

**THE INFLUENCE OF AN ENTREPRENEUR'S BACKGROUND
ON THEIR METHOD OF BUILDING A TEAM**

by

John Lipinski III

Bachelor of Science, University of Pittsburgh, 1993

Master in Business Administration, University of Michigan, 1997

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by

John Lipinski

It was defended on

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Dissertation Committee

John Camillus, Donald R. Beall Professor, Joseph M. Katz Graduate School of Business

Brad Agle, Associate Professor, Joseph M. Katz Graduate School of Business

Arthur Boni, John R. Thorne Chair, Tepper School of Business, Carnegie Mellon University

John Hulland, Associate Professor, Joseph M. Katz Graduate School of Business

Ravindranath Madhavan, Associate Professor, Joseph M. Katz Graduate School of Business

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ABSTRACT

This dissertation intends to provide a foundation for grounded theory to be built regarding the way in which successful entrepreneurs in high tech ventures make decisions and explore the unique team-focused adjustments that must be made to achieve the goal of a successful venture. Thus, the product of this paper will be the development of propositions that can be used in the initiation of new theories regarding entrepreneurial team building. The goal of this research is to help entrepreneurs with different levels of managerial and technical expertise build teams that will help them increase the likelihood of launching a successful venture. Such teams exceed what is normally understood as a top management team (TMT), and instead consist of TMT members, board members, and investors (Venture Capitalists and Angels), as well as outsider advisors who help plan and execute the strategy of an entrepreneurial venture. This research adds to the literature because a new venture team is a particular type of top management team that is largely neglected by the literature.

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PREFACE

The purpose of this dissertation is to provide a foundation for grounded theory to be built regarding the way in which successful entrepreneurs in high tech ventures make decisions and explore the unique team-focused adjustments that must be made to achieve the goal of a successful venture. Thus, the product of this paper will be the development of propositions that can be used in the initiation of new theories regarding entrepreneurial team building. The goal of this research is to help entrepreneurs with different levels of managerial and technical expertise build teams that will help them increase the likelihood of launching a successful venture. Such teams exceed what is normally understood as a top management team (TMT), and instead consist of TMT members, board members, and investors (Venture Capitalists and Angels), as well as outsider advisors who help plan and execute the strategy of an entrepreneurial venture. This research adds to the literature because a new venture team is a particular type of top management team that is largely neglected by the literature (Foo, Sin, & Yiong, 2006).

DEDICATION

There are any number of people who contributed to my successful completion of the PhD program. The first is my advisor, Dr. John Camillus. I do not believe that I would have completed the program without John's support and encouragement. John is without a doubt a gentleman and a scholar who always went above and beyond the call of duty to help me along the way, whether it was lending an ear when times were tough, lending suggestions that have helped with my career, or giving me the direction that I needed to complete this project. Thank you. I will forever be in your debt. Every student should be lucky enough to have a mentor like you.

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left with something interesting to think about and strive towards. Thank you all for being such an integral part of my educational experience.

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To my parents, John and Susan. My mother passed away long before all this took place, but I know that she would be proud. She always pushed me to work hard and succeed. My father was always there to make sure that I had every opportunity to succeed. Thank you both for everything... for the past 36 years and for everything ahead of me. I thank you and I love you.

THE INFLUENCE OF AN ENTREPRENEUR'S BACKGROUND ON THEIR METHOD OF BUILDING A TEAM

CHAPTER ONE

INTRODUCTION

The purpose of this dissertation is to provide a foundation for grounded theory to be built regarding the way in which successful entrepreneurs in high tech ventures make decisions and explore the unique team-focused adjustments that must be made to achieve the goal of a successful venture. Thus, the product of this paper will be the development of propositions that can be used in the initiation of new theories regarding entrepreneurial team building. The goal of this research is to help entrepreneurs with different levels of managerial and technical expertise build teams that will help them increase the likelihood of launching a successful venture. Such teams exceed what is normally understood as a top management team (TMT), and instead consist of TMT members, board members, and investors (Venture Capitalists and Angels), as well as outsider advisors who help plan and execute the strategy of an entrepreneurial venture. This research adds to the literature because a new venture team is a particular type of top management team that is largely neglected by the literature (Foo, Sin, & Yiong, 2006).

The author focuses on five primary research questions:

1. How do entrepreneurs build successful teams?
2. How do entrepreneurs seek out team members?
3. How do entrepreneurs sustain the progress of the venture?

4. How do entrepreneurs' experience levels affect their methods of building a team, with attention paid to the theory of functional fixation?
5. How do technically-oriented entrepreneurs differ from business-oriented entrepreneurs in their management of their ventures?

It is important for entrepreneurs to recognize the conditions that affect their venture, considering that there are any numbers of reasons businesses do not succeed and that the majority of new business ventures fail (Aldrich, 2000). While other researchers have cited more dire estimates, Bracker, Keats, and Pearson (1988) found that close to 65% of start-up companies fail in the first five years. Regardless of the way in which an enterprise begins, the majority of such endeavors fail. When questioned directly, entrepreneurs often indicate that while raising capital is their principal problem (Blanchflower & Oswald, 1998), capital alone is not the only obstacle faced. One must consider the necessary conditions to build a committed team in order to make an entrepreneur's vision a reality as well as to establish market acceptance. Although lack of finances can be a significant problem, as the death of Internet companies conveys, many well-financed start-up companies were not able to succeed. Capital alone was not enough to create a self-sustaining enterprise. If paths taken by successful entrepreneurs could be determined and ways to incorporate these success factors into new companies could be isolated, it is possible that the success rate of start-up companies could be increased.

Arguably, the key determinants of success are the actions taken by the entrepreneur and his or her founding team. While there is an extensive ongoing debate as to whether strategic leadership matters (e.g., Finkelstein & Hambrick, 1996), Day and Lord (1988) find that of all factors, leadership matters the most in entrepreneurial firms.

Decisions made by such leaders set the future direction of the enterprise, as well as assist the direction and expected success rate of the venture. Schein (1983) notes that organizations are usually created because someone takes a leadership role in facilitating a concert of action on behalf of a group of individuals when a task would be impossible through individual action alone. In this study, the actions taken by entrepreneurs to build teams that lead to successful ventures will be investigated.

Founders

In the source literature, researchers have examined the differences between firms led by their founders in comparison with firms that have hired outside managers (e.g., Begley, 1995; Certo, Covin, Daily, & Dalton, 2001; Jayaraman, Khorana, Nelling, & Covin, 2001). For example, Begley's 1995 study showed that founder-led firms had higher ROA than non-founder managed firms. However, most of the research has been inconclusive, leading some to speculate that the key to success depends more on the types of decisions made by the founder (if he or she stays in control) and his or her top management team. Numerous characteristics of entrepreneurs have been examined. In one research study, Westhead (1995) investigated 227 entrepreneurial firms and noted that founding entrepreneurs with managerial experience in a prior company were more likely to fail than those with no management experience. Conversely, Chandler's (1996) review of 134 firms revealed that a founder with strong managerial experience was predictive of success in an entrepreneurial venture. Further, Cooper, Gimeno-Gascon, and Woo (1994) studied 1,053 companies and found no significant relationship between managerial experience and the survival of a firm.

Clearly, the contradictions implicit in these three studies are suggestive that there are factors in addition to managerial experience affecting the survival of a firm. While an entrepreneur's background will affect his or her vision, what actions he or she takes and the decisions that he or she makes likely drive the outcome of the venture. Chandler and Hanks (1994) suggest that competence is more of a predictor of success than simple characteristics. Research investigating the (past) performance of entrepreneurs may reveal more by focusing on what founders do rather than on what founders are (Daily, McDougall, Covin, & Dalton, 2002). Thus, the research presented in this manuscript will be focused upon the delineation of common decision patterns. Commonalities both within each typology and commonalities that extend across all types of entrepreneurs will be identified, with a focus upon the business and technical experience of the entrepreneurs.

Governance

As a firm is established, a governance team sets the goals and strategies of the company, and interestingly, governance structures are associated with firm performance (Dalton, Daily, Johnson, & Ellstrand, 1999). The organizational leaders exert strong influence on organizational processes and outcomes (Dalton et al., 1999), although the effect of leaders, as well as that of officers, is more pronounced in small start-up companies (Dalton & Kesner, 1983; Finkelstein & Hambrick, 1996). As such, in entrepreneurial firms, one would expect the founder and his or her top management team to exert greater influence over the direction of the venture than one would expect in a large, established corporation. The results of their actions will be readily observed.

Top Management Teams

The strategy of a firm is rarely developed and executed by one individual. A small group, referred to as the top management team (TMT) in business literature, usually directs the activities of the firm. The concept of “team” is well suited to entrepreneurial research since many entrepreneurial ventures are founded by a team rather than by an individual (Ensley, Carland, & Carland, 2000). Hambrick and Mason (1984) demonstrate that certain demographic profiles of TMT members are associated with the organizational outcomes and strategies pursued. The demographics that business scholars have studied include factors such as education, firm tenure, and the individual’s age. However, almost all TMT research has focused on large corporations, and few studies have been directed in investigating entrepreneurial firms (Weinzimmer, 1997). New venture teams have been neglected by the literature (Foo et al., 2006). Entrepreneurial firms most often rely on a team-based approach to leadership (Ensley et al., 2000), which provides access to a diversity of resources that are not captured by a single entrepreneur (Cooper et al., 1994).

Interestingly, most managerial research is suggestive of homogenous management teams being more successful in comparison to diverse teams. However, the same findings may not be true for entrepreneurial start-up companies. A 1998 study by West and Meyer found that disagreement among TMT members had a profound negative impact on firm performance. The small number of interviews conducted for this study (n = 4) also provides support for this finding; friction among TMT members led to failure in three of the four cases investigated, and created profound difficulties for the fourth company. West and Meyer (1998) also show that the CEO (or founder) enjoys only limited influence, since successful entrepreneurs tend to delegate decision-making responsibilities to TMT members who are most qualified to handle the problem at hand.

This finding is consistent with the research of Siegel, Siegel, and MacMillan (1993), who postulated that functionally-balanced entrepreneurial teams are positively associated with growth for entrepreneurial firms.

Directors

Research conducted investigating boards of directors has shown that independent boards (made up of non-managers with no personal relationship with management) are positively associated with firm performance (Daily et al., 2002). Further, entrepreneurial firms may actually benefit from the external oversight of an independent board. Using the resource dependency perspective of the firm (Pfeffer & Salancik, 1978), external directors help to provide the entrepreneurial firm with outside linkages.

In Robbins-Roth's work, *From Alchemy to IPO* (2000), numerous examples are cited in a demonstration of directors being key to pushing research into marketable products and in maintaining the support of investors for early, unproven biotechnology companies such as Genentech and Amgen. A well-designed board provides an entrepreneur with a valuable set of resources. For entrepreneurial firms, a strong, independent board is especially important in attracting venture capital financing, as venture capitalists often demand a seat on the board and actively monitor both managerial and board activities (Gompers & Lerner, 1998).

Venture Capitalists

Most new firms require substantial capital, funds that the entrepreneur typically does not possess. Of note, for many risky ventures, venture capital is the only source of funding. Most often, if a venture capitalist invests in a firm, he or she becomes an active advisor and helps to shape the strategy of the firm (Gompers & Lerner, 1998). For the

past two decades in particular, venture capitalists have been one of the driving forces behind the commercialization of unproven technologies (Jeng & Wells, 2000). Venture-financed firms are actually more likely to survive than other ventures (Timmons & Bygrave, 1986). However, it must be noted that venture capitalists tend to be very selective, and finance fewer than 1% of the proposals that they receive (Megginson & Weiss, 1991). With their concentrated influence (typically the lead venture capitalists will be the largest shareholders in an entrepreneurial venture financed), network of industry contacts, and professional experience, venture capitalists exert far more influence upon a firm than an ordinary investor. Finally, it should be noted that an experienced “Angel Investor” performs in much the same manner as a venture capitalist.

Advisory Boards

One group that has not been extensively analyzed in the source literature but who also exert considerable influence upon entrepreneurial ventures are advisory board members. These are typically individuals asked to join an advisory board because they either offer some technical or professional expertise that the firm does not possess (an engineer or a lawyer, for instance), or are an industry insider whose support and influence could be beneficial to the firm (such as a potential customer or an influential expert in the industry, like a physician or a scientist). These persons are typically given a small grant of shares, are paid a nominal sum to provide advice and feedback to the firm, and are members that entrepreneurs would like to have as a part of their company (either as an employee or on retainer), but either due to limited funds or limited scale, cannot justify engaging on a full-time basis.

Frequently, those providing technical and professional expertise do so in the hopes of eventually either formally working with the company in the future or selling their professional services. For industry insiders, these individuals often have a vested interest in seeing the firm succeed and become an early customer or are persons who are genuinely interested in the technology being pursued. As such, advisory board members have a vested interest in seeing the entrepreneurial venture succeed. It can be expected that an individual who is giving considerable time and effort in exchange for nominal financial rewards would want to see his or her advice and counsel followed or would otherwise withdraw support from the venture. In summary, while not as strong as the influence of a board of directors, advisory board members typically exert considerable influence on entrepreneurial ventures.

The Players

The preceding literature review establishes that the entrepreneur who acts as a lone individual or who launches an entrepreneurial firm with complete dictatorial authority is rare. More frequently, small groups, typically consisting of TMT members, board members, investors (Venture Capitalists and Angels), and outsider advisors plan and execute the strategy of an entrepreneurial venture. Thus, the proposed study is initiated to determine how the founders of entrepreneurial ventures use the assets and small group of individuals around them to build a successful firm.

In this study, only high-tech firms that have raised significant outside capital, remained in business for over one year, and make (or attempt to make) a tangible product will be investigated. Service firms (e.g., physician practices, law firms) will not be included. In order to find the target population, the author has consulted with members of

his dissertation committee who are experienced in working with start-up high technology ventures and can identify entrepreneurial organizations with these attributes.

As noted in the literature, an entrepreneur's previous managerial experience is not a predictor of success, although the behaviors demonstrated by such individuals are strong indicators of the viability of a firm. However, at this time, no researcher appears to have identified the actions critical for success. One hypothesis that will be explored in this paper is that for each type of entrepreneur, there will be a set of common decisions that lead to the success and failure of a venture as well as actions that will be found in common among entrepreneurs in all four quadrants. In order for theories to be built throughout this study, case studies of firms that fall into several of these quadrants will be conducted.

The Entrepreneurial Team

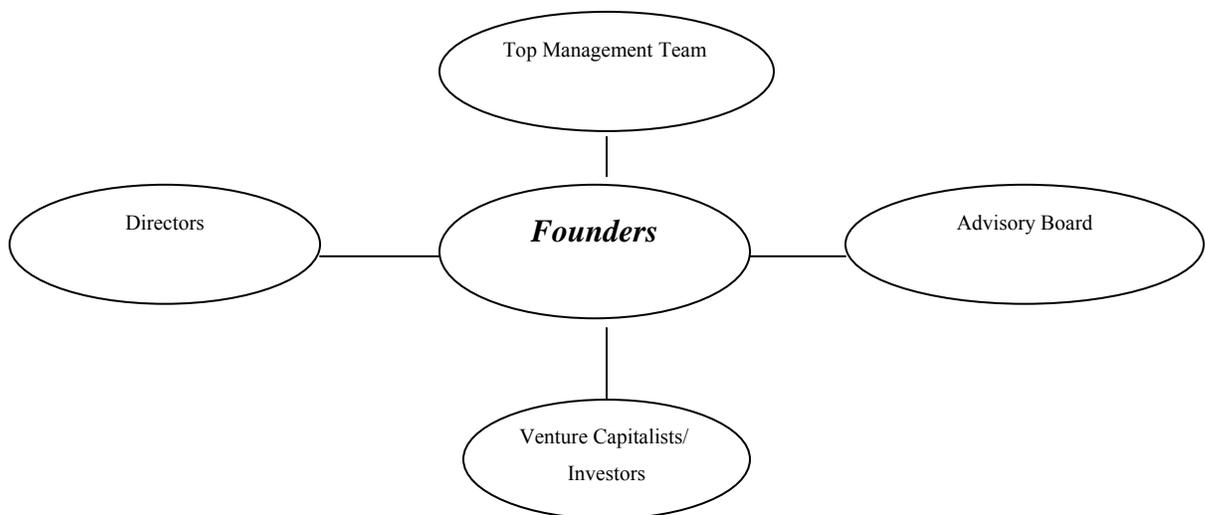


Figure 1- The Entrepreneurial Team

Technical Experience

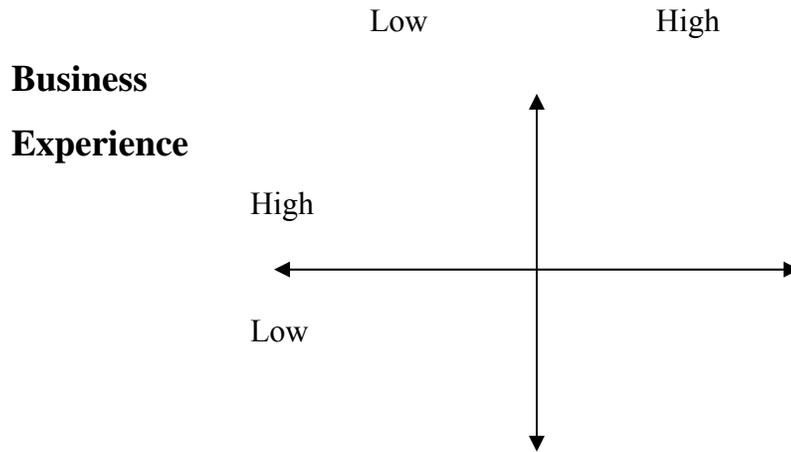


Figure 2 - Experience

Definition of Constructs

Entrepreneur

The term entrepreneur was first used to describe a military leader in France, and gradually was expanded in its use to suggest an influential leader in economics and finance. Harvard professor Joseph Schumpeter linked this word with innovation early in the twentieth century, describing entrepreneurship as a special kind of leadership, something not genetic, given, or bought, nor connoting a profession or status. Instead, an entrepreneur was the profit catalyst in a capitalistic society through innovation of business and its processes (Arkebauer, 1993; Nass, 2000). Others have defined an entrepreneur as an individual who undertook a project, with the term expanding to denote a merchant, employer, or a manager (Hebert & Link, 1988).

Entrepreneurs are those who begin by conceiving of an idea for a business venture, doing the research and analysis to determine if the idea is marketable, completing a business plan, and performing all other activities that are involved in

establishing and operating the business. Further, entrepreneurship includes the proclivity and character traits required for the successful creation and operation of a business, and the different skills required at each phase of a company's birth, growth, and development (Nunn & Ehlen, 2001).

Much research has been devoted to investigating the personality traits that are associated with entrepreneurs and are thought to be critical to their success, including leadership, teamwork, creation, risk, opportunity recognition, and innovation (Stearns & Hills, 1996), and strategic planning (Nunn & Ehlen, 2001; Olson, 1986). Other studies have provided evidence for motivation for entrepreneurial success (Buttner & Moore, 1997) and entrepreneurial orientation (Robinson, Stimpson, Huefner, & Hunt, 1991), along with the previously-described temperamental attributes as being associated with entrepreneurial success (Korunka, Frank, Lueger, & Mugler, 2003).

Functional Fixity

Functional fixation, originally described in psychology research (Adamson & Taylor, 1954; Birch & Rabinowitz, 1951; Flavell, Cooper, & Loiselle, 1958; Duncker, 1945; Glucksberg & Danks, 1968), has also been used to explore the effect of an entrepreneur's background on the methods he or she employs to build teams. In investigating the behavior of individuals attempting to find new uses for objects after undergoing training with the objects for other uses, such researchers have noted that individuals are greatly influenced by their previous training (Boldt, 1997).

Business researchers have applied this idea to business and have found that business managers are also influenced by their previous training. Such investigators (Ashton, 1976; Barnes & Webb, 1986; Bloom et al., 1984; Briers & Chow, 1995; Chang

& Birnberg, 1977; Hand, 1990; Ijiri & Jaedicke, 1966) have all evaluated extensions of this hypothesis and found that managers have a tendency to fixate on their previous training, thus being less flexible in their cognitions regarding old dogs and new tricks (Boldt, 1997).

Entrepreneurial Venture or Organization

An entrepreneurial venture is an “intersection or nexus of individuals or teams, opportunity, and modes of organizing” (Busenitz et al., 2003). Entrepreneurship, thus, is individuals or teams within an organization, creating products or services for those in the marketplace (Mitchell, 2002). Essentially, in an entrepreneurial venture, people create opportunities and attempt to use them through organizing, “without regard to resources currently controlled” (Mitchell et al., 2002, p. 96; Stevenson & Jarillo, 1990). Montanye (2006) defines entrepreneurship as “the process by which individuals acquire ownership (property rights) in the economic rents of their creation” (p. 558). Moreover, the goal of the individual is to earn money, even if this does not occur.

Novice, Serial, and Portfolio Entrepreneurs

Nunn and Ehlen (2001) argue that entrepreneurs require diverse skill sets that reflect expertise in all areas of the continuum of business skills. However, there are lesser and greater degrees of experience associated with such skill sets. Novice entrepreneurs can be defined as those with no or minimal prior minority or majority business ownership experience either as a founder, an inheritor, or purchaser of a business, but who currently own a minority or majority business equity stake in an independent business, either new,

purchased, or inherited (Westhead, Ucbasaran, Wright, & Martin, 2003; Westhead & Wright, 1998). Serial entrepreneurs are those who have sold or closed on a business in which they had a minority or majority equity stake and who currently own a minority or majority stake in a single, independent business either new, purchased, or inherited (Westhead, Ucbasaran, & Wright, 2005). Finally, portfolio entrepreneurs are defined as those who currently hold minority or majority stakes in two or more independent businesses that are either new, purchased, or inherited (Westhead et al., 2005).

In one research study, Westhead (1995) investigated 227 entrepreneurial firms and noted that founding entrepreneurs with managerial experience in a prior company were more likely to fail than those with no management experience. Conversely, Chandler's (1996) review of 134 firms revealed that a founder with strong managerial experience was predictive of success in an entrepreneurial venture. Further, Cooper et al. (1994) studied 1,053 companies and found no significant relationship between managerial experience and the survival of a firm. Conflicting research has precluded researchers from developing a clear understanding of the relationship between entrepreneurial experience and success.

Spinout

In entrepreneurial ventures, business development can occur through the formation and growth of what is termed spinout companies, which are new businesses conceived through the operations of an existing company. Spinouts are very common in the technology industry, where "companies are formed from technology which has been developed by personnel working within the parent organization that can be a private company or a public-sector organization, such as a university research laboratory"

(Leitch & Harrison, 2005, p. 257). Spinouts also occur when university professors or other academic scientists are encouraged to commercialize their discoveries and expertise. Bains (2005) states, “It is widely believed that this exploitation of the science base, particularly the creation of new, venture-backed enterprises developing intellectual property (IP) licensed from academia, benefits the national economy from which it occurs” (p. 353). A study by Clarysse, Wright, Lockett, Van de Velde, and Vohora (2005) identified several incubation models of managing the spinout process, including Low Selective, Supportive, and Incubator. Companies differ in their resources and competence relating to finance, organization, human resources, technology, network, and infrastructure.

Stakeholder

Stakeholders can be described as an individual or a group who can affect or is affected by the achievement of the objectives of an organization (Freeman, 1984; Jones, 1995; Kreiner, 1988). Mitchell, Agle, and Wood (1997) argue that there is little disagreement regarding what kind of entity can be a stakeholder, since persons, groups, neighborhoods, organizations, institutions, societies, and even environments can be actual or potential stakeholders.

Mitchell et al. (1997) propose that there are classes of stakeholders that can be differentiated by their possession or attributed possession of some or all of the following attributes: “(1) the stakeholder’s *power* to influence the firm, (2) the *legitimacy* of the stakeholder’s relationship with the firm, and (3) the *urgency* of the stakeholder’s claim on the firm” (p. 854). The authors state that this theory produces a comprehensive typology of the stakeholders, which is based upon the assumption that such variables define the

field of stakeholders, which include those entities to whom managers should pay attention (Mitchell et al., 1997).

Technical Visionaries and Expertise

Ericsson and Smith (1991) define expertise as “what distinguishes outstanding individuals in a domain from others” (p. 2), while Salthouse (1991) believes that expertise can be best described as a circumvention of cognitive limits (Murphy, 2005). In the domain of scientific innovation, those with technical expertise can leverage a mere idea or concept into a replicable, sustainable product that can potentially help start-up companies reap substantial financial rewards. Thus, those individuals who combine knowledge of the market with technical expertise are indispensable for start-up companies desiring to capitalize financially upon a new product or process.

Leifer and colleagues (2000) describe the catalyst behind successful innovations as technical champions who are also known as “hero scientists.” Researchers Vojak, Griffin, Price, and Perlov (2006) state that:

People who conceive of breakthrough new products (radical or innovative in nature) are critical to the long-term success of technology-based companies. They often are those individuals who effectively synthesize multiple technologies and market understanding to identify new and innovative breakthrough products and processes... We describe these people as technical visionaries. Technical visionaries have deep technical knowledge of multiple disciplines, understand how those technologies relate to the organization’s strategy, and have enough understanding of the market to allow sparks of insight about potentially important products to arise across these three domains of knowledge (p. 18).

For the purposes of this study, those with technical expertise are defined as those who have completed scientific training, and have demonstrated ability to apply this knowledge.

Conclusion

Entrepreneurship is a construct that has been inadequately investigated in the source literature. It may be posited that business scholars and researchers have assumed that the rules that apply to large corporations can also be extended to entrepreneurial ventures. However, in recent years, focused research has been suggestive of numerous characteristics of entrepreneurial firms that contradict established business theories. Consequently, the goal of the proposed research study is to build theories to help further distill the unique characteristics and decisions that entrepreneurs can adopt to increase the likelihood of success in entrepreneurial ventures.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

This literature review surveys the managerial literature to determine the existing approaches to exploring the issue of whether or not the experience and background of an entrepreneur impacts the way in which he or she builds a management team during the formative process of company creation. In general, the literature concerning teamwork and team management has only recently begun to acknowledge that the background and experience of the manager him- or herself is a significant factor in determining the effectiveness of the team, and still tends to favor strictly managerial experience (Bounds, 1998; Coldron & Boulton, 1998; Joinson, 1999; Lovelace, 2001; McCall, 2004; Wells et al., 1999; Williams & Laungani, 1999).

Based on this acknowledgement of experience, several approaches are analyzed to support the exploration of the role of background and experience in entrepreneurial and managerial success. From the point of view of knowledge management, in the context of a marketplace, more and more companies are becoming concerned at loss of knowledge through employee mobility. An entrepreneur who accumulates tacit knowledge through career mobility does indeed end up being a better manager (Bontis, Knight, Lank, Rumizon, & Williams, 2004; Jones et al., 2003; McMahan, Lowe, & Culley, 2004; Power & Lundmark, 2004; Sarin & McDermott, 2003). From the point of human capital and social capital, an entrepreneur who builds up human capital as well as social capital, much of it existing on a purely experiential level derived only from direct experience in a

field or company, is also a plus when it comes to starting up a company or managing a team (Conlin, 2002; Kristiansen, 2004; Lynskey, 2004; Marger, 2001; Stalinski, 2003).

From the point of view of micropolitics, which seeks to construct a model on how to manage teams in a complex market context, it was found that a high degree of micropolitical acumen, derived primarily from direct experience of and social learning in the marketplace, makes it more likely that an entrepreneur will be able to build and manage a team (Cranston & Ehrich, 2005; Hinrich et al., 2004; Mansfield, 2003; Underwood, 2002). This author reviews studies seeking to determine how companies can succeed, or even simply keep their edge, and have modeled company assets in terms of resources and capabilities. Findings indicate that not only is entrepreneurial experience a valuable resource, but also that the experience and background of the entrepreneur, manager, or CEO has a profound impact on his or her ability to enhance company capabilities and perform all tasks involved in the process of enhancing such capabilities, including forming and managing teams (Kazanjian & Rao, 1999; Markóczy, 2000). Indeed, background and experience is believed to be even more important, as it also frames every decision an entrepreneur may make about the creation and operation of a company.

Until recently, much of the literature on the role of experience in the success of an entrepreneur, and, by inference, his or her ability to manage a small company or build a management team, has been anecdotal in nature. Much of the anecdotal element of the literature is based on earlier theories that entrepreneurs show certain personality or character traits that make them want to start a business or manage a company. The anecdotal literature is focused on the individual, and exists as a kind of public relations

discourse on success (Dean, 2005; Geiger, 2005; Gull, 2005). Some anecdotes are about character, while others begin to offer more insight into how experience and background factor into the development of certain business skills. Some stories are rooted in recollections of trying or inspiring moments: thus the entrepreneur who began and has been successful running a marketing firm in Alaska makes a point of “giving individual attention” on the job because she once ran a dog team in overland sled races and, in one instance when the sled team slid into a lake, motivated each dog to press on “by spending a few minutes talking and petting each dog” (Gull, 2005, p. 52).

More conventional are those entrepreneurs who start companies that are similar to companies where they worked for years. Thus, in the case of a CEO of a real estate firm in New York, he “discovered his talent for management while working as a foreman” (Geiger, 2005, p. 2) in a plant, then worked for a management consulting firm and achieved success, but still “had a desire to be doing the deal himself rather than just advising” (Geiger, 2005, p. 2). But he eventually chose to go out on his own in the field of real estate only because his older brother had developed residential homes and he “grew up looking at what he did” (Geiger, 2005, p. 2). In this model, management skills are revealed in the course of a successful career, but one decides to enter a business based on a childhood memory. Another entrepreneur who runs and manages a t-shirt apparel company began his journey to success by crossing over from Canada to the U.S. as a teenager, buying t-shirts and then bringing them back home, because Canadians, at that time, “were missing out on the higher quality, better fitting...t-shirts sold south of the border” (Dean, 2005, p. 125). Thus, a single idea this man had as a teenager sparked the development of an entrepreneurial operation.

Even more anecdotal in nature are reports by CEOs of large companies who have parlayed their success into being called upon as experts in leadership. While leadership of a large company is not the same thing as building a management team, the two areas of concern do overlap. One kind of anecdote often told by CEOs is about the single idea or insight that helped them and stayed with them as they climbed the leadership ladder. In one case, a CEO of a large online company remembers when, rather than balk at participating in a lowly market research task, she decided that “any job you’re given is an opportunity to prove yourself” (Boorstin et al., 2005, p. 94). Other reports by successful entrepreneurs cite long careers of building experience over time, usually from the ground up. The head of Comcast tells how his father insisted that he learn the business from the field, as a cable installer, an experience that “drove home how important our technicians and customer service representatives are” (Boorstin et al., 2005, p. 100), while Ted Turner of CNN reports that he worked his way up at his father’s company from water boy, to construction crew, to billboard painter, to finally work in the company offices, thus learning “how a good business depends on good labor relations, and enthusiastic leadership.” Another CEO of an advertising firm was actually fired by his father for not taking the business seriously, only to return years later ready to work (Boorstin et al., 2005, p. 101).

Much of this purely anecdotal approach to the study of entrepreneurial background has been supported and filled in by a deeper search into the “personal traits and characteristics of the entrepreneur” as well as the “skills and capabilities associated with entrepreneurial success” (Morris, 2003, p. 1). Much of this work remains, in the literature, somewhat controversial as it appears to go against the grain of the “anyone-

can-follow-their-dream” ethos underlying the purely anecdotal area of the popular literature. This type of trait study, however, has brought to light some consistent elements of the entrepreneurial mindset that may lead to a consistent finding. One such construct said to be instilled in entrepreneurs, and absent from those who do not choose to build a company, is “achievement motivation” (Morris, 2003, p. 1). This consists of an inner drive and high need for achievement, and for being recognized for it. The achievement motivation of an entrepreneur is also believed to explain the “motives and behaviors (of entrepreneurs) more than do other intrinsic and extrinsic factors (such as power, money, position, and freedom)” (Morris, 2003, p. 1). Morris added to these studies the idea that entrepreneurs may seek to start their own companies because it is during such a drive that they feel peak experience and performance, or “flow,” in fulfilling their human potential (Morris, 2003). While in a state of flow, one is in a “psychological state where nothing extraneous is allowed to interfere” and one feels “boundless energy and a perception of mastery and control” (Morris, 2003, p. 1). Thus, if true, a person makes a good entrepreneur because he or she “finds purpose and intrinsic regard in the activity itself, especially when the challenge matches the individual’s skills” (Morris, 2003, p. 1).

The trait literature has evolved into a more detailed discussion of what skills a good entrepreneur exhibits while starting up or running a business. This body of literature starts with determining what distinguishes entrepreneurial work from corporate work, for example, and finds that in entrepreneurship one must have the ability to “seize profit opportunities without regard to sources currently controlled, expand existing resources through enhanced learning, synergies, or bootstrapping, and (promote) change and innovation leading to new combinations of resources and new ways of doing business”

(Fernald, Solomon, & Tarabishy, 2005, p. 1). Furthermore, a good entrepreneur must be able to seek opportunities, have a need for achievement, set goals, be independent-minded, like taking risks, and seek innovation (Fernald et al., 2005). This laundry list of the tendencies of a good entrepreneur clearly leads to a list of qualities, as a good leader and an entrepreneur both are believed to be successful at what they do because “they provide strategic leadership, problem-solving skills, timely decision-making, a willingness to accept risks and good negotiating skills” (Fernald et al., 2005, p. 5).

While such trait literature, even as it merges with leadership studies, is helpful on an anecdotal level, it nonetheless remains at risk of validating certain legends about entrepreneurship. It is true that many entrepreneurs “don’t follow rules, they break them” (Henricks, 2005, p. 65), but the more realistic literature cites instances of entrepreneurs who fell on their faces because of such tendencies, often over and over again. Indeed, “until you have been knocked down and shown you can pick yourself up, take an obstacle and overcome it and make an opportunity of it,” many anecdotal tales of entrepreneurial background infer, you cannot run a “viable company” (Henricks, 2005, p. 66). What allows one ultimately to withstand such setbacks is not simply personal traits or individual skills, but a “broad and deep management team with high end skills and experience” (Henricks, 2005, p. 66). Most carefully reviewed career paths of successful entrepreneurs reveal that the person was successful because his or her “management style gets everybody involved in the project committed, excited and invested” (“Team Leader,” 2005, p. 38). As well as having an ability to “identify the gifts and skills of others” (“Team Leader,” 2005, p. 38), the good entrepreneur, contradicting the lone-

ranger tone of the popular literature, is usually a “consensus builder” (“Team Leader,” 2005, p. 38).

The movement of the entrepreneurial literature in the direction of management skills may be supported by broader business trends in today’s marketplace. For one thing, the character of the entrepreneur in particular is changing. More and more entrepreneurs are women and minorities, some opting out of the corporate arena “so they can focus on family” (Henderson, 2005, p. 83). Many new entrepreneurs, then, are not in it solely for “financial gain” but because they wish to both “enjoy the personal rewards of entrepreneurship, independence, flexibility and fun” (Henderson, 2005, p. 76), and because entrepreneurship fits into their lifestyle (Kurlantzick, 2004). Moreover, as the population ages, and as many entrepreneurial efforts are started as second careers by baby boomers, the “entrepreneur of the future is likely to be older...and more willing to trade some income for a better lifestyle” (Kurlantzick, 2004, p. 62).

From the point of view of these “lifestyle entrepreneurs,” studies of the traits of entrepreneurs come up with some different results, perhaps related to the difference between entrepreneurs of small companies who stay that way, as opposed to the literature on CEOs of large companies who started as entrepreneurs. In a study of small company entrepreneurs in a variety of locations, one study found that the successful entrepreneur requires “neuroticism, extroversion, conscientiousness, agreeableness and openness” (Kurlantzick, 2004, p. 64). Neuroticism makes the entrepreneur focus on details, while “conscientiousness helps them plan” (Kurlantzick, 2004, p. 64). Agreeableness allows the entrepreneur to “build external networks crucial for a new company to prosper,” while extroversion “facilitates this network building” (Kurlantzick, 2004, p. 64).

The new entrepreneur also may sometimes found a company based on a political mission, and thus have left corporate culture for value-oriented reasons (Brown, 2005). One entrepreneur in the food industry left the corporate world because she saw too many chemicals being used in preservatives, and wanted to start a health food company. In this case, her background impelled her toward reform, as “in a bakery you learn an awful lot of things you never wanted to know about the food that is sold” (Brown, 2005). Family businesses are also returning, often for political reasons: a mother-daughter team who participated in environment protests began a small company for environmental travel primarily because of their background in politics (Brown, 2005).

Because many new small companies are started by entrepreneurs either from minority groups in the U.S. or by diverse partners in a worldwide context, cultural values have also begun to encroach as potential background factors in the development and management of an entrepreneurial concern. In this, the entrepreneurial team management literature may overlap with the general management style literature, where “cultural values have been found to have a significant effect on differences in managerial styles and behaviors” (Ardichvili & Gasparishvili, 2003). Studies have shown, indeed, that entrepreneurship is more prevalent in cultures where individualism is valued, even though, when minorities start up a small company, the “high rates of entry of minority groups in the U.S. into entrepreneurship are significantly related to the cultural values of these ethnic minorities” (Ardichvili & Gasparishvili, 2003).

The overriding construct used to determine the validity of cultural value differences was derived by Geert Hofstede, and is used widely in managerial cultural studies. Hofstede posited that cultures differ from each other based on power distance,

individualism versus communalism, masculinity versus femininity, uncertainty avoidance and long or short term orientation (Ardichvili & Gasparishvili, 2003). In the U.S., according to Hofstede, corporate culture is marked by low power distance, low long-term orientation, and low uncertainty avoidance, along with high individualism and masculinity (Ardichvili & Gasparishvili, 2003). This approach has become problematized in recent years, as researchers have applied it to various cultural contexts and found that the traits match up in a variety of ways.

Even in U.S. contexts, it might follow that entrepreneurs set out on their own because the value construct of corporate culture is a poor fit (i.e., if, as Hofstede indicates, corporate culture is individualistic, most anecdotal entrepreneurial literature indicates, in cases where entrepreneurs leave a corporation to start a company, it is not individualistic enough). In other studies, Shane and Venkataraman found that “venture managers” in different cultural contexts respectively prefer more unstructured or structured strategies in management (Ardichvili & Gasparishvili, 2003). Thus, management style is influenced by culture. While it might seem apparent that an entrepreneur would manage with low power distance, great individualism, more “femininity” (i.e., more power sharing) and, perhaps, given the abovementioned neuroticism, high uncertainty avoidance, the literature has not yet explored this approach in detail. At present, culture is factored into background only incidentally, as a factor underlying management style.

Nonetheless, the focus on management does push the literature on entrepreneurship to focus on the leader, how he or she builds the company and the management team, and how his or her background factors in to those particular

managerial-based entrepreneurial skills. The leadership literature in general offers some insight into the role of background in this area. In some leadership literature, leadership skills are developed through “learning experiences” (Brown, Buster, & Townsend, 1999, p. 33). Such experiences “prepare diverse people for the varied roles and responsibilities required of leaders” (Brown et al., 1999, p. 33). Leaders also pick good people to work with them, creating a team of “people with history and perspective who are risk takers and enjoy life” (Brown et al., 1999, p. 33). Another way teams are made cohesive is by telling stories of past experiences, which transmits the ‘corporate culture’ of the team (Brown et al., 1999). Moreover, a good leader instills in a team a sense of the “compelling purpose” (Axelrod, 2002, p. 10) of the project or task, and exploits the human need to belong and the “desire to be part of something beyond us” (Axelrod, 2002, p. 11). Teams also work best when all members share a company-wide vision, communicate well, are helped through ongoing coaching, have mutual respect for each other, and are “buoyed up by inspiration from others” (Haserot, 2004, p. 11). Colin Powell once noted that a good leader is in fact three people in one, a visionary, a whip, and a chaplain (Haserot, 2004).

Two areas of leadership studies appear to focus directly upon the background and experience of the leader. Many leadership studies indicate that a good leader should have a “thorough understanding of the firm’s practice” (Haserot, 2004, p. 12), which would imply that in-company or in-business background is important. Other studies have found that the marketplaces of today are characterized by constant change, and that a good leader therefore must have the ability to act “where radical change may be required” (Haserot, 2004, p. 12). The good leader must also be able to “confront such challenges and

spearhead the change” (Haserot, 2004, p. 12). This dictum would seem to prefer a leader whose background has entailed a number of experiences at negotiating market change, in other words, a career of repeated experiences, not all of them good (Haserot, 2004).

