

**Success Factors**

From these test results, primarily using the Assess 5.0 graphic profile, the researcher identified for the partners the dimensions they had in common, and the patterns that emerged where two partners were the same, and one was significantly different. The
partner group believed that its success was due to the marked differences in personality and characteristics of the marketing partner and the financial partner. The marketing partner matches most research findings about entrepreneurs, in that he is comfortable taking risks, extroverted, creative and intelligent. The financial partner is cautious, introverted and pragmatic. The junior partner surfaced as matching a more traditional success profile for a manager, extroverted, assertive, more self-reliant and more positive about people than the founding partners. See Appendix D for the success factors initially identified by partner function.

**Limits of Assessment Results**

The extensive assessment battery had provided important information about half of the missing three competency dimensions that the partner team shared: (1) personal characteristics and (2) values. As we reviewed the five areas of competency, we found we had not clarified the dimension of expert knowledge and judgement. Additionally, while we had discovered good information about values, we could not yet measure or identify the shared philosophy, which the partners felt emerged from their shared values. We could not, based only on the assessment results, identify potential partners who shared the partners' philosophy towards clients, architecture and business. The researcher proposed creating a structured interview, based on the partners' collective experience and tacit knowledge, in order to try to measure these tacit knowledge dimensions (expert knowledge and judgement and philosophy).
Development of Structured Interview

The partners submitted actual scenarios they had encountered that required a special judgement call or demonstrated adherence to their company philosophy. The questions were targeted to five functional areas: (1) General philosophy, (2) Marketing, (3) Financial Control, (4) Project Management and (5) Developing People. The questions were refined and tested with all three partners. We finalized thirteen questions, representing the functional areas in different proportions, based on the partners' expectation and anticipated future needs for the business. The result was:

1. General philosophy of client advocacy 2 questions
2. Marketing and networking 2 questions
3. Financial judgement calls 3 questions
4. Project management judgement calls 5 questions
5. Developing people/managing 1 question

The number of questions is not evenly balanced. We felt it was important to represent at least two questions from each functional area for each partner, and two on shared philosophy. Project management received more emphasis because the intended audience's competencies are largely dependent on project management. We anticipated the top management group as the intended audience, 90% of whom are full time project managers. As we developed project management questions, it became clear that one question was more accurately described as developing people. It is actually a subset of project management competencies.
The partners then identified the answer that would best reflect agreement with their philosophy and collective judgement, and the answer(s) that would reflect absolute disagreement. These were labeled "best" and "bad" answers. Then a "good" answer was developed for each question. A good answer is one that may result in an acceptable result, but falls short of a full understanding or appreciation of the company's philosophy. These answers became the anchors for a rating scale: 5 points for a "best" answer, 3 points for a "good" answer and 1 point for a "bad" answer. Raters could use 4 or 2 points if they felt it necessary.

The structured interview was administered individually to each of the five top managers in the company. Four of the managers were architects - three functioned as project managers and one as the director of interior design. The fifth manager was the new marketing and business development manager. The partners had neither the time nor inclination to interview each manager as a group, then rate them. The researcher administered each individual interview. The responses were audio taped and transcribed, to record them for the partners to rate. The partners received transcribed responses, grouped by question without any identification of the manager responding. This was a step taken to avoid bias, based on the partners' pre-conceived notions of what each manager knew.

Results of Structured Interview

The partners applied the rating scale as it was developed. The researcher compiled the ratings and looked for inconsistencies in scoring. The partners met again to review their ratings and further refine the anchors. For example, in some cases, one
partner gave a 1-point rating, where the other two partners gave a 5-point rating. For some of these questions, the ratings were changed. In others, these items were discussed, and the differences in perception proved helpful at surfacing issues that had not previously been considered. The questions were refined, as well as the rating scale. The scores for the five managers were then separated by manager, and the results compiled. As expected, the overall highest average score was obtained by the manager whom the partners believe is their highest performer. The second highest average score was obtained by the manager who had been the company's third employee, and had experienced many of the situations first-hand. The lowest average score was obtained by the newest manager to the company. He had been hired approximately one month prior to his participation in the structured interview. His answers generally reflected a much more suspicious approach to client relationships, which was the norm at his previous employer. The overall average score ranged from 3.32 to 4.44, with a group average of 3.91, out of a possible range of 1 to 5.

A group meeting of the top management group and the partner team was focused on the structured interview questions, ratings and results. The management team had copies of their answers, the questions, the ratings and a summary of their ratings by category, by question and an overall average score. Each question was reviewed by the group, and discussed at length. As a result, some questions were further amended and the rating scale was again adjusted. Differences in philosophy were surfaced, discussed and agreement was reached among the members of the top management team.
CHAPTER IV

DISCUSSION

Traditional job analysis methods were inadequate to capture the tacit knowledge that supported three of the five competency dimensions for the partner group. It was adequate to capture the dimensions of interpersonal effectiveness and management skills, which are competencies that are more commonly shared with corporate managers. However, the nature of the owners' work did not lend itself to easy categorization after this common ground was established. The competency dimensions of values and philosophy, personal characteristics, and expert knowledge and judgement were not captured by traditional job analysis. Assessment tools were used in an effort to further identify and understand these dimensions. The assessment results did clarify personal characteristics and values, but not philosophy or expert knowledge and judgement. A structured interview was developed to identify and measure others' agreement with these dimensions.