In sum, the anecdotal literature, even when merged with leadership studies, does not appear to have sufficiently developed a construct based on which the impact of the experience or background of an entrepreneur building a management team can be measured. It appears that the answer to this question then—how does experience and background of an entrepreneur influence his her management team building skills or process?—must derive from other areas of the literature. The literature on team work is an important repository for theory regarding the impact of experience and background (Litz & Folker, 2002; Wells et al., 1999; Williams & Laungani, 1999). The literature on knowledge management, especially with regard to how managers bring to bear ‘tacit knowledge’ on tasks, is also important (Jones et al., 2003; McMahan et al., 2004; Power & Lundmark, 2004; Sarin & McDermott, 2003). Additionally, the literature on human capital, and what capital an entrepreneur brings to a job, allows the construct of experience and background to be more theoretically developed (Conlin, 2002; Lynskey, 2004; Stalinski, 2003). The study of micropolitics on the job has also assisted researchers in determining how managers shape their practice, and this too bears upon experience and background of entrepreneurs (Cranston & Ehrich, 2005; Hinrich et al., 2004; Mansfield, 2003; Underwood, 2002). Finally, a few specific studies have synthesized elements of all these discourses to come to some understanding of how experience and background influenced an entrepreneur or manager in a management task (Kazanjian & Rao, 1999; Markóczy, 2000).

Entrepreneurs Building Teams and Teamwork

The issue of background and experience has recently come to the fore in teamwork studies, as more and more businesses criticize business schools for graduating students who are “too technical and quantitative” and have no critical or integrative thinking skills, and, worst of all, completely lack the “human relations skills required of managers” (Pool, 2001, p. 50). A business school student with an MBA and no other experience does not have the skills to be an entrepreneur or to build a management team. This failing is particularly concerning, as it flies in the face of managerial and teamwork studies, which are finding that “managers must possess exceptional human relations skills to manage effectively” (Pool, 2001, p. 50). In studies of organizational performance, “managers utilizing human relations skills are considered the most important” (Pool, 2001, p. 50). Moreover, if managers are to become leaders, they must “demonstrate excellent leadership skills” (Pool, 2001, p. 50), which entails the ability to “motivate employees to perform at their highest levels” (Pool, 2001, p. 50). While business students are redressing their failing in this area with portfolios, the gist of most such criticism is that successful teamwork skills derive from business experience (Pool, 2001).

Studies of teamwork have also found that leading a team of adult professionals to engage in teamwork is more difficult still, with “most organizations grossly underestimating the influence required to motivate a successful, adult professional to change his or her behavior” (Watson, 2004, p. 24). Studies of the struggles experienced by team leaders in trying to change practice through teamwork find that well-educated managers make four mistakes. They “are seduced by the illusion of rapid results” and thus follow the path of least resistance to change (Watson, 2004, p. 24). These managers,

however, soon find that the path of least resistance is also “the path to least results” (Watson, 2004, p. 24). Many executives also delegate power, when they should be instigating change. They must “pick a fight with the status quo” and must have the courage to say, of a well-worn way of doing things, “this is not working anymore” (Watson, 2004, p. 24). A third mistake that managers of teams make is being supportive without becoming involved, including participating in training for in-field operations. In one case, a manager, by failing to participate in the training of his field sales staff, retained a “shallow understanding of the new approach” (Watson, 2004, p. 24), meaning that he could not coach effectively. Other managers who were supportive but did not get involved even continued to display behaviors that team members had been trained out of, reducing team effectiveness overall (Watson, 2004). Good leaders of teams must always be involved in coaching and reinforcement. Even for highly-skilled professional team members, “coaching is the only way you can reinforce the skills you’ve trained for” (Watson, 2004, p. 25). Thus, “there is no substitute for managers who are involved” (Watson, 2004, p. 25). Finally, a good manager of a team does not present a change to a team in a take-it-or-leave-it manner, but builds the process of application of the change into learning across time (Watson, 2004).

A slightly different approach to teamwork is provided by literature which seeks to define what teamwork consists of (Williams & Laungani, 1999). In this literature, the concept of the team has been isolated and pared down to “several core features” (Williams & Laungani, 1999, p. 19). The overall point of this literature is that teamwork represents a different kind of managerial context than the high-control, authoritarian management that one usually sees in corporate life (Williams & Laungani, 1999). As a

result, a manager of a team does not issue edicts *ex cathedra*, but elicits the cooperation and involvement of the team members in decision making. The manager of a team does not breathe down a member's neck everyday, but “allows members to conduct their daily work activities without having to continually refer to higher levels of the organization” (Williams & Laungani, 1999, p. 20). Most importantly, a good team manager relates to all team members in such a way that all of them come to share in the common vision of the team.

On the basis of this type of itemization of what constitutes a good team, various types of teams have been theorized to exist. A true team is characterized by all of the above, but there are also working groups and pseudo-teams as well (Williams & Laungani, 1999). A working group is defined by its “shared information and coordination of practice,” but it has little shared responsibility (Williams & Laungani, 1999, p. 21). On the other hand, a pseudo-team is often labeled as a team, but as it lacks coordination and communal responsibility, it is not a real team. In studies comparing pseudo-teams with real teams, pseudo-teams have been found to be less productive than the real teams, indicating that responsibility is what makes a team run well (Williams & Laungani, 1999).

Other elements that a good leader is able to instill into a management team are also the subject of study. Several studies have found it is only in teams where all people “feel sufficiently safe enough to contribute ideas” (Williams & Laungani, 1999, p. 22) that members really work as a team. Another factor that a team must have is called task orientation, which means that all members are “focused on each others’ roles, skills, and

tasks” in order to work together to meet their client’s needs (Williams & Laungani, 1999, p. 22).

All of these findings suggest that a good manager, in order to know how to run a team, must have developed a tacit knowledge about how to run a team from his or her experience or background. The implication in this line of research is that a manager-to-be must pick up as much experience as possible from working in teams, in order to know that a team involves so many variables in order to be effective.

Another approach taken by the management literature is to focus on the human dimension of the team leader. From this point of view, “it takes much more than smarts or expertise to manage, it requires great empathy, much compromises and a willingness to play traffic cop to deal with discord in the ranks” (McCall, 2004, p. 90). In a survey of entrepreneurs and experts in the managerial field, it was found that the respondents believed that a manager must have several human traits. First, the manager must be clear in articulating the goals of the team, as “all employees operate best where they know what’s expected of them” (McCall, 2004, p. 90). In order to create a climate of clarity of purpose, respondents recommend holding regular meetings and undergoing performance reviews (McCall, 2004). Another trait that was uncovered in the survey was urgency, that is, a manager must have a sense of urgency in getting his team to fulfill its goals. As a result, “a manager with the urgency trait is always five blocks ahead of his or her sales representatives, waiting for them to catch up” (McCall, 2004, p. 91). In the survey, it was also found that the most preferred type of manager, and the one valued most by team members, was an “entrepreneurial, hands-on management style” who did not hesitate to

coach his team and work to get better and better team members at all times (McCall, 2004, p. 91).

The management literature has focused on the models and types of management that are best for creating teamwork, because teamwork has become an often empty buzzword in much of corporate and business life today. Indeed, one study found that 80% of all business organizations say that they have at least half of their employees engaged in some sort of teamwork activity. However, much of this teamwork is more pseudo-teamwork, as too many teams are formed without any basis in “compelling business reasons” and companies often have a poor sense of how the team will help the company’s bottom line (Joinson, 1999, p. 30). Thus, many researchers warn that teams “are a means to an end, not an end in themselves” (Joinson, 1999, p. 32). As such, a team must have a clear purpose in order for it to be worth creating in the first place.

The fact that so many companies are creating teams means that entrepreneurs building teams are likely to have had some experience in teamwork previously, but also that, since so many teams are ineffective, the experience may not be entirely positive. Because so many people who have never been in teams before are being placed in teams, they also need a great deal of training about how to function in teams, in areas such as conflict management and team problem-solving (Joinson, 1999). As a result of this situation, that is, the relative novelty of team creation and management, the facts of the current status quo in terms of team formation may run against the rhetoric of the anecdotal literature on background. Not only might a team builder not have team experience, but all of his experience may be something that he or she needs to be trained out of. From this point of view, training is necessary for anyone leading or working in a

team. Members of the team may need basic training in how to behave in teams, but also technical training relative to the special projects undertaken by the team; team leaders too may need to be trained in leadership and team management (Joinson, 1999). In short, when faced with a question like, “How does the background of a team leader influence how he or she builds the team?” the training-oriented literature would say that the background may be irrelevant or even a retardant to good management and that, indeed, the team leader may have to be retrained to cancel out the impact of his or her background.

Teamwork issues become more complicated still when one discusses top management teams. The key to an entrepreneur’s success may ultimately lie in his or her ability to build a solid top management team. In reviewing this issue, it has been observed that by and large the popular image of individuals setting out alone to start a company is a myth, and, in fact, most entrepreneurs have “soul brothers” or close associates involved in the company creation process with them from the beginning (Donnelly, 1995, p. 64). It has been found that after the adventure of the founding, and all of the brainstorming which it involves, the actual running of a company involves more managerial tasks. As a result, the founder often ends up delegating some of his or her tasks to one of the founding soul brothers. However, this is viewed as a poor way to build a good team, as most “soul brothers are ill prepared to cope with the responsibilities associated with growth...and have neither the experience to manager nor the personality required to be a good manager” (Donnelly, 1995, p. 64). More often than not, a soul brother is a “techie” with expertise in a field, whose input was instrumental in getting the company off the ground, but who has no “operational experience in running a business”

(Donnelly, 1995, p. 64). Out of a sense of misplaced loyalty to a founding partner, then, a young company may find itself with a management that is not able to help the company. One solution is to position a “soul brother” in a non-managerial consultant position, or in customer relations, to continue to exploit his or her strengths, and not push him or her into management where they will fail (Donnelly, 1995, p. 64). These observations make clear that, for entrepreneurs, founding a company is one thing, but running it and managing it are something else, and experience in one does not necessarily mean ability in the other. Following the tendency of the training-oriented literature, this argument indicates that management often consists of certain skills that must be trained for, and which background and experience itself cannot produce.

In order to get around this troubling problem—that experience may add up to nothing, when it comes to management—studies have looked at different scenarios in the building of a top management team, and studied what happens when such teams, for various reasons, fail to be successful. One instance is when a new member is added to the team, but then the team fails to fully exploit his or her skills. There are a number of factors which can impede the full exploitation of a team member. If the new member has little credence or even if existing members believe that he or she is ill-prepared to be a full member of the team, the member may languish in the team. Studies have shown that a member of a team only operates well within the team if “the member believes that he or she has a useful function” (Wells et al., 1999, p. 38).

If a team is multidisciplinary, as so many are today, then social identification theory has been used to posit that people think of themselves in terms of the social categories that they find themselves in, and are thus perceived that way as well. If team

members continue to conceive of themselves as belonging to professional cultures distinct from other team members, then the gaps in perception may sabotage a team. Also, the theory of embedded inter-group relations argues that one's positioning in a social group is not simply a matter of definition, but that one actually "brings the perspectives of...respective broader social categories into interactions occurring within teams" (Wells et al., 1999, p. 40), meaning that different backgrounds may lead to many miscommunications on the team. These difficulties were validated in a study of why chiefs of staffs had trouble letting nurse executives participate in various non-clinical team decision-making processes. It was found that it was more social identification and difficulties in the embedded inter-group relations than outright snobbery that accounted for the resistance in the team (Wells et al., 1999).

These findings would seem to contradict the generally positive tone which the literature on top management teams has set for the phenomenon of diverse or multidisciplinary teams. Studies have found that "the more diverse the TMT was, the greater the team and organizational performance" (Lovelace, 2001, p. 27). It is thought that this is due to the fact that, in such teams, greater expertise (derived from background and experience) is brought into the team, and that such a team can better tackle the complicated issues it must face in any field in today's marketplace. However, it was also found that such teams experience a lot of relationship conflict in the course of their implementation of team goals (Lovelace, 2001).

More pointed observations about teamwork in contemporary workplace contexts are provided by the literature on project team management (Bounds, 1998). Project teams have emerged to replace the old way of managing a project, where a project was carried

out by the structured, existing management in the company. Now, it is believed to be more effective if the structured company management stays focused on the company, and a special project team be created from scratch to manage a special project. As a result, in a random survey of 54 employees in companies, it was found that “only three said they were not part of a project team” (Bounds, 1998, p. 42). The widespread use of project teams has altered the process of team formation and management. Most project teams are implemented in one of two different approaches, varying based on experience and background. In the first type of team, “they choose someone to head the project team who has demonstrated exceptional performance in the functional area covered by the project” (Bounds, 1998, p. 42), and, thus, for example, an engineer is chosen to lead an engineering project. The implication of this process of leadership selection is that expertise and experience in a functional area makes for a good team manager. The second approach is to designate an expert in project management itself, in the abstract, to manage the team, where experience in the field is deemed less important than experience with having actually started up and managed a team (Bounds, 1998).

Studies have indicated that whereas formerly most project teams were headed by managers with experience in the field, now more project teams are being headed by managers experienced in managing teams (Bounds, 1998). This migration of expertise from the business field to the area of management itself may also work against the background and experience of an entrepreneur manager. In one study it was found that 60% of all project teams were headed by engineers, but that most of the engineers recognized that what was needed was that they “improve their project management

skills” (Bounds, 1998, p. 42). In sum, a trend of specialization from functional field to management itself appears to be underway in the area of team management.

Adding to the complexity, as was seen with entrepreneurs as well, is that the character of the entrepreneur manager is changing. More women, for example, previously woefully underrepresented in management, are changing management. Women, it is believed, have been underrepresented in management because men have failed to reward them, they often have home responsibilities that inhibit their ability to devote all their time to team management, and there are “ideological constructs including how management is conceptualized” that stand in the way of women (Coldron & Boulton, 1998, p. 317). However, some studies have found that gender is being leveraged to create teams that help companies survive. In a study of a management team that included a balance of males and females, it was shown that “they can achieve together what neither could achieve apart” (Litz & Folker, 2002, p. 355). Theory has begun to explain why this should be so. Early management studies were gender-blind, or assumed all managers were male. Only recently have studies started to compare men and women managers and begun to find “interesting patterns relating to leadership orientation and network development” (Litz & Folker, 2002, p. 342). The studies found that while men continue to favor more authoritative and task-oriented management, women tend to make more use of participative and democratic management strategies. Women are more people-oriented in their management style, they make better use of collaboration, and “are inclined to develop relationally rich networks” (Litz & Folker, 2002, p. 343). Indeed, as these characteristics would seem to lend themselves to teamwork, studies have shown

that women prefer team creation and management far more than men do (Litz & Folker, 2002).

The issue of whether or not women build and lead teams more effectively, as entrepreneurs or otherwise, has been supported by the theoretical construction of leadership models that differentiate male and female leadership styles. These studies have shown that men continue to lead and manage with an orientation towards completion of the project in a hierarchical, high control, and low emotionality way, all based on rational problem solving. By contrast, the feminine model of leadership is “centered on cooperation, team-based accomplishment, intuitive problem-solving, lower levels of control and higher levels of emotionality” (Litz & Folker, 2002, p. 344). While this finding would seem to indicate that women have greater potential to build and lead teams, it remains a question, how this “experience” (the experience of femaleness) factors in when a company assesses the output or productivity of a team. This is done if gender is considered in terms of the resource-based literature, where company performance is “significantly influenced by the physical, organizational and human resources available to management” (Litz & Folker, 2002, p. 343). The reason why some firms perform well and others don’t, it is argued, is most likely due to some resource that one firm has and the other does not have. If a firm can combine its resources in such a way that its market offering is “comparatively rare, valuable, inimitable and non-substitutable, the firm will prosper” (Litz & Folker, 2002, p. 343). By extension, entrepreneurial start-ups must also be distinguished by such inimitable resources, and “gender differences can potentially be a resource given the extent to which each gender contributes different and complementary competencies to the task of management” (Litz & Folker, 2002, p. 343).

In order to test the hypothesis that female management style may be such a resource to a company, one study looked at the “traditionally male intensive arena of retail hardware” and found a consistent pattern whereby “more balanced representation of both genders in the store management is significantly more likely to generate superior firm profitability” (Litz & Folker, 2002, p. 353). While acknowledging that such firms may be family firms and thus exploit a type of connectedness not available to others, and may serve to elevate women into positions of management, it still follows that the resources of the company impacts profits, and the character of the management supersedes background or experience of the gendered person (Litz & Folker, 2002). Thus, gender interaction may be one of the “rare, valuable, inimitable and non-substitutable sources of superior firm performance” (Litz & Folker, 2002, p. 355). For managers involved in “resource-constrained firms” this finding suggests that a small firm may enhance its output by “proactively melding managers’ distinctive gender-based characteristics into social complex capabilities that contribute to the satisfaction of the customer” (Litz & Folker, 2002, p. 355).

In order to look more carefully into the nature of the “resources” which a manager brings to team management, and to determine if experience and background do impact team building, it is necessary to dig down into the complex variables of “experience” and “background.” In the management literature, this search has been undertaken by researchers in knowledge management, especially as they explore the “tacit knowledge” that constitutes “experience” on the job; by researchers in “human capital” who measure what kind of “capital” a potential manager, for example, accumulates through his or working life; and finally, by researchers in micropolitics, who seek to determine how it is

that such knowledge and capital is translated into managerial success, or the creation of ideas leading to entrepreneurial enterprise.

Knowledge Management and Entrepreneurs: “Tacit Knowledge” and Experience

Because of the overall transformation of the global economy from an industrial to a knowledge model, knowledge management, or the control of the knowledge that is developed during projects by teams, has become a major area of interest (McMahon et al., 2004). A company that manages its knowledge well experiences a continual and repeated marshalling of that knowledge for the creation of new products and services. The knowledge created by innovations and the experiences of various teams is not lost, but recycled, through the creation of management structures, through the company, keeping it ever up-to-date in the knowledge it needs to survive in its field. The primary target of knowledge management has been the explicit knowledge that is developed during projects or through research.

Unfortunately, more recent studies have found that even when the formal, explicit knowledge created by the organization is managed and recycled for future use, the company still ends up losing a lot of knowledge. This is because, as researchers have come to better understand, there is another layer of knowledge that lies underneath the stated or explicit. This layer of knowledge is termed “tacit knowledge” and consists of the personal knowledge that an individual accumulates through experience and makes use of on his or her own, but does not or cannot articulate (McMahon et al., 2004). Much of this tacit knowledge is embedded in the experience of the manager, and lies beneath the reach of knowledge management systems geared toward mining knowledge in explicit company communications. In addition to being highly personal, tacit knowledge is also

communicated through an organization in an informal way, through informal conversational or advisory networks on the job, which are never formalized, of which management itself may be unaware (McMahon et al., 2004).

Tacit knowledge is usually conveyed through what have been called “communities of practice” wherein groups, “rather like professional societies,” (McMahon et al., 2004, p. 311), informally exchange information and tips on how to operate or perform on the job, generally on a level undetected by management. These groups are not project teams, which are defined as groups dictated by a “planned agenda and (which) report to a higher authority” (McMahon et al., 2004, p. 311). Rather, communities of practice are “voluntary, longer-lived and are not necessarily central to the tasks themselves” (McMahon et al., 2004, p. 311). Yet these groups link up with other groups performing similar tasks, and “share valuable information and tacit knowledge” (McMahon et al., 2004, p. 311). Therefore, tacit knowledge is the knowledge accumulated by personnel during the implementation of their work over time. It is, in fact, the essence of “experience.” In this area of the knowledge management literature, it has been found that the input of tacit knowledge can help engineers overcome their tendency to make flawed decisions about new projects. Through experience, therefore, a better outcome can be obtained by that team, the next time around.

Tacit knowledge and its part in experience has been reinforced by additional examinations of its complexity. Studies have found that true knowledge, that is, knowledge that helps one understand an action, is “uniquely created within a particular organizational milieu” (Jones et al., 2003). Most such knowledge is embedded in routines, which are “the source of stability within organizations” (Jones et al., 2003). This

embedding of knowledge in routine is especially true among adult workers as “adults cope with new situations by reapplying routines they already know” (Jones et al., 2003). Routines are tacit knowledge because they “provide knowledge of what actions are helpful in specific circumstances” (Jones et al., 2003). Further reinforcing this construct of tacit knowledge in action is activity theory, which argues that ideas develop through “testing, revision, and acceptance” and models the knowledge creation process not as a cyclical, but as an iterative process where knowledge is shaped by “tension between the past and present” (Jones et al., 2003). By this construct, the knowledge management discourse has modeled the idea of “experience” as consisting of, precisely, tacit knowledge embedded in routines and activated by testing and revision until it is generalized to the extent that it can join a corpus of generalizations that form the knowledge of an organization. Conceived of in this manner, it is clear that experience does create more knowledge than other forms of gaining knowledge, and that experience does impact the manner in which managers act and think in building or managing teams.

Adding to the complexity of the knowledge management literature is the fact that so much of the labor force is mobile. As a result of labor mobility, there is serious concern that a great deal of knowledge is being lost every time an employee moves on. As a result, companies are spending time and money trying to find out how to retain knowledge, even as employees leave. This is why many retirement packages include elements such as phased retirements, in order to find a way to retain knowledge in the company (Bontis et al., 2004). In order to get management to address this problem it has been necessary to construct knowledge as an element of the “social capital” which an employee represents.

At present, some argue, “tacit knowledge, socially embedded knowledge, social capital and the like are often ill defined” (Power & Lundmark, 2004, p. 1026), and “rather hard to pin down” (Power & Lundmark, 2004, p. 1026). Nonetheless, overall, the literature has sufficiently accumulated to support the overall claim that this “less codified and socially enacted and embedded form of knowledge... (does) have important consequences for industrial performance and innovative capacity” (Power & Lundmark, 2004, p. 1026). Some argue that tacit knowledge exists in the air, in the buzz, or is picked up in the welter of urban life. Others are more pragmatic, arguing that such knowledge “ultimately rests upon people who spend most of their time in their homes and workplaces” (Power & Lundmark, 2004, p. 1027), and thus look to offices for the flow of tacit knowledge. As a result, the primary means by which tacit knowledge moves through a field is through labor mobility, from an employee moving from one company to another, and taking his or her tacit knowledge with him or her (Power & Lundmark, 2004).

In order to model this exchange, researchers have developed the idea of a “cluster” which consists of populations of employees interacting with each other. Studies have shown that highly innovative clusters are usually characterized by “higher rates of labor mobility than in the rest of the region” (Power & Lundmark, 2004, p. 1040). The study found that knowledge transfer and innovation did lead to higher creativity. Thus, “if we believe that labor mobility acts as a pipeline of the transfer of knowledge and new influences, then the higher rates of labor mobility seen in this cluster must surely have been beneficial to knowledge diffusion and creation in the cluster components and firms” (Power & Lundmark, 2004, p. 1040).

The management of tacit knowledge in socially embedded contexts, which amounts to experience, is more directly problematic in the case of small entrepreneurial firms. Entrepreneurs, especially if they are the owner or manager of the firm, tend to contain within them most of the tacit knowledge that the firm is running on. Unlike in corporations, there is less likelihood of there being any technical specialists in small firms. Also, knowledge in small entrepreneurial firms more often flows in tacit and informal ways, with little codification of explicit knowledge ever taking place (Jones et al., 2003). In short, most knowledge in small firms is invisible, existing in the zone where experience and knowledge creation are one. This was inadvertently proven by studies which showed that attempts to train owner-managers and employees of small firms in explicit knowledge failed, because none could conceive of the knowledge as separate from the experience of doing whatever it is they do (Jones et al., 2003).

The implication of this finding is that entrepreneurs more generally have tacit knowledge embedded in their framing of experience. For the small firm entrepreneur, knowledge is exhibited in technical skills and in “cognitive intuitions and beliefs” (Jones et al., 2003). Through their experience, entrepreneurs have “know-how applied...within particular contexts” and this knowledge is applied in an almost “automatic” way (Jones et al., 2003). The tacit knowledge of the small firm entrepreneur is so entirely framed by “deep-rooted beliefs” that is often only made known through “unconscious or instinctive action” (Jones et al., 2003). In short, the way knowledge is transmitted from manager to staff in a small entrepreneurial firm is most comparable to an apprenticeship, the “archetypal organizational setting for tacit knowledge” (Jones et al., 2003) in which a

master and pupil form a relationship which is “sustained by the absorption of skills through continued practice rather than their theoretical expression” (Jones et al., 2003).

While it is the ultimate goal of much knowledge management to convert tacit into explicit knowledge, to make the unconscious conscious and the personal public, it is likely that entrepreneurs simply do not seek to translate tacit knowledge beyond their own understanding of it. As such, then, the knowledge of the organization and the team remains embodied in the “experience” of the entrepreneur. In the vocabulary of knowledge management, tacit knowledge is converted into explicit knowledge through various means: telling stories, codifying standard operating procedures, creating objective formulae, and writing technical manuals. Metaphors and models are also created to pass knowledge through an organization. Small entrepreneurial firms do not participate in all of these processes, meaning that most of the knowledge remains, significantly, in the “experience” of the entrepreneur. By this reasoning, “experience” (constructed according to knowledge management theory as tacit knowledge embedded in routine) is actually all an entrepreneur ultimately has when building a management team.

Often, however, an entrepreneurial venture is based on a particular rare “resource,” such as an innovation in the marketplace where the manager-owner formerly worked. As companies become more concerned about increased competition, they have begun to seek to improve their new product development procedures by creating “cross-functional teams” consisting of persons from various fields whom, when working together, might think of technology or product synergies that specialists might have missed (Sarin & McDermott, 2003). The use of such teams has already been shown to speed products to market, and to create greater levels of innovation, as well as “better

product design and quality” (Sarin & McDermott, 2003, p. 707). These changes have occurred according to the dictates of the knowledge management literature, as the creation of a cross-functional team is yet another way in which the organization is activated as a “mechanism to enable and coordinate the application of the knowledge of the individual toward a common desired goal” (Sarin & McDermott, 2003, p. 708). The significance of the cross-functional team approach is that it relocates knowledge management from a company-wide perspective, envisioning knowledge as a pool to be created for all to draw from, to an individual perspective, where the organization seeks only to foster creativity in the knowledge application of individuals (Sarin & McDermott, 2003). The resulting model is an “individual-based knowledge model,” where knowledge resides in individuals in teams (Sarin & McDermott, 2003, p. 708).

The relevance of this approach to entrepreneurial contexts is that a team can be seen as a type of small firm, and, here as elsewhere, it is the task of a leader of the team to find a way to draw out the knowledge of the team members. In this way of envisioning knowledge management, it is leaders who are in the “critical position to encourage the application of newly-learned information to current and future...efforts” (Sarin & McDermott, 2003, p. 708). One study attempted to determine how the characteristics of a team leader actually affected the learning process in a team (Sarin & McDermott, 2003). Two kinds of experience and background are brought to bear on team learning, in this context. First, the team members of a cross-functional team all have different backgrounds and expertise, and it is the task of the leader to find a way to unify that expertise toward “the common goal of bringing a product to market” (Sarin & McDermott, 2003, p. 710). Second, the leader him- or herself has experience,

background, and expertise, which may or may not facilitate understanding the expertise of the team.

The mechanism by which these two kinds of experience are brought to bear upon teamwork is the fact that, in a team, all work closely together. According to Edmondson, “individuals tend to develop shared assumptions and beliefs through a process of sense-making” (Sarin & McDermott, 2003, p. 710). These “cognitive frames” can either be positive or negative: if the cognitive frame of the leader, because of his or her experience, is too limited, it can impede the sense-making process in the group. It is the task of a good team leader to help all team members frame and reframe their expertise in new and expanding ways. Having placed the optimal management of knowledge in the manager’s hands, knowledge management completes its study of knowledge creation by itemizing those characteristics of leaders that facilitate the creation of new knowledge; leaders whose behavior is facilitative are “friendly, approachable, and democratic” (Sarin & McDermott, 2003, p. 712). They create psychological safety where team members feel free to share thoughts and make mistakes. The facilitative leader is also “constantly challenging the team members to new heights” (Sarin & McDermott, 2003, p. 712). Additionally, facilitative leaders initiate structure, as studies have shown that teams perform better when everyone knows their task and what is expected of them. Structure also facilitates knowledge flow by “creating communication patterns” and “enhancing communication by clearly and explicitly stating goals and task descriptions” (Sarin & McDermott, 2003, p. 712, 713). Conflicts are best resolved in facilitative teams in an open and honest way. Studies of facilitative team leaders show that, if they exhibit these knowledge management skills (presumably based on the tacit knowledge embedded in

their experience), there is more learning in a team, and the team is more successful in whatever task it sets itself to achieve (Sarin & McDermott, 2003). In this way, the knowledge management literature does present a model by which tacit knowledge embedded in routines becomes the “experience” through which a small-firm entrepreneur can perform optimally in team creation and management.

Human Capital and Entrepreneurs: Human and Social Capital and Managerial Experience

According to the discourse of social capital/human capital, an entrepreneur’s experience can be viewed in a different way, as a distinctly positive force influencing management style and performance. Instead of viewing background and experience anecdotally as an accumulation of advice and on-the-job or street smarts (all tacit knowledge), and then wondering if it impedes or improves performance thereafter, this discourse views background and experience as an accumulation of social and human capital which an individual brings to a job. The interest in human capital is derived from two sources. First, with market share becoming so competitive, many business leaders are looking for benchmarks other than short-term gains in order to measure the viability of companies. Value is being found to exist in “soft skills development,” such as training personnel in leadership, how to build relationships, how to manage conflicts, and how to skillfully negotiate with others (Stalinski, 2003, p. 635). From this point of view, a manager with these skills is of value to the company and represents, then, human capital held by the company (Stalinski, 2003). Second, human capital management has swept through human resources departments, as companies seek to find ways to save money by offering compensation to individual employees based on their unique capabilities and

performance (Conlin, 2002). Mercer Human Resource Consulting, for example, has developed a statistical modeling technology which has pioneered the use of human capital theory at work by measuring the productivity of employees in a completely customized way. While worry that such customization could touch off a wave of “office Darwinism that makes free agents of everyone,” and other fear that paying according to educational level or other human capital factors may elicit lawsuits, this appears to be a new direction in human resources management (Conlin, 2002, p. 91).

Human capital theory has also increasingly come to be used to study how some companies achieve success, and others don't. The success of the U.S. economy is said to be based on the fact that it has witnessed the launching of a number of technology-based firms, all with a high level of human capital or expertise (Lynskey, 2004). Lynskey (2004) chose to examine three factors in human capital as they might explain the success of a company: these include “sources of knowledge, venture capital finance and founder CEO human capital” (p. 374). This study is supported by others, where Chrisman found that knowledge generated prior to the startup had a crucial role in the “formation and subsequent development of start-up firms” (Lynskey, 2004, p. 374). Meanwhile, Hellman and Puri found that the amount of venture capital that a start-up has accumulated has a profound impact on the policies and professionalism of the firm. More importantly, “Cooper found that human capital is a forecast of startup firm performance” (Lynskey, 2004, p. 374). In this context, especially when examining the human capital of the CEO and its impact on the fate of the start-up firm, human capital entails “endowed abilities, *experience* (italics added), trained skills, attitudes and behavior” (Lynskey, 2004, p. 384).

Others add in motivation, ambition, and leadership skills to fill out the human capital profile.

In the literature on human capital, “several studies have been conducted on the relationship between an entrepreneur’s human capital and the performance of new firms” (Lynskey, 2004, p. 384). These studies in general have suggested that “the entrepreneur’s human capital, expressed by age, education, work experience and other factors, has a positive effect on the performance of new firms” (Lynskey, 2004, p. 384). Cressy found that the age of the entrepreneur founding the firm often functions as a predictor of firm success. Lynskey (2004) studied a human capital profile of a founder which included “the founder’s age and education, prior work experience and background, and the motivation to established venture firms” (p. 384) in order to determine its impact on firm success.

The human capital literature routinely finds that the founder’s educational level is a key element in predicting the success of nascent entrepreneurial firms. Education has also been found to be what inspires entrepreneurs to start up firms in the first place. Others start up firms because they want “increased locus of control,” while the need for individual achievement is also important, often manifest “in the desire to escape the constraints of a bureaucratic organization” (Lynskey, 2004, p. 388). Other studies found that 88% of founders of new technology firms in Germany had a university degree, while 32% of founders of all small companies had a degree. In the United Kingdom, 84% of founders of new technology firms had a college degree, compared to 20% in the general population of entrepreneurs (Lynskey, 2004). Studies have also found that there is a “direct and linear relationships between education and performance” (Lynskey, 2004, p. 384). A study of technology firms in Germany undertaken by Almus and Nerlinger in

1999 found that “firms established by entrepreneurs with technical degrees grew more rapidly than those with other qualifications” (Lynskey, 2004, p. 384). Oddly enough, however, the human capital literature finds that education beyond the bachelor’s degree has little or even negative impact on success, with education beyond a masters degree being “negatively linked to success” in the U.S., for example (Lynskey, 2004, p. 384). Generally, however, studies in human capital have found that the founder’s or entrepreneur’s level of education does have an indirect impact on success, as higher degree persons are more likely to “raise money from capital markets more easily, and survive longer in the market” as a result (Lynskey, 2004, p. 385).

Supporting the findings of the human capital literature with regard to formal education, the literature also finds that venture firm success may also be dependent on the practical level of education that the founder has. That is, the founder must have “practical knowledge gleaned from business experience in a similar position or another functional role” in order to be successful in starting up, building, and managing a new firm (Lynskey, 2004, 385). Stuart found that there was a “strong positive correlation between entrepreneurial experience and performance” (Lynskey, 2004, p. 385). He also “ranked prior experience as an owner-manager as the highest level of management experience attainable” (Lynskey, 2004, p. 385). As a result, “a founder’s prior experience in the supervision and coordination of others will likely impact positively on a firm’s ability to grow, and may in part substitute for the firm’s lack of a track record” (Lynskey, 2004, p. 385). Indeed, the best kind of experience for a founder or CEO of a start-up, is having already been the founder or CEO of a start-up, as the prior experience of starting up a

firm “provides the most direct and relevant experience for new venture managers” (Lynskey, 2004, p. 385).

As Lynskey’s study was based in Japan, it found that the low labor mobility in the country meant that most entrepreneurs had relatively little prior experience in a comparable role to the one they had taken on, and that as a result, the number of venture firms remained small, and rarely succeeded. This finding for Japan indirectly supports the thesis that prior experience gained by labor mobility does create a background of experience that will support an entrepreneur in founding a company and also shape policy when building or managing teams. Also, Lynskey found that few founders of new firms in Japan ever had prior experience as a CEO “to compensate for the lack of prior experience (in the field)” (Lynskey, 2004, p. 386), and, as a result, most such entrepreneurs in Japan are in need of “managerial experience of a relevant functional role or experience of working in a related sector” (Lynskey, 2004, p. 386).

This finding is important not only because it argues in favor of the importance of relevant managerial experience for success in managing a new venture firm, but also because it finds that prior experience impacts every other decision a founder makes. In addition, the study found that “previous functional background of the founding entrepreneur influenced the choice of the firm’s strategy” (Lynskey, 2004, p. 386). The argument here is that prior experience not only frames what one does in comparable future experiences, but that it frames one’s whole world view. A model for how experience impacts one’s frames of reference is provided by Venkataraman, who argues that “each person develops a ‘knowledge corridor’ that enables one to see the potential benefits in an opportunity because one has an existing frame of reference with which to

interpret it” (Lynskey, 2004, p. 386). This concept is related to Rondstadt’s concept of the corridor principle, to explain why the same entrepreneurs often end up founding multiple new ventures over time. Such a construct is confirmed by studies which have found that between 50% and 90% of all entrepreneurial start-ups are “derived from previous relevant experience” (Lynskey, 2004, p. 386). This in turn relates to Stinchcombe’s “notion of the liability of newness,” which he used to explain why “firms tend to be established in those fields of previous relevant experience to the founder” (Lynskey, 2004, p. 386).

The concept of the knowledge corridor, derived from human capital theory, links up with knowledge management theory’s concept of tacit knowledge, insofar as most studies have found that the type of knowledge that is “gleaned from such experience,” as noted above (i.e., prior experience starting up a firm in the same field), is not codified or formal knowledge, but “tacit knowledge” (see above). For example, in the case of a biotech venture, where research and development are so important, “one would expect that a founder having prior working experience in an R&D role would possess useful tacit knowledge that would directly benefit such a venture” (Lynskey, 2004, p. 386).

A variation on this theme is focused on the impact of one particular founder or entrepreneurial type of knowledge, and its impact on building and managing a successful company: that is, the successful opportunity recognition process. Hills and Shrader conducted a survey of successful entrepreneurs and the findings indicated that “most business ideas stemmed from prior experience, knowledge of customers and markets, or as a response to a specific issue in the marketplace” (Lynskey, 2004, p. 387). Several studies have supported this claim, finding “a positive relationship between prior

experience in a similar industrial sector and the performance of a new venture” (Lynskey, 2004, p. 387). These findings, overall, suggest that “not only is it favorable to founders to have managerial experience, but that they have experience in a related sector” (Lynskey, 2004, p. 387).

A final variation on human capital is social capital, which entails the networks of contacts that an individual accumulates through long-term experience within a marketplace. Social capital is important for entrepreneurial success because such networks “represent a means for entrepreneurs to reduce risk and transaction costs and improve access to business ideas, knowledge and capital” (Kristiansen, 2004, p. 1150). Through social networks embedded in one’s social capital, an entrepreneur is able to “get access to the necessary resources for business start up, growth and success” (Kristiansen, 2004, p. 1150). Such social capital also helps an entrepreneur entering a market to reduce the “transaction and learning costs” of entering a market. Indeed, studies have shown that only those start-ups that exploit their networks in a market are able to survive (Kristiansen, 2004, p. 1152). Social capital has also been shown to be exploitable in a new market in three stages as one builds a company (that is, social capital provides a model for building a company or team). At first, the entrepreneur seeks to strengthen the attitudes of all involved in terms of hard work, risk tasking and the originality of the product. Second, the entrepreneur picks opportunities from various options in the market, identifies openings in the market, and puts together the means of production. Finally, the entrepreneur must “navigate through obstacles of bureaucracy and formal rules and regulations” (Kristiansen, 2004, p. 1156). The social capital approach to working one’s way through this model of company-building makes two points: social capital is needed

to make each phase manageable, and an entrepreneur will choose his or her way through this process, based on a point of departure and a level of expertise related directly to one's experience in the field (Kristiansen, 2004). Moreover, if an entrepreneur seeks to start up a company without any support in the surrounding market, it is unlikely that he or she will succeed. A final factor studied by social capital theory is the degree to which the entrepreneur, as a result of one's experience of the market, has a need for achievement and a drive to stand out in the market. It is believed that such a predisposing factor derives ultimately from one's family background, and that the intensity of this drive will be subsequently influenced by the weakness or strength of one's social ties in the market (Kristiansen, 2004).

One of the results of the social capital approach to studies of what makes an entrepreneur a success is a switch in emphasis in the literature from capital to information. While it is of course important for a small new company to get and have capital, studies show that getting the right information is even more important (Kristiansen, 2004). Enhanced knowledge of the market is seen as the primary means by which an entrepreneur can enact his or her plan or goal in a marketplace (Kristiansen, 2004).

A variable issue involving social capital that is receiving more attention, in an entrepreneurial market increasingly characterized by women, ethnic, and immigrant entrepreneur entry, is the quality of the social capital. This is measured by the intensity and depth of the social network upon which the entrepreneur builds (Kristiansen, 2004). Indeed, one of the proverbial areas of study of social capital is the use immigrants make of social networks in starting up new businesses (Marger, 2001). Immigrant

entrepreneurial start-ups are notable for the depth and intensity of the supporting social networks. The “norms of trust, obligation, and reciprocity” that are usually formed in social networks are greatly intensified if family and immigrant-community ethnicity are there to reinforce the ties (Marger, 2001, p. 440). If, in essence, social capital is “not the sources themselves, but rather the ability of the individual to mobilize those resources on demand” (Marger, 2001, p. 440), then immigrant social capital is quite strong. In a study of what makes social capital strong, using the example of an immigrant community, it was found that strong social capital is marked by “value introjection, reciprocity exchanges, bounded solidarity and enforceable trust” (Marger, 2001, p. 440), and all of these features were found to be strong, and indeed, reinforced by the commonalities of experience in an immigrant community.

However, one study found that newer immigrants who came into a host country with more solid prior business contacts, did not make as much use of traditional immigrant social capital as formerly, so this situation is in flux as well (Marger, 2001). It may be that in some communities and fields social capital is eventually replaced by the human capital held by the founder himself, based on his or her business experience alone. In either case, human or social capital theory presents a convincing model to argue that background and experience have a significant impact on the success of an entrepreneur in a start-up firm, and on every decision he makes with regard to building a company and a team to manage it.

Micropolitics and Entrepreneurs

As researchers look into the problem of how experience impacts the success of the entrepreneur, the mere fact of success is often insufficiently detailed to provide

insight into how exactly “knowledge” or “background” and “experience” operate in helping the entrepreneur be successful. It is not enough, for some researchers, to simply find that strong tacit knowledge and human capital leads to a successful entrepreneur. The question remains – how does experience shape the way the entrepreneur activates his or her power, or makes decisions, or (for example) builds a team? In order to get down to this level, the discourse of micropolitics has also invaded managerial studies. There is an urgency to create micropolitical models of how successful entrepreneurs do what it is they do to become so, because of a growing awareness that the marketplace in all fields is becoming more and more complex.

Indeed, complexity theory is increasingly being cited as the proper source to frame a correct view of how markets today behave. According to complexity theory, all systems are in flux and experience disequilibria, and a manager must be able to spontaneously respond to such flux by staying out ahead of it. An entrepreneur leader should do this by encouraging diversity, difference of opinion, disagreement and paradox; by refraining from imposing top-down control; and by simply “seeking to work flexibly to find the best-fit solutions” to ongoing problems (Mansfield, 2003). Mintzberg has termed project-oriented organizations working in a “complex and unstable environment” (Underwood, 2002), *adhocracies*.

In this context, a company should be managed by a team of experts from different fields, and all will have to adjust and negotiate their frameworks of reference based on prior knowledge and experience in the course of coming to a common decision about how to proceed in a project. Actor network theory has been introduced in order to provide a model of how an *adhocracy* team should operate, and how a good leader should

perform, in successive stages, to ensure that such a team is effective. In the process of building and managing such a team, an entrepreneur must be able to present a problem which should be addressed, convince the participants in the project that they can and will produce a better solution, elicit from the participants a commitment to make an effort to reach the solution, and once the solution is arrived at, find a way to package it for a wider audience.

A supportive approach to this model of team building is provided by Latour's idea that teams are held together by scripts. Thus, it becomes the task of the manager to promote and elicit enlistment in a script. Indeed, "the plan for inscribing the necessary actors with the appropriate scripts is called a program" (Underwood, 2002). The central problem of team building from this point of view is how a leader gets the actors involved in the team to properly interpret the script. This process necessitates that the leader has the skill to "transcribe the script into a language which the actors understand" (Underwood, 2002). If all the members of the team are part of the same discourse or field, then it is likely that all speak the same discourse language, and thus have internalized a number of tacit scripts regarding "acceptable statements" from experience working in the field.

However, as noted, many small or other companies today make use of multidisciplinary teams, all the members of which speak a "different language" in terms of scripts from different discourses, norms, and acceptable statements. In this context, meaning may begin to leak out of the team by way of what Deleuze calls "lines of flight," often breaking away from the discourse of the leader. While in response to such a break away of meaning or understanding, the leader may overcode his or her message, and

develop a new code for the team, a more common fate is that the conflicting scripts and discourses may “settle on a plateau, which is a continuous, self-vibrating region of intensities whose development avoids any orientation toward a culmination point or external self” (Underwood, 2002). In such a state of “open equilibrium” it is advised that a manager act as what is called a “nomad manager” and hold the team together by “(encouraging) practical love of the project through caring for the network” (Underwood, 2002).

In this context, then, it is acknowledged that in today’s entrepreneurial world, teamwork is difficult, and that managers can only build successful teams if they adopt a style of management that is attuned to the ever-evolving and changing marketplace. Moreover, as most teams are multidisciplinary, and thus end up on a “plateau,” the manager must spend an enormous amount of time dealing with the “differing personalities, past histories, and the ongoing dynamics and interactions among members of the team” (Cranston & Ehrich, 2005, p. 82).

It is at this juncture that micropolitics enters the picture. Micropolitics is believed by many to “provide an avenue for examining and better understanding many of the challenges faced by teams” (Cranston & Ehrich, 2005, p. 82). Specifically, micropolitics explores how team members “seek to use their resources of authority and influence to further their interests” in the group (Cranston & Ehrich, 2005, p. 82). Micropolitics explores the intricacies of group conflict, and “how people build support for themselves to achieve their ends” (Cranston & Ehrich, 2005, p. 82). Echoing on knowledge management studies of ‘tacit knowledge’ and resulting definitions of “experience,” micropolitics is also about “what people in all social settings think about and have strong

feelings about, but what is often unspoken and not easily observed” (Cranston & Ehrich, 2005, p. 82). As Farrell (1999) has termed it, he studies how people “work” the knowledge and skills they have (the word used in the sense of a potter ‘working’ the clay), and thus “work the available discourse to shape knowledge and identity moment by moment.” This way of looking at social interaction in teams emphasizes the malleability of the discourse and scripts, the fact that they are always changing, along with the fact that, in heteroglossic teams, there are many different discourses being heard, and that, as a result, team interaction is often a site of “struggle around available working identities” (Farrell, 1999).

Too often micropolitics is stereotyped as being a discussion of dirty tricks and underhanded maneuvering within the context of office politics, but it also “encompasses the cooperative and facilitative action that can contribute to effective interpersonal interactions between and among members of an organization” (Ehrich & Cranston, 2004, p. 24). Most micropolitical studies focus on leadership styles, but others get down to deeper levels and examine how favoritism or bias plays a part in managerial decisions. In a study of micropolitics in a school setting, it was found that much of the micropolitical struggle was involved in developing shared values and beliefs in the organization. As a result, the findings indicated that “successful relationships were characterized by both parties being alike in some ways, particularly where they held similar values and beliefs” (Ehrich & Cranston, 2004, p. 27). Just as human capital theory found that entrepreneurs are more successful in fields in which they have experience, or even more so if they have managerial experience, so micropolitics finds that shared values derived from experience often make it more possible to build a good team (Ehrich & Cranston, 2004).

In a study of a farmer's market, Hinrich et al. (2004) sought to determine the extent to which micropolitical experience of the market itself impacted the way participants marketed their goods, or instigated any positive change in the way they did so. The market was shown because it was conceptualized as a "mediating social institution where informal networks encouraging...innovation can emerge" (Hinrich et al., 2004), and because the markets offer entrepreneurs "intensive, periodic opportunities for vendors to interact directly both with customers and with other farmer market vendors" (Hinrich et al., 2004). Using a construct comparable to that of tacit knowledge, or the social embeddedness perspective, the study observed that in a market, economic activity was nested in and "partially shaped by its larger societal context" and as such, "shaped both by their structural insertion within formal social institutions, and by the relations enacted in informal social groups and networks" (Hinrich et al., 2004).

Through experience of social embeddedness, it is theorized, an entrepreneur may gain "social learning," with innovation and ideas often occurring simply by interaction with others. Indeed, the social learning model is supported by general observations about the character of the new economy, where experience with constant change due to rapid technological development has, it is theorized, led to more "heightened reflexivity centered on...strategic learning through interaction with suppliers and end users of products and services" (Hinrich et al., 2004). In short, now, more than ever before, as modeled by a farmer's market, experience in the market itself and interaction with other vendors, leads to the development of entrepreneurial skill. While the particular study found only "modest levels of marketing innovation" among participants in a market, due, perhaps, to the fact that most vendors were too busy selling to think about marketing

ideas, it nonetheless posits a micropolitical model where complicated interaction of vendors in the market constitutes the very substance of experience. Only by experiencing the micropolitics of the market, that is, can an entrepreneur hope to learn how to build a company effectively and survive in the market.

Experience and Entrepreneurial Capabilities

Converging on the issue of entrepreneurial experience from knowledge management, human capital theory, and micropolitics, the literature on managerial experience has constructed several different ways of asserting that experience matters. As the anecdotal literature repeats as if in a mantra, you “learn from experience” and, more importantly, by figuring things out on one’s own, in a market, or working to find solutions to problems within markets. All of this accumulates one’s tacit knowledge, human and social capital, and micropolitical socially-learned know-how, and this will enable one to create a company, build and manage a team, and become successful.

Generally, whenever studies examine the impact of experience on this or that entrepreneurial skill, they will find that experience matters because it allows a manager to work with others who have “similar characteristics and have probably faced and solved similar problems during their lives” (Markóczy, 2000, p. 429). Also, “those with similar characteristics are more likely to be attracted to each other and as a consequence interact with each other more than with those who have different characteristics” (Markóczy, 2000, p. 429). In one study that sought to determine if the national culture of the manager was more important in influencing his strategy than his experience in a favored area of business, it was found that experience in the favored area of business was far more important (Markóczy, 2000). Indeed, entrepreneurs achieve more in fields when they

work with persons with shared interests derived from having worked in the same field. Studies on organizational politics have confirmed that “shared interests often lead to more frequent interactions and coalition formation among individuals that might lead to similar beliefs” (Markóczy, 2000, p. 437).

Thus, ultimately, experience in a field is increasingly being counted as a company resource, and studies are increasingly showing that a company’s performance is “determined in large part by the organization’s resources and capabilities, and by extension the role of management in their creation, development and exploitation” (Kazanjian & Rao, 1999, p. 125). In this discourse, a firm resource is valuable to a company if it is “rare, durable, and difficult to imitate or substitute” (Kazanjian & Rao, 1999, p. 125). Resources are described as the inputs (whether tangible or intangible, from equipment to trade secrets), while capabilities are defined as “the ability to coordinate and deploy those resources to perform tasks” (Kazanjian & Rao, 1999, p. 125). Using this model, Kazanjian and Rao (1999) chose to focus on the capabilities side of the equation, which is the role of management and its ability to build the company and a team in the company to fully exploit company resources. In particular, the study looked at “the role of managerial advocacy in the creation of capability within organizations over time” (Kazanjian & Rao, 1999, p. 126). The study proposed in particular that a “CEO’s engineering background...will positively influence the creation of engineering-based capabilities” in the company (Kazanjian & Rao, 1999, p. 126).

The idea that managerial advocacy can improve company capabilities (including the process of building a team effectively) is derived from studies that have found that the “characteristics of the organization’s founder may be reflected in the design and

operation of the new organization” (Kazanjian & Rao, 1999, p. 127). Based on such findings, other studies have found that entrepreneurs often allocate resources and structure activities in a company in a way that is “consistent with their own beliefs, biases and past practices” (Kazanjian & Rao, 1999, p. 127). Thus, “functional background and training has been long thought to affect problem framing and problem solving” (Kazanjian & Rao, 1999, p. 127). Boeker, in the 1980s, found that the characteristics of the entrepreneur influence the “relative importance of various functional areas in the firm” (Kazanjian & Rao, 1999, p. 127). This process, called entrepreneurial imprinting, has been found to be reflected in “the founder’s interpretation of the environment, their framing of broad organizational challenges, and the kinds of information gathered to analyze these issues” (Kazanjian & Rao, 1999, p. 127). Waller et al., in 1995, even found that the founder’s background influenced how he views and interprets the performance of the company. Finkelstein and Hambrick (1996) also found several examples where CEO functional background was linked with “how CEOs interpret and react to strategic stimulation” (Kazanjian & Rao, 1999, p.127). As a result of these precedents, Kazanjian and Rao’s study expected that “functional background of the CEO will be related to the creation of capabilities in the firm” (Kazanjian & Rao, 1999, p. 128). Findings indicated that, indeed, an engineering background of the CEO did positively impact the creation of engineering capability in the firm. This background went further as well, providing the CEO with a model of how to build, shape, and run the company. Moreover, it was found that the CEO shaped the company according to his view of the environment through the process of advocacy.

Advocacy is perhaps the final element of the scenarios which argue that experience is important for entrepreneurs in building every aspect of their companies. Advocacy has been found to be important to entrepreneurs especially as they must, lacking “established legitimacy or sociopolitical approval,” “leverage personal and interpersonal skills to convince resource holders to support their initiatives” (Kazanjian & Rao, 1999, p. 128). Just as technological championing leads to the development of certain technology gains in some companies, so advocacy often is the critical factor in forming a company or building a team. Finally, because advocacy is rooted in personality, it derives in large part from experience itself, from areas of personal resource below formal training or business-school acumen. Though in Kazanjian and Rao’s particular study the impact of CEO advocacy on the creation of capabilities within the firm was compromised by the existence of a functional manager already in place, it remains generally proven that overall capabilities in a company, such as teams with good teamwork, become institutionalized (are built) more quickly “when there are advocates ready and willing to champion the cause of the function in question” (Kazanjian & Rao, 1999, p. 137).

Conclusion

This literature review has surveyed the managerial literature to determine existing approaches to exploring the issue of whether or not the experience and background of an entrepreneur impacts the way in which he or she builds a management team in the formative process of company creation. In general, the literature concerning teamwork and team management has only recently begun to acknowledge that the background and experience of the manager him- or herself is a significant factor in determining the effectiveness of the team, and still tends to favor strictly managerial experience (Bounds,

1998; Coldron & Boulton, 1998; Joinson, 1999; Lovelace, 2001; McCall, 2004; Wells et al., 1999; Williams & Laungani, 1999).

Based on this acknowledgement of experience, several approaches were found to support the exploration of the role of background and experience in entrepreneurial and managerial success. From the point of view of knowledge management, in the context of a marketplace where more and more companies are becoming concerned at loss of knowledge through employee mobility, it was found that an entrepreneur who accumulates tacit knowledge through career mobility does indeed end up being a better manager (Bontis et al., 2004; Jones et al., 2003; McMahon et al., 2004; Power & Lundmark, 2004; Sarin & McDermott, 2003).

From the point of human capital and social capital, an entrepreneur who builds up human capital as well as social capital, much of it also existing on a purely experiential level derived only from direct experience in a field or company, is benefited when it comes to starting up a company or managing a team (Conlin, 2002; Kristiansen, 2004; Lynskey, 2004; Marger, 2001; Stalinski, 2003).

From the point of view of micropolitics, which seeks to construct a model on how to manage teams in a complex market context, it was found that a high degree of micropolitical acumen, derived primarily from direct experience of and social learning in the marketplace, makes it more likely that an entrepreneur will be able to build and manage a team (Cranston & Ehrich, 2005; Hinrich et al., 2004; Mansfield, 2003; Underwood, 2002).

Finally, some studies, seeking to determine how companies can succeed, or even simply keep their edge, have modeled company assets in terms of resources and

capabilities. Findings indicate that not only is entrepreneur experience a valuable resource, but also that the experience and background of the entrepreneur, manager, or CEO has a profound impact on his or her ability to enhance company capabilities, and perform all tasks involved in the process of enhancing such capabilities, including forming and managing teams (Kazanjian & Rao, 1999; Markóczy, 2000). Indeed, background and experience is believed to be even more important, as it also frames every decision an entrepreneur may make about the creation and operation of a company.

CHAPTER THREE

METHODOLOGY

In this chapter, the methodology developed to answer the research questions posed in this study will be described. These research questions include:

1. How do entrepreneurs build successful teams?
2. How do entrepreneurs seek out team members?
3. How do entrepreneurs sustain the progress of the venture?
4. How do entrepreneurs' experience levels affect their methods of building a team, with attention paid to the theory of functional fixation?
5. How do technically-oriented entrepreneurs differ from business-oriented entrepreneurs in their management of their ventures?

First, a description of general case study design and methodology will be provided, followed by a description of the participants and the measures used in the study. After these sections, the procedures of the study will be detailed, including the development of the interview guide, the collection of data, and the techniques used to analyze the data. The chapter will conclude with a discussion of ethical considerations used to protect the participants and the organizations reviewed in this study.

Research Design

In order to review specific topics within real-life contexts, researchers often use case studies. Quantitative methods alone do not always reveal the unique context and phenomena the researcher attempts to uncover. Instead, a case study can be used to gain richer insights into a phenomenon. Yin (1994), a prominent case study researcher, argues that one of the most powerful uses of case study methodology is to cast illumination upon

causal connections in real contexts that are simply too complex to be analyzed through survey or experimental approaches (Vallis & Tierney, 2000). Case studies are particularly useful when questions are posed about a contemporary event over which the investigator has little or no control (Yin, 1994).

Although the use of case studies has been extensive in social sciences such as psychology and education, it has not been employed as often in business as a research methodology until recent years. Yin (2003b) tells us that:

Not surprisingly, the case study has been a common research strategy used in psychology, sociology, political science, social work (Gilgun, 1994), business (Ghauri & Gronhaug, 2002), and community planning...In all of these situations, the distinctive need for case studies arises out of the desire to understand complex social phenomena. In brief, the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events – such as individual life cycles, organizational and managerial processes, neighborhood change, international relations, and the maturation of industries (p. 1, 2).

Case study methodology is a form of qualitative inquiry that is often referred to as an inductive process. Hyde (2000) argues that there are two general approaches to reasoning which may result in the acquisition of knowledge: inductive reasoning and deductive reasoning. Inductive reasoning is a *theory-building process* in which observations of specific behaviors or incidents are conducted in order to help establish generalizations about the phenomenon under investigation. Conversely, deductive reasoning is a *theory-testing process* in which an established theory or generalization is posed, and the researcher examines whether the theory is applicable to specific behaviors

or incidents. Numerous scholars have debated whether the inductive process represents an adequate methodology or indeed a research design. According to Jones and Lyons (2004), “There appears to be confusion between case study being seen as a design or method; many texts use the terms interchangeably, compounding the ambiguity. Even those authors considered to be the ‘gurus’ [Yin, 1994 & De Vaus, 2001] of the specialty, use the terms interchangeably.” However, in order to reduce ambiguity, in the current study, the term case study will be referred to as case study methodology and design.

In investigating a variety of problems, contexts, and environments, different forms of case study analysis may be used by researchers. According to Pegram (2000), case study research can be undertaken at a descriptive, exploratory, and explanatory level. In the first type of case study research, descriptive case studies, researchers describe a phenomenon. In the second kind of case study, exploratory case study research, investigators debate the value of further research and suggest various hypotheses or propositions. Finally, in the third variety, explanatory case studies, researchers seek to explain various aspects and causal arguments highlighted by descriptive research. Once the type of case study is selected based upon the needs of the investigator and his or her research problem, data can be collected in a variety of ways, including observing people, studying written documents, reviewing oral presentations, or any combination of these approaches. Yin (1981) states, “The case study does not imply the use of a particular type of evidence. Case studies can be done by using either qualitative or quantitative evidence. The evidence may come from fieldwork, archival records, verbal reports, observations, or any combination” (p. 58).

Case studies have been criticized by positivists as being an unscientific approach

to research. Gillham (2000) explains that:

Case study research has only recently come into its own, not being part of the natural sciences style positivist philosophy which in diluted form has dominated the human sciences for so long. In its extreme, original form, positivist philosophers asserted that only observable, and verifiable, phenomena [could be harnessed to adequately test] ‘unverifiable’ theories...The naturalist style of case study research makes it particularly appropriate to study human phenomena, and what it means to be human in the real world ‘as it happens’ (p. 2).

Case study methodology and design has also been characterized as a non-scientific research tool that produces results that are neither rigorously tested nor generalizable to a larger population.

However, Brown (1998) asserts that qualitative researchers attempt to uncover what can be described as questions of meaning, in which the essence of experiences is captured; descriptive questions, whereby investigators attempt to understand the values, beliefs, and cultural practices being studied; or process questions, by which individuals consider experiences over time and change. Qualitative researchers also use case studies to harvest data inductively, and may purposely use such information to develop a theory or may consider any sort of theoretical conclusion an unexpected bonus. Nevertheless, as long as the major objections to case study methodology and design are addressed, including the issues of generalizability, bias, validity, reliability, and objectivity, the results from case studies are additive to literature bases in the field of business (Yin, 2003a).

The term, generalizability refers to how well the results of the study can be

applied to individuals, regions, or contexts different from those investigated in a research project or to the population in general. Bias can be described as the potential for the researcher and/or the methods used in a study to be non-objective. The validity of a study is the degree to which the findings of research are true and accurate, while reliability refers to the consistency, stability, and dependability of the results of research, and is often measured vis a vis replicating the study in a different time and place. Finally, objectivity is whether the researcher is able to maintain an objective point of view in a subjective research environment. All of these considerations, as they pertain to the current research study, will be discussed in Chapter Four of this paper.

Thus, in order to build a descriptive theory, inductive reasoning, through comparative case study methodology, will be used to provide an exploratory examination of the procedures used to build an entrepreneurial team (Pegram, 2000). Yin (2003a) explains that instead of an expression of a cause-effect relationship, a descriptive theory encapsulates the scope and depth of a case being described. A comparative, cross-case study format was selected to provide multiple data points in order to address the various objections related to case study research. Further, multiple data points allow the researcher to triangulate the results more easily, providing an analytic unit that can be regarded as on par with whole experiments, a realization that provides an important insight for cross-case analysis (Yin, 2003a). The comparative nature of this study not only improves the quality of the exploration but also provides two unique views of the same potential phenomenon and is made possible by the analysis of distinctly different work environments or cultures.

Participants

In order to address the research questions of this study, the investigator sought to identify a convenience sample of cases in which an entrepreneur with a business and/or scientific background had developed a start-up company. This choice was made to provide a comparison point between entrepreneurs who developed a start-up company based upon a scientific idea and those who initiated a start-up venture based upon their business acumen. Thus, two individuals with extensive knowledge of regional companies were consulted: Dr. Art Boni, a professor of the Tepper School of Business in the Don Jones Institute for Entrepreneurial Excellence at Carnegie Mellon University, and Dr. John Camillus, the Don Beale Chair at the Katz Graduate School of Business at the University of Pittsburgh. Both individuals provided recommendations of companies that fit within the previously-defined criteria and further categorized entrepreneurs of these organizations into two groups: experienced and inexperienced.

The identity of the companies, their founders, and teams that were selected are disguised. The following is a brief description of each company: 1) NewCount Medical is a company developed by Sven and Gary, MBA graduates of the Rochester Institute of Technology, in which RFID technology is used to track the location of surgical sponges within patients during surgical procedures. 2) BetaCad is a company founded by Heidi, a former manager with the University of Buffalo Medical Center (UBMC). BetaCad uses computer-aided diagnostic techniques to supplement the data provided by radiologists' analysis of mammograms. 3) Alphasense is a business that was developed by Eddie, an Ohio State University professor, which uses advanced chemistry to make better use of Magnetic Resonance Imaging for medical diagnostics. 4) Gluhera Biomedical Adhesives

was developed by Rod and Todd, both professors at the University of Michigan at the time of the company's founding. The company is producing advanced-tissue glue for use in surgeries.

Procedures

The researcher first met with Dr. Art Boni, a professor of the Tepper School of Business in the Don Jones Institute for Entrepreneurial Excellence at Carnegie Mellon University, and Dr. John Camillus, the Don Beal Chair at the Katz Graduate School of Business at the University of Pittsburgh. Both individuals provided recommendations of companies that fit within the previously-defined criteria, most important of which was that individuals had implemented their first entrepreneurial venture, and further categorized entrepreneurs of these organizations into two groups: experienced and inexperienced.

Dr. Boni and Dr. Camillus then e-mailed or telephoned the identified individuals to request their participation in this research project. After each subject had consented to participate in the study, the investigator then contacted him or her either through e-mail or the telephone to schedule the first interview. At each company, the investigator interviewed the entrepreneur and the key team members of the company, who had been previously identified by the entrepreneur during the initial telephone or e-mail contact. A semi-structured interview was used, in which the investigator recorded each session on digital tape, following the format of the interview protocol. Additionally, the researcher maintained a journal with written notes from each interview in order to provide independent corroboration should a comment be difficult to discern from the digital tape.

Each interview lasted approximately 30 minutes to one hour. After the initial interview, follow-up questions were posed and answered either in a second face-to-face interview or over the telephone. Following each face-to-face interview, the digital tapes were transcribed so that the data could be prepared for analysis. Unfortunately, phone interviews were not recorded and the researcher was forced to rely upon his notes of these interviews for analysis.

Measures

Based upon a review of the existing literature regarding entrepreneurial ventures and team formation, the investigator developed a semi-structured interview, in which individuals could be questioned regarding their thoughts, beliefs, and feelings about specific ideas and concepts to address the research questions posed in the current study. The investigator developed the interview format in an attempt to answer the research question of how entrepreneurs build teams. The end product of this investigation is to develop generalizations and hypotheses about the phenomenon under investigation that can then be later tested in an empirical study (Hyde, 2000).

A comparative structure forms the basis for this investigation, in which a case study is repeated two or more times in order to compare alternative descriptions or explanations of the same phenomenon and to capture the concept of organizational strategy internalized within organizations (Brown, 1998). This format allows for a description of the conditions that precede and follow the development of an entrepreneurial venture so that conclusions may be drawn regarding common themes regarding the initiation of such organizations (Silverman, 1988). Eisenhardt (1991) argues that classic case studies “(a) are fundamentally multiple-case studies; (b) employ

the comparative multiple-case logic of replication and extension to develop theoretical insight; and (c) rest on rigorous methods, including specification of research issues, sampling, measurement of construct, and controls,” (pg. 626) all which assist researchers in developing generalizable theory.

The first case study involving one entrepreneur was used to refine the semi-structured interview guide. The data from this initial investigation provided some insight into potential issues that would affect the information-gathering process. Since the researcher was planning to use open-ended questions, one potential obstacle identified was that respondents might be reluctant to share their thoughts freely. Another dilemma highlighted by the pilot interview was the contradiction between intimacy of information-sharing in a one-on-one context and the potential of sharing previously unarticulated thoughts, beliefs, and feelings with an audience. The investigator was conscious of this duality, and thus encouraged respondents to share their thoughts, beliefs, and feelings as freely as possible, with the understanding that they would have the opportunity to review the interview transcripts prior to their dissemination (Macpherson, Brooker, & Ainsworth, 2000). Additionally, since the discomfort interviewees might experience was understood prior to the commencement of the study, the researcher was able to retool the interview to account for potential “no response” answers.

In the interview, the investigator asked each founder to draw a diagram of the way in which their entrepreneurial team functions. Following this request, individuals were then questioned regarding issues relating to the creation, implementation, and interpretation of a team and their role in these processes. The interview transcript for

entrepreneurs is provided in Table 1, and the interview transcript for team members is depicted in Table 2.

Table 1. *Semi-structured Interview Protocol for Entrepreneurs*

1. Tell me about your professional history prior to starting your business (followed by these prompts, if needed).
 - 1.1 Education
 - 1.2 Professional experience
 - 1.3 Length of work/practice prior to starting this venture
2. Tell me about your business. How did your idea develop?
 - 2.1 How long from when you conceived the idea did it take you to write a business plan?
 - 2.2 How long did it take for you to seek partners to launch this venture?
 - 2.3 When would you say that this officially became a venture?
 - 2.4 When did you incorporate (or sign a partnership agreement?)
3. What were you looking for once you decided to launch this business?
 - 3.1 Cash
 - 3.2 Legal/financial assistance
 - 3.3 Scientific/technical assistance
 - 3.4 Managerial assistance
 - 3.5 Other
4. How did you identify your needs in order to launch this venture?
5. Describe your team.

- 5.1 Define what team means to you.
 - 5.2 Who were the early members of your team?
 - 5.3 Who were the critical players in your success?
 6. Whom did you consult with in forming this business that did not ultimately become part of your team?
 - 6.1 Did this individual(s) continue to help you down the road?
 7. Are there any individuals with whom you worked early in the venture with whom you later lost contact?
 - 7.1 Describe the relationship.
 - 7.2 Why do you believe the relationship did not continue?
 8. Were there any critical team members added to the team at a critical phase in the development of your organization?
 - 8.1 Did you anticipate their need, or was the addition made out of necessity?
 - 8.2 Did you have a setback that led to the addition of the team member?
 9. Who made the choices regarding whom to include as a team member?
 - 9.1 Did you consult other team members?
 - 9.2 Were there any additions to your team dictated by others (e.g., venture capitalist)?
 10. Review with interviewee the diagram of their team.
 - 10.1 Is this diagram complete?
 - 10.2 Are there any key individuals missing who aided in the success of the venture?
-

Table 2. *Semi-structured Interview Protocol for Team Members*

1. Tell me about your background.
 - 1.1 Professional experiences
 - 1.2 Entrepreneurial experiences
 - 1.3 Education
2. Describe your relationship with the entrepreneur.
 - 2.1 Did you have a relationship prior to this venture?
 - 2.2 How did you meet the entrepreneur?
3. What factors convinced you to become a part of this venture?
 - 3.1 Was the entrepreneur your critical link to this venture?
 - 3.2 Was the entrepreneur critical to you joining? Why?
 - 3.3 What would your other team members tell me as to why you joined?
 - 3.4 Why do you think that other critical team members joined?
4. Why and regarding what has the entrepreneur consulted you?
 - 4.1 Technical/managerial information
 - 4.2 Financing matters
 - 4.3 Addition of other team members
5. Define this team for me.
 - 5.1 Define what team means to you.
 - 5.2 Who were the early members of your team?
 - 5.3 Who were the critical players in your success?

6. Have you sought outside expertise/resources to assist with this venture?
 - 6.1 Are these groups/individuals considered to be a part of the team?
 - 6.2 Did these groups/individuals continue to help you down the road?
 7. Are there any individuals with whom you worked early in the venture and later lost contact?
 - 7.1 Describe the relationship.
 - 7.2 Why did the relationship fail to continue?
 8. Were there any critical team members added at a critical phase in the development of your organization?
 - 8.1 Did the entrepreneur anticipate their need, or was the addition made out of necessity? Did someone else prod the entrepreneur into making the addition?
 - 8.2 Did the venture have a setback that led to their addition to the team?
 9. Who made the choices regarding who to include as a team member?
 - 9.1 Were you or any other team members consulted when an addition was considered?
 - 9.2 Were there any additions to your team dictated by others (e.g., venture capitalist)?
 10. Review with interviewee the diagram of their team.
 - 10.1 Is this diagram complete?
 - 10.2 Are there any key individuals missing who aided in the success of the venture?
-

Analysis

Since in case study research, the investigator must constantly move back and forth between the literature and field data, the method and analysis occurred simultaneously in an iterative process (Zucker, 2001). In following the suggestion of Yin (1994), the researcher kept an overview of the project at all times that described the objectives and research questions of the study. This protocol included an outline of how the data will be organized and translated into a written format, thus ensuring that the researcher discussed all relevant topics in order to gather the appropriate data. The results of this research project will be reported in several key areas to study facts and their relationships. Thus, the researcher and an outside professor, Dr. Laura Crothers of Duquesne University, reviewed the ongoing draft on a regular basis to determine if any research design or methodology plans needed modification or revision.

Prior to data analysis, individuals were grouped into two categories: inexperienced entrepreneurs, who were defined as those who have fewer than five years of work experience in their chosen field and are considered to be junior professionals, and experienced entrepreneurs, who were defined as those who have more than five years of work experience in their chosen field and are considered to be senior in their field. This allowed for an exploration of the influence of an entrepreneur's prior experience and also permitted the researcher to explore the effect of functional fixation.

Functional fixation, as described in psychology research (Adamson & Taylor, 1954; Birch & Rabinowitz, 1951; Flavell et al., 1958; Duncker, 1945; Glucksberg & Danks, 1968), was used to explore the effect of an entrepreneur's background on the methods he or she employs to build teams. Psychology researchers have investigated the

behavior of individuals attempting to find new uses for objects after undergoing training with the objects for other uses and have found that in doing so, individuals are greatly influenced by their previous training (Boldt, 1997). Business researchers have applied this idea to business and have found that business managers are also influenced by their previous training. Such investigators (Ashton, 1976; Barnes & Webb, 1986; Bloom et al., 1984; Briers & Chow, 1995; Chang & Birnberg, 1977; Hand, 1990; Ijiri & Jaedicke, 1966) have all evaluated extensions of this hypothesis and found that managers have a tendency to fixate on their previous training, thus being less flexible in their cognitions regarding old dogs and new tricks (Boldt, 1997).

Each interview was reviewed for a series of key strategic topics or patterns. The first analysis of the data was a simple screen to determine which themes or phrases arose most frequently. Analysis consisted of individual results and then evaluation was applied comparatively across all entrepreneurs to determine if indeed there were differences between companies as they relate to the research questions being explored. Analyzing the data individually as well as comparatively was believed to be essential in addressing the potential issues surrounding case study research.

Ethical Considerations

This case study research project was governed by specific ethical considerations, including maintaining the rights of the research subjects, ensuring that the researcher conducts the research consistent with accepted guidelines and standards, and reporting the research results in a manner that furthers the base of knowledge regarding organizational strategy, while maintaining the anonymity of the organization under study and of the individual case study participants.

The Internal Review Board (IRB) at the University of Pittsburgh reviewed the study in order to protect the rights of the human subjects involved in this investigation. Further, the researcher's dissertation committee provided comments and suggested study modifications to ensure the design and methodology were in adherence to all guidelines and standards required to conduct such a study. The research findings will be reported as objectively as possible by the researcher while ensuring bias control. Additionally, the findings of this project will be reported as completely and objectively as possible while maintaining the rights of the participants and the studied organizations. All information will be handled in an anonymous fashion to allow the full contents of the study to be explored, while at all times protecting the individuals within the study from any adverse consequences.

During the study, per the direction of the University of Pittsburgh IRB, all case study participants gave oral permission and had the right to withdraw from the study. No individuals chose to withdraw after participating in an interview. The researcher explained in detail the intentions of this project in order for all subjects to feel comfortable sharing their insight. It was also explained that if at any time the research subject did not feel comfortable continuing his or her respective participation in this study, he or she would not be harassed or otherwise disadvantaged by choosing to cease participation.

Summary

In this chapter, the methodology developed to answer the research questions posed in this study was described, including the research questions, a description of the participants and the measures used in the study, a description of general case study design

and methodology, the procedures of the study, including the development of the interview guide, the collection of data, and the techniques used to analyze the data. The chapter concluded with a discussion of ethical considerations used to protect the participants and the organizations reviewed in this study.

CHAPTER FOUR

RESULTS

In this chapter, the researcher will share the analysis of the data collected during the semi-structured, personal interviews with the entrepreneurs of four regional companies identified in the previous chapter. Descriptive statistics will be shared from the study, as well as selected, verbatim comments from interviews. Data will be presented grouped in several higher order themes developed as a result of analysis through the constant comparative method. The chapter will conclude with a discussion of how this study builds upon the foundations laid by the earlier literature review.

Research Issues

The major objections to case study research are generalizability, bias, validity, reliability, and objectivity. This section will address each issue and the researcher's plans to minimize each objection during the planning, execution, analysis, and reporting of this research. Generalizability refers to how well the results of this study can be generalized across a larger population. Although the main goal of case study research is to gain a better understanding of certain phenomena, the research can make an effort to address generalizability by using triangulation. This study proposes the study of two, distinctly different working environments within the same company. Brinton and Fujiki (2003) describe the work of Janesick (1994) by saying, "Several types of triangulation have been described in the literature, including the use of multiple data sources, researchers, theories, methods, or disciplines" (p. 167). Another term that may be better to describe the generalizability issue is "transferability." According to Jones and Lyons (2004), "Transferability is achieved through meticulous attention to detail in describing the

methodological aspects of the study and its likelihood may be enhanced perhaps, by the use of triangulation strategies.” This research is considered a comparative case study due to the multiple entrepreneurial teams considered for study and should address concerns over generalizability.

Bias refers to how objective the researcher can be in the overall process. This includes the role of the researcher during data collection, analysis, and reporting. In this study, the researcher is considered part of the design leadership team. Membership to this organizational group increases the potential for researcher bias. However, journaling throughout the research process will be kept to ensure objectivity of the researcher.

Brown (1998) states:

The remedy for bias, it is suggested, is to make the entire research process transparent, to include details of the research design, data collection and analysis and the problems overcome, so that such bias as cannot be eliminated is available to the reader, who can then adjust for it (p. S85).

The researcher will make notations in the journal whenever bias is suspected. This can be reviewed later during analysis and report writing.

How believable that research results are is a general definition of validity. According to Hammersley (1992), “An account is valid or true if it represents accurately those features of the phenomena that it is intended to describe, explain or theorize.” Concerns of validity with case study research include construct validity, internal validity, and external validity.

Construct validity refers to how well the measures being studied represent the concepts being studied. Internal validity relates to causal relationships and conditions that

are not present in a descriptive study as that being proposed. External validity refers back to generalizability and how well the study's findings can be generalized. Although it is difficult to maximize external validity in a case study without extensive quantitative data, the use of a comparative case study method should help minimize this research concern. Again, journaling should help with concerns over construct and external validity as the researcher and mentor can refer to notes taken during the research process and highlight validity concerns.

Reliability can be described as how consistent and dependable the research results would be if the study were conducted at another time. Brown (1998) says:

This is another reason why transparency of method and full documentation of evidence is so important, because the goal of reliability is to minimize errors and biases in a study. Without such documentation, a researcher could not replicate his or her work, let alone make it possible for another investigator to undertake it (p. S86).

Once again the importance of detailed journaling by the researcher will be paramount in limiting the potential objections to this case study and the interpretation of its results.

Objectivity refers to how well the researcher maintains his or her objectivity throughout the research process. In this particular study, the researcher will highlight areas within the researcher journal whenever there is a concern over objectivity and make every effort to report the data from the perspective of the participant and not the researcher. According to Madill, Jordan, and Shirley (2000), "The onus on researchers is to make their relationship to the material clear and to ground analysis in participants' own accounts" (p. 17). The researcher will review the concern over objectivity in detail within

the research findings and recommendations.

Demographic Data from the Cases

Case I: NewCount Solutions

Overview

NewCount Solutions is a privately held company, founded out of the Rochester Institute of Technology (RIT) to address novel ways of preventing retained foreign bodies and to improve surgical safety. In the last two years, NewCount has developed products based on extensive research and clinical studies with surgeons, nurses, patient safety advocates, and other experts within the healthcare community. NewCount is committed to creating a safer and smarter operating room to improve patient and staff safety, increase productivity, and reduce overall healthcare costs.

The Team

Founders

Sven – Sven is a co-founder and former CEO of NewCount. He was an undergraduate engineering major at Columbia University and worked for a medical device company, Burger Labs, and spent some time working with his brother in real estate development prior to attending the Rochester Institute of Technology (RIT) to earn his MBA. While pursuing his MBA, he was working an internship with a small medical device company in Buffalo, Cardiac Devices, and was introduced to the idea that lead to NewCount. At RIT, Sven met his partner, fellow MBA student, Gary.

Gary – Gary is a co-founder of NewCount and is currently the head of marketing for the company. He did his undergraduate studies at RIT and after graduation worked for

American Investments and several .com start-ups, most notably Priceline.com. After Priceline's IPO, Gary took some time to travel in India and become involved in a company looking to do computer outsourcing with Indian computer programmers. Unfortunately, this was right after 9/11 and the technology bubble was bursting and capital was scarce, so Gary returned to RIT with the intention of acquiring the skills to start his own company. While pursuing his MBA, he did an internship with Microsoft and turned down "a very lucrative opportunity" with the company to pursue his dream of starting his own company. Working with Sven, the pair developed an award winning business plan and decided to forgo traditional employment opportunities and launched NewCount.

Technology Inventors

Morton – Morton is the inventor of NewCount's core technology. His wife is a surgical nurse and approached him with the idea of using RFID tracking to keep track of surgical sponges. Morton researched the idea and could find no other patents on the idea and decided to pursue it. His initial patents were awarded in 1997. Morton has a financial, not a scientific or medical background, and realized that he would need help to develop the product. He licensed the patents to one medical device company who had shelved the idea prior to working with NewCount. Morton serves on the board of directors of NewCount and is the company's largest shareholder.

John – John is a surgeon with a penchant for developing new medical devices. John was trained at Yale University and the Duke Medical Center. He now practices in New York

City. John also realized that there had to be a better way to track surgical sponges than the simple “counting” method that is currently employed. He searched out patents and came across Morton’s. John contacted Morton and the two agreed to work together to try and commercialize the idea. John serves as an advisor to NewCount.

Faculty Support/Mentors

Tim – Tim is the director of the Dawson Center of Entrepreneurship at RIT. In Tim’s class, Sven and Gary developed and honed the business plan that lead to NewCount. Tim was their primary advisor at this stage and coached them on their highly successful business plan competitions, which helped Sven and Gary gain notoriety and early credibility in the local entrepreneurship community.

Kurt – Kurt was an attorney for a large Buffalo law firm, and an adjunct faculty member at RIT. Gary sought out Kurt and eventually became his Teaching Assistant in addition to being his student. Sven and Gary made many contacts by leveraging their university resources. After NewCount launched, Kurt left his legal practice and works for Ready Capital, a Buffalo based venture capital group and continues to advise the team.

Archie – Archie is a professor at RIT and has served as a principal advisor and board member for NewCount. He currently serves as the chairman of the board for the company. To gain entry to the Dawson Center and the resources offered by the faculty, Sven and Gary offered to do a marketing survey (done in conjunction with their

marketing class) for the Dawson Center. This helped Sven and Gary establish a connection and lead to Sven serving as Archie's Teaching Assistant.

Employees

Angie – Angie was the first outside employee of NewCount. Angie was a PhD student at Cornell University, but she decided that she would rather work in the business world. Angie saw a posting for an office manager position on craigslist. When Gary met with Angie, he saw that she had more training and talent than the typical office manager. Over several meetings, Gary and Sven asked Angie what she “really” wanted to do. She indicated that she had a strong interest in biomedical research. Leveraging her talent, in addition to serving as office manager, Angie coordinates all of NewCount's clinical trials.

Darren – Darren is a young engineer from the Buffalo area who was educated at Syracuse University and earned a masters degree in biomechanics at Georgia Tech. Darren was living in Boston and working for a defense contractor who sold off their biomedical division right after he joined the company. The projects that he was working on did not leverage his background, so he decided to look for new opportunities. Darren found an online job posting for NewCount and responded. After multiple conversations, Sven convinced Darren to join the team and come on board. Darren has been a key team member and has taken the lead on most of the engineering tasks at NewCount.