Test Results

The most useful results came from three sources: the Assess 5.0 battery of tests, the 16PF Human Resource Development Report and the Rokeach Values Survey. The Assess 5.0 battery of tests emerged as the most comprehensive and useful of the tools for identifying personal characteristics, primarily because of its inclusion of the cognitive
abilities tests. The integration of cognitive abilities with personality factors provided a comprehensive graphic profile that the partners found easier to interpret than the narrative report format of the other tests. It eventually became the "backbone" of our discussion—the test against which all others were compared.

In this respect, the 16PF Human Resources Development Report was largely a duplicative effort, but offered a helpful confirmation of the Assess results to the partners. The 16PF report did provide information on two unique dimensions, Leadership Potential and Leadership Style, that the partners found helpful. Leadership Potential provided a comparison to traditionally understood variables that had correlated to success in leadership positions, and Leadership Style provided a distinction between Assertive, Facilitative and Permissive leadership styles.

The Rokeach Values Survey was helpful to the partners' discussion of their values, by providing a common language to discuss their common values. They were not surprised at the consistency among the partner group. They believe the consistency in their primary value—Family Security—is partially due to their similarity in demographics. They are all in their mid- to late-thirties, married, with young children. The results only duplicated previous research on entrepreneur values in one value: True Friendship. The partners believed the overall picture one obtains by reviewing the top three values accurately reflects their basic value orientation. They made decisions about communicating these values more explicitly to their management team and potential management candidates.
The least useful of the assessment tools used were the Executive Profile Survey and the Motivation Analysis Test, both from the publisher of the 16PF. The Motivation Analysis Test measures basic drive or need, offset by current satisfaction level. Since each of the partners was relatively comfortable with his success, the need had been somewhat satisfied. A high score in career motivation on this test would not reliably predict what the partners called career motivation, or initiative. It would identify either a person with a lot of career drive that had been unable to successfully manifest it, or someone that regardless of his or her level of success, was not satisfied. There is a high possibility of false positives, and the partners, who perceived themselves as highly motivated, scored low on this dimension. We determined that many of the people that would score high in career motivation would be undesirable as candidates for selection. Additionally, the test surfaces information about basic drives, such as sex, attachment to parental home, attachment to spouse, etc.—information that would be perceived as completely inappropriate for business uses.

The Executive Profile compared the partners to a norm of traditional executives, and the partners found this to be unhelpful because of the dated normative baseline. The similarity among the partner's results confirmed some of the dimensions measured by the Assess battery, but the comparison to traditional executives did not surface any strong pattern. Our assumption that the entrepreneurs would score significantly differently than traditional executives did not prove to be true, primarily because only one of the partners matched the research profile for an entrepreneur.
Success Profiles

The success factors were built based on the profiles of one partner each. As more of the organization is assessed, the intention is to revisit these profiles and look for consistencies among high performers. The partners did not want to simply replicate their own particular quirks, which had been successful for them in the past, because they recognized it may not be indicative of success in the future. We agreed that it would be important to maintain an open-minded perspective on these success profiles, realizing that it may take several years to refine. These success profiles represent a first draft, a mere springboard for future discussions.

The most important distinction made was the identification of characteristics that were unique to each partner and provided an advantage for his functional role. For example, the financial partner felt comfortable that any potential successor for his function should display a high score in Realistic/Pragmatic thinking style. Some dimensions were more crucial than others as they related to the function. The partners discussed these distinctions at length, and we agreed to focus our attention on a very few, important characteristics instead of expecting an entire profile to "match" the success profile. It was important for the partner group to distinguish between the "core" personal characteristic competencies and their natural preference for their successor to be exactly like them. The result of this distinction was a more open-minded perspective when discussing the potential of their current staff, and the suitability of each person for their current and future responsibilities.
Structured Interview Effect on Partner Group

The assessment process alone yielded important, but incomplete data. The need for a method of assessing adherence to company philosophy and the accurate application of professional judgement resulted in the development of the structured interview.

The process of developing the structured interview served as a valuable exercise for the partner group, because it created many formal opportunities for the partners to have a series of explicit conversations about their shared philosophy and values, and the reasons for it. This process was in itself an intervention for the partner group, and served to strengthen their shared commitment to their company’s unique perspective on its industry, clients and employees. The partners agreed that they had been so busy in the past ten years trying to be successful that they had never actually discussed among themselves why they had been successful. As their understanding of their own contribution to the success of the business increased, their appreciation of others’ contributions also increased. The partner group expressed enthusiasm for measuring the level of agreement with these tacit knowledge competencies among the top management group.

Structured Interview Results Among Management Group

The group meeting that occurred between the partners and the management group was another valuable experience for all involved. The partners later reported that this process created the first formal opportunity for them to explicitly discuss their philosophy with these managers. Previously, this tacit knowledge was passed on individually from partner to manager, on the airplane together for business trips, or other informal ways.