Dan – Dan has recently joined NewCount as their new CEO. Dan was working with the Buffalo Technology Greenhouse, an organization that helps entrepreneurs find talent, capital, and advice. Dan is an alumnus of RIT. He was previously a Vice President with

Bauche and Lomb and was CEO of Euromed, a UK-based medical device company. Post 9/11, Dan grew tired of making trans-Atlantic flights and decided to seek an opportunity closer to home. He joined the Buffalo Technology Greenhouse and worked there as the COO for three and a half years.

Board Members

Mike – Mike is a CPA by training and served as the “first business person” hired by Futuremed, a highly successful medical device maker based in Western New York. Mike retired from Futuremed and serves as a member of the Buffalo Technology Greenhouse. He is both an advisor to NewCount and serves on their board of directors.

Advisors and Contractors

Marty – Marty is an engineering professor at RIT. Marty is widely regarded as one of the leading RFID researchers in the country. Marty has no formal tie to NewCount and takes no compensation, but he has served Sven and Gary as an advisor, and NewCount has done two class projects with Marty’s students to help with the design of their product.

Stu – Stu is a contractor based in Cleveland, Ohio. Stu has done work with many Buffalo area start-ups, and Sven met him while Stu was doing work for Cardiac Devices. Stu has a network of freelance engineers whom NewCount has been able to tap to assist with technical problems. Stu works with NewCount on a fee-for-service basis.

Terri – Terri is a retired surgeon living in Buffalo. She saw several online postings of questions posed by Sven and Gary and has served as an informal advisor to the team. She generously gives her time and shares her contacts in the medical field.

Simon – Simon is a surgeon and serves as a senior executive at Western New York Hospital. Simon is an informal advisor and an outspoken advocate for NewCount's product.

Vera – Vera is a surgeon and a professor at the University of California, Los Angeles. She has done research on the prevention of post surgical retained foreign bodies and serves as an informal advisor to NewCount.

The Beginning

Before returning to school for his MBA, Sven knew that he wanted to learn what was necessary to start a business. After completing his engineering degree at Columbia University, Sven worked with a small medical device company and he knew that one day he wanted to start his own company. Sven came from a family of entrepreneurs. His grandfather had started his own coal company, his brother has his own real estate development company, and his sister started her own public accounting firm. In the fall of 2001, Sven enrolled at the Rochester Institute of Technology (RIT). During orientation, an auspicious meeting occurred; Sven met and befriended Gary, developing a relationship that would lead to the start of their first venture.

Taking a number of classes together and working on various projects, Sven and Gary quickly realized that they made a good team and had complementary skill sets. As

one of their colleagues describes them, “Sven is very methodical and detail oriented. Gary is a big idea guy and a networker.” Sven, trained to be an engineer, had the wherewithal to tackle the development of new technologies, while Gary, an outgoing, extraverted networker was able to build relationships and gain audiences with difficult-to-reach potential allies.

In the spring of 2003, Sven was completing an internship with a Buffalo-based medical startup company, Cardiac Devices. Cardiac Devices was in the process of commercializing technology developed by Dr. John, a surgeon based in New York City. John had a reputation for being an entrepreneurial surgeon with an eye toward new medical technologies that solve existing problems and have the potential for quick commercialization. Cardiac Devices had a number of patent certificates hanging in their reception area, and Sven noticed John’s name on several. One day when John was visiting Cardiac Devices’ office, Sven asked John if he could have a couple minutes of his time. John was in a rush to get back to New York, but Sven seized the opportunity and asked if he could drive John to the airport. During that drive, Sven learned about an opportunity that John felt was a need in the operating room, but noted that the technology required more development.

The Idea

John was the critical link in Sven and Gary finding the idea to build a company around, but the idea had germinated almost a decade earlier. In 1994, Morton was approached by his wife, a surgical nurse, with an idea. She suggested that there had to be a better way to keep track of surgical sponges other than simply counting them. If the count was off at the end of a surgery, the surgical team would have to search around the

floor and dig through the discard bucket in hopes of finding the missing sponge. If a sponge were left in a patient, a post-operative infection, an additional surgery to remove the sponge, and other complications were likely. Time spent searching for an errant sponge was very expensive. Operating rooms are expensive to manage and the O.R. team is a group of highly compensated individuals. In the O.R., time is money, but there is no room for error. Clearly there had to be a better method.

Morton thought hard about his wife's idea and he couldn't find a flaw in it. They had heard about a relatively new technology, Radio Frequency Identification (RFID), and thought that it would be the perfect solution. Morton conducted a patent search, and fueling his excitement, there were no patents on file covering this space. In 1994, Morton applied for four patents on RFID surgical sponges. Three years later his patents were issued.

While RFID surgical sponges seemed like a great idea, it was an idea ahead of its time. RFID technology was prohibitively expensive, still had a number of reliability quirks that had to be overcome to secure FDA approval, and companies shied away from wanting to develop the idea, partly because the technology was still unproven and partly because Morton's lack of a medical or technical background limited his credibility in the eyes of potential financiers.

In 2000, Morton licensed his patents to a medical device company, but the company shelved the project after about six months of development. Fortunately, Morton had an agreement where if the company did not develop a commercializable product, then he could take back the patents.

Back to the drawing board, Morton received a phone call out of the blue from Dr. John. John also thought that there had to be a solution to the problem of misplaced surgical sponges and in conducting a patent search, came across Morton's name. After several phone conversations, the two decided to work together to try and commercialize the idea. The two realized that if the idea was to become a product, they would need a team dedicated full time to developing it. They realized that they would need a group that could both champion their cause and had the technical ability to do the developmental work.

The Link Up

While Sven was interning with another medical device firm, Cardiac Devices, he seized the opportunity and asked Dr. John for a couple minutes of his time to see if John could recommend any ideas to pursue. When John met Sven, he quickly realized that he was talking with a driven, industrious student who was looking for a serious opportunity. Time was tight and John had to get to the airport, so John decided to cancel his cab ride to the airport and ride out with Sven. On the ride out to the airport, John told Sven about the RFID sponge idea and Sven was immediately excited about it.

Sven and Gary were looking for an idea to develop for their Entrepreneurial Studies class. After a little discussion, the two decided to run with the RFID sponge. The two conducted extensive due diligence and as fortune may have it, in January 2003, the *New England Journal of Medicine* had published an article, "Risk Factors for Retained Instruments and Sponges after Surgery," and Gary sought out a meeting with the article's lead author, Dr. Gawande. Unfortunately, there were many on again, off again meetings

set up, but eventually Gary was able to meet with Dr. Quan, Dr. Gawande's assistant, and she confirmed for him the severity of the problem.

The Business Plan Competition

For their class project, Sven and Gary worked with three other MBA students to develop a business plan. They were excited about the prospects of the concept, but the other team members were not interested in pursuing the opportunity.

Sven and Gary worked closely with their professor, Tim, to develop an outstanding business plan. Their efforts were rewarded when the duo won the Rice Business Plan competition, one of the most prestigious business plan competitions in the nation. This accomplishment gave them instant notoriety and a degree of credibility. Their concept and plan had won the respect of seasoned venture capitalists and they were encouraged to continue with the development of the concept.

The Venture

Professor Archie was impressed with not only the concept, but the diligence of Sven and Gary, and encouraged them to make a go of it. Another RIT professor, Kurt, was a practicing attorney and got involved because Sven and Gary knew that both technology licensing and intellectual property were going to be keys to their success.

With Archie and Kurt joining the team, Sven and Gary began negotiating with John and Morton to license their technology. John and Morton knew that a dedicated team had to be assembled to develop the technology. They questioned the inexperience of Sven and Gary, but noted the outstanding effort that they had put into the venture, winning the prestigious Rice Business Plan Competition. After a long negotiation process, Sven and Gary were officially in business.

For the first three or four months, Sven and Gary had to work to raise capital. This was an interesting time. They watched their classmates with their new MBA degrees going off to lucrative opportunities with blue chip companies and top-notch consulting firms. Gary himself had a great offer from Microsoft. His family asked him if he was crazy for turning it down. However, the duo stayed the course because they believed in the potential of the product. It served a practical need and addressed an economic concern.

Economics of the problem :

A closer look at the problem reveals three separate contributing factors amounting to \$1.5 billion in costs:

Manual counting is currently the accepted method, but it comes with an enormous price. In over ten million procedures each year in the U.S., registered nurses spend at least 15-30 minutes accounting for surgical sponges and instruments. With high overhead costs in the O.R., it is not surprising that accounting for sponges and instruments costs U.S. healthcare institutions more than \$1 billion annually.

X-Rays are the last line of defense against retained bodies when manual counts do not match. Over 1.5 million x-rays are taken each year to detect retained bodies. A typical x-ray costs over \$200, wastes valuable time, and is subject to a false negative error rate of up to 20%. X-rays used to check for retained objects represent a cost of \$375 million each year in the U.S.

Medical malpractice lawsuits resulting from the 20,000 mistakes which still occur annually in the U.S. represent a significant expense in addition to the immeasurable damage to the reputation of medical institutions and professionals. The costs of litigation,

as well as the costs to remove retained objects, amount to \$125 million each year in the U.S. alone.

Sven and Gary were encountering a problem faced by many high technology startups. Even though there was a clear medical and economic need for their product, they needed expertise in a number of areas, including RFID technology, the FDA, operating room procedures, hospital internal review boards, hospital purchasing, and business development. The duo had to give a large stake in the company to Morton and John to license the technology. In order to pay for the needed expertise, they would need to raise capital. In order to attract and motivate a team, they knew that they would have to award shares to their employees.

Sven and Gary sought advice from economic development organizations based in Pittsburgh. While they had won a small sum of money from business plan competitions, they knew that they had to raise a significant sum to launch the venture. Their quest began with the Buffalo Technology Greenhouse. Fortunately, the Western New York region has a number of government funded agencies that were created to help high technology start-ups obtain seed capital. At the Greenhouse, Sven and Gary began working with Mike, the former President and CEO of Futuremed, a highly successful Western New York medical device company. Mike is a CPA by training and lent a great deal of expertise to the team.

Mike worked with medical device companies for the Buffalo Technology Greenhouse. He was instantly impressed with Sven's enthusiasm and the depth of research that he and Gary had put into the project. It was one of the best business plans that Mike had ever seen. Mike worked closely with the team, giving them advice on what

to look for in bringing on teammates, what to be aware of when seeking funding, and when it is better to simply hire a contractor versus hiring an employee to handle a need. Mike states, “When you are part of a start-up, there is nowhere to hide. Every decision is closely scrutinized. Funds are limited. Equity is limited. You can’t afford many mistakes.”

Given his experience as a successful executive with a medical device company, Mike is often approached to affiliate with medical device start-ups. His success and expertise is seen as a strong endorsement by financiers and potential industry partners. However, he is very selective on which companies he gets involved with. Why did Mike get involved with NewCount? When asked this question, he reflected and gave three reasons:

- 1) Sven and Gary have a product that is a potential solution to a serious problem. It is not a solution trying to find a problem.

- 2) Sven and Gary are very driven young men and he could sense their drive and desire. Sven’s experience in medical device engineering, his attention to detail, and his ability to interface with a customer were well complimented by Gary’s networking skills and ability to open doors with industry experts.

- 3) Sven and Gary’s success at RIT and the endorsement of their faculty members confirmed his gut feeling that these were two very driven young men who had a good chance at success. RIT gave the team a halo given their reputation for successful start-ups and to date, Sven and Gary had excelled at every challenge faced by the business.

Mike's experience has allowed him to offer solid advice to Sven and Gary on matters including hiring, the FDA approval process, and positioning the company for future financing.

Employees

While Sven and Gary were both skilled and motivated, it was obvious that they needed to assemble a team to make the project a reality. With the advice of their mentors in mind, they had to make critical decisions:

- 1) Given their limited funds, they could not afford to make many hiring mistakes.
- 2) Equity is a limited resource and once it is a vested commitment, it is gone.
- 3) Determine which services can be contracted and which should be hired in-house.

Two immediate needs came into view. NewCount needed engineering talent and organizational expertise to navigate the FDA approval process. Other needs included legal expertise for additional intellectual property protection and financial acumen to navigate the venture capital process.

With limited funds, it would be very expensive to hire a search firm to fill critical positions. As such, Sven and Gary had to be creative. Noting that they would be looking for technology savvy individuals, they decided to use the web and electronic bulletin boards as their primary tools. The Buffalo Technology Greenhouse had a job posting section and they also used a popular website, craigslist.com. Each yielded a successful addition to the team.

In an attempt to help organize their office, Gary posted on craigslist.com for an office manager. There they found a great team member, Angie. Angie was a PhD student

at Cornell University, but was looking for an opportunity to move to Buffalo. Her boyfriend was relocating to Buffalo and she wanted to join him.

Gary took the lead in interviewing Angie. He took a very open approach to determining if she would be a fit for NewCount. When Gary learned about Angie's background, he quickly realized that she was overqualified to be an office manager and put the question to her, "What do you really want to do?" This was an interesting approach and made Angie very excited about the company. The interview was not a one-time deal. Angie had several meetings with both Gary and Sven to determine both her fit and her skill level. In the meetings, Angie's scientific background and administrative abilities became apparent. It was decided that in addition to serving as office manager, she would coordinate NewCount's FDA approval process. By using a wide net and getting to know Angie's skills and desires, the team landed an individual capable of coordinating a critical task when they were looking for a more basic skill set.

Engineering was NewCount's other critical need. Sven is a skilled engineer, but there were several needs that were outside of his technical expertise and the volume of work that needed to be done required more time than he could commit. Noting Mike's advice, Sven and Gary looked for tasks that NewCount could outsource. While working with his previous company, Cardiac Devices, Sven had the opportunity to work with a contract engineer, Stu. Stu is an experienced engineer living in the Cleveland area and has contracted with a number of medical device start-ups. He has a network of engineers that he can draw on for areas outside of his expertise and has been able to provide contract services to a number of medical device start-up companies. When asked why he chose to work with NewCount, while he was intrigued with the technology, Stu admitted

that it was because NewCount was able to pay for his services. Stu has a track record of delivering quality work on time to start-ups and is aware of how critical timely work is to his clients. The fact that NewCount has a good knowledge of their needs helps Stu deliver quality work that has helped advance NewCount's product.

Quality contractors are a great asset, but given that intellectual property is one of the critical elements of success for a medical device start-up, it seemed that NewCount needed to have skilled engineers on the team, full time. Given that engineering talent is in high demand, Sven and Gary knew that this would be a challenge.

NewCount took advantage of the online posting service available on the Buffalo Technology Greenhouse website and received a number of résumés, but Sven was looking for engineers with medical device experience and who understood the needs of a start-up company. Sven and Gary made two mistakes before hitting on a successful hire.

The first two engineers that they hired were technically competent, but were not well-suited for working in a start-up environment. They were looking for specific tasks to tackle. When they finished with their task, they were not looking for other areas where they could be innovative and develop the product. Sven described the problem as, "The first couple of engineers that we hired needed too much direction. We were operating in an environment where we needed to think outside of the box and be looking for breakthrough ideas. Some people, while very skilled, are more suited for project work than innovation."

Fortunately, the team found Darren via their online search. Darren is a young engineer educated at Syracuse University and Georgia Tech, where he earned a MS in Biomechanics. Darren was working for a defense contractor in Boston, but wanted to

both return to the Buffalo area and work in the medical device arena. Having had two failed hires, Sven and Gary worked to make sure that Darren would be a fit for the team and be of the proper mindset to work in a start-up environment.

Darren has been able to step in and work independently to help advance the technology and get the first generation of NewCount's product into the operating room. The team's efforts have resulted in a product that has been successfully tested and received national notoriety, including mention in the *Wall Street Journal* and on CNN.

Advisors

In addition to pulling together a quality team to develop the product, NewCount also needed outside expertise to help work through issues as diverse as technological limitations, hospital administrative issues, and acceptance by nurses and doctors in the operating room.

Sven and Gary were fortunate that a leading expert in RFID technology, Marty, was a professor at RIT. Marty was willing to lend his expertise as a service to Sven and Gary because RIT was championing economic development in high tech areas related to university research. In addition to lending advice to NewCount on how to solve technical issues and where to look for best-in-class components, he helped coordinate two class projects where RIT engineering students looked at technical problems that the product was encountering and proposed solutions.

NewCount was also able to get a number of surgeons to lend their expertise on technical issues that the team was facing. This was largely due to the networking skills of Gary. Doors were opened in two ways. First, in performing due diligence, a number of surgeons had championed the cause of eliminating the problem of foreign objects being

left behind after surgery, Gary took the initiative to set up meetings with the experts. As discussed earlier, Gary jumped at the opportunity to meet with Dr. Gawande's assistant, Dr. Quan, to discuss their recent *New England Journal of Medicine* article on the subject. He also came across Dr. Vera, a surgeon at the University of California, Los Angeles, who is a leading researcher on preventing post surgical retained foreign bodies.

Gary also used the internet to pose questions in online chat rooms. Using this technique, he met Terri, a retired surgeon who was interested in the problems that NewCount wanted to solve. Gary took the opportunity to meet with Terri and run ideas by her. Her input was helpful in understanding how surgeons would view features of the product.

Gary and Sven also leveraged their university contacts to land Dr. Simon, a surgeon and senior executive at Western New York Hospital as an informal advisor.

Growing Pains

The Board of Directors of NewCount was in agreement that Sven and Gary had done a wonderful job launching the company and moving the organization into a position where it could succeed, but unfortunately, given that this was their first start-up, their inexperience was beginning to show.

It had become obvious that, while their first generation product would likely gain FDA approval, the feedback from the doctors using their system would require changes and upgrades. The team knew that the changes would be needed, but were still concentrating primarily on developing the first generation of the device. Time was slipping away and the team knew that there would be competitors. To maximize their

window of opportunity and the value of their product, it would be important to have a second generation product ready to go soon after FDA approval.

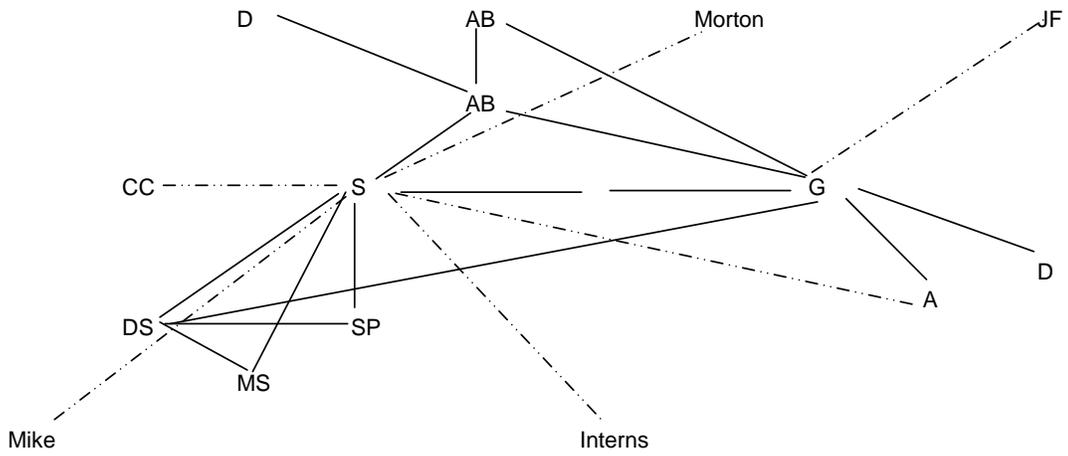
There was also a feeling among the board members that the inexperience of the team would make it very difficult to raise venture capital financing. An experienced CEO would help enhance the credibility of the organization and someone who has had to meet the tight time pressures of developing a second generation product would be able to help the company stay on their tight schedule.

As CEO, Sven also served on the board of directors of NewCount. He was aware of the board's concerns and was open to bringing in an experienced CEO. Sven and Gary were not excited about bringing in an outsider to run their company, but realized that many of the board's concerns would best be addressed by an experienced leader. While they enjoyed running their company, they realized that it was important to do what was best for the shareholders, including themselves.

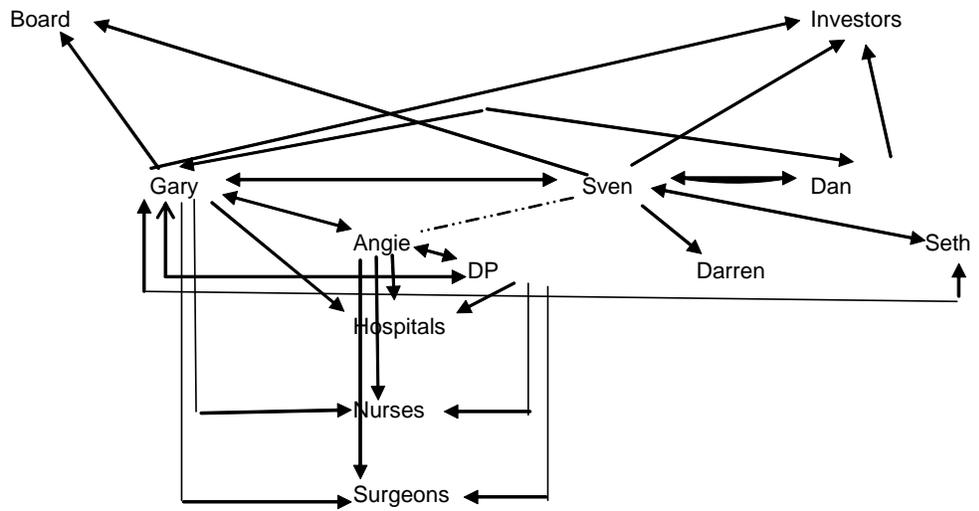
Sven and Gary realized that they were in a unique position. While they would be giving up the reigns of their company, they had the ability to help choose their boss. As the board began searching for a new CEO, Sven and Gary interviewed the candidates and had an opportunity to see how the potential CEO's philosophy complimented their own, in addition to assessing the individual's technical ability.

One individual that the team had worked with at the Buffalo Technology Greenhouse was Dan, who was serving as the COO of the Greenhouse after serving as CEO of Euromed, a successful UK-based medical device company. At the writing of this case, Dan had just taken the helm.

Sven's Team Map



Gary's Team Map



Case II: BetaCad, Inc.

The Team

Heidi – Heidi is the Founder and President of BetaCad, Inc. Heidi had 30+ years of radiology experience and was the administrator in charge of the largest mammography center in Buffalo. She had the vision and drive to establish a new model to make CAD technology available to a wider array of healthcare providers.

Saul – Saul is an attorney with 20+ years of experience in hospital administration and private legal practice related to healthcare management. Saul is a graduate of the University of Buffalo Law School and earned his Master of Health Administration from Johns Hopkins University. He has served as a general counsel at hospitals in both the University of Buffalo Medical Center health system and Western New York health system.

Evan – Evan is Heidi's husband. He was also the COO of Western New York Hospital and a huge supporter of Heidi's efforts. Evan helped Heidi make contact with several key partners, many of whom were instrumental to BetaCad being launched.

Judy – Judy is a friend of Heidi. Her husband is also an executive at Western New York Hospital. Judy is an investor in BetaCad and works in the company's office three days per week.

Tom – Tom has a long standing business relationship with Western New York Hospital, where he supplies radiology equipment, outsources several diagnostic services, and deals with other advanced medical equipment needs. Tom has had a long standing business relationship with Evan, Heidi’s husband.

Ruth – Ruth is the wife of one of Tom’s full time employees. She worked part time for Tom processing radiology scans when he had high volume needs. Tom introduced Ruth to Heidi and Ruth became one of Heidi’s primary technicians.

Background

BetaCad, Inc., a Buffalo-based company, provides mammography film digitization and computer-aided detection analysis exclusively to certified mammography facilities. Heidi, the founder and President of BetaCad, Inc., has 30+ years of experience in the radiology profession. Prior to establishing BetaCad, Heidi was employed as the administrative director of a premier breast program located in one of the nation’s largest dedicated women’s hospitals. Heidi was instrumental in the initiation of mammography CAD services in a breast program performing 45,000+ screening mammograms annually at seven sites. Her experience and expertise in breast imaging supplied the foundation to establish and manage BetaCad, Inc:

“ I was fortunate to be associated with an institution involved in the evaluation of emerging technologies which included mammography CAD. After our initial experience with CAD, we had little doubt that this technology would evolve to become standard of care for breast cancer screening. Unfortunately, in today’s healthcare climate, the cost of CAD equipment presents an insurmountable problem for most mammography facilities. It

occurred to me that it is not unusual for imaging departments to contract with companies for CT, MRI, PET, and DXA services, so why not CAD?”

Heidi explains, “BetaCad’s business model permits access to CAD technology to all mammography providers by removing cost barriers. I’m amazed by the rapid acceptance of our service model and fulfilled by the benefit we provide – not only to the clients we serve but to the women they serve. It is a win-win situation for all.”

The Case

The year that BetaCad was started, Heidi was introduced to a revolutionary new technology. In her 30 years as a radiological technician, she had not seen a device introduced into her field that was such a no-brainer. A sales representative visiting her office had unveiled a computer aided diagnostic machine, know as a CAD. The CAD is a high-tech computerized scanner, about the size of an office Xerox machine, that reads and analyzes mammograms. The CAD reads each mammogram and prints a report, highlighting any areas that could potentially harbor a tumor. It was based on FDA technology and had been shown to detect early stage tumors that were missed by radiologists. Medicare and private insurance were already prepared to pay for the service and it appeared to her that this would one day become a standard tool in the industry. She quickly adopted it for her office at the University of Buffalo Medical Center and started to think, “This is a tool that every radiologist should have access to. It is expensive, but wow, what a great opportunity.” It was a second opinion and, on average, only required an extra 17 seconds of a radiologist’s time to review the report!

CAD technology was not designed to replace a radiologist. It was designed to be a computerized “second opinion” that performs an automatic double check of the radiologist’s reading. In FDA studies, CAD helped radiologists diagnose 20% more tumors at an earlier stage than manual readings. Given its effectiveness, one would think that CAD should be in every radiologist’s office. However, there was one problem: cost.

A CAD unit at the time BetaCad was launched cost \$144,000. The volume of a typical radiologist is only a few dozen mammograms per month. At that price, only a major medical center such as the University of Buffalo Medical Center’s St. Maria Women’s Hospital, would have one based on the reimbursements that were being offered by the major managed health maintenance organizations and Medicare. However, in volume, it was possible to make money based on the reimbursement schedule. Heidi thought to herself, “If we could consolidate all of the scans in this region, we would have the volume to do this as a business.”

The Environment

Healthcare is a very competitive arena. In the Buffalo region, two major health systems have become the dominant players, Western New York and the University of Buffalo Medical Center (UBMC). Most area hospitals have been consolidated into one of these systems. Heidi worked at St. Maria Women’s Hospital, part of UBMC. Ironically, her husband is the COO of Western New York Hospital, one of UBMC’s main competitors. However, a second tier of hospitals exists, primarily in the suburbs and outlying areas, known in the industry as community hospitals. These institutions, while providing high quality care, do not typically maintain all of the latest medical technology and tend to refer complex cases to the major medical centers if such care is deemed

necessary by the physician. A CAD device would be out of reach for most community hospitals and would be impractical based on their limited volume of mammograms.

Heidi thought that CAD was a wonderful innovation when she launched it at UBMC, but realized that CAD would be a losing proposition for most regional hospitals at this stage. They did not do enough volume and many radiologists were not actively seeking mammogram patients. They would prefer to refer them to UBMC. Besides, the most influential radiologists did not feel that CAD was critical to their diagnosis. Their belief was that CAD caught sloppy work and they were not likely to make such errors. Their feeling was that the technology would continue to be enhanced, the cost of the equipment would come down, and it would be more in line with their needs.

Looking beyond UBMC and Western New York, Heidi realized that if she could get the community hospitals to accept her proposition and if UBMC radiologists would use CAD as part of their private practice (outside of UBMC work), she would be able to generate enough volume to make CAD an affordable part of every physician's repertoire.

The Second Look

Heidi was a skilled hospital administrator with 30+ years of experience managing radiology departments. She knew how to efficiently run a staff, but was uncertain about legal issues and fundraising. CAD technology cost \$144,000 per unit and she would need to raise capital, ensure that all medical and ethical standards were met, and ensure that she had the trust of the local medical community.

Her husband thought he knew the perfect man for her to speak with. The general counsel of Western New York Hospital, Saul had experience as a senior legal officer in both the UBMC and Western New York Health Systems ,and had extensive

entrepreneurial experience helping physicians launch entrepreneurial ventures and serving on their boards of directors. Heidi knew radiology and office management, but Saul added the knowledge of navigating the entrepreneurial waters. After taking a second look at Heidi's business plan, Saul "could not find any flaws" and recommended that Heidi give it a shot.

To attempt the business, Heidi would have to retire from UBMC and devote full time to her business, a company that she had named BetaCad.

Raising the Funds

Fortunately for Heidi, she was nearing retirement and her husband had a good job. Even though there would be financial risk involved in launching BetaCad, it was manageable risk. Heidi had the added advantage of a network of high net worth colleagues who understood the technology and knew that she was a skilled administrator with a strong reputation among the radiologist community.

To launch the company, Heidi sold shares of the company to five colleagues, as well as granting "founders' shares" to herself and Saul as payment for his counsel and legal advice. Saul and Heidi also made a pact to each other. They pledged to maintain 51% of the ownership between them in order to ensure that they maintained control.

Heidi also ran her idea by many friends. Knowing her experience, many friends were excited by the opportunity. A couple of the friends also saw this as an opportunity to work with Heidi and become part of her operational team. However, one huge hurdle was going to be financing the equipment. Medical equipment has a very rapid depreciation schedule and the equipment did not provide much of an asset base as

collateral. Fortunately, a team member came along who was able to solve this problem and create a win-win situation.

Building the Team

Most of the players in BetaCad were acquaintances that Heidi had met over the years. All had industry experience and all were colleagues or friends of colleagues. Heidi discussed the opportunity in depth with her husband, Evan. Evan like the idea, but thought that it sounded too good to be true. In doing his due diligence, he decided to run the idea by his general counsel, Saul. In addition to his years of health care administrative experience as an attorney working in private practice and as a senior officer with both UBMC and Western New York, Saul has been an advisor, investor, and board member with a number of medical start-up companies. Saul looked over Heidi's business plan and commented to Evan that, "This was the best business plan that he had seen in two years. There are no flaws." The only challenge was obtaining financing.

After Saul, one of Heidi's first partners was a friend named Judy. Judy was the wife of one of her husband's colleagues, who was a senior executive at an area hospital, and was someone with whom Heidi enjoyed sharing ideas. Judy encouraged Heidi to "go for it." Part of the reason was that she was interested in joining the company and working for the team; part of it was because she felt that it would be a good investment. Judy was also a part of the medical community for years and given her background, it sounded like winning idea.

Heidi found herself looking to raise funds in the post 9/11 downturn. Many of the people that they would approach as typical "friends and family" investors had been burned as the .com and telecom bubbles had burst and given the shaky economy, were

not looking to invest in a new start-up. Heidi thought about financing the company on her own with her husband, but felt that failure would force them to delay retirement and she was not looking to take that kind of risk.

As weeks went along and with only limited interest from potential investors, Heidi's husband suggested that they just forget about the idea. However, given the enthusiasm of Saul and Judy, Heidi was not willing to give up. Seeing her enthusiasm, Evan approached a colleague named Tom, who sells radiology equipment to his hospital to help finance the venture. Based on Tom's relationship with Evan over the years, he was willing to step up and finance the equipment at 7% interest for a 10% stake in the company. Tom was taking appreciable risk. If the venture failed, he would be on the hook for the CAD equipment, but knowing Heidi and believing in her model, it was a risk that he was willing to take.

With financing in place, Heidi approached her friends who had expressed interest in investing. Saul decided to buy in, as did Judy and two other friends who were interested in working with Heidi, taking jobs with the venture. One of the friends worked out; the other did not. It was disappointing to Heidi that one of her friends did not work out as an associate, but she said, "Hey, these things happen," and it was only a minor hiccup for the company.

Heidi's relationship with Tom yielded another benefit. Tom operates...and as such, has skilled radiological technicians on his staff. Tom and Heidi agreed that BetaCad could use Tom's technicians to help during her peak periods when Tom's workload was low. This was a great resource for BetaCad, giving them skilled technicians without having to incur any training costs. Ruth was one of Tom's employees and agreed to work

with Heidi. Ruth and Heidi enjoy working together processing mammograms and have a good working relationship.

Building the Business

The business model that Heidi envisioned would require volume. CAD technology was expensive, but if sufficient volume could be generated a real business could be developed. The doctors would require fast turn around and accuracy. If both could be achieved, Heidi knew that there was a real opportunity.

There were three competing technologies available. R2 was one of the manufacturers. Their machine was by far the most expensive, but they were the highest quality CAD provider. Heidi knew that she could offer the service with a less expensive machine and have quicker payback, but she opted to go for the highest quality knowing that this would add to her credibility and increase the odds of hospitals and radiologists contracting with her.

Heidi knew that the opportunity was with community hospitals. They would trail the major health systems in technology and could be persuaded to work with her company. There was a debate going on in the radiologist community on the value of CAD and Heidi found it easy to get meetings with area radiologists. Her experience and reputation from UBMC gave her credibility. However, the technology was early. Was it of high enough quality to merit its use at this stage of development? Did community hospitals want to deal with CAD technology for mammograms? Many radiologists were not interested in reading mammograms and would prefer to send their patients to St. Maria Women's Hospital at UBMC and not deal with the issue.

The business proposition was simple. Medicare was reimbursing CAD runs at \$14.80 per study. Heidi was going to charge the radiologist \$11.50 for his or her service. Hence, the radiologist would earn \$3.30 per scan just for having Heidi run the scan, with the added benefit that each mammogram would be subjected to virtual second opinion. Some insurers reimbursed at an even higher rate. For instance, Blue Cross reimbursed at \$25.00 per scan, giving the radiologist \$13.50 per scan.

The numbers worked if two things could happen: sufficient volume would have to be generated and an efficient courier service would have to handle the mammogram films and reports. If those two pieces were in place, all that was needed to make the service work, once the equipment was procured, was an efficient staff to process the mammogram films. Staffing such an operation efficiently was one of Heidi's fortes based on her 30+ years of running related operations with major health care systems. The sticking point was the courier service.

Because quick turn around was needed on the films, courier service would be required. A private medical courier service could be used to ensure 24-hour turn around of the scans. This would work with close-by customers, but would be prohibitively expensive as Heidi worked with more outlying hospitals. FedEx seemed to be the obvious answer. However, in managing the expense of shipping mammogram films, a pricing deal would have to be worked out with FedEx. The equipment was very user friendly. Operation was similar to using a digital scanner. The film was fed into the machine, a report was generated, and the two were placed in an envelope to be returned to the radiologist. If a volume discount were not possible, this would make the venture very

tenuous. This has been an extremely successful process. Thus far, with over 300,000 scans completed, neither BetaCad nor their carriers have lost a single mammogram film.

Fortunately, one of Heidi's partners, Saul had extensive experience dealing with FedEx. Noting that their volume of shipment was expected to be about the same as a mid-sized law office, Saul approached a contact of his from FedEx. He was able to negotiate a very favorable rate for a startup. Saul obtained the same volume as a customer who was already doing \$50,000 in shipping, no small feat for a start-up. With her equipment, shipping, and experienced staff in place, Heidi was ready to open shop.

The Ramp-Up

Heidi met with radiologists based at community hospitals. She got early buy-in from several radiologist affiliated with community hospitals. Her reputation got her in the door with most radiologists that she contacted. By offering all of her early clients "most favored nation status," or in other words promising everyone that they would receive the same deal if she gave any clients a better deal, she got them to agree to use her service.

The business ramped up quickly, more quickly than Heidi and her team had anticipated. R2 saw this as a possible new business model for them, developing a regional retail service. BetaCad was a hit and counted 22 hospitals as dedicated clients. However, just as BetaCad's business ramped up more quickly than anticipated, the same thing happened with the technology. Lower priced units were rolling out more quickly than anticipated.

As prices on the equipment dropped, Heidi worried that she may start to lose some of her larger clients. She had acquired three CAD machines and was worried about a loss of volume. With her two largest clients, she worked out a new deal. She would put

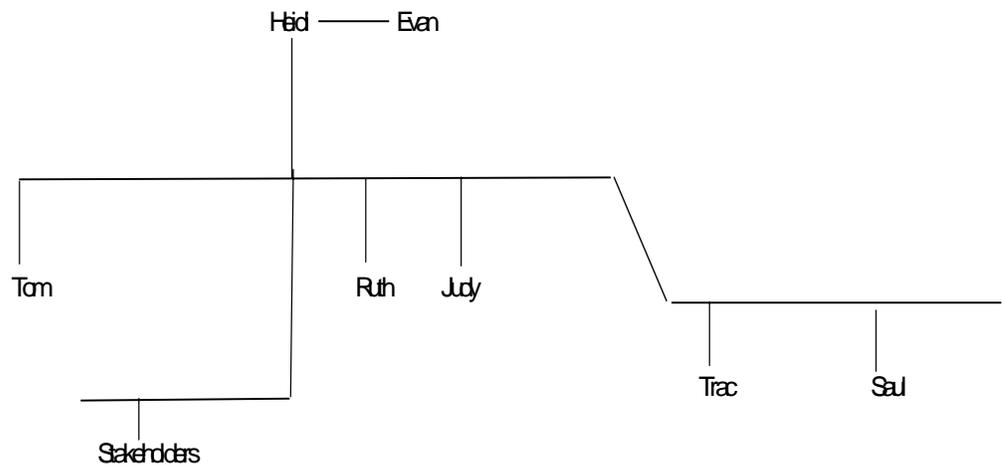
one of her machines on site and lease the equipment to the hospital. They could run as many scans as they wanted at a fixed fee. This relationship has worked and Heidi has maintained the two hospitals as clients.

The Future

The price of CAD equipment has dropped precipitously since the technology was launched four years ago. Equipment has shrunk in size as well. Today, desktop models are available for about 30% of the price that the original units cost. Another dilemma, the technology is being built into new digital mammogram machines, thus eliminating the films and the need for CAD screening.

BetaCad has been a very successful venture, paying off for the partners, paying back their investment in under three years, and yielding a 100% return on investment. However, as was anticipated when the company began, the company has a limited life span. Talking with the partners, their estimates range from 3-8 years on how long BetaCad will remain a viable business. No plans are in place to seek out alternative uses for the CAD equipment or the expertise of the staff. The partners are very happy with their returns and anticipate that they will be able to double their money over the next three years.

Heidi's Team Map



Case III: Alphasense

The Team

Chad – Chad serves as the CEO of Alphasense. Prior to joining Alphasense, Chad earned a MBA and had 30+ years experience with National City Bank as a senior officer and was working with a start-up incubator in Columbus. Chad was hoping to work with a start-up and put out feelers with his network. He was approached by Pete, a board member of Alphasense about six months after the company was formed and asked if he would serve. Pete and Chad had done deals together when Chad was a banker and Pete was the CEO of another Columbus medical start-up.

Eddie – Eddie is a professor at Ohio State and invented the technology that Alphasense has leveraged to launch their company. Eddie is a well-regarded academic researcher and is seen as an up-and-coming star. He is a tenure-track professor and remains at Ohio State. He collaborates with the team and is the Chief Scientific Officer of Alphasense.

Pete – Pete is a retired neurosurgeon. He has an extensive background, including Chief of Neurosurgery at Beth Israel Hospital and a senior administrative appointment with the National Institute of Health in surgical neurology, where he was in control of a \$250 million budget. He finished his medical career in 1995 as the head of neurosurgery at the Ohio State Medical Center. Pete left Ohio State to become the CEO of a medical technology company, Cellbio, in Columbus. The company developed several new cellular technologies and eventually went public. After five years as CEO of Cellbio, Pete stepped down and now serves as a board member with several Columbus area health

related start-ups and serves on the board of the Columbus Biotech Initiative advising area entrepreneurs. Pete's blend of administrative experience and scientific knowledge has served as a bridge between many investors and scientific experts and helped to commercialize several technologies. Pete currently serves as the chair of board of Alphasense.

Jack – Jack is lawyer by training a serial entrepreneur based in Portland, Maine. Jack serves on the Alphasense board. Jack learned of Alphasense from Chad, who had a banking relationship with him dating back to the early 1980s. Jack knew nothing about the medical technology involved, but decided to invest based on his respect for Chad and their long-standing business relationship. Occasionally, Jack and Chad bounce financial ideas off one another.

Rod – Rod is a former editor of *Business Week* and served as the first CEO of Alphasense. After retiring, Rod used his experience and professional network to set up a seed stage investment fund. Currently, Rod's fund has investments in six biotechnology start-ups. Pete introduced Rod to Eddie. When introduced to Eddie, the technology behind Alphasense was still at the laboratory stage, but Rod saw potential. Eddie was clearly committed to remaining at Ohio State, but the company needed a staff if it was going to grow. Rod agreed to serve as CEO until a full time replacement could be tapped. He currently serves on the board of Alphasense.

Harold – Harold is the head of the Ohio Cancer Institute. He has built what is acknowledged as a world-class cancer research institute that has developed several revolutionary breakthroughs with worldwide acclaim. Harold was made aware of the technology behind Alphasense and convinced of its commercial possibilities by Pete. Harold serves on the board and has been able to get Alphasense entry to most major pharmaceutical companies.

Ted – Ted was a professor at Ohio State and later succeeded Pete as CEO of his company, Cellbio. Ted is now the CEO of Cellmed and is a leader in Cellular Therapies. Ted serves on the board of Alphasense.

About the Company

Alphasense is a Columbus, OH based advanced medical products company engaged in the development of unique MRI contrast agents that allow scientists to monitor the position and quantity of transplanted cells non-invasively. The company focuses on cell imaging techniques and supplies for regenerative medicine, immunotherapy, inflammation study, and gene expression. Alphasense is collaborating with major biotechnological research organizations to enable the use of cellular MRI to advance the development of cellular therapeutic applications and the study of inflammation.

Alphasense was founded in 2006 to commercialize imaging platforms licensed exclusively from Ohio State University. Alphasense has engaged its founding staff, recruited experienced business and clinical leaders to govern corporate development, initiated partnership discussions with some of the world's leading biomedical concerns,

and underwritten the formulation and manufacture of its proprietary imaging reagents and technology.

The Alphasense product strategy is to provide cellular imaging solutions supporting development, pre-clinical studies, and clinical trials. Their products are used to monitor inflammation and the administration of cellular therapeutics, regardless of cell type and disease state. Their products can be used to monitor regenerative cell therapies that repair damaged and diseased organs, immunologic therapies to treat cancer, and as an in vivo diagnostic to track cancer metastases and immune system response.

Alphasense products currently include Alpha Sense, an MRI cell tracer reagent and DNA Sense, a proprietary DNA-encoded marker that genetically “programs” cells to express their own contrast agent (under development).

The Beginning

Eddie was working on a new technique to make Magnetic Resonance Imaging (MRI) a more effective tool. In his work, Eddie developed a new technique and had his ideas published in the highly prestigious journal *Science*. Initially, Eddie thought that he had a neat technology that could be commercialized. He met with several area business and healthcare leaders and pitched his ideas. Most agreed that it was an interesting technology, but most did not see the commercial potential. Eddie realized that he needed someone to help with the business part. However, to get there, he would need help building a business team. While he is an accomplished scientist, Eddie had limited experience at best on the business side of an organization. Fortunately, Eddie met Pete, who had a knack of finding new technologies with commercial applications.

Pete recognized that Eddie was dealing with a breakthrough. It is a brilliant solution to a problem. Cellular therapy is on the cutting edge of medical technology, but unfortunately it is very difficult, if not impossible, to track what is happening with cellular therapies. In laymen's terms, cells are injected into the body. They are targeted at an area, and then the cells either stay where they were put (the intended goal) and then hopefully have a therapeutic effect on the body. With current technologies, there was no way to track what happened to cells once they entered the body. When testing cellular therapies, if they did not work, was it because the cells were migrating away from the intended target, or was it because they were ineffective?

In talking with Eddie, Pete saw that Eddie's technique would solve this problem and allow researchers to use MRI machines to track cellular therapies. Pete described this breakthrough as the equivalent for cellular therapy researchers that EKG machines were for cardiologists.

Building the Team

Seeing the potential, Pete approached two leaders in the Columbus health sciences, Harold, the head of the Ohio Cancer Institute and Ted, who succeeded Pete as CEO of Cellbio and who launched a new company called Cellmed.

Pete called on a third associate, Rod, a former editor with *Business Week*. Since leaving *Business Week*, Rod leveraged his contacts in the Columbus business community and decided to start a seed fund firm to work with emerging medical start-ups. Rod quickly saw the potential of Alphasense and got involved as an early stage investor based on the idea and market potential. He was impressed with the high-level members of the

medical community who were beginning to buzz about the potential. There was just one problem: no management team was in place.

Alphasense now had a strong board in place. However, going forward, it was going to need to build a management team. Pete once again went to his list of contacts. When Pete was CEO of Cellbio, his banker was Chad. Chad had 30+ years of banking experience and had a history of working with start-ups. When Cellbio needed its first banking relationship for a line of credit, Chad worked with Pete and the two started a very close working relationship. As Cellbio grew, Chad was there to help shepherd the company. Pete described it as one of the best professional relationships that he had ever had. With banking consolidation, Chad took an early retirement and decided to follow one of his passions, working with small start-ups similar to Cellbio. He joined a small incubator firm in Columbus. Chad told Pete that if the right opportunity came along, he would enjoy working for a start-up. Now Pete had the perfect opportunity and introduced Chad to Eddie.

Chad and Eddie quickly formed a good relationship and each developed a respect for the other's talents. Chad was intrigued by the science and Eddie was learning a lot about all this "business stuff." Still, two men were not going to build a company alone.

Product Development

The chemistry involved in the Alphasense product is not simple and there are few people in the world who are capable of the advanced techniques that would be needed to help Alphasense make the leap from the lab. Eddie began to look for high quality talent. Using the internet, Eddie was able to identify researchers and manufacturers who worked

with related technologies. Many of the potential partners were located in Europe and the American mid west.

Chad and Eddie went off to visit several potential suppliers. They were hoping to find a research lab capable of perfecting a couple of techniques that would allow Eddie's technology to be manufactured on a large scale and a contract manufacturer that would be capable of high-quality production while taking into account the tight tolerances that their product would require. One of the side benefits of this process was that Eddie and Chad had the opportunity to really get to know each other and bond on these trips.

Their efforts paid off. In Sweden, they identified a research lab that was in sync with Eddie's techniques and in Ypsilanti, Michigan, they identified a contract manufacturer who would be able to handle their manufacturing needs. Now it was up to Chad to coordinate the three points of contact. At first glance, it would seem very difficult to coordinate such a complex project at three sites over such a long distance, but Chad has found the coordination very easy with online communication and just a few site visits.

The Future

The efforts of Alphasense have paid off. Their products have been presented at several biotech conferences and have been received with great fanfare. The team and consultants have turned Eddie's diagnostic tools into three products that are currently being tested by major biotechnology companies. A small team and a few consultants were able to pull together a promising new product line that has the promise to be a breakthrough tool in developing new cellular therapies.

Eddie's Team Map

A B C Eddie D E F G

Case IV: Gluhera, Inc.

The Team

Ned – Ned is the CEO of Gluhera. Ned was educated at the U.S. Naval Academy and served as a Naval officer for seven years. After leaving the Navy, Ned took a managerial position with Medtronic and learned the ins and outs of the medical device business. Ned was recruited to Gluhera by the inventors of the technology, Rod and Todd.

Rod – Rod is one of the co-inventors of the technology that has led to Gluhera. He is a chair professor of chemical engineering at the University of Michigan. Prior to returning to school for his PhD, Rod worked as a chemist at Dow Chemical. Rod decided to return to school because it was made apparent to him that to have a successful career at Dow, he would either need to turn to the “business side of the business” or earn his PhD. After earning his PhD, Rod was hooked on academic research.

Todd – Todd is one of the co-inventors of the technology that has led to Gluhera. He is a dentist by training and was a professor at the University of Michigan School of Dentistry at the time of the research. He has returned to private dental practice.

Marge – Marge serves as the Vice President of Development with Gluhera. She was recruited from the University of Michigan due to her experience in navigating FDA regulatory affairs. She worked with the technology transfer office at the University of Michigan and was involved with Gluhera early in the company’s formation. Ned and Rod

both agreed that she would be a huge asset to Gluhera and recruited her away from the university.

Lisa – Lisa is the office manager at Gluhera. She was formerly a receptionist in a medical clinic and is pursuing her undergraduate degree at Eastern Michigan University.

Bart – Bart serves as the developmental engineer at Gluhera. Bart was a post-doc at the University of Michigan and was recruited to Gluhera by Rod. Bart is responsible for refining Gluhera's technology and is working on ways to extend the product's shelf life and analyzing the formula for unforeseen side effects.

The Company

Gluhera, Inc. is proof that innovation thrives when the walls that often separate different disciplines in a university are torn down. The company is a spinout of a cross-disciplinary research team at the University of Michigan that spanned both the chemical engineering and dental medicine schools.

Gluhera's goal is to commercialize Surgiglu, the first non-toxic, synthetic, biodegradable adhesive. The primary target audience is surgeons who need strong surgical glue that can be safely used inside the body.

Rod, a chair professor of engineering at the University of Michigan founded Gluhera along with Todd, then a dental professor, also at the University of Michigan. Together, they were looking for a new application for a polymer that they had developed. Rod's expertise is in polymer science. The two had started by trying to develop a guided tissue regeneration membrane. Unfortunately, the substance that they had developed was

very sticky and would not work as such. However, Todd realized that they may have a good surgical glue. With Todd's medical knowledge and Rod's polymer expertise, the two decided to try and commercialize their product after the University of Michigan's office of technology transfer chose not to develop the product.

Their first hire was Ned, a former executive from Medtronic, whom Rod described as a "real business guy." The team evolved to include Marge, hired from the University of Michigan due to her expertise in the FDA regulatory process, and Bart, a post-doc from the University of Michigan who has helped to advance the science of the product. The team also made it a point to seek out the best talent from around the country when seeking outside services. They sought out legal counsel from Cincinnati for their intellectual property protection and from Minneapolis for their regulatory filings, and use a local firm for their general corporate work.

Ned, Gluhera's CEO, believes that the company is developing a blockbuster: "We have a disruptive technology," says Ned. "There is a huge need for this in the surgical community. Surgiglu is a strong, safe and easy-to-use surgical adhesive."

Building the Team

Rod and Todd had just licensed the technology of their discovery, named Surgiglu, from the University of Michigan and incorporated a company named Gluhera. Both believed that the product would make an excellent surgical glue and address a number of problems in the operating room. However, neither Rod nor Todd wanted to run a start-up. Rod was committed to remaining as a professor and Todd was looking to return to the private sector and open a dental practice. Both partners wanted to see the

product succeed and agreed, “We need to recruit the best people that we can find to make this organization work.” The duo set out to find a CEO.

One of the first candidates that they met was a medical device executive from Medtronic, Ned. Ned is a former Naval officer and had 15 years of experience in the medical device market. Rod, Todd, and Ned clicked right away, and Rod and Todd wanted to bring Ned into the company. However, this was a very raw and risky proposition for Ned. Ned describes his initial impression:

“This was the riskiest company that I was looking at. Rod and Todd had sort of incorporated this company. They had no money. This was the roughest and most work. But man, when you believe in something it is so cool.” Ned saw the potential. He describes the relationship with Rod and Todd: “When I first met with my founders, we did not only get along professionally, we got along personally and that is something that is seen as a treat.”

Rod and Todd were willing to let go. This was going to be Ned’s company to run. Rod did, however, have one recommendation for Ned; he introduced him to Marge. Marge was with the University of Michigan and worked with the medical school assisting with technology transfer. Marge also clicked instantly with Ned. Marge was an obvious addition to the team. She had been working with Rod and Todd at the university, where they clicked and her skill set filled an obvious need. When one team member described Marge, he said, “She is one of the most energetic, committed people that I have ever met.” The other obvious need for the team was a technical person.

Rod went to his network of faculty and was introduced to Bart, a young post-doc in chemical engineering at the university. Ned and Marge met with Bart and again, there

was great chemistry. Bart came with a ringing endorsement from his mentors at the university and Rod was impressed with his knowledge. The key players were in place, but one element was missing: someone to organize the group.

Ned is a real weekend warrior, but unfortunately, was suffering from a little knee trouble that required surgery and three months of rehab. However, this ailment would lead to the final piece of his team. Ned was waiting in a very busy medical office and was sitting there for over an hour. In this very hectic office, Ned, an admitted people-watcher, observed the receptionist skillfully coordinate patient charts and insurance papers, handle the phones, and greet each patient with a smile. Even though she was in the middle of what appeared to be pure chaos, Lisa was not only in complete control, she was one of the most pleasant people that he had ever met. When Ned was walking out, he describes the situation: “Something grabbed me. When I got to the door, I stopped. I turned around and I took out my business card and very quietly slid it to her, asking if she would be interested in a job.” Lisa called Ned the next day and accepted Ned’s offer.

Outside Help

The core team was in place. However, there were many specialized needs that Gluhera would need: money, legal services, and accounting were all going to be critical. However, the group made a decision. This was all work to be outsourced. The core functions of the team were product development, regulatory, and marketing.

Rod met Mark. When asked how Rod met Mark, Rod’s response was, “I can’t remember. Mark just appeared. In exchange for a small stake in the company, Mark cobbled together 18 angel investors and raised almost \$7 million, a huge sum for an early medical start-up. Rod joked, “Other advisors told us to aim for \$1 million...that we were

crazy thinking we could get more. There is too much of a hometown mentality here. We went outside of South Eastern Michigan and talked with people who understood our potential.” The same theme carried through when seeking out legal services.

Outside legal services were going to be a key. Ned and Rod both agreed that they needed to find “the best.” Most local advisors suggested that they hire local legal talent. Ned and Rod questioned that. They felt that they were in a “specialized niche area” and wanted to find the best experts in their niche. They went outside of town and went with firms either with the reputation for “being the best” or with the most experience in their niche. They sought out legal counsel from Cincinnati for their intellectual property protection and from Minneapolis for their regulatory filings, but did decide to use a local firm for their general corporate work. The firm in Cincinnati had a reputation for having the best medical device patent lawyers in the business and the Minneapolis law firm had handled 9 of the 15 regulatory filings with the FDA in their niche area the previous year. No other firm had even close to their experience.

For their accounting needs, Ned hired a local consultant, Sally, who was a partner with one of the big five accounting firms. Ned commented, “It’s just like getting a CFO with 30 years of experience.” Gluhera was nowhere near needing a full time CFO, but Sally’s experience clearly showed. Ned said that, “This year’s audit took less than three days. If I had tried to handle it on my own, it would have taken three weeks. Sally is incredible.”

The Future

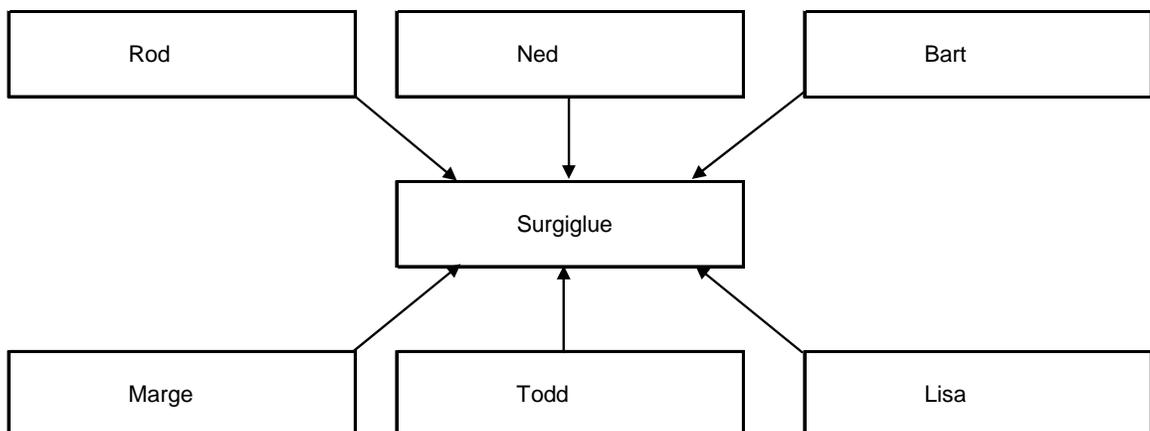
Gluhera has used their start-up funds to build a cutting-edge lab facility. Outside of the university, the type of lab space that they needed was not going to be available.

The construction will allow Gluhera to move their business offices and lab facilities together, making it easier for the scientific and business sides of the company to talk. Ned is considering taking a leave from the university to help with the development of Surgigluce. The team is looking for additional technical support to help in the lab, but seems to have the bases covered on the business side.

Going forward, the Gluhera team is continuing to develop their product. The team is incredibly tight-knit. Every Friday the company has a happy hour, not just for the employees: everyone comes, spouses and kids, and the group has truly bonded. When asked, every member of the team is focused on launching Surgigluce and says that joining Gluhera was one of the best decisions that they have ever made.

Gluhera believes that they will first enter the market for plastic surgery, where a glue such as theirs is in need. They will then enter the traditional wound market. Currently, Surgigluce is going through animal trials and has thus far performed as well as the team has expected.

Rod's Team Map



Themes

Theme One: Recruiting team members who share the vision for the organization.

McCullough (1995) describes sharing company vision, values, and mission as a proven process to building productive work teams. In this study, team members underscored the importance of recruiting individuals who share the vision of the organization in addition to adeptly fulfilling the roles to which they were hired. One team member provided background information as to why she had joined the startup company, responding with the following: “Why I joined? It is the work environment. I’ve been told at many places that we’re like a family, but in big corporations they say that but it’s not true. They have 500 employees, and I could leave tomorrow, and be replaced, and wouldn’t be missed. Here, it is true, there is that sense of ‘we all want each other to succeed and we’re all pushing for each other to succeed.’ I think that is one of the reasons, and I think they’d say that. Seeing Ned and Marge working together, they work together so well, they complement each other. Where Marge’s strengths are, Ned isn’t that strong, and where Ned is stronger, Marge isn’t that strong. They are pulling each other up together. Everybody does that, and they would say that was one reason why I joined. *It was that unity, and everybody has the common goal.*”

Others have also acknowledged the importance of sharing a vision among executives and employees in order to achieve success in business. When individuals are all working together toward a common goal, continuous participation among members is encouraged (Alexander, 1989). Another individual who works as an advisor to one of the companies explained, “I grew up in a football town and ‘team’ means that there are a lot of players on the team and they all don’t know to do the same thing but boy, you had

better all be going in the same direction. *A team is critical. The thing today that most entrepreneurial activities require is a team.*” In further development of the importance of the concept of a team, one of the CEO’s stated that the term *team* connoted: “The absolute, no-questions-asked respect for what each of us is doing here for the company, a culture of collaboration, of passion, of energy, of no politically-charged issues.”

Some individuals commented that one of the benefits of being involved with the company was to not only get along with team members professionally, but also interpersonally. One of the CEOs indicated, “...well, first of all, my relationship with my founders is nothing short of spectacular. *Not only do we get along professionally, we get along personally. I respect them [the founders] professionally and personally, and that is something that is seen as a treat. The founders are willing to let go. The relationship with them is fantastic...*” In fact, shared beliefs among members in an organization are more important than demographic similarities in predicting team effectiveness (Kang, Yang, & Rowley, 2006).

Recent research suggests that open-mindedness, shared vision, and trust have positive effects on both knowledge-sharing behavior and firm innovation (Liao, 2006). Another team member elaborated upon this, reporting, “This team is awesome. This may not be the best descriptor, but I like environments where people work hard and party hard. These people work hard while they are here – they work very hard. But, when they leave here, they know how to relax and celebrate and really become a family. I really like that. They are always looking out to help you and grow the company. When I came in, I was very new, and they’d come in and help... Ned would come in the lab and work with me. He may not have known what he was doing, but he wanted to help and get to know

me and build rapport. He did come into the lab, and Marge came in and showed me things because she was doing things before I came, and even Rod would come in. It was great. In a lot of companies you wouldn't see the CEO doing that, you know? They'd say, "See you next week!" I really love that camaraderie. If I succeed, the company succeeds, and if I'm having a problem, then the company could have a problem. *It's in our best interest to support each other.*" Indeed, social cohesiveness in an organization has been found to be negatively related to such potential problems as absenteeism (Sanders & Nauta, 2004).

When asked about the reasons for members joining the team, an entrepreneur explained, "I think for Rod it was the excitement of being involved in something new, a new product, getting the ideas maybe moved outside the university setting. I think for Todd as well: outside the norm, outside the academic setting. The academics are kind of slow, and if you have the application, if you have the bug about application, this is a great way to do it. I think for Marge, too, it's the same. She says she's gotten bitten by the bug. For her that was a big drive. I think for Ned it's the same as well, looking for the next step in his career. *And the excitement of this product* and the team brought him in as well."

Finally, one of the CEOs talked about the enjoyment the team derived from working with one another, saying, "*...and we're having a lot of fun doing it, and that's the key. We have an absolute great time working together.* There's more laughing and joking and fun stuff going on, as well as serious stuff, than anywhere I've ever worked. I run to work everyday. I really do. I live really near Rod, he lives in Chelsea, and I'm in Royal Oak. I get up at 5 am, go to the gym and work out, and I get in here between 7:00

and 7:30 and I usually leave between 7:30 and 8:00 and my wife and son come in and we really have a blast here.” Based upon the responses of various team members, shared beliefs and values are an important aspect of each organization’s cohesiveness.

In explaining their commitment-trust theory, researchers explained three main tenants: 1) Trust is encouraged when partners share similar values, when communication in their relationship is healthy, and when their relationship history is not characterized by one partner maliciously taking advantage of the other; 2) Relationship commitment arises not only from trust and its antecedents, but also from the direct effects of shared values and the beliefs that partners would be difficult to replace; and 3) More than half the differences in levels of cooperation from one relationship to the next can be explained by relationship commitment, trust, and their antecedents (“Commitment-Trust Theory,” 1994).

The proposition that can be drawn from this analysis of start-up companies and literature base is as follows: Shared beliefs and vision among organization members are an important part of a start-up company’s success, since these commonalities bind team members together to pool their collective resources to make the venture a success.

Theme Two: Unflappable commitment to recruiting and maintaining expert talent who “fit” with the personalities and mission of the team.

An additional and related concept to the previously-identified theme that emerged from the interviews was that team founders were highly committed to securing and maintaining expert talent in positions in the start-up company. While personal relationships are important, Larson and Starr (1993) propose a model that, while not discounting the importance of such relationships, stresses that the selection of new team

members focus on strategic criteria. Francis and Sandberg (2000) also agree that personal and strategic factors combine to explain new member addition. They contend that friendship allows ventures to bring in people who would otherwise price their services beyond the reach of a start-up venture if there was no personal relationship. Thus, expert talent may be initially provided to a start-up company through the strength of personal relationships instead of by compensation packages or potential of success for the developing company.

One team member indicated, “Harold from the Ohio Cancer Institute is a key team member, and actually functioned in a founder capacity and I think his motivation is almost entirely associated with the potential for the company to meet unmet medical needs. Those needs sit squarely in his area of interest and expertise as a researcher and an oncologist.” Harold is the director of the Ohio Cancer Institute, and is one of the nation’s leading researchers in this area. Because of Harold’s reputation and busy schedule, unless he had connections with some of the founders of the company through regional association, it is unlikely that he would have been available to work as a member of the team.

In general, entrepreneurial firms must deal with the problems of being new and small (Aldrich & Auster, 1986; Ranger-Moore, 1997; Stinchcombe, 1965), and often do not have the abundant resources at their disposal that large, established firms do. Consequently, instead of many options to choose from in achieving a specific goal, entrepreneurial firms only have limited resources to use to attain the best outcomes they can (Sarasvathy, 2001). Moreover, it is difficult to recruit “strangers” from the market because of the company’s highly uncertain future, and general lack of resources and

organizational reputation (Leung, Zhang, Wong, & Foo, 2006; Williamson, 2000; Williamson, Cable, & Aldrich, 2002).

In the human resource literature, an often-used and applied theory is addressing the “fit” issue in talent acquisition, including the person–environment (P–E) fit (or P–O fit when applied to organizations) theory. Researchers investigating the P–O fit framework argue that organizational behavior and effectiveness are essentially a function of the characteristics of the organizational environment and the individual (Kristof, 1996; Schneider, 2001). In contrast, the strategic human resource management (SHRM) literature aims at explaining how human resource practices can “fit” organizational strategies in generating the necessary human capital pool to sustain superior performance (Barney & Wright, 1998; Wright, Dunford, & Snell, 2001). In this literature, the principal argument seems to be that a “fit” between strategy and HRM system of the organization will result in sustainable competitive advantage based on its unique human capital, thus resulting in superior organizational performance (Leung et al., 2006).

When asked what he was looking for in a start-up company partner, one entrepreneur responded, “Good question. People that were experienced, no one that [sic] was green. People that knew much more than I did. People that were no bullshit. People who bring something to the table in terms of skills, not overlapping [with another member.]” Yet another individual, a board member, explained, “If you analyze the company, it’s four members and so you’re constantly in an analysis mode. Every conference called, every board meeting, every piece of paper, every package that you get in company, you’re evaluating what you’re seeing in terms of quality. It became very clear to me, based on my experience, *that we had to have very, very strong individuals*

who were attempting to almost [approximate the duties of a] CEO.”

However, technical expertise alone was not sufficient in representing expert talent. Such individuals also needed to have a personality suited to a start-up company – flexible, creative, energetic, and with a high tolerance for ambiguity. One entrepreneur remarked that the engineer who was hired for the project distinguished himself from other individuals who were similarly capable, based upon, “...just his ability to take an ambiguous direction and to do something with that.” In another interview, a board member discussed the problem of individuals who had been hired as engineers and who quickly left the company: “When you are in a start-up, my only comment is, when you are in a start-up there is no place to hide. You have to deliver, you have to be really a strong problem-solver.”

A design engineer for one of the start-up companies discussed the problem of people who were competent in their fields, but not up-to-date regarding new technology: “Another fellow was, he was older, a retired engineer who was doing consulting. The reason he didn’t work out was I think he felt like there was definitely an age difference – he was kind of an old-school engineer. He wasn’t really open to compromise, I guess. He didn’t know a lot of digital technology, kind of more analog. There’s nothing wrong with that, but we *needed somebody that was more up-to-date with current technology*. But he actually also didn’t want to come up all the time, and he did his consulting for us in the early stages, and after that...”

This theme also extends to ancillary members of a team. In another example, an entrepreneur commented that one hundred percent reliability is critical to the success of her business. She relies on a local courier and Federal Express to handle medical records.

To date, her company has processed over 450,000 medical records and has yet to lose a single scan. Similarly, a board member reflected on the necessity of being able to access excellent service providers, even though these individuals were not formal team members: “Yes, we early on engaged Mike at the Rochester Institute of Technology for his counsel and expertise. He was a very key consultant to help the company move forward, [since] retention of patent counsel – that was very important.” One of the company founders provided further evidence for this theme, explaining, “The other need we had was legal talent – we needed – this is where Ned began to take a lot of flights, because his idea was to go out nationally and find the best legal talent there was for corporate stuff, for FDA regulatory stuff, and for IP. So, we went with (name of law firm), they are in Minneapolis or Chicago, I forget which one. For regulatory stuff we went with (name of law firm) and *they’re hands-down the best and everybody knows it*, so that was to me a no-brainer. Then, the general corporate stuff is (name of law firm); they are good at that too, but Ned actually liked that, because two of those three were outside town, and you know, the usual is, why do we have to go out of Southeast Michigan? We have plenty of good hands – yeah, but they are not the best, and (name of law firm), when I met them, amazing, of the 15 PMAs that went before us to FDA last year, we represented nine of them. No other firm did that.”

Based upon the information from the interviews and from the extant literature, the following proposition is suggested: Entrepreneurial ventures search for the best talent they can secure using personal contacts, regional affiliations, and the potential for a successful enterprise, being sure that such individuals also represent a good “fit” with the personalities and philosophies of the venture.

Theme Three: Entrepreneurs who overcome functional fixity by bringing on a partner with a divergent but complementary set of skills at the earliest stages of their venture.

Based upon a review of the extant literature base, as well as consideration of the implications of the information collected from the companies that were analyzed for the purpose of the current research study, it may be proposed that start-up entrepreneurial ventures avoid functional fixity by gathering together a group of differentially-skilled individuals to develop a creative and innovative solution to an existing problem. In their seminal research study, Kagan and Havemann (1976) explain that functional fixity is a preparatory readiness to make a particular response to a given stimulus. Simply put, individuals use previously-learned information to help them solve problems, even when such information proves to be erroneous or yields a less effective solution in answering a question (Ross, Lepper, & Hubbard, 1975). The concept is akin to expectancy bias, whereby individuals behave differently when they anticipate a certain answer or set of results in response to a question (Venkatesan, 1967).

Chang and Birnberg (1977) found that although functional fixity is a potential problem in business environments, it can be overcome if “the events occurring around the task sensitize the subjects to the issue...the persistence of the set in any form is inversely related to the obviousness of the clue(s) presented” (p. 309). Thus, the more salient the information is in contradicting data fixity, the more likely individuals will be to negate the effects of perceptual set bias (Wilner & Birnberg, 1986). In translating this concept to the present research study, it can be proposed that the more purposeful one is in assembling a differentially-knowledgeable group of people, the more likely such

individuals will be to develop a creative, innovative solution to a problem. In essence, the complementary but divergent skills of the team will work to circumvent functional fixity by merging differing perspectives to offer a novel problem solution (Hand, 1990). A board member for one of the companies summarizes this theme by explaining, “A team means to me, ah, you have a collection of people, and every person has a unique sort of skill set, and someone helps combine that skill set into solving a very complex problem that could not be solved by any one person.”

Another board member for one of the companies illustrates this theme by discussing bringing together individuals with different skills in order to merge talent to create a successful team: “[We have] one gentleman, Sven, being a very strong technically-experienced engineer, who has knowledge of the development process, and has very good team building skills, but who was very inexperienced. On the other hand, we have Gary who had, I thought, some incredibly-strong networking skills and the ability to open doors that would be closed to a lot of people. But also a real, real shallow experience level in terms of high-growth start-ups. It became very, very apparent as they were trying to raise money, that there were more tasks to be done that could be accomplished by even two very strong individuals. That’s why I thought it would be good for Dan to come in, and really take the administrative and fundraising responsibilities off Sven’s plate, so Sven can make more progress with the product, Gary can make more progress with the clinical and customer issues...but more importantly that we played with this deadlock of having maybe a two-headed monster at the top of the company. It is now very clear, at least in my mind, that with Dan as the CEO, he needs to be making some pretty clear decisions.”

Entrepreneurial team formation has received little systematic study to date, but most team formation studies draw on top management team (TMT) assembly literature, which indicates that TMT composition impacts an organization's performance. However, TMT research does not address how heterogeneous teams are formed and thus it remains unclear how composition effects apply to entrepreneurial teams (Forbes, Borchert, Zellmer-Bruhn, & Sapienza, 2006). However, when given the choice, individuals tend to interact with others like themselves (Burt & Reagans, 1997). Several studies have found that similar relationships, personal connections, and backgrounds tend to be evident in new members that entrepreneurial teams choose (Forbes et al., 2006).

New members are added to a team to fill a resource need. Sandberg (1992) speculates that founders assemble entrepreneurial teams to "fill the gaps" in the team's previously-existing competencies. Larson and Starr (1993) propose a network model of new venture formation whereby new member addition is initiated by the team's perception of its needs. Echoing this finding, Ucbasaran, Lockett, Wright, and Westhead (2003) propose that team members are added to fill gaps in skills and provide the necessary human capital to pursue the goals and strategies of the new venture. These researchers further predict that small teams and homogeneous teams are more likely to add members since they are likely to be deficient in resource quantity or diversity.

An aspect of avoiding functional fixity is assuming different, yet complementary roles. A board member talked about making sure that a company has individuals with complementary skills: "He needed help with the business side, and again the principle is to get a board together, to get a team together. [In regards to] the founding scientist, unless that scientist is willing to leave their [sic] academic position and unless they [sic]

have had significant administrative or leadership or entrepreneurial experience, it's best to have someone who is a business person leading as a business partner.”

Looking to social psychology, Sapienza, Herron, & Mendez (1992) suggest that “whom the existing team members want to hire is in part driven by a desire to duplicate their own qualities and in part by a desire to perpetuate the type of business or atmosphere which already exists” (pg. 265). Further, Reuf et al. (2003) found that entrepreneurial team composition was powerfully influenced by relational trust and homophily of personal characteristics of team members. Chandler and Lyon (2001) indicated that the most common criterion stated by the founders of a business was having a common interest in the technology or service provided by the business. Kamm and Nurick (1993) speculate that ready access and chemistry also play a part in new member identification and selection.

A further example of this theme is individuals understanding their roles in an organization, and not trying to engage in unnecessary oversight of someone else's role, which might actually encourage functional fixation. One of the company CEOs discussed his role in consulting with the founders of the organization: “Rod and Todd have not necessarily consulted with me on the business aspects of what we're doing. We have an open relationship where I'm constantly asking for their feedback, before coming on board, you know, they came to our Friday team meeting even though they aren't members of the company, but every Friday afternoon we have a two-hour team meeting...I would say what made Rod and Todd a good set of founders is that they turned the business over to me, and whereas we may consult on things collaboratively,

they don't come and say to me, 'Well, why are we raising funds this way, or I don't think we should do this *this* way.' They leave the business to me."

Circumventing functional fixity may also rely upon not accepting the conventional wisdom of the region. One of the company founders reported, "But, this is the funny part, Ned was told over and over and over again by Michiganders, I mean the locals, that he set out to trying raise 15 million dollars, because that was what it would take to get us all the way through human clinics, and everybody said it's impossible, you can't do it, so you shouldn't try. Well, they'll say, 'No, no.' They told us again, from people locally, they think small, and nothing is spontaneous, everything has a history. they told us we could probably raise a million, because that's what they remember from eight years ago."

The proposition that was developed from this theme is: Entrepreneurs avoid functional fixity in their venture by assembling a group of complementary, yet differentially-skilled individuals to develop a creative and innovative solution to an existing problem.

Theme Four: Technically-focused entrepreneurs, particularly those with university appointments, are more likely to cede control of their company to an outside CEO and take a less active role in their business.

Two of the companies analyzed in this study are academic spinouts, and at the core of every spinout is research that can be commercialized into a new venture. Such companies tend to emerge from a university or a research institute (Clarysse et al., 2005). Developing a spinout company requires academic researchers to accommodate new challenges where they must learn to deal with a new set of norms and expectations

(VanDierdonc, Bebackere, & Englen, 1990). However, little research has been proposed to question the ability of academic spinouts to create wealth (Lambert, 2003)

When a venture capitalist is financing an early stage venture, he or she often looks for a well-balanced team with sufficient business experience and scientific acumen to fully develop a commercializable product that is reflective of the market potential (MacMillan, Zemann, & SubbaNarasimha, 1987; Muzyka & Birley, 1996; Rich & Gumpert 1985). Moreover, the venture capital literature focuses on the importance of entrepreneurial teams as a factor in helping financiers decide upon in which ventures to invest (Rich & Gumpert, 1985).

When responding to a question regarding his importance to the company considering his financial background, a chairman of the board of one company explained, “Yeah. He needed help with the business side, and again the principle is to get a board together, to get a team together, and the founding scientist, unless that scientist is willing to leave their [sic] academic position and unless they [sic] have had significant administrative or leadership or entrepreneurial experience, it’s best to have someone who is a business person leading as a business partner...” Later, in the same interview, this individual commented on the relationship between the founder and the CEO: “Eddie is very smart, and he realized, he felt that he needed someone else to do the business part. And I think that what happened was that Chad was able to build a nice relationship with Eddie where they travel all over the country and the world together, and he had a direct relationship with Eddie, and he was influential to put together a team to make it all happen.”

Vanalest et al. (2006) conducted a study of the way in which entrepreneurial teams evolve through the different stages of an academic spinout, exploring ten academic spinouts. While the researchers observed that academics were often part of the first phase of the spinout process, they did not observe “entrepreneurial commitment” in such individuals, and noted that academics often left the company soon after formation. They also pointed out that most universities would not allow a tenured faculty member to maintain a position in a spinout, and suggest that many choose the certainty of an academic career over the risks of joining a start-up full time.

Creating a spinout is often a long process (Clarysse & Moray, 2004). The academic researcher is often part of the process; however, representatives of the parent institution often play a major role in creating a spinout. In some cases, individuals with no link to the academic institution or research institute are attracted to the creation of a spinout based on their business experience (Franklin, Wright, & Lockett, 2001; Lockett, Wright, & Franklin, 2003). These authors have found that these business-focused entrepreneurs are often attracted to work with the researcher to develop an entrepreneurial venture. In fact, Vanalest et al. (2006) found that spinouts usually include key university researchers and business focused entrepreneurs.

Another founder with a scientific background talks about the role he plays in the venture, and the expertise that others provide: “Well, the obvious, I mean. [I need] people that know how to run a business, who know about financial matters, legal matters, how to write a business plan. Scientific stuff I take good care of.” This individual elaborated about his needs for his company later in the interview: “Well, as I said before. Just basic business, running your business and as I said, I can only be credible in scientific matters,

and that's it. So everything else has to be done by other people. Legal, financial, marketing, I have some ideas about things, but I don't know how to cast a form that will be credible to investors. Basically, everything.”

It also may be difficult for start-up founders with a university background to switch from viewing ideas from an academic lens to an entrepreneurial one: “Well it was, again, Todd and I, we were looking for a CEO, that was number one, and then, I think for us it was, the notion of doing something other than just straight research, that we both had been doing for a long time. Most of the time your research ends up in publications... This technology wasn't set up to be a research product, it wouldn't fit in well with the way NHA looks at life, you know hypotheses, methods, etc. This needed product development and I've got to tell you that academics – I would think 99.8% of academics don't understand product development at all. So, trying to write a proposal that was about product development and have it reviewed by academics, it's, we might as well be writing it in Cyrillic. But, the investment community understands and so, they understand this stuff much easier than an academic would, it is not because it is difficult. It's because academics are divorced from industrial reality. When I started as the faculty member, many faculty in engineering had industrial experience, now none do, so the industrial reality and the academic reality are almost totally divorced from one to another. This one just wouldn't fit in academia, it wouldn't get recognition, it wouldn't get funding from the investment community. They thought it was a no-brainer, but the academic community would have a lot of trouble with many of the concepts.”

The studies by Vanalest et al. (2006) observed that academic researchers often leave during the early stages of a venture but do not identify a reason why. As such, I

propose: Technically-focused entrepreneurs, particularly those with university appointments, are more likely to cede control of their company to an outside CEO and take a less active role in their business because of the stability of their academic employment and their lack of knowledge or interest in managing a company.

Theme Five: Novice entrepreneurs will seek out serial entrepreneurs as members of their team.

Mitton (1989) argues that the success of start-up companies depends not only on who you are, but also upon whom you know. In fact, some researchers contend that the extensive networks of social capital are extremely important for the growth of an entrepreneurial venture because of the access provided to a variety of resources held by others (Shaw, 1997; Shaw & Conway, 2000). A study completed by Timmons (1994) suggests that one team member seems to be a leader in: 1) identifying an opportunity, 2) orchestrating the venture, and 3) objectively evaluating the valuable and complementary competencies each team member can provide (Kamm & Nurick, 1993). In support of this finding, one of the start-up company founders explained the sequence of events that occurred in developing her own business, including her request of outside expertise to ascertain whether she had a viable concept, or not: "...and I talked to the medical director at my hospital who I worked with for 15 years, and I asked him, 'What do you think about CAD? Do you think it's here to stay?' He said, 'Yeah, I do. This is, I think, ten years from now, computer analysis will be probably better than the initial interpreter.' And, I said to him, 'I think so, too,' you know. And I moved on from there. Then I didn't wanna [sic] tell anybody what I was doing and I didn't want anybody to steal my idea,

and all that kind of stuff. Now I've come to the conclusion that it doesn't matter, people are talkers and very few are doers.

“But, then I went to my husband and he just kind of went, ‘What? Are you nuts? What are you gonna [sic] do? We are getting close to retirement. This is not time to go put things at risk. Why didn't you think of this ten years ago?’ Well, I didn't; I thought of this now. I said, ‘I don't know. Well, I really need to start up this now.’ He said, ‘Well, if you really wanna [sic] do this, we'll think about it.’ [My husband is] the Chief Operation Officer at Western New York [Hospital]. So this is where relationship comes out. So then, he says, ‘Well, if you really wanna [sic] do this, write the business plan. You need a business plan and a financial plan.’ Then I went and got them. I'm sure he thought this would discourage me, but it wouldn't. I went on and did it. So then he went to Saul, he worked with Saul, and Saul wasn't very much into start-up businesses, as in looking. So he said, ‘Saul, my wife got this idea, would you look at this business plan and see what you think?’ Saul, as a courtesy, said, ‘Sure, I'll do that.’ And so then Saul went back to me and said, ‘You know, I've probably read 15 business plans in the last year or two and this is by far the best one I've seen. It is not only well-thought-out and written, but what a perfect world, because you are contracting with a hospital for a service that is being paid by Medicare, which is a third party. Who loses? No one loses here...the patient benefits, the hospital benefits, Medicare is paying for it.’ So Evan goes, ‘Really, you think so? You think it is good?’ ‘Oh, absolutely.’ ‘You think we could get the money to do this?’ ‘I'm sure we could.’ And that is pretty much how it started to launch. And then you know we had a lot of stumbling blocks because the amount of money we anticipated we needed to start up the company was far more than what we really needed, because we were

successful very early.” In the previous example, if the entrepreneur had not identified expert talent to provide validation and forward motion to her idea, the company might not have been developed. Additionally, it seems logical to believe that “the collective network of a team of entrepreneurs will be larger than that of a solo entrepreneur. Therefore, following the reasoning of existing literature, a team of founders will be able to access more resources and thus have a better chance of survival and growth” (Gilmore, Carson, & Grant, 2000; Neergaard & Madsen, 2004, p. 108).