The structured interview process created a formal opportunity for them to train their top
management group in specific judgement calls, and to discuss their decisions without the pressure of a deadline or a client project in danger. As a result, a more full discussion emerged, and the managers were able to ask more probing questions, voice their concerns, and challenge the philosophy. As a result, the partners evaluated their decision making on other incidences in light of their own compliance to their philosophy.

The newest manager found this discussion extremely helpful as an orientation to the company, and believes it increased his effectiveness in client relationships. The partners believed the process was lengthy, but important as a training opportunity for these managers.

These results were very helpful for the partner team at identifying specific areas where their management team was out of alignment with their company philosophy. It also served to boost their confidence in the manager’s judgement calls. They agreed that they probably did not fully appreciate the high level of agreement with their philosophy, since they primarily were asked to become involved if a client was unhappy. They were satisfied that a high score on the structured interview would correlate to a high level of agreement with their philosophy and values, and would reflect a high level of expert knowledge and judgement.

Our original intent was to use the structured interview as a way to assess the individual manager’s agreement or alignment with the company’s philosophy. However, the development and administration of the structured interview proved to be an important vehicle for identifying, clarifying and communicating this philosophy and values among team members. The results, when analyzed as a whole, provide information about how
effectively the partner group had transmitted these values to the management team in the past, using primarily informal socialization.

The partners agreed that all employees should participate in the structured interview because of its value as a teaching tool. They were interested in which variables contributed to closer alignment to their philosophy. They speculated that length of service at the company, number of years as an architect, and experience on a certain manager's team could be contributing factors.

More importantly, the compilation of results would tell them the point in the organization that needed more formal instruction about philosophy and specific areas of expert knowledge and judgement. They predicted there would be a clear break in the results - a point where most employees do not understand how to handle a certain situation in a manner consistent with their philosophy. As an organizational development tool, the structured interview will function as an assessment of how effectively tacit knowledge has been transmitted using informal socialization.

Selection System

The partners' interest in this process was to support their growth strategy by adding managerial capacity. Eventually, that meant this work would make changes in the selection system. Previously, the partners had recruited primarily through their own personal contacts, and the recommendations of their current employees. The interview process was unstructured and inconsistently applied. The messages relayed to a candidate varied, depending on the partner they initially contacted, and the business cycle. The partners reported they primarily looked for a good work ethic, strong initiative, and an
eagerness to learn. In the past, they had been generally successful, but as the Dallas
unemployment rates dropped, it was becoming increasingly difficult to find qualified
architects with the attitude they preferred. In fact, they admitted that several of their most
recent hires were a departure from their usual hiring standards. The partners were eagerly
anticipating a change in their selection system.

For management level positions, all pre-screened candidates will take the Assess
5.0 battery of tests and will participate in the structured interview. The partners have
established preliminary guidelines for each of the competency dimensions for each
qualified candidate for management positions. See Appendix E for a summary of the
competency area and the results guidelines.

Business Strategy

The partners were interviewed after the success factors were identified, and the
results of the structured interview had been compiled for their current managers. They
were asked two questions: (1) What was your understanding of how the business would
grow before we started this process; and (2) What is your current understanding of how
the business will grow?

The partners' responses to these questions reflected a common theme. Previously,
they had understood themselves to be a service business. Their motto in many of their
marketing materials had been: "We understand we don't sell blueprints; we sell service".
Because their philosophy was extremely client oriented, they assumed this was the only
key to their success. As they grew, that service became harder and harder to provide
because of the lack of capacity they could hire, develop and retain internally. Their
approach to opening the El Paso office was typical: a client indicated that they could gain a larger portion of their business by having an office in the region, and they opened an office in the region. They performed no external market analysis and had no real appreciation for the competencies required of the employees that were sent to operate that office.

The partners (and the management team) now understand the company to be a knowledge-based firm that provides professional services. The difference is that they must compete, not only for clients, but also for well-qualified staff and management personnel. The less tangible assets of the business, such as expert knowledge and judgement, personal characteristics, values and philosophy are understood to be tacit knowledge that needs to be developed internally. They no longer expect an employee whose primary training occurred elsewhere to walk into their environment and function at full capacity. This shift in assumptions and increased awareness is an important foundation upon which they will build their business in the future. It represents the most significant evolution in their thinking. They do not believe that the things that made them successful in the past will necessarily keep them successful in the future. In fact, they agreed that the very competencies that made them so successful as a start up would eventually limit their growth. Their challenge now is to maintain their client-centered philosophy without requiring ongoing partner contact with every client.

The partners disagreed about the growth strategy in the past. The marketing partner, predictably, wanted to open branch offices as a way to diversify and strengthen the business. The financial partner, predictably, wanted to avoid risk and overhead, and
grow the Dallas office primarily. The operations partner, predictably, had no real opinion
on the method of growth, but was primarily concerned with increasing operational
capacity to handle the growth, regardless of the geographic location. In the past, the
marketing partner's influence had been the strongest, and the other two partners yielded to
his lead.