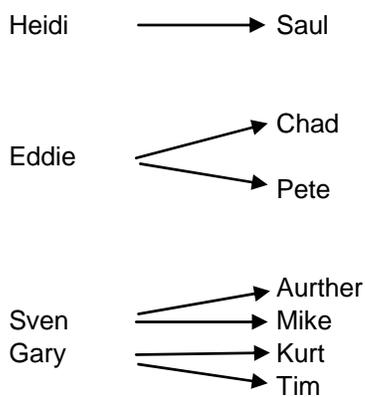
Reuf and colleagues (2003) have found that in the team formation phase, entrepreneurs seek out trusted individuals who are similar to the start-up business developers in a variety of ways. Such similarities usually include commonalities in education and experience as well as patterns of association, such as kinship, friendship, and previous work relations. Novice entrepreneurs need to network to obtain valuable assistance at various stages of a company’s development: “I don't know, the Greenhouse did hands on work per se, they were helpful as a catalyst, I think, early on, at the early stages. When I came to town I didn't know anyone. I'm not from here, so I think they were an important catalyst early on for me, but that's about it, not a lot of hands on, day-to-day running of things.”

Novice start-up company founders must be amenable to taking suggestion from others who may have expertise in areas they do not. In illustrating this concept, a chairman of the board of one company commented, “Well, a lot of young entrepreneurs think they know everything and you can’t make suggestions to them. In this particular case, when you made a suggestion they picked up on it and went off and came back and talked to you about it. Basically, they listened to advice, and acted upon it, as opposed to

a lot of people that I tried to work with, who think they know everything, not that I know everything. [In previous situations I've encountered] they fought the advice and that is not a very pleasant situation to be in." Neergaard and Madsen (2004) found that "most types of advice and knowledge were found via indirect ties, through the CEO's network or board members' networks. Someone in the network would tell the CEO or board member where to go for assistance, thus reducing the uncertainty associated with contacting individuals not known personally" (p. 117).

Moreover, the proposition related to this theme is that most of the entrepreneurs in the start-up companies analyzed for this research project have relied upon expert assistance in order to help their ventures grow and develop, relying upon the experience levels of serial entrepreneurs to help novices avoid the common pitfalls that can derail a venture on its way to success. In explanation, a figure has been constructed, illustrating the pattern of novice entrepreneurs seeking such expertise from serial entrepreneurs.

Figure 3 – Novice Entrepreneurs Seeking out Serial Entrepreneurs



Theme Six: Use of the Internet and modern telecommunications to expand business operations beyond local contacts.

One of the challenges that all businesses face is being adaptable to change, which during the last 20 years, includes implementation of technology-based solutions, particularly the Internet, that build upon the skills, experience, and operations of their employees and system (Evans & Volery, 2001). Recent studies have suggested that information technology investments have had a positive and significant effect upon labor productivity and economic growth, with use of the Internet substantially lowering marketing, investment, and operating costs (Fairlie, 2006).

One use of the Internet may be in hiring new employees. In a study of small and mid-sized nonprofit companies in the human service and community development fields in Allegheny County, Pennsylvania, the use of contemporary recruitment techniques, including the Internet, was surprisingly limited (Ban, Drahnak-Faller, & Towers, 2003). However, research in human resource management has suggested that the use of the Internet in recruitment and selection can provide organizations with a significant competitive advantage in accommodating the challenges of business in the 21st century (Ensher, Nielson, & Grant-Vallone, 2002). In this study, the researcher found that start-up companies solicited some team members for employment via the Internet. One member explained, when asked how she came to know about the job opportunity, that she saw an ad on Craigslist, an Internet compilation of classified ads for a region. Other individuals have been screened for possible employment over the telephone before traveling to the company for a formal interview. One of the start-up company founders

explained, “Well, I mean, I got a really good sense, obviously, the résumé got me interested, and then I talked to him. I got a really good sense over the phone of this guy – I thought his personality will fit well with us.” Similarly, an entrepreneur discussed the use of telephone and email contact in gauging interest in working for the company: “So, we would call the people, and say, ‘Hey look, this is X engineering looking for someone.’ I think we ended up with this random résumé I found in, I think the (identity disguised) Résumé Books. An engineer who had kind of diverse experience doing artery stuff, he worked, probably in North Carolina, but his was in the system for some reason. He had the right level of experience. He also seemed like he wasn’t the kind of guy that was gonna [sic] – he knew what he was doing – but he wasn’t the kind of guy who was gonna [sic] be awfully demanding. So, I don’t know, I just kind of guessed and introduced this project to him. So, I sent him an email and said, ‘Hey, look this is what we are doing; are you interested in joining a company?’ He emailed me back and said, ‘Yeah, that is something that I might be interested in,’ so he made a trip from North Carolina to Buffalo to be interviewed.”

Evans and Volery (2001) explain that “asynchronous communication tools and the web can be used as tools of knowledge acquisition and storage, facilitating the work of the reflective practitioner” (p. 346). In the early stages of company formation, a founder talked about using the telephone to have weekly meetings and using the computer network for emailing ideas, facilitating contact that would otherwise have been logistically difficult: “Now, we are sort of, I would say, established. Early on, I mean, basically, meetings were irregular, then they became regular. And in between, meetings were all there, we were on the phone with each other, discussing things or emailing back

and forth over a months-and-months period of time.” Additionally, a director of one of the companies discussed the use of the telephone in holding meetings for board members who were not based in the region: “But at the privately-held start-up, Sven has been very good at bringing the directors in via phone calls. We have weekly or every-other-week update calls on Friday afternoon.”

Lybaert (1998) concluded that entrepreneurs that frequently used new information through the use of an adequate information system become competitively advantaged, particularly in the area of research and development. In this study, a project development engineer illustrates how individuals are able to participate in the day-to-day operations of the company without being on site. One of the consultants is home on pregnancy leave, and is able to communicate with team members over the telephone, thus continuing her work with the company: “Yes, we have a couple of consultants. One good one, Ms. X, who’s giving us advice on marketing as well as manufacturing. She’s found both companies and we’re working with both. The device side is going well, and the manufacturing side is slower only because we’re not yet ready to manufacture. She’s been fantastic. She’s working with Ned and Marge, but I’m coordinating. She’s a free agent. She’s a chemical engineer from Penn State. She was working for Pfizer, but left and is doing consulting. She may still be consulting for Pfizer. She’s awesome. She fits our company culture very well. She is on pregnancy leave right now, so she doesn’t come in too much, but she’ll come in for team meetings and other stuff. Sometimes I call her on the phone. She’s in Detroit.”

The final propositions are: 1) Technology-based solutions allow entrepreneurial ventures to expand their networks beyond personal contacts and 2) Technological

solutions afford greater efficiency, speed, and accuracy, and allow entrepreneurs to work more productively.

CHAPTER FIVE

DISCUSSION

The discussion of the findings of this study is presented in five sections. The first section is a discussion of the purpose of this study, as well as an overview of the research. In the second section, the propositions developed after analyzing the content of the interviews are presented along with a review of the relevant literature. Then, the implications for practice are discussed in the third section, while in the fourth section the limitations of the study are presented. Finally, in the fifth section, suggestions for future research are listed and explained.

Purpose and Overview

In this dissertation, the researcher began with a goal to help entrepreneurs with different levels of managerial and technical expertise build teams that will help them increase the likelihood of launching a successful venture. Therefore, in this study, the author focused on four primary research questions:

1. How do entrepreneurs build successful teams?
2. How do entrepreneurs seek out team members?
3. How do entrepreneurs sustain the progress of the venture?
4. How do entrepreneurs' experience levels affect their methods of building a team, with attention paid to the theory of functional fixation?
5. How do technically-oriented entrepreneurs differ from business-oriented entrepreneurs in their management of their ventures?

In order to answer these questions, the researcher chose to use case studies, since when an investigator seeks to review specific topics in real-life contexts, quantitative methods alone do not always reveal the unique context and phenomena the researcher attempts to uncover. Case studies are particularly useful when questions are posed about a contemporary event over which the investigator has little or no control (Yin, 1994). Qualitative researchers also use case studies to harvest data inductively, and may purposely use such information to develop a theory or may consider any sort of theoretical conclusion an unexpected bonus.

Thus, in order to build a descriptive theory, inductive reasoning, through comparative case study methodology, was used to provide an exploratory examination of the procedures used to build an entrepreneurial team (Pegram, 2000). Yin (2003a) explains that instead of an expression of a cause-effect relationship, a descriptive theory encapsulates the scope and depth of a case being described. A comparative, cross-case study format was selected to provide multiple data points in order to address the various objections related to case study research.

In order to address the research questions of this study, the investigator sought to identify a convenience sample of cases in which an entrepreneur with a business and/or scientific background had developed a start-up company. This choice was made to provide a comparison point between entrepreneurs who developed a start-up company based upon a scientific idea and those who initiated a start-up venture based upon their business acumen. The companies that were selected are listed as follows: 1) NewCount Medical is a company developed by Sven and Gary, MBA graduates of the Rochester Institute of Technology, in which RFID technology is used to track the location of

surgical sponges within patients during surgical procedures; 2) BetaCad is a company founded by Heidi, a former manager with the University of Buffalo Medical Center (UBMC). BetaCad uses computer-aided diagnostic techniques to supplement the data provided by radiologists' analysis of mammograms; 3) Alphasense is a business that was developed by Eddie, an Ohio State University professor, which uses advanced chemistry to make better use of Magnetic Resonance Imaging for medical diagnostics; and 4) Gluhera Biomedical Adhesives was developed by Rod and Todd, both professors at the University of Michigan at the time of the company's founding. The company is producing advanced-tissue glue for use in surgeries.

In interviewing the subjects, a semi-structured measure was used, in which the investigator recorded each session on digital tape, following the format of the interview protocol. In the interview, the investigator asked each founder to draw a diagram of the way in which their entrepreneurial team functions. Following this request, individuals were questioned regarding issues relating to the creation, implementation, and interpretation of a team and their role in these processes. Each interview lasted approximately 30 minutes – 1 hour. After the initial interview, follow-up questions were posed and answered either in a second face-to-face interview or over the telephone. Following each face-to-face interview, the digital tapes were transcribed so that the data could be prepared for analysis.

Analysis consisted of individual results and then evaluation was applied comparatively across all entrepreneurs to determine if indeed there are differences between companies as they relate to the research questions being explored. Analyzing the data individually as well as comparatively was believed to be essential in addressing the

potential issues surrounding case study research.

Based upon the analysis of the interviews, the following themes and propositions were identified:

Theme One: Recruiting team members who share the vision for the organization.

Proposition One: Shared beliefs and vision among organization members are an important part of a start-up company's success, since these commonalities bind team members together to pool their collective resources to make the venture a success.

Theme Two: Unflappable commitment to recruiting and maintaining expert talent who "fit" with the personalities and mission of the team.

Proposition Two: Entrepreneurial ventures search for the best talent they can secure using personal contacts, regional affiliations, and the potential for a successful enterprise, being sure that such individuals also represent a good "fit" with the personalities and philosophies of the venture.

Theme Three: Entrepreneurs who overcome functional fixity by bringing on a partner with a divergent but complementary set of skills at the earliest stages of their venture.

Proposition Three: Entrepreneurs avoid functional fixity in their venture by assembling a group of complementary, yet differentially-skilled individuals to develop a creative and innovative solution to an existing problem.

Theme Four: Technically-focused entrepreneurs, particularly those with university appointments, are more likely to cede control of their company to an outside CEO and take a less active role in their business.

Proposition Four: Technically-focused entrepreneurs, particularly those with university appointments, are more likely to cede control of their company to an outside CEO and take a less active role in their business because of the stability of their academic employment and their lack of knowledge or interest in managing a company.

Theme Five: Novice entrepreneurs will seek out serial entrepreneurs as members of their team.

Proposition Five: Novice entrepreneurs rely upon expert entrepreneurial assistance in order to help their ventures grow and develop, profiting upon the experience levels of serial entrepreneurs in order to avoid the common pitfalls that can derail a venture on its way to success.

Theme Six: Use of the Internet and modern telecommunications to expand business operations beyond local contacts.

Propositions Six and Seven: (a) Technology-based solutions allow entrepreneurial ventures to expand their networks beyond personal contacts; (b) Technological solutions afford greater efficiency, speed, and accuracy, and allow entrepreneurs to work more productively.

It is the intent of the researcher that the propositions developed in this research may be used in the initiation of new theories regarding entrepreneurial team building. In

the next section, the researcher will review the propositions in light of the applicable literature base.

Contextualizing the Propositions in the Business Strategy Literature

Proposition One

In analyzing the first theme, the researcher concluded that shared beliefs and vision among organization members are an important part of a start-up company's success, since these commonalities bind team members together to pool their collective resources to make the venture a success. It has been theorized that the key determinants of success are the actions taken by the entrepreneur and his or her founding team. Schein (1983) notes that organizations are usually created because someone takes a leadership role in facilitating a concert of action on behalf of a group of individuals when a task would be impossible through individual action alone.

In entrepreneurial ventures, the tone of leadership can be initially established through encouraging a collective vision for team members. Indeed, there is literature suggesting that entrepreneurs show certain personality or character traits akin to cheerleading, in encouraging members to work together, such as the entrepreneur who began and has been successful running a marketing firm in Alaska, "giving individual attention" on the job because she once ran a dog team in overland sled races and, in one instance when the sled team slid into a lake, motivated each dog to press on "by spending a few minutes talking and petting each dog" (Gull, 2005, p. 52).

In addition to the enthusiasm leaders demonstrate in encouraging team members

to be energized to produce for the team, McCullough (1995) describes sharing company vision, values, and mission as a proven process to building productive work teams.

Others have also acknowledged the importance of sharing a vision among executives and employees in order to achieve success in business. When individuals are all working together toward a common goal, continuous participation among members is encouraged (Alexander, 1989). Recent research suggests that open-mindedness, shared vision, and trust have positive effects on both knowledge-sharing behavior and firm innovation (Liao, 2006). Another way teams are made cohesive is by telling stories of past experiences, which transmits the ‘corporate culture’ of the team (Brown et al., 1999). Moreover, a good leader instills in the team a sense of the “compelling purpose” of the project or task, and exploits the human need to belong and the “desire to be part of something beyond us” (Axelrod, 2002, p. 11). Teams also work best when all members share a company-wide vision, they communicate well, and are helped through ongoing coaching; the leader and team have mutual respect for each other; and all are “buoyed up by inspiration from others” (Haserot, 2004, p. 11).

Moreover, in explaining why team members develop a sense of commitment and trust in an organization, there are three general factors: 1) Trust is encouraged when partners share similar values, when communication in their relationship is healthy, and when their relationship history is not characterized by one partner maliciously taking advantage of the other; 2) Relationship commitment arises not only from trust and its antecedents, but also from the direct effects of shared values and the beliefs that partners would be difficult to replace and; 3) More than half the differences in levels of cooperation from one relationship to the next can be explained by relationship

commitment, trust, and their antecedents (“Commitment-Trust Theory,” 1994). Thus, working with a common belief and vision for an organization helps to connect team members together to leverage their collective resources to make the venture a success.

Proposition Two

In response to the second theme, the following proposition was developed: Entrepreneurial ventures search for the best talent they can secure using personal contacts, regional affiliations, and the potential for a successful enterprise, being sure that such individuals also represent a good “fit” with the personalities and philosophies of the venture. As with the first proposition, there is research literature to support this conjecture. Successful leaders pick good people to work with them, creating a team with “people with history and perspective who are risk takers and enjoy life” (Brown et al., 1999, p. 33). Studies have shown that a member of a team only operates well within the team if “the member believes that he or she has a useful function” (Wells et al., 1999, p. 38).

Larson and Starr (1993) propose a model that, while not discounting the importance of such relationships, stress that the selection of new team members focuses on strategic criteria. Francis and Sandberg (2000) also agree that personal and strategic factors combine to explain new member addition. They contend that friendship allows ventures to bring in people who would otherwise price their services beyond the reach of a start-up venture if there was no personal relationship. Thus, expert talent may be initially provided to a start-up company through the strength of personal relationships instead of by compensation packages or potential of success for the developing company.

In general, entrepreneurial firms must deal with the problems of being new and small (Aldrich & Auster, 1986; Ranger-Moore, 1997; Stinchcombe, 1965), and often do not have the abundant resources at their disposal that large, established firms do. Consequently, instead of many options to choose from in achieving a specific goal, entrepreneurial firms only have limited resources to use to attain the best outcomes they can (Sarasvathy, 2001). Moreover, it is difficult to recruit “strangers” from the market because of the company’s highly uncertain future, and general lack of resources and organizational reputation (Leung et al., 2006; Williamson, 2000; Williamson et al., 2002).

In the human resource literature, an often-used and applied theory is addressing the “fit” issue in talent acquisition, including the person–environment (P–E) fit (or P–O fit when applied to organizations) theory. Researchers investigating the P–O fit framework argue that organizational behavior and effectiveness are essentially a function of the characteristics of the organizational environment and the individual (Kristof, 1996; Schneider, 2001). In contrast, the strategic human resource management (SHRM) literature aims at explaining how human resource practices can “fit” organizational strategies in generating the necessary human capital pool to sustain superior performance (Barney & Wright, 1998; Wright et al., 2001). In this literature, the principal argument seems to be that a “fit” between strategy and HRM system of the organization will result in sustainable competitive advantage based on its unique human capital, thus resulting in superior organizational performance (Leung et al., 2006).

Proposition Three

In proposition three, it is speculated that entrepreneurs avoid functional fixity in their venture by assembling a group of complementary, yet differentially-skilled individuals to develop a creative and innovative solution to an existing problem. Functional fixation, originally described in psychology research (Adamson & Taylor, 1954; Birch & Rabinowitz, 1951; Flavell et al., 1958; Duncker, 1945; Glucksberg & Danks, 1968), has also been used to explore the effect of an entrepreneur's background on the methods he or she employs to build teams. In investigating the behavior of individuals attempting to find new uses for objects after undergoing training with the objects for other uses, such researchers have noted that individuals are greatly influenced by their previous training (Boldt, 1997).

Business researchers have applied this idea to business and have found that business managers also are influenced by their previous training. Such investigators (Ashton, 1976; Barnes & Webb, 1986; Bloom et al., 1984; Briers & Chow, 1995; Chang & Birnberg, 1977; Hand, 1990; Ijiri & Jaedicke, 1966) have all evaluated extensions of this hypothesis and found that managers have a tendency to fixate on their previous training, thus being less flexible in their cognitions regarding old dogs and new tricks (Boldt, 1997).

Chang and Birnberg (1977) found that although functional fixity is a potential problem in business environments, it can be overcome if "the events occurring around the task sensitize the subjects to the issue...the persistence of the set in any form is inversely related to the obviousness of the clue(s) presented" (p. 309). Thus, the more salient the information is in contradicting data fixity, the more likely individuals will be to negate the effects of perceptual set bias (Wilner & Birnberg, 1986). In translating this concept to

the present research study, it can be proposed that the more purposeful one is in assembling a differentially-knowledgeable group of people, the more likely such individuals will be to develop a creative, innovative solution to a problem. In essence, the complementary but divergent skills of the team will work to circumvent functional fixity by merging differing perspectives to offer a novel problem solution (Hand, 1990).

Studies have found that “the more diverse the TMT was, the greater the team and organizational performance” (Lovelace, 2001, p. 27). It is thought that this is due to the fact that, in such teams, greater expertise (derived from background and experience) is brought into the team, and that such a team can better tackle the complicated issues it must face in any field in today’s marketplace. Most team formation studies draw on top management team (TMT) assembly literature which indicates that TMT composition impacts an organization’s performance. However, TMT research does not address how heterogeneous teams are formed and thus it remains unclear how composition effects apply to entrepreneurial teams (Forbes et al., 2006). However, when given the choice, individuals tend to interact with others like themselves (Burt & Reagans, 1997). Several studies have found that similar relationships, personal connections, and backgrounds tend to be evident in new members that entrepreneurial teams choose (Forbes et al., 2006).

New members are added to a team to fill a resource need. Sandberg (1992) speculates that founders assemble entrepreneurial teams to “fill the gaps” in the team’s previously-existing competencies. The team members of a cross-functional team all have different backgrounds and expertise, and it is the task of the leader to find a way to unify that expertise toward “the common goal of bringing a product to market” (Sarin & McDermott, 2003, p. 710). Larson and Starr (1993) propose a network model of new

venture formation whereby new member addition is initiated by the team's perception of its needs. Echoing this finding, Ucbasaran et al. (2003) propose that team members are added to fill gaps in skills and provide the necessary human capital to pursue the goals and strategies of the new venture. These researchers further predict that small teams and homogeneous teams are more likely to add members since they are likely to be deficient in resource quantity or diversity.

An aspect of avoiding functional fixity is assuming different, yet complementary roles. This may be in contrast to the desire, studied in social psychology, in which "whom the existing team members want to hire is in part driven by a desire to duplicate their own qualities and in part by a desire to perpetuate the type of business or atmosphere which already exists" (Sapienza et al., 1992, p. 265). Reuf et al. (2003) found that entrepreneurial team composition was powerfully influenced by relational trust and homophily of personal characteristics of team members. Chandler and Lyon (2001) indicated that the most common criterion stated by the founders of a business was having a common interest in the technology or service provided by the business. Kamm and Nurick (1993) speculate that ready access and chemistry also play a part in new member identification and selection. Given the unconscious desire to perpetuate group membership with others like oneself, entrepreneurs must purposely select individuals with the greatest talent they can attract, while also being mindful of the potential team member's cohesion potential with the existing group.

Proposition Four

In proposition four, it is suggested that technically-focused entrepreneurs, particularly those with university appointments, are more likely to cede control of their

company to an outside CEO and take a less active role in their business because of the stability of their academic employment and their lack of knowledge or interest in managing a company. Developing a spinout company requires academic researchers to accommodate new challenges where they must learn to deal with a new set of norms and expectations (VanDierdonc et al., 1990). However, little research has been proposed to question the ability of academic spinouts to create wealth (Lambert, 2003).

When a venture capitalist is financing an early stage venture, he or she often looks for a well-balanced team with sufficient business experience and scientific acumen to fully develop a commercializable product that is reflective of the market potential (MacMillan, Zemann, & Subbanarashimha, 1987; Muzyka & Birley, 1996; Rich & Gumpert 1985). Moreover, the venture capital literature focuses on the importance of entrepreneurial teams as a factor in helping financiers decide upon in which ventures to invest (Rich & Gumpert, 1985).

Vanalest et al. (2006) conducted a study of the way in which entrepreneurial teams evolve through the different stages of an academic spinout, exploring ten academic spinouts. While the researchers observed that academics were often part of the first phase of the spinout process, they did not observe “entrepreneurial commitment” in such individuals, and noted that academics often left the company soon after formation. They also pointed out that most universities would not allow a tenured faculty member to maintain a position in a spinout, and suggest that many choose the certainty of an academic career over the risks of joining a start-up full time.

Creating a spinout is often a long process (Clarysse & Moray, 2004). The academic researcher is often part of the process; however, representatives of the parent

institution often play a major role in creating a spinout. In some cases, individuals with no link to the academic institution or research institute are attracted to the creation of a spinout based on their business experience (Franklin et al., 2001; Lockett et al., 2003); numerous authors have found that these business-focused entrepreneurs are often attracted to work with the researcher to develop an entrepreneurial venture. In fact, Vanalest et al. (2006) found that spinouts usually include key university researchers and business focused entrepreneurs.

Historically, leaders of entrepreneurial ventures have been technically-talented individuals advancing a particular innovation or process they have developed. However, such persons do not always possess the myriad of skills necessary to enable a company to be financially successful. Therefore, a newer approach to selecting a leader of an entrepreneurial venture is to designate an expert in project management itself, in the abstract, to manage the team, where experience in the field is deemed less important than experience with having actually started up and managed a team (Bounds, 1998). Studies have indicated that whereas formerly most project teams were headed by managers with experience in the field, now more project teams are being headed by managers experienced in managing teams (Bounds, 1998). This migration of expertise from the business field to the area of management itself may also work against the background and experience of an entrepreneur manager. In one study, it was found that 60% of all project teams were headed by engineers, but that most of the engineers recognized that what was needed was that they “improve their project management skills” (Bounds, 1998, p. 42). In sum, a trend of specialization from functional field to management itself appears to be underway in the area of team management.

Proposition Five

In proposition five, the researcher concludes that novice entrepreneurs rely upon expert entrepreneurial assistance in order to help their ventures grow and develop, profiting upon the experience levels of serial entrepreneurs in order to avoid the common pitfalls that can derail a venture on its way to success. In reviewing this issue, it has been observed that by and large the popular image of individuals setting out alone to start a company is a myth and, in fact, most entrepreneurs have close associates involved in the company creation process with them from the beginning (Donnelly, 1995, p. 64). Mitton (1989) argues that the success of start-up companies depends not only on who you are, but also upon whom you know. In fact, some researchers contend that the extensive networks of social capital are extremely important for the growth of an entrepreneurial venture because of the access provided to a variety of resources held by others (Shaw, 1997; Shaw & Conway, 2000).

Nunn and Ehlen (2001) argue that entrepreneurs require diverse skill sets that reflect expertise in all areas of the continuum of business skills. However, there are lesser and greater degrees of experience associated with such skill sets. Novice entrepreneurs can be defined as those with no or minimal prior minority or majority business ownership experience either as a founder, an inheritor, or purchaser of a business, but who currently own a minority or majority business equity stake in an independent business, either new, purchased, or inherited (Westhead et al., 2003; Westhead & Wright, 1998). Conversely, serial entrepreneurs are those who have sold or closed on a business in which they had a minority or majority equity stake and who currently own a minority or majority stake in a single, independent business, either new, purchased, or inherited (Westhead et al., 2005).

When starting a venture, it would seem prudent that novice entrepreneurs would seek to rely upon the wisdom that serial entrepreneurs would be able to provide. Additionally, it seems logical to believe that “the collective network of a team of entrepreneurs will be larger than that of a solo entrepreneur.” Therefore, following the reasoning of existing literature, a team of founders will be able to access more resources and thus have a better chance of survival and growth (Gilmore et al., 2000; Neergaard & Madsen, 2004, p. 108). Reuf and colleagues (2003) have found that in the team formation phase, entrepreneurs seek out trusted individuals who are similar to the start-up business developers in a variety of ways. Such similarities usually include commonalities in education and experience as well as patterns of association, such as kinship, friendship, and previous work relations. Novice entrepreneurs need to network to obtain valuable assistance at various stages of a company’s development.

Propositions Six and Seven

In proposition six, the researcher argues that technology-based solutions allow entrepreneurial ventures to expand their networks beyond personal contacts, while in proposition seven, it is hypothesized that technological solutions afford greater efficiency, speed, and accuracy, and allow entrepreneurs to work more productively. One of the challenges that all businesses face is being adaptable to change, which during the last 20 years, includes implementation of technology-based solutions, particularly the Internet, that build upon the skills, experience, and operations of their employees and system (Evans & Volery, 2001). Recent studies have suggested that information technology investments have had a positive and significant effect upon labor productivity and economic growth, with use of the Internet substantially lowering marketing,

investment, and operating costs (Fairlie, 2006).

One use of the Internet may be in hiring new employees. In a study of small and mid-sized nonprofit companies in the human service and community development fields in Allegheny County, Pennsylvania, the use of contemporary recruitment techniques, including the Internet, was surprisingly limited (Ban et al., 2003). However, research in human resource management has suggested that the use of the Internet in recruitment and selection can provide organizations with a significant competitive advantage in accommodating the challenges of business in the 21st century (Ensher et al., 2002). In one study, the researcher found that start-up companies solicited some team members for employment via the Internet. Evans and Volery (2001) explain that “asynchronous communication tools and the web can be used as tools of knowledge acquisition and storage, facilitating the work of the reflective practitioner” (p. 346). Lybaert (1998) concluded that entrepreneurs that frequently use new information through the use of an adequate information system, including the Internet, become competitively advantaged, particularly in the area of research and development.

Implications for Practice

I will focus on two sets of implications: macro and micro. Macro-implications focus on broad observations that will affect most entrepreneurial startups. Micro-implications are specific recommendations that entrepreneurs can act upon and follow to directly impact their organizations.

It is important for entrepreneurs to recognize the conditions that affect their venture, considering that there are any numbers of reasons businesses do not succeed and that the majority of new business ventures fail (Aldrich, 2000). While other researchers

have cited more dire estimates, Bracker et al. (1988) found that close to 65% of start-up companies fail in the first five years. Regardless of the way in which an enterprise begins, the majority of such endeavors fail. If paths taken by successful entrepreneurs could be determined and ways to incorporate these success factors into new companies could be isolated, it is possible that the success rate of start-up companies could be increased.

The results of this study demonstrate many important aspects of how entrepreneurs build teams. All groups can benefit from building stronger, more cohesive teams who have all of the elements necessary for success. Each of the entrepreneurs that I studied were in need of certain skills to launch their venture. Each had to take a different route to find the necessary personnel. Learning from the paths taken by these individuals will serve as a road map for future entrepreneurs and help them to devise a plan that ensures that all of their bases are covered.

In exploring the literature, many entrepreneurs make the mistake of settling on team members that are simply available and appear to fill the holes in their teams. The four entrepreneurs studied for this project all showed an unwavering commitment to seeking out well-qualified individuals who filled a need with either their skills, experience, or network.

The six themes identified also serve as guides to entrepreneurs building their teams. Each focuses attention on an aspect that was seen as critical in the development of the four organizations studied. By using these themes as a guide post, entrepreneurs will have an outside view on what is required to build a successful team; this will help increase their odds of success. Given the low probability of success for entrepreneurial

ventures, all tools that help to identify and eliminate weaknesses in an organization are valuable.

Macro-Implications

- New Business ventures fail for any number of reasons. This study lays the groundwork to help entrepreneurs make better choices in selecting and recruiting team members and limit the negative effects of poor choices
- Focusing on the path taken by successful entrepreneurs will allow for models to be built that will help investors determine which ventures have a greater chance for success.
- Cohesion has been shown to help build successful teams. Focusing on building and maintaining cohesion will help entrepreneurs increase the odds of success.
- Entrepreneurs are in a quest for human skills. This is a critical resource. Identifying these critical needs early in a venture and focusing on building a team that fills all needs will increase an entrepreneur's odds of success.
- Skills alone are not enough. Entrepreneurs have to ensure that team members share the needed level of commitment and mesh with the chemistry of the team in order to increase an entrepreneur's odds of success.

Micro-Implications

- Novice entrepreneurs should seek out serial entrepreneurs as partners, advisors, or investors.
- Entrepreneurs need to make sure that they find team members who possess complementary skills.
- Team chemistry is important – ensure that team members fit.

- Use telecommunications and technology to expand your reach to find team members and contacts.
- Seek out team members with unflappable commitment
- Know when to seek and outside leader. The founding entrepreneur is not necessarily the best CEO.

Limitations

I have identified possible limitations to this study. The first limitation is the group size. Because recruiting early stage start-up companies and finding teams that were willing to talk openly about their organization are difficult, only four entrepreneurs and their teams were examined. A larger sample of companies would have been more desirable. This limits the generalizability of findings. The themes on which I focused were reoccurring among the companies that I studied. Expanding the study over a larger sample of companies and observing if these same themes emerged would address this limitation.

A further limitation was that not every member of the teams selected was able to be interviewed. A few had left the team by the time that I was conducting my interviews and three individuals chose not to participate. Also, due to a technical problem with my digital recorder, five interviews were lost and I had to rely on my handwritten notes to include their input in my cases.

Another limitation is the fact that my study relied on my subjects having an accurate recollection of how events occurred. In addition, the team members knew when I was visiting and may have discussed amongst themselves the subject of my interview, how their team had formed, prior to my visit.

Finally, it is possible that some subjects may have excluded or omitted negative information. While all subjects were assured that their participation was voluntary and that their interviews would remain confidential until they approved the content, individuals may have held back negative information because of concerns over team harmony.

Future Research

The themes that were developed in this study can be tested as formal hypotheses. Survey research focused at start-up firms will yield insight into the issues that were highlighted in this study. Another opportunity for future research would be longitudinally following the growth of these start-up teams and observing how the teams change over the lifecycle of the company; identifying the reasons why the changes took place would yield new insights that can prove valuable for academic researchers, entrepreneurs, managers, and investors.

References

- Adamson, R. E., & Taylor, D. W. (1954). Functional fixedness as related to elapsed time and to set. *Journal of Experimental Psychology*, *47*, 122-126.
- Aldrich, H. (2000). *Organizations evolving*. San Francisco: Sage.
- Aldrich, H., & Auster, E. R. (1986). Even dwarfs started small. In B. M. Staw & J. L. Cummings (Eds.), *Research in organizational behavior: Vol. 8* (pp. 165-198). Greenwich, CT: JAI Press.
- Alexander, J. W. (1989). Sharing the vision. *Business Horizons*, *32*(3), 56-59.
- Ardichvili, A., & Gasparishvili, A. (2003). Russian and Georgian entrepreneurs and non-entrepreneurs: A study of value differences. *Organization Studies*, *24*, 29-46.
- Arkebauer, J. (1993). *Ultrapreneuring: Taking a venture from start-up to harvest in three years or less*. New York: McGraw-Hill.
- Ashton, R. H. (1976). Cognitive changes induced by accounting changes: Experimental evidence on the functional fixation hypothesis. *Journal of Accounting Research*, *14*, 1-17.
- Axelrod, R. (2002). Making teams work. *Journal for Quality and Participation*, *25*(1), 10-11.
- Bains, W. (2005). How academics can make (extra) money out of their science. *Journal of Commercial Biotechnology*, *11*, 353-363.
- Ban, C., Drahnak-Faller, A., & Towers, M. (2003). Human resource challenges in human service and community development organizations. *Review of Public Personnel Administration*, *23*, 133-153.

- Barnes, P., & Webb, J. (1986). Management information changes and functional fixation: Some experimental evidence from the public sector. *Accounting, Organizations and Society, 11*, 1-18.
- Barney, J. B., & Wright, P. M. (1998). On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management, 37*, 31-46.
- Begley, T. M. (1995). Using founder status, age of firm, and company growth rate as the basis for distinguishing entrepreneurs from managers of smaller businesses. *Journal of Business Venturing, 10*, 249-263.
- Birch, H. G., & Rabinowitz, H. (1951). The negative effect of previous experience on productive thinking. *Journal of Experimental Psychology, 41*, 121-125.
- Blanchflower, D. G., & Oswald, A. J. (1998). What makes an entrepreneur? *Journal of Labor Economics, 16*, 26-60.
- Bloom, R., Elgers, P. T., & Murray, D. (1984). Functional fixation in product pricing: A comparison of individuals and groups. *Accounting, Organizations and Society, 9*, 1-11.
- Boldt, D. (1997). Innovative uses of the Internet in the teaching of economics. Presented at the Academy of Economics and Finance meeting, Lafayette, LA.
- Bontis, N., Knight, T., Lank, E., Rumizon, M., & Williams, R. (2004). The many guises of knowledge management. *KM Review, 6*, 4.
- Boorstin, J., Daniels, C., Friedman, R., Gunther, M., Kirkpatrick, D., Leaf, C., et al. (2005, March 21). "The best advice I ever got." *Fortune, 151*(6), 90-118.
- Bounds, G. (1998). The last word on project management. *IIE Solutions, 30*(11), 41-43.

- Bracker, J. S., Keats, B. W., & Pearson, J. N. (1988). Planning and financial performance among small firms in a growth industry. *Strategic Management Journal*, 9: 591–603.
- Briers, M., & Chow, C. W. (1995). *Activity versus volume based product costing: The role of financial performance feedback* (working paper). Australia: University of New South Wales.
- Brinton, B., & Fujiki, M. (2003). Blending quantitative and qualitative methods in language research and intervention. *American Journal of Speech-Language Pathology*, 12, 165-171.
- Brown, J. (2005, May). Girl power: Great things happen when mothers and daughters join forces to help heal the world. *Natural Health*.
- Brown, R. B. (1998). The case method as a research vehicle. *Accounting Education*, 7 (Suppl.), S79-S95.
- Brown, J., Buster, W., & Townsend, R. (1999). Building and sustaining leadership teams. *Thrust for Educational Leadership*, 28(5), 32-34.
- Busenitz, L. W., West, G. P., Shepherd, D., Nelson, T., Chandler, G. N., & Zacharakis, A. (2003). Entrepreneurship research in emergence: Past trends and future directions. *Journal of Management*, 29, 285-308.
- Buttner, E. H., & Moore, D. P. (1997). Women's organizational exodus to entrepreneurship: Self-reported motivations and correlates with success. *Journal of Small Business Management*, 35, 34-46.

- Certo, S. T., Covin, J. G., Daily, C. M., & Dalton, D. R. (2001). Wealth and the effects of founder management among IPO-stage new ventures. *Strategic Management Journal, 22*, 641-658.
- Chandler, G. N. (1996). Business similarity as a moderator of the relationship between pre-ownership experience and venture performance. *Entrepreneurship: Theory and Practice, 20*, 51-65.
- Chandler, G. N., & Hanks, S. H. (1994). Founder competence, the environment, and venture performance. *Entrepreneurship: Theory and Practice, 18*, 77-89.
- Chandler, G. N., & Lyon, D. W. (2001). Entrepreneurial teams in new ventures: Composition, turnover and performance. *Academy of Management Proceedings*, A1-A6.
- Chang, D. L., & Birnberg, J. G. (1977). Functional fixity in accounting research: Perspective and new data. *Journal of Accounting Research, 15*, 300-312.
- Clarysse, B., & Moray, N. (2004). A process study of entrepreneurial team formation: The case of a research-based spin-off. *Journal of Business Venturing, 19*, 55-79.
- Clarysse, B., Wright, M., Lockett, A., Van de Velde, E., & Vohora, A. (2005). Spinning out new ventures: A typology of incubation strategies from European research institutions. *Journal of Business Venturing, 20*, 183-216.
- Coldron, J., & Boulton, P. (1998). The success and failure of positive action to mitigate the effects of an all-male senior management team in a secondary school. *British Educational Research Journal, 24*, 317-331.
- The commitment-trust theory. (1994). *Marketing Management, 3*, 24.
- Conlin, M. (2002). Now it's getting personal. *Business Week, 3812*, 90-92.

- Cooper, A. C., Gimeno-Gascon, F. J., & Woo, C. Y. (1994). Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing, 9*, 371-395.
- Cranston, N., & Ehrich, L. (2005). Enhancing the effectiveness of senior management teams in schools. *International Studies in Educational Administration, 33*, 79-91.
- Daily, C. M., McDougall, P. P., Covin, J. G., & Dalton, D. R. (2002). Governance and strategic leadership in entrepreneurial firms. *Journal of Management, 28*, 387-412.
- Dalton, D. R., Daily, C. M., Johnson, J. L., & Ellstrand, A. E. (1999). Number of directors and financial performance: A meta-analysis. *Academy of Management Journal, 42*, 674-686.
- Dalton, D. R., & Kesner, I. F. (1983). Inside/outside succession and organizational size: The pragmatics of execution replacement. *Academy of Management Journal, 26*, 736-742.
- Day, D.V., & Lord, R.G. (1988). Executive leadership and organizational performance: Suggestions for a new theory and methodology. *Journal of Management, 14*, 453-464.
- Dean, J. (2005). Dov Charney, like it or not. *Inc., 27(9)*, 124-131.
- De Vaus, D. (2001). *Research design in social research*. London: Sage.
- Donnelly, R. M. (1995, May). Soul brothers and the future. *The Chief Executive, 103*, 64.
- Duncker, K. (1945). On problem-solving. *Psychological Monographs, 58*, 113.
- Ehrich, L. C., & Cranston, N. (2004). Developing senior management teams in schools: Can micropolitics help? *International Studies in Educational Administration, 32*, 21-31.

- Eisenhardt, K. M. (1991). Better stories and better constructs: The case for rigor and comparative logic. *Academy of Management Review*, *16*, 620-627.
- Ensher, E. A., Nielson, T. R., & Grant-Vallone, E. (2002). Tales from the hiring line: Effects of the internet and technology on HR processes. *Organizational Dynamics*, *31*, 224-244.
- Ensley, M. D., Carland, J. W., & Carland, J. C. (2000). Investigating the existence of the lead entrepreneur. *Journal of Small Business Management*, *38*, 59-77.
- Ericsson, K. A., & Smith, J. (1991). Prospects and limits of the empirical study of expertise: An introduction. In K. A. Ericsson & J. Smith (Eds.), *Toward a general theory of expertise: Prospects and limits* (pp. 1-38). Cambridge, UK: Cambridge University Press.
- Evans, D., & Volery, T. (2001). Online business development services for entrepreneurs: An exploratory study. *Entrepreneurship and Regional Development*, *13*, 333-350.
- Fairlie, R. W. (2006). The personal computer and entrepreneurship. *Management Science*, *52*, 187-203.
- Farrell, L. (1999, November). Working knowledge and working identities: Learning and teaching the new word order of the new work order. Presented at the Australian Association for Research in Education conference.
- Fernald, L. W., Solomon, G. T., & Tarabishy, A. (2005). A new paradigm: Entrepreneurial leadership. *Southern Business Review*, *30*(1), 1-10.
- Finkelstein, S., & Hambrick, D. C. (1996). *Strategic leadership: Top executives and their effects on organizations*. St. Paul, MN: West.