Currently, the partners have agreed on developing criteria for opening branch
offices that address the concerns of each function. They have reflected on the El Paso
office experience, individually, as a group, and with the El Paso staff. They are making
conscious decisions to learn from the experience. Their criteria is not fully developed at
this writing, but any future branch office growth is targeted with these objectives: (1) to
be responsive to current clients, (2) to identify future client potential in the region, (3) to
evaluate capacity issues, such as the availability of qualified staff in the area, and (4) to be
financially able to function for a pre-determined period without draining resources from
the Dallas office (therefore reducing the risk to the overall organization).

As a part of the process, a member of the management group distributed an article
from the American Institute of Architects practice manual, written by a consultant that
specializes in design professions. Hochberg (1994) describes a common transition pattern
for architectural firms: that the first generation of founding partners is entrepreneurial and
visionary, but the second generation are more likely to be project managers that are more
risk adverse. As a result, the organization's growth slows. This may take a period of
several years. Generally, it's common to then see a third generation that has
characteristics that resemble the first generation again. The strategic planning group and
the partners discussed this at length, and made decisions to grow through fostering entrepreneurs, not simply by promoting good managers.

**Management Strategy**

Each partner reported in interviews that the primary shift in their thinking is to more fully appreciate how the work will be performed to their standards, in alignment with their philosophy, without their direct contact. They agreed that their previous emphasis had been on obtaining the business, and that they were now at a stage where their ability to deliver what they promised was at risk. They have a better appreciation for the role the organization must play in selecting the right people, developing them while they are with the company, and providing a strategy for retaining high performers.

One partner commented, "Before, we thought if anyone had initiative, they could make it here. We've always valued initiative over experience. Now we understand that initiative is an important part of success, but some people are ahead of others in how they use it. This process has helped us identify more specifically what it is that we want, how to spot initiative, and how we can help people get more productive faster." The operations partner said, "I've been doing this all along. So I'm just glad that you're getting some buy-in from the other partners. They have said to me in the past that they don't want to be in the business of training architects. Now I think they understand that we have to develop people to stay competitive."

In a presentation to all employees, the management group identified their strategic objectives for the future. Their objectives included: (1) focusing more on improving design quality and pursuing projects with more design opportunities, (2) diversification (both geographic and by industry), and (3) becoming a learning organization, offering
employees growth opportunities and focusing on professional development. These objectives directly support Peter Senge's (1990) observation in The Fifth Discipline: "Sustainable organizational growth means increasing the skills of our people, our capacity to learn, the quality of what we produce and the quality of our workplace".

In this case study, traditional assessment tools were used to complete the process of job analysis and identify competencies necessary for senior level management. As the limits of these tools were reached, a structured interview was developed to make explicit and measure two of the competency areas that are largely tacit knowledge. Since the core competencies identified were primarily tacit knowledge dimensions, traditional methods were inadequate to meet this client's unique needs.

The process of participating in extensive individual assessment, and developing a structured interview created formal opportunities within the organization for explicit discussions about values, philosophy, personal characteristics and expert knowledge and judgement in a new way. The results of these discussions were:

1. a better understanding of these hard-to-measure dimensions,
2. an appreciation for how these dimensions affected the firm's past success,
3. a realization that the past success factors did not guarantee future success,
4. an appreciation of the partners' tacit knowledge,
5. a greater understanding about why it was unrealistic to expect that others would obtain it without their help,
6. a commitment to more stringent selection procedures, particularly for management positions,
a realization that their future business strategy for growth depends not only on gaining new clients, but increasing their capacity to create and develop knowledge internally.

Summary and Conclusions

Since small, owner-managed knowledge work organizations are a growing segment of America's business population, it will be important to learn more about them. There are unique characteristics of owner-managed organizations, of knowledge work firms, of small vs. large businesses. As these characteristics combine, there may be some consistent predictable patterns of growth and organizational life. Most owner-managed businesses remain small because they can not discover how to grow effectively and maintain their tacit knowledge base and competitive advantage. The extreme competence of the founders eventually becomes the limit to the organization's future growth. Since this extreme competence is largely made of tacit knowledge, it is important to work for better ways to make tacit knowledge explicit and understood, so it can be shared. The more research done with this population, the more effective organizational consultants can be.

Specifically, the traditional products and tools available to organizational consultants simply do not address the particular concerns of this business population. Traditional tools don't adequately measure tacit knowledge dimensions of a knowledge worker's functioning. The measurement of tacit knowledge competency dimensions requires significant participation of the "expert". The process used in this case study began with a job analysis based on interviews with experts. After discovering the
otherwise articulate experts' difficulty in describing their KSA (knowledge, skills and abilities) in specific terms, a set of broad competency dimensions was established.

Individual personality, opinion and values surveys were used to further investigate the competency dimensions of "personal characteristics" and "values and philosophy". Upon gaining a fuller understanding of these specific competencies, the researcher looked for ways to measure the tacit knowledge competency dimensions of "expert knowledge and judgement" and "values and philosophy". A structured interview was developed based on the experts' past experiences and consistently successful judgement calls. The structured interview was administered to the top management group. It functioned effectively as a tool to not only measure tacit knowledge agreement, but to facilitate the integration of cultural issues in a formal manner.

Since tacit knowledge is so difficult to articulate, there is a significant benefit to a third party working to develop the structured interview. One must listen for tacit knowledge dimensions, and be skilled at facilitating dialogue about areas of "common knowledge". This involves surfacing mental models that are shared, which can be more difficult than sharing differing mental models. It also requires skill in listening and mirroring back to experts what has been said, until it is clearly articulated.

If one understands business strategy in an owner-managed firm to be largely the result of tacit knowledge competencies, the result of the process was shown to be significant in influencing future business strategy. The owners understand their own contribution to the organization's success more fully, and recognize the importance of tacit knowledge transference and creation in the management group. This executive assessment
process actually helped formulate new business and management strategies, instead of advising the executives how to best adapt to an already existing culture and strategy. This process could be used effectively in organizations with owners active in operations, new organizations, or organizations with a strong concentration of knowledge workers, where the business strategy is a function of tacit knowledge dimensions.

If the owner of a small business is interested in continuing the organization after his involvement, as the partners in this case study were, there is a tremendous opportunity to make fundamental changes. Organizations are best positioned to make the paradigm shift to a learning organization orientation while the owners (primary stakeholders) are still active in the business. It’s hard to imagine a more concerned, involved party than the founder of a business.

If we, as organizational consultants, are interested in more businesses adopting this orientation, it makes sense to start while they are small, and help them grow using these principles. Research about the process of creating a learning organization only reflects the experiences of very large corporations. It would be helpful to understand how small owner-managed firms could accomplish the same objectives - hopefully in less time, or more effectively. For this case study organization, increasing managerial capacity means passing on tacit knowledge of owners, facilitating the professional development of knowledge workers, and identifying potential for start up competencies such as marketing and finance.

The partners understand that a learning organization is a management strategy that will most effectively assist them in their business strategy of increasing managerial
capacity, so the organization can grow. The changes in the selection system are a result of this new understanding. When business strategy is aligned with management strategy, the danger of adopting a trendy organizational solution is decreased. Everyone in the organization understands why the shift to a learning organization structure is necessary, and supports it. The chances for success are much higher with this kind of alignment.
APPENDIX A

SUMMARY OF INTERVIEW TOPICS FOR JOB ANALYSIS
Summary of interview topics for job analysis

1. Tasks and activities on a daily, weekly or monthly basis.

2. Percentages of time spent in these activities or tasks.

3. Knowledge, skills and abilities that contribute to their effectiveness in these activities.

4. Functional role of the partner.

5. Activities and functions that are shared between partners.

6. Activities and functions that are unique to this partner.

7. Description of the interactions within the partner team.

8. Analysis of this partner's usual role in these interactions.

9. Partner's current level of satisfaction with his activities, function and role in the partner team.
APPENDIX B

SUMMARY OF ACTIVITIES BY FUNCTION AND PARTNER
Summary of Activities by Function and Partner

**Partner One**

**Financial**
- Evaluate monthly operating expenses
- Gather information from Project Managers about specific details related to billing
- Initiate discussions with partners regarding bonus and salary review amounts
- Keep abreast of cash flow/accounts receivable aging
- Know client's expectation for bids
- Know normal expenses vs. unusual situations
- Maintain a "big picture" perspective on company's stability and profitability
- Make decisions about capital expenditures with other partners
- Make decisions about daily expenditures
- Make decisions about when to bill/when to make exceptions
- Manage cash flow for following year's first quarter
- Review invoices submitted by Project Managers
- Select and work closely with accountant on fourth-quarter billing and collections
- Set bids with partners
- Stay abreast of every project's status, stage, billing, and profitability with Monthly Operating Report

**Project Management**
- Assess owner's tolerance for advanced design
- Designing a solution to meet client's needs/solve problem
- Designing with owner's needs, not architect's ego, in mind
- Developing master plans
- Knowledge of construction management norms
- Knowledge of health care industry trends
- Listening to client, understanding what they really need
- Maintain sensitivity to owner's budget constraints
- Managing consultants for owner's benefit
- Meeting with clients to determine project needs and parameters
- Problem solving skills
- Understanding of health care facility operations and work flow

**Marketing**
- Networking with existing clients on upcoming projects with other clients
- Retaining existing clients for future work
Summary of Activities by Function and Partner

Partner Two

Marketing
Identify potential projects or clients
Initiate conversations with appropriate decision makers
Network with consultants/contractors for future work
Network with existing clients for future work
Network with potential clients

Project Management
Accurate assessment of client needs
Assemble project team
Assist client/owner in establishing project parameters
Communicate regularly to clients, internal staff, consultants regarding status and changes
Delegate responsibility to project team members
Determine deliverables, scope, time frames, budget
Develop mutual understanding of roles, skills, interaction on team
Establish and maintain standard of care
Establish benchmarks of process and monitor progress toward goals
Keep team members accountable for adhering to process
Knowledge of industry trends
Knowledge of market trends/ cost of goods, labor, etc.
Provide direction on client's needs, company needs and project parameters
Set expectations with consultants on time, budget, working relationship
Use action item agendas to maintain accountability
Write proposals