- Flavell, J. H., Cooper, A., & Loiselle, R. H. (1958). Effect of the number of pre-utilization functions on functional fixedness in problem solving. *Psychological Reports, 4*, 343-350.
- Foo, M., Sin, H., & Yiong, L. (2006). Effects of team inputs and intrateam processes on perceptions of team viability and member satisfaction in nascent ventures. *Strategic Management Journal, 27*, 389-399.
- Forbes, D. P., Borchert, P. S., Zellmer-Bruhn, M. E., & Sapienza, H. J. (2006). Entrepreneurial team formation: An exploration of new member addition. *Entrepreneurship: Theory and Practice, 30*, 225-248.
- Francis, D. H., & Sandberg, W. R. (2000). Friendship within entrepreneurial teams and its association with team and venture performance. *Entrepreneurship: Theory and Practice, 25*, 5-25.
- Franklin, S. J., Wright, M., & Lockett, A. (2001). Academic and surrogate entrepreneurs in university spin-out companies. *Journal of Technology Transfer, 26*, 127-141.
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Boston: Pitman.
- Geiger, D. (2005, March 30). Fascitelli masters art of rising above competition. *Real Estate Weekly*.
- Ghauri P., & Gronhaug, K. (2002). *Research methods in business studies: A practical guide* (2nd ed.). Pearson.
- Gilgun, J. F. (1994). Hand into glove: The grounded theory approach and social work practice research. In E. Sherman & W. Reid (Eds.), *Qualitative research in social work* (pp. 115-125). New York: Columbia University Press.
- Gillham, B. (2000). *Case study research methods*. London: Continuum.

- Gilmore, A., Carson, D., & Grant, K. (2000). Managing change in SMEs: How do owner/managers hand over their networks? *Journal of Strategic Change*, 9, 415-426.
- Glucksberg, S., & Danks, J. H. (1968). Effects of discriminative labels and of nonsense labels upon availability of novel function. *Journal of Verbal Learning and Verbal Behavior*, 7, 72-76.
- Gompers, P. A., & Lerner, J. (1998). What drives venture capital fundraising? *Brookings Papers: Microeconomics*, 149-204.
- Gull, N. (2005). Past lives: From mushing to management. *Inc.*, 27(1), 52.
- Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9, 193-206.
- Hammersley, M. (1992). *What's wrong with ethnography?* London: Routledge.
- Hand, J. R. M. (1990). A test of the extended functional fixation hypothesis. *Accounting Review*, 65, 740-763.
- Haserot, P. W. (2004). Attributes and competences for 21st century law firm leaders. *Of Counsel*, 23, 11-13.
- Hebert, J., & Link, A. (1988). *The entrepreneur: Mainstream views and radical critiques* (2nd ed.). New York: Praeger.
- Henderson, S. (2005). Mothers of invention. *Ebony*, 60(7), 76-77; 80; 83.
- Henricks, M. (2005). The fast lane: There are tried-and-true rules for growing a company. *Entrepreneur*, 33(4), 64-67.

- Hinrich, T., Love, N., Petrie, C., Ramshaw, L., Sahai, A., & Singhai, S. (2004). Using object-oriented constraint satisfaction for automated configuration generation. *DSOM*, 159-170.
- Hyde, K. F. (2000). Recognising deductive processes in qualitative research. *Qualitative Market Research: An International Journal*, 3, 82-90.
- Ijiri, Y., & Jaedicke, R. K. (1966). Reliability and objectivity of accounting measurements. *Accounting Review*, 41, 474-483.
- Janesick, V. J. (1994). *Handbook of qualitative research*. Sage.
- Jayaraman, N., Khorana, A., Nelling, E., & Covin, J. (2001). CEO founder status and firm financial performance. *Strategic Management Journal*, 21, 1215-1224.
- Jeng, L. A., & Wells, P. C. (2000). The determinants of venture capital funding: Evidence across countries. *Journal of Corporate Finance*, 6, 241-289.
- Joinson, C. (1999). Teams at work. *HR Magazine*, 44(5), 30-36.
- Jones, T. M. (1995). Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of Management Review*, 20, 404-437.
- Jones, S. J., & Lyons, R. A. (2004). Routine narrative analysis as a screening tool to improve data quality. *Inj. Prev.*, 9: 184-186.
- Jones, O., Thorpe, R., Sharifi, S., Macpherson, A., Holt, R., & Zhang, M. (2003). Conceptualizing business knowledge in SMEs: Sectoral recipes and activity systems. Presented at the annual European Group for Organizational Studies (EGOS) Colloquium.
- Kagan, J., & Havemann, E. (1976). *Psychology: An introduction*. New York: Harcourt, Brace, Jovanovich.

- Kamm, J. B., & Nurick, A. J. (1993). The stages of team venture formation: A decision-making model. *Entrepreneurship: Theory and Practice, 17*, 17-27.
- Kang, H. R., Yang, H. D., & Rowley, C. (2006). Factors in team effectiveness: Cognitive and demographic similarities of software development team members. *Human Relations, 59*, 1681-1710.
- Kazanjian, R.K., & Rao, H. (1999). Research note: The creation of capabilities in new ventures -- A longitudinal study. *Organization Studies, 20*, 125-145.
- Korunka, C., Frank, H., Lueger, M., & Mugler, J. (2003). The entrepreneurial personality in the context of resources, environment, and the startup process – A configurational approach. *Entrepreneurship: Theory and Practice, 28*, 23-42.
- Kreiner, P. (1988). Influence and information in organization-stakeholder relationships. *Academy of Management Proceedings, 319-323*.
- Kristiansen, S. (2004). Social networks and business success: The role of subcultures in an African context. *The American Journal of Economics and Sociology, 63*, 1149-1171.
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology, 49*, 1-49.
- Kurlantzick, J. (2004). About face. *Entrepreneur, 32(1)*, 60-64.
- Lambert, M. J. (2003). Recruiting and retaining employees: Critical issues for organizational leaders. *Physician Executive, 29(4)*, 18-19.
- Larson, A., & Starr, J. A. (1993). A network model of organization formation. *Entrepreneurship: Theory and Practice, 17*, 5-15.

- Leifer, R., McDermott, C. M., Colarelli O'Conner, G., Peters, L. S., Rice, M., & Veryzer, R. W. (2000). *Radical innovation: How mature companies can outsmart upstarts*. Boston: Harvard Business School Press.
- Leitch, C. M., & Harrison, R. T. (2005). Maximising the potential of university spin-outs: The development of second-order commercialisation activities. *R & D Management, 35*, 257-272.
- Leung, A., Zhang, J., Wong, P. K., & Foo, M. D. (2006). The use of networks in human resource acquisition for entrepreneurial firms: Multiple "fit" considerations. *Journal of Business Venturing, 21*, 664-686.
- Liao, L. F.. (2006). A learning organization perspective on knowledge-sharing behavior and firm innovation. *Human Systems Management, 25*, 227-236.
- Litz, R. A., & Folker, C. A. (2002). When he and she sell seashells: Exploring the relationship between management team gender-balance and small firm performance. *Journal of Developmental Entrepreneurship, 7*, 341-358.
- Lockett, A., Wright, M., & Franklin, S. (2003). Technology transfer and universities' spin-out strategies. *Small Business Economics, 20*, 185-200.
- Lovelace, K. (2001). Multidisciplinary top management teamwork: Effects on local health department performance. *Journal of Public Health Management and Practice, 7*, 21-29.
- Lybaert, N. (1998). The association between information gathering and success in industrial SMEs: The case of Belgium. *Entrepreneurship and Regional Development, 10*, 335-351.

- Lynskey, M. J. (2004). Knowledge. Finance and human capital: The role of social institutional variables on entrepreneurship in Japan. *Industry and Innovation, 11*, 373-405.
- MacMillan, I.C, Zemann, L., & SubbaNarasimha, P. N. (1987). Criteria distinguishing successful from unsuccessful ventures in the venture screening process. *Journal of Business Venturing, 2*, 123-137.
- Macpherson, I., Brooker, R., & Ainsworth, P. (2000). Case study in the contemporary world of research: Using notions of purpose, place, process and product to develop some principles for practice. *International Journal of Social Research Methodology, 3*, 49-61.
- Madill, A., Jordan, A., & Shirley, C. (2000). Objectivity and reliability in qualitative analysis: Realist, contextualist and radical constructionist epistemologies. *British Journal of Psychology, 91*, 1-20.
- Mansfield, D. (2003). Complexity theory and educational leadership. National College for School Leadership.
- Mansfield, S. (2003). Password proliferation alleviated. *Security: For Buyers of Products, Systems and Services, 40*, 39-40.
- Marger, M. N. (2001). The use of social and human capital among Canadian business immigrants. *Journal of Ethnic and Migration Studies, 27*, 439-453.
- Markóczy, L. (2000). National culture and strategic change in belief formation. *Journal of International Business Studies, 31*, 427-442.
- McCall, K. L. (2004). Leading the pack. *Entrepreneur, 32(5)*, 90-91.

- McCullough, D. C. (1995). Teams in the workplace: The way to power them to productivity. *Hospital Material Management Quarterly*, 16, 70-75.
- McMahon, C., Lowe, A., & Culley, S. (2004). Knowledge management in engineering design: Personalization and codification. *Journal of Engineering Design*, 15, 307-325.
- Meggison, W. L., & Weiss, K. A. (1991). Venture capitalist certification in initial public offerings. *Journal of Finance*, 46, 879-903.
- Mitchell, R. K. (2002). Entrepreneurship and stakeholder theory. *Business Ethics Quarterly*, 175-196.
- Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, 22, 853-886.
- Mitchell, R. K., Busenitz, L., Lant, T., McDougall, P. P., Morse, E. A., & Smith, J. B. (2002). Toward a theory of entrepreneurial cognition: Rethinking the people side of entrepreneurial research. *Entrepreneurship: Theory and Practice*, 27, 93-104.
- Mitton, D. G. (1989). The compleat entrepreneur. *Entrepreneurship: Theory and Practice*, 13, 9-19.
- Montanye, J. A. (2006). Entrepreneurship. *Independent Review*, 10, 547-569.
- Morris, M. H. (2003, April). Entrepreneurship as experienced by the entrepreneur. *Journal of Developmental Entrepreneurship*.
- Murphy, F. H. (2005). ASP, the art and science of practice: Elements of a theory of the practice of operations research: Expertise in practice. *Interfaces*, 35, 313-322.

- Muzyka D., & Birley, S. (1996). Trade-offs in the investment decisions of European venture capitalists. *Journal of Business Venturing, 11*, 273-287.
- Nass, L. (2000). Are you an entrepreneur? *American Business Perspectives, 222*, 5-7.
- Neergaard, H., & Madsen, H. (2004). Knowledge intensive entrepreneurship in a social capital perspective. *Journal of Enterprising Culture, 12*, 105-125.
- Nunn, L. E., & Ehlen, C. R. (2001). Developing curricula with a major emphasis in entrepreneurship – An accounting perspective. *Journal of Applied Business Research, 17*, 1-8.
- Olson, P. (1986). Entrepreneurs: Opportunistic decision makers. *Journal of Small Business Management, 24*, 29-35.
- Pegram, A. (2000). What is case study research? *Nurse Researcher, 7*, 5-16.
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource-dependence perspective*. New York: Harper & Row.
- Pool, S. W. (2001). Designing and measuring educational outcomes utilizing student portfolios for business management education. *Journal of Instructional Psychology, 28*, 50-58.
- Power, D., & Lundmark, M. (2004). Working through knowledge pools: Labour market dynamics, the transference of knowledge and ideas, and industrial clusters. *Urban Studies, 41*, 1025-1044.
- Ranger-Moore, J. (1997). Bigger may be better, but is older wiser? Organizational age and size in the New York life insurance industry. *American Sociological Review, 62*, 903-920.

- Reuf, M., Aldrich, H. E., & Carter, N. M. (2003). The structure of founding teams: Homophily, strong ties, and isolation among U.S. entrepreneurs. *American Sociological Review*, 68, 195-222.
- Rich, S. R., & Gumpert, D. E. (1985). Business plans that win \$\$\$: Lessons from the MIT enterprise forum. New York: Harper and Row.
- Robbins-Roth, C. (2000). *From alchemy to IPO: The business of biotechnology*. Perseus.
- Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship: Theory and Practice*, 15, 13-31.
- Ross, L., Lepper, M. R., & Hubbard, M. (1975). Perseverance in self-perception and social perception. *Journal of Personality and Social Psychology*, 32, 880-892.
- Salthouse, T. A. (1991). Expertise as the circumvention of human processing limitations. In K. A. Ericsson & J. Smith (Eds.), *Toward a general theory of expertise: Prospects and limits* (pp. 286-38). Cambridge, UK: Cambridge University Press.
- Sandberg, W. R. (1992). Strategic management's potential contributions to a theory of entrepreneurship. *Entrepreneurship: Theory and Practice*, 16, 73-90.
- Sanders, K., & Nauta, A. (2004). Social cohesiveness and absenteeism: The relationship between characteristics of employees and short-term absenteeism within an organization. *Small Group Research*, 35, 724-741.
- Sapienza, H. J, Herron, L., & Mendez, J. (1992). The founder and the firm: A qualitative analysis of the entrepreneurial process. *Frontiers of Entrepreneurship Research*, 254-270.

- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26, 243-263.
- Sarin, S., & McDermott, C. (2003). The effect of team leader characteristics on learning, knowledge application, and performance of cross-functional new product development teams. *Decision Sciences*, 34, 707-739.
- Schein, E. H. (1983). The role of the founder in creating organizational culture. *Organizational Dynamics*, 12, 13-28.
- Schneider, B. (2001). Fits about fit. *Applied Psychology: An International Review*, 50, 141-152.
- Shaw, E. (1997). The real networks of small firms. In D. Denkins, P. Jennings, & C. Mason (Eds.), *Small firms: Entrepreneurship in the 1990s*. London: Paul Chapman.
- Shaw, E., & Conway, S. (2000). Networking and the small firm. In S. Carter & D. Jones-Evans (Eds.), *Enterprise and small business*. Prentice Hall.
- Siegel, R., Siegel, E., & MacMillan, I. C. (1993). Characteristics distinguishing high-growth ventures. *Journal of Business Venturing*, 8, 169-180.
- Silverman, D. (1988). *Qualitative methodology and sociology*. Aldershot: Gower.
- Stalinski, S. (2003). The role of organizational professionals in the conscious evolution of business and society. *World Futures*, 59, 625-630.
- Stearns, T. M., & Hills, G. E. (1996). Entrepreneurship and new firm development: A definitional introduction. *Journal of Business Research*, 26, 1-4.

- Stevenson, H. H., & Jarillo, J. C. (1990). A paradigm of entrepreneurship: Entrepreneurial management. *Strategic Management Journal*, *11*, 17-27.
- Stinchcombe, S. L. (1965). Social structure and organizations. In J. G. March (Ed.), *Handbook of organizations* (pp. 142-193). Chicago: Rand McNally.
- Team leader. (2005, March 15). *Library Journal*, *130*, 38.
- Timmons, J. A. (1994). *New venture creation: Entrepreneurship for the 21st century* (4th ed.). Boston: Irwin.
- Timmons, J. A., & Bygrave, W. D. (1986). Venture capital's role in financing innovation for economic growth. *Journal of Business Venturing*, *1*, 161-176.
- Ucbasaran, D., Lockett, A., Wright, M., & Westhead, P. (2003). Entrepreneurial founder teams: Factors associated with member entry and exit. *Entrepreneurship: Theory and Practice*, *28*, 107-127.
- Underwood, J. (2002, June). Adhocracy, IT and nomad management. Oxford: Proceedings: Developing Philosophy of Management.
- Vallis, J., & Tierney, A. (2000). Issues in case study analysis. *Nurse Researcher*, *7*, 19-35.
- VanDierdonc, R., Bebackere, K., & Englen, B. (1990). University-industry relationships: How does the Belgian academic community feel about it? *Research Policy*, *19*, 551-566.
- Venkatesan, M. (1967). Laboratory experiments in marketing: The experimenter effect. *Journal of Marketing Research*, *4*, 142-146.

- Vojak, B. A., Griffin, A., Price, R. L., & Perlov, K. (2006). Characteristics of technical visionaries as perceived by American and British industrial physicists. *R & D Management*, 36, 17-26.
- Watson, S. C. (2004). Avoiding the four deadly sins of performance development. *USA Today Magazine*, 133(2712), 24-25.
- Weinzimmer, L. G. (1997). Top management team correlates of organizational growth in a small business context: A comparative study. *Journal of Small Business Management*, 35, 1-9.
- Wells, R., Alexander, J. A., Piotrowski, M. M., Banaszak-Holl, J., Adams-Watson, J. G., Davis, J., et al. (1999). How other members of the top management team see the nurse executive. *Nursing Administration Quarterly*, 23, 38-51.
- West, G. P., & Meyer, G. D. (1998). To agree or not to agree? Consensus and performance in new ventures. *Journal of Business Venturing*, 13, 395-422.
- Westhead, P. (1995). Survival and employment growth contrasts between types of owner-managed high technology firms. *Entrepreneurship: Theory and Practice*, 20, 5-27.
- Westhead, P., Ucbasaran, D., & Wright, M. (2005). Decisions, actions, and performance: Do novice, serial, and portfolio entrepreneurs differ? *Journal of Small Business Management*, 43, 393-417.
- Westhead, P., Ucbasaran, D., Wright, M., & Martin, F. (2003). Habitual entrepreneurs in Scotland: Characteristics, search processes, learning, and performance.
Available from <http://www.scottish-enterprise.com>
- Westhead, P., & Wright, M. (1998). Novice, portfolio, and serial founders: Are they different? *Journal of Business Venturing*, 13, 173-204.

- Williams, G., & Laungani, P. (1999). Analysis of teamwork in an NHS community trust: an empirical study. *Journal of Paraprofessional Care, 13*, 19-28.
- Williamson, I. O. (2000). Employer legitimacy and recruitment success in small businesses. *Entrepreneurship: Theory and Practice, 25*, 27-42.
- Williamson, I. O., Cable, D. M., & Aldrich, H. E. (2002). Smaller but not necessarily weaker: How small business can overcome barriers to recruitment. In J. A. Katz & T. M. Welbourne (Eds.), *Managing people in entrepreneurial organizations (Advances in entrepreneurship, firm emergence and growth): Vol. 5* (pp. 83-106). Kindlington, Oxford: Elsevier.
- Wilner, N., & Birnberg, J. (1986). Methodological problems in functional fixation research: Criticism and suggestions. *Accounting, Organizations and Society, 11*, 71-80.
- Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resources and the resource based view of the firm. *Journal of Management, 27*, 701-721.
- Yin, R. K. (1981). The case study crisis: Some answers. *Administrative Science Quarterly, 26*, 58-65.
- Yin, R. K. (1994). *Case study research: Design and methods* (2nd ed.). Newbury Park, CA: Sage.
- Yin, R. K. (2003a). *Applications of case study research* (Vol. 34). Thousand Oaks, CA: Sage.
- Yin, R. K. (2003b). *Case study research: Design and methods* (Vol. 5). Thousand Oaks, CA: Sage.

Zucker, C. (2001). Are new laws needed to protect human subjects? *Accountability in Research: Policies and Quality Assurance*, 8, 235-244.

Appendix A

NewCount Team Interviews

Sven – Founder and CEO of NewCount

Question One: Regarding NewCount, I guess Sven if we can start off or you just can tell about yourself, tell me about your education.

My education, I went to Columbia undergrad for engineering. I kind of knew I wanted to do some petrol biomedical engineering, but they didn't have a program for that. So, I kind of chose what I thought was the hardest engineering major, just for the challenge, basically. It was called applied physics engineering and there were 15 people in it, you know all guys and I.

Question Two: You applied hyper mechanical engineering?

Applied physics. It was clear that it will be physics behind all the different fields of engineering. We learned fluid dynamics and we learned statistics, but it was all from just a very applied perspective. So, instead of learning statistics and memorizing formulas, we started with molecules and gas and how they collide. We figured out all the equations and at the end you have statistics. Then, it was the same thing with chemistry.

It was a cool way of approaching a lot of different things and while it took awhile to figure out what we were learning, at the end we learned all the same equations that the mechanical electrical engineers learned. So, we actually knew how to derive and things like that, then unfortunately, because you didn't have much time getting to the advanced you don't applied as much into specific, you know, professionally you analyze...all day, but it was kind of cool.

I kind of created my own biomedical major as well, a biomedical program that was not a full major, but I took a lot of biological courses to supplement all my other

courses. I usually help people with biomedical engineering, although my actual degree is in physics engineering. Regardless, I liked engineering and I liked the biology of the human body and I knew I wanted to do something with medical devices.

Question Three: What did you do after you graduated?

I went to a company called (name of company) with laboratories that are still around. They are a small company and they've been out there for 25 years. It's a family-owned, private company. They manufacture hospital equipment: things like suction regulators, blood collection canisters...pretty mundane things, among other things that didn't really interest me. But, I got an internship with them just to get some engineering experience and then afterwards they said, 'Hey, we are doing these two new products that are completely different than anything we've ever done. They are very biological, they are very research intensive and they are different than anything, any other stuff that we are doing here. So, we are hiring you to work in this stuff.' That was great because, you know, it was a nice company and I got to know everybody. They were small but they were pretty well established and they had good cash flow to support this new line of products they were doing.

This was something they've never done before and basically it was a canister for separation of blood from plasma; you can clean some of this blood during the surgery and donate it back to them [the patient]. There are machines out there that do that, but this was a completely disposable version. I worked on that for about two years and it was a good project; the engineering was fun. I got to go to a lot of surgeries and observe, actively meet doctors and nurses and things like that, but you got to the point where the product was finished and then the company just didn't want to invest in money and took

it to the market and sell the product, so it was sitting on the shelf not doing anything and I kind of worked on another project during the same time in parallel. It was a blood diagnostic tool where you can actually put some blood in a test tube and rotate it, and point the camera at it and program the entire thing, so you could use vision recognition to tell when the blood changes. It was really cool...it was another really cool product, it worked, we got it well past what anybody would expect from a prototype. This was a first prototype and the company just didn't want to support it and market it so that is when I kind of took off and left.

Question Four: You did new product development for (name of company)?

Exactly, right. So at that point I kind of evaluated things, what I am doing here, is this is going to continue...am I going to keep designing things and they kept things, you know. Well, you can always go back and work designing regulators, but I don't want to do simple mechanical so I decided I wanted to eventually own my own business, or start a company some day.

Question Five: Was that when you first had that realization?

Not really. I mean, for a while I didn't know what I wanted to do. When I was in college, I completed all of the med school requirements, as well as including things like making sure you take organic chemistry and that kind of stuff, make sure you volunteer at the hospital, all stuff if I worked to put my med school application. So I was kind of going back and forth. Should I get another engineering job? Should I go back to grad school for business? Should I go to med school? At that point I didn't know what I wanted to do. I had no plans, so I just quit my job without really having any plans regarding what to do after that. I figure I'll force myself into making a decision, I guess.

So I quit my job; I, my family was all raised in town pretty much and they are pretty entrepreneurial. My brother owns his own business and my sister at the time owned a business.

Question Six: What do their businesses do?

My brother is in family real estate development. My grandfather started it back in the 30s and 40s – he started a company called SvenCoal and it was a pretty successful coal company. He acquired a lot of real estate that he ended up developing a lot of. He sold a lot of it but what he held onto kind of was passed down to the family. So, my brother started this software company when he was in college and then sold that – the larger software company offered him a job, people that bought his company offered him an office job; he did it maybe for me two days and quit – he couldn't function. So, he ended up at that point going to my mother, asking her about the property and offering to purchase it from her and develop it, so he is still doing it today a little bit. He has been working very hard by himself for 6-7 years, developing property.

My sister was a CPA. At one point, she just decided – she and her partner decided – to get into selling boats and RVs so they bought a company up in (name of location). It was going under and they turned it around – they started a company called Buffalo Power Sports RVs and that's stuff. So, I've seen them being pretty successful. I knew I wanted to do something like that, so I figured I'd come back to town and just see what happens.

Question Seven: So you came back to Buffalo?

Yeah, that was in Philadelphia. I was there and I came back to town and I figured you know if nothing else, I can work with my brother for awhile doing family business

until I decided what I wanted to do. At the same time, I put an application into RIT, for grad school and that was the only school I applied to.

Question Eight: Was it the School of Business?

Yeah, I wanted to do business school but only if it was on my terms, only if it was in Buffalo, only if it was meeting the requirement that I already made for myself which was coming back to Buffalo for awhile. So, I figured it was a great school – the program, it was really like exactly my style and I put in my application and I figured I had a decent chance. I came back to Buffalo, kind of threw around a couple of business ideas with my brother for awhile, and worked in a couple of small projects together for about a year. Then, I ended up getting accepted into the business school, so for about a year until the next school year came around, I traveled a little bit. I worked on a couple of things and I helped my brother in his real estate business. We also worked on a couple of small things. We invented a new type of bicycle and patented it.

Question Nine: A patent? That's pretty good.

Actually, we never finished the patent – we never applied for a patent because we came across something that made it pretty much worthless. Somebody else had a very similar patent

Question Ten: Did you ever build the bike?

Yeah, yeah, we built it. I can't even remember why we came up with the idea. We thought it would be cool to have an elliptical drive system so you can run like an elliptical runner but do it outside like a bike. So, we built it and we filed the patent and everything. We got to the point where the thing worked – it was really cool – we took it out to the trails. People stared at us because it is like you are standing but you are riding.

Question Eleven: After putting in a thousand of hours on one of those in my bedroom I can see the advantage of getting outside – that would be cool.

So, it was fun, but then we looked at a patent that had been filed like a month before our application and it was by the guy who invented the Life Core, the first elliptical bicycle. So, we thought this guy had a much better chance in marketing it than we ever did.

Question Twelve: How much did it cost to make one, out of curiosity?

I forget how much it cost. I think it was about two thousand dollars. We worked with a guy in the East Side, who built custom bikes, getting out there everyday to the shop and worked there with him.

Question Thirteen: Okay, so you are at RIT?

Yeah, the school year started and I think in the very first orientation I met Gary, my partner, and I can't tell you exactly what it was about him, but we just kind of hit it off, you know. I think that looking back on it, the reason we kind of work together is we both were similar in that we didn't take business school too seriously, like a lot of people there did, you know. We both had others things – other priorities in our lives that were important to us.

Question Fourteen: Such as?

Family and just education for learning sake, not necessarily taking tests and memorizing things, just curiosity about how things work. My interest was more a technical curiosity but his is more, if you meet him – you probably are going to pick it up – it's more people and how people think and how people interact. He is always questioning – he is never accepting anything and I really like that about him, he is always

pushing people to answer one more question and it's tremendous how much he gains and how much he learns by doing that. I have the same kind of curiosity but the more technical side so, while I think I've learned a lot from him, he has learned from me.

The other thing is, while we kind of like each other and had these characteristics in common, we also we are extremely different in terms of our background, skills we brought to the table, our interests, you know. I am very much technically-orientated; he is not. I am not going to say anything about that. I focus on, I think we both see the big picture, but I tend to focus on technical operational details a lot and he is the one that keeps going after, you know, going after intangible laws, they really are hard to measure, really hard to justify sometimes even. Things like, I need to meet this person, I need to talk to this person – oh, why you need to do that? – well because he can introduce me to that person and that person can introduce me to that person.

Question Fifteen: So is he a good networker?

Networking exactly. Things that I had never done I am much better now than when I started, but at that point I've never done anything like that and I've never thought that way, he got a different thinking style than I did.

Question Sixteen: I saw Gary at a panel about two years ago. I can definitely see those personality characteristics.

So, yeah, it was just a thing that we sensed about each other and I think we sensed that we could probably work well together and compliment each other without getting in each other's space. We started working together on projects in classes like school assignments and we tended to work together a lot because we just, you know, it just worked, just worked well. I mean there were things that were clear every time we had an

assignment. It was almost immediately clear what I would be doing and what he would be doing and just we just went off and did it and that was it. We worked so well that we worked together in random classes for a while and then we started hearing about this entrepreneurship program at RIT.

This is another funny story about Gary and his network. So we knew the entrepreneurship program existed but we just didn't really know much about it. They didn't do a good job advertising or marketing themselves to the rest of the campus. We knew Archie was pretty important to the entrepreneurship center, but at that point I had no clue what we could do to get involved. We were taking some marketing class and had to create a survey, so Gary said, 'Hey, instead of creating some survey for some random company, why don't we ask professor Archie if he'd like us to do a marketing study for the entrepreneurship center and help him to get the word out there.' So we approached him and we said, 'Hey, would you mind a group of students doing a project for you and putting a survey out?' He said, 'Ah, that's great because we were just talking about doing some sort of marketing study so that works perfectly.' We ended up getting feedback and we started a relationship with professor Archie before we took any of his classes, just for doing the project that we had to do anyway. So you know, a really good insight on how Gary's mind works.

So anyway, we did that and we started talking about the center, so we signed up for the classes and took Tim's class on entrepreneurship and we formed a group. The group was Gary and I and like four other people or five other people so it's kind of a big group. And we started going through business ideas and we looked at all kind of crazy stuff we looked at, I think it was like, drive through dentistry idea or something,

somewhere to stop and get your teeth clean or something like that. I think they have those now, so I think we thought of that, put together a little pitch and somebody in the audience is like, 'Hey, check out this website – they already exist,' and then we did that probably four or five times. We kept coming up with those ideas that we thought were great and then somebody said they already existed so we were getting, you know, a little bit discouraged.

At that time I worked at a summer internship, between the first and second year I did that at Cardiac Devices, a small company, very small – they're still around – they're doing much better now. After my first year, I knew I wanted to do an internship and I looked at all the companies that were offering them, like standard companies came and interviewed; I just didn't want to work for any of them – they were too big. I wanted to work in a really small company, so I just went to school actually and I talked to the person in their tech transfer office...I just, you know, sat down with them, he went through a list of start-up companies in town and how well founded they were and whether or not he thought they were looking for people. So, I just started making phone calls. I called probably 15-20 companies I was interested in, and said, 'Do you want me to work for you?' So, I finally found one that wanted me to work for them, so that's kind of like how I found my job at Columbia too – through my internship.

Question Seventeen: So, you are a go-getter?

I don't know. I am just not really content with choices people give me. I usually see the choices and say, 'OK, why don't I just look longer,' and, you know, 'What about other companies?' I just thought about a small company. I thought, 'Wouldn't a small

company really take the time to go and put their name on a list at RIT be looking for people?” but...

Question Eighteen: But, they are busy on other stuff.

Too busy to care put their names on a list, so these companies are probably all companies that donate a lot of money to school. That's why they are there, you know there have to be other companies out there so I just started calling and emailing, and finally Cardiac Devices replied. They said, 'You know, hey come in – you know, let's meet,' and I really liked the people there. I got along with them very well and...the CEO....is a friend and advisor, so [he's] a good guy. He met me and said, 'OK, have you ever, we don't have any, I forget what position I was looking for, he is like we don't have that, but we just fired our entire marketing department so you can be our marketing department.' So, he asked if I ever had done marketing before. I said, 'No, but I am learning.' He was fine that I'd never done marketing before, but I was at a marketing department for the summer and so I did a lot of competitive analysis and stuff like that. It was good experience, and I kept working throughout the next year.

Then, they asked me if I can just stay on part time, so I was going to school so I did that and this was about the same time as we were running out of business ideas for our class and the class is fairly important. I mean, a lot of your grade is based on a business plan and presentation and so they wanted you to pick an idea that you are really willing to carry out through the whole semester. I didn't want just to pick some half-picked idea just to get it over with, so we were pretty serious about wanting to get a good viable idea. So, we have gone through a lot of all these ideas and nothing was really sticking so, at that point I went into Cardiac Devices and the doctor who was at Cardiac

Devices licensed a lot of his patents. One of his patent applications was bronzed and hanged up from the wall. So, he was in town one day, so I just kind of grabbed him in the hallway and said, ‘Doctor, you don’t know me but I work here and in this class I am doing in business school, I am looking for business ideas. I’ve seen you have a lot of patents. Can you and I talk and see if you have any ideas that maybe we can work with and commercialize?’ He was like, ‘Sure, drive me to the airport,’ so I drove him to the airport and we talked for like thirty five, forty minutes and he gave me three pretty good ideas. These three were at various stages of development. This one in particular, he says, ‘You know, I was working with the inventor and they’ve already issued two patents and the idea had the some traction already. The other ideas for the patents would have to be filed, which would be pretty expensive.’ So, I went back and thought about it and called him a couple of days later and said I like that sponge idea. Let’s do it and he said, ‘OK’ and we arranged the conference call a couple of days later with him and the inventor, myself and Gary, and that’s kind of the story.

Question Nineteen: So, did Gary’s influence on you give you courage for another talk with the doctor...or is this just something you would have done if you had never met him?

Yeah, that was probably Gary’s influence. Yes, because I’d never thought of this.

Question Twenty: So, Archie wasn’t teaching the class?

No, that was Tim.

Question Twenty-One: So, what about Gary and about five other students?

The five other students, right. So, at that point, it was still very much a school project. The inventor was very guarded and didn’t want to give away all his hard work.

He and his wife had come up with this idea back in the mid-90s and she was a nurse. He worked for an investment firm, so he really had no technical background. Neither had she, but she had nursing experience, so she actually came up with this idea, because she had been sick of counting sponges. She had to bend over and pick them out of this bucket and stuff, so the two of them put their heads together and to their credit they were ahead of the curve in terms of technology.

They thought, you know, why don't we put RFID tags in these things and that was when RFID was just invented actually. So, they filed the patents, and gave it a go to the best of their abilities for, you know, almost ten years at that point. They filed the patents, they prosecuted them, spent a good bit of money on them. The patents got issued in the late nineties: like 1997, 1999. They had tried to market it, tried to sell it to a medical device company and the medical device company, kind of similar to my experience at the (name of company), they talked the big game about wanting to be in this new technical field, but when it came down to it, they fell back on simple mechanical devices.

So, they wanted to say that they were going to do it, they have the patents, and they kind of put them on a shelf, but they never invested their money to develop it. So, Morton, he got pretty annoyed about that, he had put a provision in there that said if they didn't try to do something with it within a year he could get it back, so luckily he went to court, and it was pretty ugly I guess and he got them back. So, at that point he tried to go on his own and raise money and he couldn't. So at that point, which is their third try, they met up with Dr. John.

Dr. John had been involved in a lot of medical start-up companies and he knew how the process worked. So Morton kind of said, 'OK, I am gonna [sic] give it a try, and those two were going off to do whatever they were gonna [sic] do with the idea, find somebody to run a company or sell it or whatever.' But, they ran into me first and said, 'OK, let's give this guy a try.' Well, the seven of us, it was you know like I said, it was very guarded. Dr. John and Morton would be in our conference calls, and they were being on their side, and we were on our side, and it was a two-sided thing. This was not very good for getting things done actually, because we wanted to develop a business plan, develop a presentation and go out and pitch the idea. But, the inventor would not disclose all his information. He had marketing research done, he had a business plan he wrote, he had contacts with people in the industry that we could have called, but he wouldn't give us any information. And then we'd go down this path, and we'd be in a conference with him, and explained this is what we did. He would say, 'Yeah, I did that three years ago' and, 'Talk to so and so...' Well, why didn't you tell us that? It was because he was just very nervous to give any information.

Question Twenty-Two: Did you have any sort of contractual relationship with them or did you just tell them it was just a school project?

At that point no, we'd signed a disclosure agreement, but at that point we had nothing, because I can totally see his perspective. There are seven students at a school halfway across the country, and he doesn't know what is going on.

Question Twenty-Three: Where was he located?

At that point he was located in (name of state). He has just moved to a new state; it is where he is now.

Question Twenty-Four: Dr. John is in (name of state) as well?

Dr. John is based in (name of state).

Question Twenty-Five: How'd the two of them get hooked up?

I don't know. I mean I knew the story, but I forgot it.

Question Twenty-Six: OK, so class project is going along.

Yeah, at that point we finished the first semester project, we did well in the course, and started to think that this idea had some traction. The last semester we were at RIT, we had another course which was much more intense. It was the course where you had to pitch your business plan and conduct a presentation. It was taught by professor Tim, and it was a pretty small class, because when most of the people take Entrepreneurship I, they either like it or they hate it, but a lot of them don't have a business plan that they really feel confident in to go to the next course, which requires that you have this business plan already written. So, this is where you seriously go out and try to pitch it. So of 80% of the class, you are left with maybe 10-15 people in groups of two or three or four; groups get much smaller. So, we looked at our group and said, 'Hey guys, we are going to do this class and we are going to really seriously pitch this idea. If you are not into it, if you are not going to do this full time after we graduate then don't even join the class.' So, at that point almost five of the people quit.

Question Twenty-Seven: So there were only two of you?

One of the partners we really wanted to stay with, but he was pretty honest with us. He said, 'I am going back to Russia after this,' so we almost let him join just to have him on the team but we knew he was gonna [sic] leave and we decided not to, because we didn't want to run into any issues with equity and things like that. We didn't want to

start a company and have someone go back and say that they participated and helped to build this company so they could earn something.

Question Twenty-Eight: So, that's when you said you are serious. This is going to be a real venture. So what you realized you needed, at this point, there was two of you who had a loose relationship with the inventor and a cardiologist.

Because the first thing we had to do was to secure some sort of assets. I mean something, and the obvious was IP, we had no money and so we needed to get some sort of contractual arrangement with the intellectual property, to try to own that, so we started negotiating some. You know, we had no leverage – we were students, but we had an attorney, Kurt, who was also a part time professor at RIT teaching entrepreneurship in law, which is a great class, we learnt a lot of practical knowledge about how one relates to early stage ventures. Gary was the Teaching Assistant – he was the Teaching Assistant for more professors at RIT...

Question Twenty-Nine: The networker?

Exactly, so he was a Teaching Assistant and he had a pretty good relationship with Kurt. So Gary said, 'Why don't we ask Kurt to help us out. He could be our attorney, but we don't have any money to pay him.' So we asked him, 'We don't have any money to pay you, but would you be our attorney and represent us in this negotiation we're doing?' and he said, 'Yeah I'll do it.' So Kurt came in and Archie as an advisor, and the two of us, and the two, you know, the doctor and the inventor – we were kind of like this inseparable team. At the other end of the conference call, we had no clue, they were guarded about telling us about their relationship, their history, their relationship, because they might have just met each other in the street yesterday or they could've been

friends for ten years, they didn't really tell us that. So, it was very hard to negotiate with them. Throughout the entire second semester, you know, while we were doing our classes and sort of building this business plan and everything, all our free time we were negotiating with these two guys.

Question Thirty: So Kurt and Archie, did they just do this as professors or they wanted a piece of the...?

Yeah, well, eventually, it was discussed within the four of us. It was, yeah, we decided it was fair to give them equity in the company, to each of these guys a small percentage.

Question Thirty-One: Was this just a hand shake deal or...?

Well, until we got paperwork written, yeah, we spent the entire second semester negotiating with these guys and finally we got a deal and finished the thing. We started with a company incorporated, and said basically, 'You guys will get this much equity. You own the patents, if you meet these goals that we laid out'...what goals we had to accomplish and what we'd own if we did each of those things and the ultimate goal is we will own the equity and the patent, outright.

So we set that up and that was all negotiated by Kurt and we pretty much had to thank him for a lot of basically being there, just because we would never get this stuff without him. He did it for free – of course he's got some equity in the company – but no cash. So we got that done. At the same time, we were dealing with questions about how strong is your patent. So we spent a lot of time understanding patents, what they mean, what they really protect and don't protect. The other thing was we just wanted to be honest with people regarding these patents.

Question Thirty-Two: So that was negotiated with the inventors? I assumed that Kurt was patching a lot of patent law or you did this on your own or...

Well, I had my patent experience from before, when I filed for a patent. Kurt, yeah Kurt helped, he had another attorney he brought in to teach the course at the time, he was a patent attorney.

Question Thirty-Three: You remember who that was?

Andy (last name).

Question Thirty-Four: Andy pitched in and helped as well?

A little bit, here and there, but, you know Jim Emerson knew something about patents as well; he had applied for patents before. I'm trying to think what else we recognized that we needed at that point. I think we needed, we just wanted to get as much experience on the team as possible.

Question Thirty-Five: Tell me about, you know, getting experience, what sort of experience did you need?

Well, we recognized early on the fact we both look young and we wanted to be taken seriously, so we wanted as much gray hair, as you'd say, as possible. So, technically we needed a technical advisor, so through some basic research I found a person, a professor at school that runs an RFID center. He is actually nationally known for his RFID expertise. So, I went and talked to him and he had known Archie previously, to tell him what we were doing. I said, 'Would you be an advisor to the company and, you know, answer questions from time to time? We can email you, call you from time to time, we can use your name and picture on our materials, and say you're officially an advisor to the company.' He looked at me like, 'Alright, I'll do it, but

there is one condition, you can't pay me or give me any equity.' I said, 'OK.' He said, 'As much as I would like to accept payment or equity, my accountant told me that I can't accept anything else from the company.'