Developing People
Attempt to match project needs and staff strengths and interests
Educate staff on architectural codes, techniques, etc.
Educate staff on health care industry work flow
Educate staff on importance of owner's advocate philosophy and client management
Educate staff on the process
Establish standards/maintain accountability to standards for performance
Provide feedback to staff on performance
Provide opportunities for staff to try new things
Supervise attempts at new things
Understand each staff member's strength and interests
Summary of Activities by Function and Partner

Partner Three

**Marketing**
- Network with existing clients for future work
- Network with consultants/contractors for future work
- Network with potential clients
- Meet with industry leaders to keep abreast of industry trends
- Align company with consultant team that will meet client needs
- Determine match between company and client needs
- Make informal and formal presentations to client
- Respond promptly to potential clients
- Ask existing clients to support company to potential clients
- Discuss company's "match" by project with consultants, clients, industry experts
- Write proposals
- Initiate conversations with appropriate decision makers
- Identify potential projects or clients
- Coordinate marketing efforts with marketing assistant
- Entertain clients
- Manage extra-organizational perception of company's image/reputation
- Persistently pursue hard-to-get clients

**Developing People**
- Meet with staff to build relationships - maintain an open door policy
- Understand each staff member's strength and interests
- Coordinate with Studio Directors to ensure client satisfaction
- Model optimistic attitude at office
- Provide feedback to staff on performance
- Coach Studio Directors to give opportunities to younger staff
- Listen to employees' concerns and interests
- Persuade other partners on philosophy/business issues
- Coach others to maintain "big picture" perspective
- Direct monthly employee office meetings
- Coach others on positioning company in difficult situations
- Interview potential employees

**Financial**
- Make decisions about capital expenditures with partners
- Review invoices on self-initiated projects
- Promote technological advancements
- Review annual financial planning with partners
- Review salary and bonus recommendations
Summary of Activities by Function and Partner

Partner Three (continued)

Leadership
Provide long term planning and direction for company
Identify steps toward meeting strategic objectives
Knowledge of business success requirements
Establish health care planning philosophy for company

Project Management
Identify design parameters to meet client needs to Studio Directors
Lead health care planning discussions with client and staff
Discuss client's strategic objectives/help client determine these
Estimate project costs
Developing master plans
Educate staff regarding design or project parameters
Provide conceptual design diagrams
APPENDIX C

SUMMARY OF KSA's BY COMPETENCY DIMENSION

AND PARTNER FUNCTION
### Summary of KSA's by Competency Dimension and Partner Function

<table>
<thead>
<tr>
<th>Competency</th>
<th>Financial</th>
<th>Marketing</th>
<th>Project Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal</td>
<td>• Ability to listen to others concerns</td>
<td>• Ability to establish rapport quickly</td>
<td>• Ability to listen to others concerns</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>• Ability to negotiate with consultants</td>
<td>• Ability to listen to others concerns</td>
<td>• Ability to negotiate with consultants</td>
</tr>
<tr>
<td></td>
<td>• Taking initiative in communicating with others</td>
<td>• Ability to negotiate with consultants</td>
<td>• Ability to provide feedback constructively</td>
</tr>
<tr>
<td></td>
<td>• Written communication skills</td>
<td>• Ability to provide feedback constructively</td>
<td>• Taking initiative in communicating with others</td>
</tr>
<tr>
<td></td>
<td>• Oral communication skills</td>
<td>• Ability to read audience and adapt</td>
<td>• Listening skills</td>
</tr>
<tr>
<td></td>
<td>• Ability to build trust in relationships</td>
<td>• Taking initiative in communicating with others</td>
<td>• Oral, written and presentational communication skills</td>
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<tr>
<td></td>
<td></td>
<td>• Listening skills</td>
<td>• Ability to build client confidence</td>
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<tr>
<td></td>
<td></td>
<td>• Oral communication skills</td>
<td>• Ability to build trust in relationships</td>
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<tr>
<td></td>
<td></td>
<td>• Presentational skills</td>
<td>• Ability to discern others motivation</td>
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<tr>
<td></td>
<td></td>
<td>• Written communication skills</td>
<td>• Ability to encourage others</td>
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<tr>
<td></td>
<td></td>
<td>• Ability to build client confidence</td>
<td>• Ability to influence others</td>
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<td></td>
<td></td>
<td>• Ability to build trust in relationships</td>
<td>• Responsiveness to clients</td>
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<td></td>
<td></td>
<td>• Ability to discern others motivation</td>
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<td>• Ability to encourage others</td>
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<td>• Ability to influence others</td>
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<tr>
<td></td>
<td></td>
<td>• Responsiveness to clients</td>
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</tbody>
</table>
Summary of KSA's by Competency Dimension and Partner Function

<table>
<thead>
<tr>
<th>Competency</th>
<th>Financial</th>
<th>Marketing</th>
<th>Project Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert Knowledge and Judgement</td>
<td>• Accurate assessment of clients expectation on fees</td>
<td>• Accurate assessment of client's operational and strategic needs</td>
<td>• Accurately assess consultant's ability and needs</td>
</tr>
<tr>
<td></td>
<td>• Knowledge of business success requirements</td>
<td>• Knowledge of client's expectation on fees</td>
<td>• Knowledge of construction industry trends</td>
</tr>
<tr>
<td></td>
<td>• Knowledge of construction industry trends</td>
<td>• Accurately assess consultant's ability and needs</td>
<td>• Knowledge of construction mgmt norms</td>
</tr>
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<td>• Knowledge of construction management norms</td>
<td>• Accurately assess match between client and company</td>
<td>• Knowledge of the Process</td>
</tr>
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<td></td>
<td>• Knowledge of normal fee practices</td>
<td>• Knowledge of business success requirements</td>
<td>• Understanding health care facility operations and work flow</td>
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<tr>
<td></td>
<td>• Accurate assessment of when to bill/when to hold back</td>
<td>• Knowledge of construction industry trends</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Knowledge of the Process</td>
<td>• Knowledge of construction mgmt norms</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Knowledge of health care industry trends</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Knowledge of networking</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Knowledge of the Process</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Understanding health care facility operations and work flow</td>
<td></td>
</tr>
</tbody>
</table>
### Summary of KSA's by Competency Dimension and Partner Function

<table>
<thead>
<tr>
<th>Competency</th>
<th>Financial</th>
<th>Marketing</th>
<th>Project Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Skills</td>
<td>• Planning ability&lt;br&gt;• Problem solving skills&lt;br&gt;• Ability to interpret financial reports</td>
<td>• Ability to set expectations&lt;br&gt;• Planning ability&lt;br&gt;• Problem solving skills</td>
<td>• Ability to delegate responsibility and maintain accountability&lt;br&gt;• Ability to set expectations&lt;br&gt;• Ability to teach the Process&lt;br&gt;• Active mgmt to process and project standards&lt;br&gt;• Organizational skills&lt;br&gt;• Planning ability&lt;br&gt;• Problem solving skills</td>
</tr>
<tr>
<td>Personal Characteristics</td>
<td>Commitment to company's success</td>
<td>Commitment to company's success</td>
<td>Commitment to company's success</td>
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</table>
Summary of KSA's by Competency Dimension and Partner Function

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<th>Competency</th>
<th>Financial</th>
<th>Marketing</th>
<th>Project Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Values or</td>
<td>• Big picture perspective</td>
<td>• Big picture perspective</td>
<td>• Big picture perspective</td>
</tr>
<tr>
<td>Philosophy</td>
<td>• Concern for long term financial stability</td>
<td>• Philosophy of client advocacy</td>
<td>• Philosophy of client advocacy</td>
</tr>
<tr>
<td></td>
<td>• Philosophy of charging as much as market will bear</td>
<td>• Philosophy of charging as much as market will bear</td>
<td>• Philosophy of empowering others</td>
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<td>• Philosophy of client advocacy</td>
<td>• Philosophy of empowering others</td>
<td>• Philosophy of matching company</td>
</tr>
<tr>
<td></td>
<td>• Philosophy of using fees to retain/capture business</td>
<td>• Philosophy of matching company needs to employee interests</td>
<td>• Needs to employee interests</td>
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<tr>
<td></td>
<td>• Values efficiency</td>
<td>• Values using fees to retain/capture business</td>
<td>• Values consistency</td>
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<td></td>
<td>• Values consistency</td>
<td>• Values a positive image of company in marketplace</td>
<td>• Values efficiency</td>
</tr>
<tr>
<td></td>
<td>• Values honesty and fairness</td>
<td>• Values honesty and fairness</td>
<td>• Values a positive image of company in marketplace</td>
</tr>
<tr>
<td></td>
<td>• Values stability</td>
<td>• Values open communication</td>
<td>• Values honesty and fairness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Willingness to give w/out a guaranteed get</td>
<td>• Values open communication</td>
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</table>
APPENDIX D

SUCCESS FACTORS INITIALLY IDENTIFIED BY PARTNER FUNCTION
Success Factors Initially Identified by Partner Function

<table>
<thead>
<tr>
<th>SUCCESS FACTORS - MARKETING</th>
<th>ASSESS DIMENSION/SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to generate new ideas</td>
<td>High Abstract Reasoning</td>
</tr>
<tr>
<td>Ability to &quot;switch gears&quot; quickly</td>
<td>High Mental Alertness</td>
</tr>
<tr>
<td>Prefers to think things over in depth</td>
<td>High Reflective/Probing thinking style</td>
</tr>
<tr>
<td>Solves problems without a step-by-step approach</td>
<td>Low Organized/Structured thinking style</td>
</tr>
<tr>
<td>Takes things seriously and plans carefully</td>
<td></td>
</tr>
<tr>
<td>Works fast, prefers a vigorous schedule</td>
<td>High Serious/Restained thinking style</td>
</tr>
<tr>
<td>Likes to work with a team, can rely on others</td>
<td>High Energy Level</td>
</tr>
<tr>
<td>Thrives in a more loosely defined work setting</td>
<td>Average Self Reliance</td>
</tr>
<tr>
<td>Likes to be recognized as successful</td>
<td></td>
</tr>
<tr>
<td>Doesn't enjoy detail work</td>
<td></td>
</tr>
<tr>
<td>Even tempered OR Strong emotional restraint</td>
<td></td>
</tr>
<tr>
<td>Takes initiative with people</td>
<td>Low Acceptance of Control, High Need for Freedom</td>
</tr>
<tr>
<td>Enjoys and comfortable in social situations</td>
<td>High Need for Attention</td>
</tr>
<tr>
<td>Competitive, more important to be right than to be liked</td>
<td>Low Detail Interest</td>
</tr>
<tr>
<td>Cautious in trusting others</td>
<td>High Emotional Evenness OR</td>
</tr>
<tr>
<td>Ability to understand motivations and concerns of others</td>
<td>Low Emotional Evenness plus</td>
</tr>
<tr>
<td></td>
<td>High Emotional Control</td>
</tr>
<tr>
<td></td>
<td>High Assertiveness</td>
</tr>
<tr>
<td></td>
<td>High Sociability</td>
</tr>
<tr>
<td></td>
<td>Low Need to be Liked</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low Positive about People</td>
</tr>
<tr>
<td></td>
<td>High Insight</td>
</tr>
</tbody>
</table>
## Success Factors Initially Identified by Partner Function

### Success Factors - Financial

- Ability to "switch gears" quickly
- Thinks in no-nonsense, here-and-now, realistic ways
- Solves problems without a step-by-step approach
- Takes things seriously and plans carefully
- Works fast; prefers a vigorous schedule
- Likes to work with a team, can rely on others
- Thrives in a more loosely defined work setting
- Likes to be recognized as successful
- Doesn't enjoy detail work
- Even tempered OR Strong emotional restraint
- Takes initiative with people
- Competitive, more important to be right than to be liked
- Cautious in trusting others
- Ability to understand motivations and concerns of others

<table>
<thead>
<tr>
<th>ASSESS DIMENSION/SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Mental Alertness</td>
</tr>
<tr>
<td>High Realistic/Pragmatic thinking style</td>
</tr>
<tr>
<td>Low Organized/Structured thinking style</td>
</tr>
<tr>
<td>High Serious/Restrained thinking style</td>
</tr>
<tr>
<td>High Energy Level</td>
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<tr>
<td>Average Self Reliance</td>
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<tr>
<td>Low Acceptance of Control,</td>
</tr>
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<td>High Need for Freedom</td>
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<tr>
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<td>Low Need to be Liked</td>
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<tr>
<td>Low Positive about People</td>
</tr>
<tr>
<td>High Insight</td>
</tr>
</tbody>
</table>
Success Factors Initially Identified by Partner Function

SUCCESS FACTORS -  
PROJECT MANAGEMENT

Ability to "switch gears" quickly
Prefers to think things over in depth
Solves problems without a step-by-step approach
Takes things seriously and plans carefully
Works fast; prefers a vigorous schedule
Prefers to make independent decisions and accept responsibility
Thrives in a more loosely defined work setting
Likes to be recognized as successful
Doesn't enjoy detail work
Even tempered OR Strong emotional restraint
Takes initiative with people
Enjoys and comfortable in social situations
Competitive, more important to be right than to be liked
Tends to concentrate on the positive attributes in others
Ability to understand motivations and concerns of others

ASSESS DIMENSION/SCORE

High Mental Alertness
High Reflective/Probing thinking style
Low Organized/Structured thinking style
High Serious/Restrained thinking style
High Energy Level
High Self Reliance
Low Acceptance of Control, High Need for Freedom
High Need for Attention
Low Detail Interest
High Emotional Evenness OR Low Emotional Evenness plus
High Emotional Control
High Assertiveness
High Sociability
Low Need to be Liked
High Positive about People
High Insight
APPENDIX E

SUMMARY OF COMPETENCY DIMENSIONS AND ASSESSMENT RESULTS

SOUGHT FOR SELECTION PURPOSES
<table>
<thead>
<tr>
<th>COMPETENCY</th>
<th>RESULTS SOUGHT FOR SELECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert Knowledge/Judgement</td>
<td>Score of 3.0 on structured interview</td>
</tr>
<tr>
<td>Values/Philosophy</td>
<td>Rokeach Values Survey plus 3.0 score on answers to structured interview questions about Philosophy</td>
</tr>
<tr>
<td>Personal Characteristics</td>
<td>High Reflective/Probing thinking style, High Serious/Restrained thinking style, or High Realistic/Pragmatic thinking style, High Need for Freedom, High Need for Attention, High Energy level, High to Average Self Reliance</td>
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<tr>
<td>Interpersonal Effectiveness</td>
<td>High Assertiveness, High Sociability, High Insight, Low Need to be Liked, High Emotional Evenness or Emotional Control</td>
</tr>
<tr>
<td>Management Skills</td>
<td>Score of 3.0 or higher on answers to structured interview questions about Project Management and Developing People</td>
</tr>
</tbody>
</table>
REFERENCES


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