Question Thirty-Six: So, why did he do it for you?

Mainly, at first a small part because of his history with Archie and Archie's association with the company. But then, probably a larger part, just his love for technology, the fact that I asked him for help, that's it. Most people if you'd just ask them for help, they help you. So we had Kurt, we had Archie, we had ourselves, and, I'm trying to think at that point...

Question Thirty-Seven: Tim stands out?

Yeah, he stayed involved, always sort of unofficially, we never put him...

Question Thirty-Eight: Archie was official and Tim wasn't?

Yeah, for no other reason than we didn't want it seem too much like an academic project. So, we wanted to limit it to one professor, but Tim's always helped, probably just as much as Archie, so at that point, we started looking at, should we have another advisor? Should we maybe get an engineer on board? But we really, I mean, we really didn't have anything to offer anybody at that point. So, the next thing we really needed was money. We figured we had a financial advisor, a technical advisor, we had a legal advisor, we had ourselves – our skills are pretty complementary in marketing and engineering. So at that point we had a lot covered, we had the inventor and we had the surgical advisor, so we put a name and picture on stuff and say he's a practicing heart surgeon. We had seven people, and we had no money, so we did recruit this informal

group of seven people, at that point, it was time, to get some funds, otherwise, it just would be exercising and how many people can we get to agree that we have a good idea.

Question Thirty-Nine: So, how did you find cash?

We met with a lot of people through business school. In terms of investors, we met with (name of investor). We met, I think we probably met somebody from (name of location), although not 100% – he was, I don't know what his position is called, but he is kind of the guy who goes out and scouts for companies. We met Mike (last name), and that one was not directly through school, but we knew that there is this group out there called Life Science Greenhouse. We had no clue if they would fund us or anything, we just kind of requested that we meet with somebody there and I think Archie or somebody told us, 'Oh yeah Mike, he is a good guy, he's been an executive – go ahead and schedule a meeting with him.' So, we called him and we met him.

So, awhile before we graduated we had met with three business and economic people. We also met some venture people. They bring in people to evaluate the business plans for presentations in the class, so they have sort of like a VC day, where you pitch your idea to the class and to professors for so long and they bring the VCs to really torture you. So we met the people through that and they were pretty nice, and said, 'Anytime you want to practice this pitch again, just give us a call.' So we knew some people and it seemed like a first obvious choice was to meet with (name of investors), they were early funders, they are usually the first to fund companies, so we spend a good time with (name of investor). We told him, '(Name), we are graduating in May and we are serious about this company. We really wanna [sic] do this and you know, how do we apply?' He says, 'OK,' so he helps us through the application process and I think just,

you know he spent a good time with us, we probably met him once a week or so for a couple of months, so he really got to know what we were doing; he really got to know what we know, what we didn't know, and he got to know some of the other players and about the partners. He was pretty comfortable with the company by the time we put the application in and he pretty much assured us – unless something crazy happens, it seems like you are gonna [sic] get the funding

Question Forty: Was that your first money source?

Actually no, I should go back. When we entered during that class, the presentation class, we entered a couple business plan competitions, so we entered the Rice Business Competition, which I think is the biggest competition in the country in terms of number of entrances and all of that. We won that one, we won first place there, so we ended up getting I think like 17 thousand dollars or something for that, and winning that competition got us the ticket. They also claim to be the biggest, but I think this corporation is sort of the most famous, you know there is like a documentary made about it, it's a pretty good deal. Rice is just bigger because the number of people who apply or something like that; they are probably the two biggest competitions in the country if not the world, and in the competition we ended up coming in second, we actually lost to another RIT team. It was the first time in the history of the competition.

Question Forty-One: A one-two punch!

Yeah, I think they changed the rules after that so it could not happen again. So we ended up getting some traction there and gaining a lot of respect actually when we came back home, specially anybody who had been to RIT business school or anybody in the Corp Competition. You know, a lot of people just knew that name and kind of respect the

fact and say, 'Hey you guys, we had a couple of articles in papers about us.' So, we just, you know, gained a lot of respect and credibility, because of those two things, that really helped. So, then at that point, our application to Idea Foundering seemed to have a little more certainty. So, we put the application in. They decided to co-fund us with Life Science Greenhouse, because (name of investors) had never invested in a company that required 510K approval before, or FDA approval, so they were a little bit concerned that the 100 thousand dollars they would give us would be enough to get started, so they said, they've done it with one of the companies before.

Question Forty-Two: So, you were with Life Science Greenhouse and (name of investor)?

Yeah, they decided they wanted to co-fund us, which meant that we needed documents and everything, but they just wanted to both put 100 thousand dollars each, so we had enough money to get us started properly. It sounded as a great idea at the time, but getting two economic development groups to organize and file the same documents is very difficult. It just turned into, not a mess, but it took six months; for me, we weren't graduating until October, we were just kind of waiting every day. It was like, 'Yeah we are almost done with the paperwork; it'll be done soon and so we just work for free six months, waiting for funding.'

Question Forty-Three: It was just really the two of you working on this for six months?

Yeah, we started off right after graduation. We just started using the extra room in RIT, the study room, and they left us there for the summer. So, then after the summer was winding down, and they were like, 'Guys, you are still here? Maybe it's time to move

out.’ So, at that point we didn’t know where to go, because we didn’t have money for an office. So, Kurt called us and said, ‘Guys, I know you are looking for a place; we have extra space in Dow Town Center. On the seventieth floor, we have five floors, but we only use four and a half, so we have all these extra offices. Why you don’t come, move in here, and don’t worry about rent: it’s free.’ So, we went there for about six or seven months. We finally got funded for 200 thousand dollars. By that point, actually we’ve gone so long, for six months we were just waiting – what do you do? We couldn’t buy supplies, we couldn’t hire people, so at that point we said, ‘Maybe we should just apply for (local start-up grant) too, while we are waiting.’

So we apply to (local start-up grant) as well, and they approved us. At that point, we were pretty over stage for (local startup grant,) but I think, maybe there was some pressure there for them to start making early funding. They also saw that Life Science Greenhouse and (name of investor) were going in on it, so maybe they didn’t want to be left out. I don’t know the reasons, but they said they would do it, so that was probably ready in, like August or September. Then we said, ‘We have three groups now going at the same time – these two already agreed to use the same documents, the third one isn’t.’ So then we had to, basically hold everything up to make sure, to go back and make them all use the same documents. This took another month and a half, so all the time, we were thinking, ‘It was Kurt’s idea, it turned out to be a great idea, but you know, works like Kurt, we already started and now you are gonna [sic] hold things up for an extra month and a half until we finished the documents?’ But it turned out to be the right thing to do, so we waited six months, got the funding – about 300 thousand dollars – and just started going.

Question Forty-Four: So, you have three hundred K. How did you build the team?

Well, the first thing we realized we needed was an engineer. Nobody, I mean, once I got an MBA, it kind of killed my credibility of being an engineer. I wasn't gonna [sic] build the device myself so we started looking, asking around.

Question Forty-Five: Asking around...who did you ask?

At that point, we would ask people. I asked people from Cardiac Devices, we would ask Mike (last name), and Archie (last name), and people from IW, you know. We asked each person to kind of explore their personal networks, and see if there were any engineers that they knew. So, at that point, because we had the economic development group, we now have ten or eleven people that we can turn to.

Question Forty-Six: Ten, eleven engineers or ten or eleven contacts?

Ten, eleven contacts, you know, so our team was originally seven, now. So the IW guys, you guys don't consider them part of the team?

Pretty much, that's what they are there for. So, we would call the people, and say, 'Hey look, this is (name) Engineering looking for (name of individual). By the way, they have to move to or live in Buffalo and join a start-up company that has, very clearly they can look in the newspaper and see that we have 300 thousand dollars, that's it, there is no other money anywhere else. Somebody who wants to join that kind of environment, not know if they have a job next week, then let's meet them, so there weren't too many of those, and I think we ended up with this random résumé I found in, I think the Buffalo Business Council Resume Books: an engineer who had kind of diverse experience doing artery stuff; he worked, probably in North Carolina, but his résumé was in the system for some reason. He had the right level of experience. He also seemed like he wasn't the kind

of guy that was gonna [sic] – he knew what he was doing – but he wasn't the kind of guy who was gonna [sic] be awfully demanding. So, I don't know, I just kind of guessed and introduced this project to him. So, I sent him an email and said, 'Hey look, this is what we are doing; are you interested in joining a company?' He emailed me back and said, 'Yeah, that is something that I might be interested in,' so he made a trip from North Carolina to Pittsburgh to be interviewed. We talked a few more times on the phone and it turned out he had family in Pittsburgh and he was actually looking to move back here, so that was our first appointment with Darren.

So, at that point, we were kind of: 'Great, I can't believe this guy actually decided to join our company.' So he moved, he came in, and started working with us while we were in Dow Town Center. He kind of looked around, and he is was like, 'Are you guys kidding – are you going to do engineering in this place – I mean this is a corporate office building!' So, he did what he could. Even though we had an engineer to do the day-to-day work, it was affordable, we could actually hire, afford to hire, we still didn't have a...

Question Forty-Seven: Let me back up just one second. You told me you looked through his résumé; he seemed like the right guy, he'd work for the conditions that you were offering. How did you make the decision, you know, this was the kind of person you really wanted in your team?

Well, I mean, I got a really good sense, obviously, the résumé got me interested, and then I talked to him. I got a really good sense over the phone of this guy – I thought his personality will fit well with us. He was somebody who is smart, but also sort of laid back and was very flexible in terms of working conditions. You know, we've never missed the payroll but say we did, I think he would be understanding of that.

Question Forty-Eight: Did you make the decision or was Gary involved or any of the other team members?

It's primarily my decision here.

Question Forty-Nine: So Gary deferred technical expertise to you?

Yeah, I mean, I made sure that Gary met him and got along, personally, with him. Even now, if Gary hires somebody, he makes sure that I meet them and get along with them, because we are gonna [sic] be interacting a lot, with whoever we hire.

Question Fifty: I've never asked who is CEO?

I am.

Question Fifty-One: You are CEO, and Gary is president?

VP of marketing and clinical affairs, and that's actually, my title is gonna [sic] change fairly soon too.

Question Fifty-Two: What is on the paper?

Yeah, about that. We can talk about that whenever we get into it, but not right now. So he came here and actually, Darren came here, I met him in person, we were talking to, it's just kind of funny.

Question Fifty-Three: I will offer you the option of either citing this directly, or I can disguise the company, so nobody knows who you are. Obviously (name) is involved, so I am not going to do anything that compromises you guys, but anything that's gonna [sic] get published you guys get to sign off on.

Oh right. You asked me to be brutally honest with you guys – I don't know interviewing techniques. I was talking to our attorney Kurt that day, before Darren was coming into town. I said, 'Hey Kurt, you are very good with people and reading people

and this is a really important hire for us. We only get one chance to mess this up, what would you recommend we do?’ Kurt said to use any questions, any interview techniques, and he said, ‘You take him to a nice restaurant and order a couple of bottles of wine and get him drunk.’ He says, ‘You will see this person’s true character come out and it’s a better indicator than anything else I can tell you to do.’

Question Fifty-Four: Did you do it? Did it work?

Yeah, it’s really bad to say that I guess... Yeah, that’s not the only thing, he was a nice guy to be around, he was very honest. This thing, the device we’re building, is so unique. It’s more than just understanding marketing requirements and understanding what the hospitals want. Building that isn’t necessarily building some breakthrough new technology. There are some really some very difficult technical things and Darren has the experience to find people or just to do research and figure things out. But for the most part it’s basically just putting all the pieces together, understanding the big picture we are building and managing five different tasks. It’s more of a project management than technically building a lot of things, so I think he can manage that pressure. He can manage that and the technical stuff, he does know it pretty well – and if he doesn’t know he can sort it out.

Question Fifty-Five: Let me ask you – let’s say this is a corporate budget you are working on for Johnson and Johnson and you need to get an engineer. Would you use the same process? Would you hire the same person?

No. I wouldn’t hire the same person, because I don’t know if Darren would really fit in that environment. I don’t think he’d fit because of the environment, but as far as the process...

Question Fifty-Six: Let's say you have 10 million in the bank – what you would have done?

Depending on the timeline, I mean, I think, if you really, we took a fairly big risk in hiring him, without exploring the options a little more. But it was that or either spending another four months or hiring a search firm, throwing out a lot of resources there, spending 30 thousand dollars. So if I had all the resources of the world and I was really on a really fast schedule, I would hire a search firm to do it and just get it done, but I think, you know, also if there wasn't such a time pressure, I might have evaluated more options for another four months or five months, and then made a decision.

Question Fifty-Seven: So Darren was the first person you came across who fit your general needs?

Well, we interviewed a couple other people and we actually hired a couple other people, either at the same time as Darren or shortly after Darren and they didn't last.

Question Fifty-Eight: Also engineers? How many?

Yes, two.

Question Fifty-Nine: Were they hired basically into the same position, same role?

A more technical role, but I still wanted to fill Darren's position and knew that was Darren's position, before he joined I knew I still had an opening there. After he joined, I knew he was gonna [sic] be there, but we still needed two more technical people to complement him.

Question Sixty: So how did Darren work and these other techies not work?

Just his ability to take an ambiguous direction and to do something with that.

Question Sixty-One: So he just wanted to execute the project and you wanted him to think outside the box, that's you are saying?

Yeah, and the other guys needed to know, 'OK, what are the three tasks I need to do today? OK, here I did it, what do I do next,' and I didn't want to have to think about that.

Question Sixty-Two: So they needed a structured environment, whereas Darren is somebody who could exist in this start-up universe?

Yeah, Darren felt ownership of the project, of the idea; he knows where it is going, and in his head he can work off of that.

Question Sixty-Three: How were you incentivising these engineers? Was it straight salary?

Yeah, salary with equity after a certain period of time. The agreements were so written so that after six months the equity starts to kick in, so we have that six-month period which we can add things and not have...

Question Sixty-Four: So Darren made it past the six months, the other two didn't?

Yeah.

Question Sixty-Five: So now that we are building the technical stuff, what else do you need to add to your team?

We still actually, it took us two years to fill that technical engineering position. Darren has good technical experience, but he doesn't have really acute RFID experience and that's what we wanted that for a couple of reasons. The timing wasn't so critical for a couple of reasons: one is we can outsource that, so we can find new projects.

Question Sixty-Six: Did you outsource?

Yeah. So, some of the stuff was too much for us, so we would have somebody else do it. We would just buy expensive components off the shelf that did what we wanted to do, but they also did a lot more, and we just needed somebody to engineer specifically what we needed. So, we could buy off the shelf, we could hire people as consultants and ah, the other, it's more of a need and requirement to have that technical person analysis for the future products that we're doing. The one we're doing right now is not technically that advanced.

Question Sixty-Seven: Would you consider any of those outsourcing or purchasing agreements, would you consider these companies partners?

I'd say that the one company that has been our partner has been (name of partner). They're based out of Cleveland and (name) has been basically one guy, it's (name). He is a very good engineer and he also has networks to any kind of engineering discipline I can think of. We had a software guy, he did all of our software, he has a CAD, a mechanical engineering guy, but we are going to use (name) for the next version.

Question Sixty-Eight: How did you get set up with (name)?

A referral from, I think it was Mike. We had used them before, but we interviewed a couple of firms to do this, and went with (name of firm). (Name) is great, you know, basically anything we need I can call and talk to him.

Question Sixty-Nine: So, in these two years, what has been happening on the business side?

Well, we pretty quickly went through the 300 thousand dollars and we realized that the economic development groups, while they're great for seed funding, they can't help you to meet your payroll, because they are basically on a different schedule, which

is their own schedule. So we really needed to get, you know, some cash in the bank. We looked at different options for financing but we kind of settled on convertible debt, which is the same as, the same form of investment that we got through the economic development groups. So we went out a year ago, we decided to go out and to raise money, but at that point we had 300 thousand from the economic development groups. I'm trying to think of any other companies that we used.

Question Seventy: Did you do round two or three with IW?

We did round two, but I'm trying to think about if was before or after. Anyway, we had somewhere between 300 and 400 thousand dollars, and we realized that was gonna [sic] run out too quickly. So last summer we decided we're gonna go out, we would try to raise a private angels round, so we put together a list of target investors that we were gonna [sic] talk to.

We got that list at a board meeting. Then we all sat down and said, 'OK, put your heads together. Everybody in this room is responsible for coming up with a short list of people that we talk to.' At that point it was Gary, myself, Dr. John, three representatives from the economic development groups, and Kurt. There were eight of us. Between the eight of us, we should be able to come up with, you know, 20-25 people that we can go present this to. So we did, we came up with that list.

Every week on Friday we had to phone call through the list, and Gary was really the person who took the lead in this department, so he managed that list and he made a lot of the contacts himself personally. He traveled to meet with these people a lot more than I did. So, we each met with the people, we kind of narrowed it down every week on the phone call, and we would say, 'OK, here's John Doe, who is responsible for talking to

him? OK, did you talk to them? What happened? What was the outcome? Are they in or are they out? Are they OK with the deal in terms?’ And we kept doing this, and I think it took us six weeks, from the time we started to the time we closed, we closed 325 thousand dollars.

Question Seventy-One: One angel?

No, eight.

Question Seventy-Two: Eight angels. Were they all individual contacts or was this just one network?

One of them was a friend of mine. One or two were people that Archie knew. Maybe one or two were people that the inventor knew. One or two were people that Dr. John knew, and two of them were judges from the Rice Business Plan competition. So, it’s kind of a collection, and they are all over the country. I think only one person is from Buffalo.

Question Seventy-Three: Did any of them give you more than money?

I’d say out of eight, probably three of them offered some real good advice.

Question Seventy-Four: Such as?

Yeah, most of them were focused on – they didn’t really question the technical aspects – they gave us advice mostly in sales and marketing areas. To the investors, that’s been probably the most, they perceive it as the biggest hurdle for the company, not the technical side, just high end sales.

Question Seventy-Five: OK, when you look at hiring a new employee now, who do you consult?

I think it would depend what type is at play. So if it's an engineer, Darren and I sit down and talk about what we need over the next couple of years and what kind of person will fit that profile. Then I go out and find résumés, and I consult, in terms just of looking for contacts, I still call the economic development group, because they are pretty tied-in in Buffalo. I talk to them, talk to Dr. Marty, get names, get résumés, get any recommendations that would come along with them. Then, we bring the person in, interview him, and it's basically my decision at that point. I give Gary the courtesy of meeting the person, and make sure that...

Question Seventy-Six: Give him a veto kind of?

Yeah.

Question Seventy-Seven: Have you ever hired anybody over Gary's wishes? Has he ever said, 'Don't hire someone' and you've done it anyway?

No, no, like I said, going back to the fact that we both have similar values and things like that. We both kind of value the same characteristics in people. Regardless, I mean, I wouldn't comment on somebody, maybe I would, but I wouldn't comment as much, on somebody's sales abilities. I believe that for him too – he wouldn't comment on somebody's engineering talents, but if there's basic character flaws, or a personality that is not gonna match – we almost always agree on that. We can meet people beforehand, and we both, like after the meeting, we'd be like, 'That was terrible.'

Question Seventy-Eight: As important as money is, you haven't mentioned the CFO.

Yeah, we kind of did...the person I mentioned – we gave him the offer to join the project temporarily while we were at school, even though he was going back to Russia.

He was going to be our CFO, he has a very good feel for finances and financial projections, and things like that. Yeah, I guess, I've just kind of done that by default, just managed all that and the projections and, you know.

Question Seventy-Nine: So, who filed tax returns the last couple of years?

We have a tax accountant. So we have an accountant and a tax accountant.

Question Eighty: Are they employees? Or are they just outsourced?

We just pay for services. The accountant is actually my sister. She is a CPA, she's been doing business for a while. She understands what's going on – she is pretty good at it.

Question Eighty-One: Is she a partner or just kind of a house cleaner here? Is she considered part of the team?

No, I don't really consider her a part of the team, because I want her to be yelling at us to do things properly. You know, she is not that close to the company, she hardly ever comes in.

Question Eighty-Two: Do you compensate her?

Yeah, she has a monthly retainer. No equity or something, just a monthly retainer. We just figured out what was fair after we asked around other people what they pay for that and we paid her the averaged weight of the estimates. She was fine with it. Actually, just this month, for a couple of days we switched to using a company called Book Miners, just because our activity was exceeding her ability to help us. She has owned her business for the past 4-5 years. She's been a stay-at-home mom, and now her kids are getting older and getting into sports and stuff. So, she hasn't a lot of time, and we have more stuff going on. She was really excellent.

Question Eighty-Three: So your sister handles payroll, and that kind of stuff?

Yeah, all that: payroll, entering expenses, writing checks, and all that.

Question Eighty-Four: So I don't have to ask you how you met your accountant?

No (laughter). The tax accountant, he used to do her taxes for her previously.

Question Eighty-Five: So, your sister's contact. How are you involved with the marketing side?

A good bit, I sit in on meetings. Gary and I, we meet, we have strategy meetings every week where we talk about where things are going, where our goals are. So, we are both involved in marketing.

Question Eighty-Six: I'll ask Gary, but how do you handle hiring decisions on that side of the business, you personally?

On the marketing side?

Question Eighty-Seven: Or, are you just given veto power over what Gary says you need?

Yeah, I think he gives me veto power the same way I do, and he always makes sure I meet the person and am comfortable with him.

Question Eighty-Eight: But Gary does the recruiting, and...

Yeah, if we, you know, he'll pass résumés to me and you know, the engineer we are hiring actually, I handled the relationship for the most part, but the contact came through Gary. Ah, and, the other secret we've learned about hiring is craigslist.

Question Eighty-Nine: Craigslist, that's neat

It actually works tremendously well. That's how we hired Angie and that's how we hired another consultant.

Question Ninety: Angie is the head of your clinical trials?

Yeah, actually that's kind of a funny story. We put out an ad for an office manager on the web, and we got a couple of responses, nothing too great, nothing too impressive, and then we got Angie's résumé. She was an undergraduate Cornell student, she is heading for masters – anyway, she is way overqualified for this job. So, Gary said, 'We are gonna [sic] hire you, but I really don't think you are gonna [sic] be an office manager. You can do that too in your spare time, but I want you to help us with clinical trials.' She runs clinical trials for us, so it was kind of unintended

Question Ninety-One: She just kind of fell in your lap?

Yeah, so things like that, I got Angie, but the ultimate decision was...

Question Ninety-Two: Then you're making a major hiring, hiring your own boss... basically, tell me about that.

Yeah, that was obviously a much different kind of decision, because all these other decisions are reversible; this one isn't.

Question Ninety-Three: What made you decide that you needed somebody more experienced or whatever? What you are gonna [sic] do is give up this control – most people would say, 'My dream is to run a business.'

My dream is to be part of growing a successful business. From the beginning I always said that I'll do whatever it takes to make it more successful tomorrow than it is today. At some point I realize that is gonna [sic] mean bringing somebody to run the company. I've always said that from the beginning, you know at the last minute everybody has doubts that it is the right thing to do, but we have to stick with what you said originally, which is 'this will be a good thing for the company when the time comes.'

The timing and who the person is, it's a big decision, but the fact, the basic principle of 'bring someone in to replace me,' that wasn't a hard decision, because I always knew that's what I wanted to do.

Question Ninety-Four: Take me through the process. Did you know for two years this day was gonna come, or you know, two months ago did you wake up and say it's time?

I mean, for two years I knew that we were going to find somebody – we were going to find a new CEO. That was kind of a basic fact that I knew.

Question Ninety-Five: So, you knew way back.

It would be, I don't know, from my perspective, I want this company to be a huge success. I am just being honest, and looking at the caliber of investors and the caliber of business partnerships and relationships we want to have... I think that it's much, much more likely to get all that stuff done with somebody more experienced as CEO. I mean, as an investor in this company that's what I wanna [sic] see, so I have to think of it.

Question Ninety-Six: So are you thinking about investors?

Yeah, I mean I own part of this company, and so, as a shareholder that's what I want. So, at some point you have to switch perspectives from a CEO employee to a pretty substantial shareholder of the company and what is the best for the value of my shares, so that's basically the point of the decision to do it .

Question Ninety-Seven: How did you settle on the individual?

We have met Dan quite a few times through the Greenhouse and he started to gain more interest, started to come to board meetings. In just talking to him, he seems like a very nice guy. He seemed like he had done a very, very good job at the Greenhouse.

Operationally, we knew that we had a lot of stuff on our plate and we talked openly about that in board meetings – the fact that we are going for FDA approval, that we are trying to close the bridge around to financing with our initial investors, the fact that we were quickly approaching a VC round. So we've had two consecutive investment rounds, FDA approval, a second version of the product has to be designed and built, and we've just started looking at all of this and saying, 'Holy crap, how are we going to do all this stuff and who is gonna help us get it done?' So a couple of options would be continuing hiring people underneath me and at that point I would be on the road pretty much every day for the next five months, trying to raise money. Or I can stay here and do these things and build the product and do the things I want to do and hire somebody above me to be the one leading the company, so the second option made a lot more sense.

Question Ninety-Eight: So what about Dan's background made him sort of attractive to you?

The fact that he, once again, I think the first thing is always how someone's personality fits. I think his personality fits perfectly with Gary, and both he and I have an engineering background – he understands technical things but at the same time his primary function is to run the business as a business and not necessarily get in our way in terms of details of how things get done. So, he can sit here and converse with us about, you know, how we need to build this product.

Then this is a product strategy we are gonna [sic] hold up these products in this order and in the sales and marketing side we are gonna [sic] do this and this. But you know when that meeting is over, Gary and I can still go out to do these things the way we need to get them done. He is not gonna be in our face about, you know, the details of how

we functionally get our jobs done. He's here to help us and we've had many conversations and that's kind of been the way it was from the beginning. He wants to have strategy and financing and company and he has proven he can run very large organizations before, but at the same time he is very respectful for what we've built and accomplished here and he's not gonna [sic] try to step on our feet. So the fact that he presented himself that way was very good – the fact he's been successful running a company before, he is very operationally adaptive at what he does. Day-to-day, he is not the kind of guy that just kind of dances off, gives you orders and then goes away, he is the kind of guy that is gonna [sic] be here everyday to make sure the stuff is done.

Question Ninety-Nine: In making this decision, you know, you have many advisors you've talked about and obviously you have a partner, but who else has put input into this hire?

I mean, technically it is a board decision, anytime a CEO is hired or fired or replaced, it's completely a board decision. So you know, I think in some companies you probably would come into work one day and there would be a new guy sitting in my desk and the board will send me a message, 'Oh by the way...' This is completely different, this was, we had expressed to the board, you know, 'Hey guys, if you know of any candidates who would want this position, let's keep our eyes open, because Gary and I, this is our plan, we want to transition into a CEO.'

So they knew that we were looking and they knew Dan, so the opportunity came and one of our board members approached us and said, 'Hey Dan actually might have an opportunity to leave the Greenhouse. Would you guys be interested in meeting him in that respect, getting comfortable with him, and interviewing him and telling us what you

think?’ So it was more about, ultimately it was a board decision. That means that’s technically who hires him, but it was more the board came to us and said, ‘Hey, can you guys give us your evaluation and tells us what you think?’ So it was kind of a little bit different than I guess would have happened in a bigger company.

Question One Hundred: Did you consider other people – did you interview other people or was this the first candidate and he was a great fit?

I mean over the past couple of years we’ve talked to people and we’ve never had a formal interview for the position, we’ve more kind of assessed people.

Question One Hundred One: Any serious interest in anybody else?

Yeah, there was serious interest in another person, but he just didn’t fit in here, for his career path.

Question One Hundred Two: So if they would have been amenable you would have gone after that person, but they just didn’t fit what they wanted to do?

Yeah, it was pretty clear this didn’t fit with what they wanted to do, so we didn’t even, we didn’t give them...

Question One Hundred Three: OK, so, going forward, you bring a new CEO in, how are you guys are gonna [sic] raise millions in VC, gonna [sic] be a huge successful company – how you are gonna [sic] stay involved in building the team?

Well, I see my role – my title is changing – but my role isn’t really gonna [sic] change that much. Basically, the title that I probably ended up with is VP of product development. Basically, I want to have a hand in developing the product strategy, what products are gonna [sic] come out, at what times, heading our engineering, so I have a hand in both of those things, and there’s also intellectual property and grants, we’ve got a

government grant from the NIH for 1.1 million dollars that was awarded not that long ago. So, being involved in managing that, the direction of that, my passion is really seeing products go from just an idea to a finished product, so I wanna [sic] continue to get good at that and I think there is plenty of work to do there. I think that my new position will allow me to focus more on that and focus less on having my hand in everything. So, I will be a little less involved in marketing, a little less involved in sales, meetings that I would have sat through for those two things I won't, probably I won't be doing as much of that. Still, I have a hand in overall strategy of the company, but Dan will be more involved in that – it fits more in what I would wanna [sic] do with my career in this stage.

Question One Hundred Four: Would you mind drawing me a little picture.

A picture? OK.

Question One Hundred Five: That's you, at the center of this company. Draw what your team looks like for me...

You just want me to be completely open to this?

Question One Hundred Six: Open. What you consider your team, you know, what, show me how it evolved or what you considered more important, you know how this is, I am just asking, 'Show me your team.' So that's Gary, and next to you...?

Yeah. Is this a trick question? I hate to make a hierarchy in order to show a team but I feel this is what it is gonna [sic] become, because the sense of feeling that we work all together, but there is some structure...

Question One Hundred Seven: If you run out of that sheet of paper, I have a lot of it. That's Dan? Who is XXX?

(Name)

Question One Hundred Eight: OK. MS is?

(Name)

Question One Hundred Nine: Do you get anything valuable out of the interns?

Yeah, I get a lot of work out of the interns. Yeah, I kind of remember my internships and remember what it's like. So I try to get them more responsibilities and treat them as real engineers. So this is all I can think of, right now.

Question One Hundred Ten: That's...?

That's me.

Question One Hundred Eleven: This is...?

Mike...he is in our board too.

Question One Hundred Twelve: This is a wonderful start. What I would like to do with this process is to interview other people you've identified as key team members and then after I've interviewed them have a follow-up session with you, just to tie everything together. The end result is gonna [sic] look like a Harvard case study and again, this is all between you and me until you say it's OK to run with it. Would it be OK if I email people?

Archie – Chairman of the Board – NewCount

Question One: Archie, I have a script that I follow through to stay methodologically on track. If you expand on an answer a lot of times I might get to a question that covers what you've already talked about, so we just work around that. So, to start off, can you tell me about your experience, your professional experience and education?

I have a PhD in engineering physics, I taught at Yale for a few years in engineering. I took an entrepreneurial leave and never came back. I ended up hooking up with a small technology company in San Diego that very quickly became a large company and I was in it as a part of the senior management team that built that company into about a six hundred million dollar operation. Since then it continued to grow to about seven billion dollars, so it is a pretty successful first entrepreneurial experience, which I learned a whole lot about how to build and run companies. Then, I left and got more engaged in the commercialization of technology. I founded an incubator in Boston and from that platform launched four companies as the founding CEO and chairman and got them all funded through angels/venture funding. I successfully developed products in four of them. Then, with a little bit of venture capital, I ran a technology management program at the University of Pittsburgh. So, I've been involved in probably, the formation of another 12 to 15 companies out of that organization. I then joined the faculty at Rochester Institute of Technology and typically get engaged in probably anywhere from two or four companies per year launched, largely technology-based companies, so that's in a nutshell.

Question Two: Did you have a relationship with Sven and Gary prior to the NewCount relationship?

They were my students at RIT, and I got engaged with them when Sven had gone out and found the opportunity that became NewCount through Dr. John, who is a cardio-thoracic surgeon, currently at (name of hospital) Hospital in New York. He previously had been with Johns Hopkins and commercialized technology in partnership with Cardiac Devices, a Buffalo company. Sven was doing his internship there and basically

approached John for a person who might have some ideas that would have commercial potential. So, Sven brought that in to RIT – he and Gary basically made a commitment to work together on an entrepreneurial project and I, among several other people here, began working with them and helping the development of the business plan, what became the business plan for NewCount.

Question Three: What was it about Sven and Gary that made you want be involved with NewCount?

I think a couple of things. I think number one, the opportunity itself seemed to be a compelling one, as we worked through it, it seemed to be an area that really did have a need. The market that they were going after basically, you know, preventing surgical infections and accidents associated with safety, was a major driver in the healthcare system today. I think the solution that they came up with by use of the RFID technology had some real differentiation and attributes as opposed to the current approaches, which were largely barcode-based. I think the problem and the opportunity, the solution that they came up were compelling and then I liked the two of them very much. I thought they worked well together, I thought they complemented each other very well; they both were very passionate about doing this, dedicated, and they listened, so those were the things that kind of compelled me.

Question Four: When you say they listen, what do you mean?

Well, a lot of young entrepreneurs think they know everything and you can't make suggestions to them. In this particular case, when you made a suggestion, they picked up on it and went off and came back and talked to you about it. Basically, they listened to advice, and acted upon it, as opposed to a lot of people that I tried to work

with, who think they know everything, not that I know everything. They fought the advice and that is not a very pleasant situation to be in.

Question Five: What do you think Sven and Gary would tell me if I asked them why you joined them?

I think they would probably say similar things.

Question Six: Why did the other critical team members join the company?

They were certainly the first two people, I think. Well, I define the team as a broad team, not necessarily people on the ground, so I think John and Morton. Those who actually held the patents were two other critical team members and they joined the company I think because of the same reasons that I just stipulated, or specified. They certainly believed there was an opportunity, what they needed to be sold on was if the team they put together could actually take it forward, because Morton had tried unsuccessfully to do it, and he needed to be convinced that the team that we were putting together had the ability to actually move this ball forward down the field. And I think we were able to convince them, that is, me on board, at that time we brought Kurt on board as corporate counsel. And, myself and Kurt, along with Sven and Gary, developed the plan that basically John bought into.

Question Seven: OK. You answered my next question that was going to be, define what team means to you. Who were critical players in your successes? Who wouldn't you've made it without?

In my opinion, all of those people were key. In my opinion we needed, particularly given this team, we needed a surgeon who understood the medical arena. We needed Morton and his wife, who also understood this problem better than anybody,

because his wife is a nurse. The two of them were the inventors of the technology. We needed Kurt because of, basically crafting the agreement that ended up allowing all of this to occur. Just speaking from my perspective, they needed me, or someone like me, who had been through this process before, and understood how you build teams. So, we needed all of them, and also what we needed was the ability to connect this group in the early stage funding sources, which required the credibility of the people on the team, largely myself and Kurt.

Question Eight: Sure. Have you sought outside expertise or resources to help this venture?

In what sense?

Question Nine: When you were defining your broader team, had you gone outside of that team?

Yes, we early on engaged Dr. Marty (last name), at the university, for his counsel and expertise. He was a very key consultant to help the company move forward, retention of patent counsel that was very important. We engaged (a lawyer). I can't remember the firm right now...

We got some early validation and help, particularly, from, well everybody was helpful, but (name) in general was incredibly helpful in working with them to develop a plan and moving forward. So, adding "Incubator Financing" as a partner was key. And in the next stage was actually raising some money, other than economic development money, and that largely came through the connections of the people. I personally introduced them to, I think we did an \$800,000 round and about \$400,000 or so that came from my contacts.

Question Eleven: OK, have the outside individuals continued to be helpful as the venture's moved forward?

Yes.

Question Twelve: Have there been any individuals that were involved early on in the venture with whom you've lost contact?

I think that everybody that's been engaged in the company is still engaged.

Question Thirteen: Were any critical team members added during a critical phase in the organization's development?

Well, I think that is actually in process. I think the addition of Darren, I can never say his name right, was key in having an on-the-ground engineering person. There is another key RFID expert coming on board right now, out of Boston. At this point, as you know, we are adding Dan as a new CEO. And largely, the company, I think, is at an inflection point where there are so many things going that there's just needing to be more managerial bandwidth to handle it. The company is gearing up to get FDA approval, to externalize their product, to get its patent secure, to raise institutional money. That is too much for just two people.

Question Fourteen: Were additions to the team made under duress, or was their need anticipated?

That need was anticipated. This is an area that I am adamant in counseling young entrepreneurs to be aware of: the fact that they may or may not carry their companies all the way through the life cycle. And that there may come a time in the future when new people need to be added, and that was something that was well understood, certainly by Sven.

Question Fifteen: Were you consulted when new team members have been added?

Yes, in all cases.

Question Sixteen: Were any additions to the team dictated by you?

I think that the changing of the CEO position could be considered as an executive board decision; however, it was fully supported by Sven. So I wouldn't use the term dictated, I would say that that was a mutual decision that was openly discussed.

Question Seventeen: Next question. A lot of times I would expect the venture capitalist will stir somebody to come.

Sometimes the venture capitalists make that determination. I think that in this case the board, largely Mike and myself, for...the need for a little bit of more gray hair. And basically, they were, with Sven and Gary, and others and Morton, and John who made sure this was done smoothly.

Question Eighteen: Yes, I had a really good interview with Mike.

I didn't mention this. One of the things that we did is, we added Mike to the team, through his Greenhouse role. He then left the Greenhouse, and we, meaning myself and Sven, felt very strongly that we needed to change the composition of our board, and that what we needed was, I mean, early on the board consisted of Morton and myself, and that was done mainly from the point of view that we needed to get this thing off the ground without having a lot of different parties involved. Once we got it to where we did, it was clear that we needed to add a third party. And, Mike, once he left the Greenhouse, he was making a lot of contributions to the company, understood the space, had a good background, was a logical candidate, and everybody agreed, not only the internal people,

but the angel investors in command. All felt confidence in adding Mike to the board, so we did that.

Question Nineteen: Did Sven, Gary have a part on the board discussions?

Yeah, they had participated on all the board discussions. Even though, early on, they were not on the board, we did add Sven to the board as CEO. That was a discussion that required some discussion, because Gary, at that point, as founder, was not going to go into the board. The rationale there was we didn't want to have a large board, and most boards are moving in the direction of having mainly outside people as opposed to inside people. So that was the discussion.

Question Twenty: Now, Sven may stay in the board as long as he is CEO?

It's a good question. We haven't discussed that yet.

Mike – NewCount Board Member

Question One: Back to looking at teams, back to looking at start-ups.

Specifically teams or in the start-up environment?

Question Two: Really it's going to come down to how does experience affects building teams.

So, if you are an inexperienced entrepreneur, you are going to trip a lot more times, you know, make a lot of the wrong hires, have to build a bigger team because you are not sure what you need, so you end up giving away a piece of the company. So, some of the future research will be what's the cost of this inexperience, so you can look and say how much more the company, how much these entrepreneurs have to give up, how much more venture capitalists take in the process.

How many companies are you studying?

Question Three: Four for this study.

Have you talked to Sven and Archie?

Question Four: Archie is in the committee, so I had to balance how Archie is part of the equation – I talked to him as somebody that is involved with the company.

So you did have the chance to talk to Sven about the company?

Question Five: Yeah, I have. I still have to talk to Gary – he's been traveling. I talked to a fair number of the people involved.

Question Six: I have a script to follow. Tell me about your background, your professional experience, your education, entrepreneurial experience.

I am a finance and accounting guy by training, a CPA. I started out after undergraduate school with Earnst and Young, spent eight years there, got my MBA, left there to go to (name of company). I was the first business person in to basically what was then a start-up, with revenues but basically no cash, and only one customer. [There were] no business people, [but] they were a group of manufacturing and technical people. I was there for 15 years [and] I grew them from a couple of hundred thousand in sales to about 400 million when I left.

So, after that, I took some time off to think through what I wanted to do. I discovered that the hole in my résumé was that basically I had no venture capital experience, no experience with those type of firms, so I joined a company and raised 25 million in venture money, a company called (name of company), which we then sold to a puppet company. Then, I decided to change the world a little bit, pay back to society, and joined The Greenhouse for two years. I just left there in February to start up my own

firm, which is a consulting firm specializing in mergers and acquisitions – financial advisors basically. I've been around for a while.

Question Seven: Did you have a relationship with Sven prior to this venture?

No, actually my involvement with NewCount came through the economic development arm of The Greenhouse. He was assigned to me – I was basically working on a medical device and was a so-called expert in the Greenhouse, so a lot of the device companies were assigned to me. I immediately liked Sven from the standpoint of his obvious enthusiasm and talent and his motivation to stay with the company. So, my involvement was primarily as a Greenhouse consultant, and then when I left The Greenhouse, they asked me to be on their board.

Question Eight: Was Sven critical to you joining?

Yes, as would any CEO. If Sven was not there, I would not be on the board.

Question Nine: What was it about Sven that lured you on?

My bias is, in a lot of these early stage companies, the CEO needs to be the point person for three critical areas: technical, project building, financing, and fundraising on the team building side and also the customer interface person. And even though Sven was a relatively young guy, his experience at Cardiac Devices was, I thought, valuable, and he appeared to have the talent to do a very good job in all three of those verticals. My bias after being at (name of company) was for a strong technical personal who can also talk to the customer and be articulate, was a rare find. That's why I think Sven has a very, very high chance of success.

Question Ten: What would your other team members tell me as to why you joined?

Probably it will be consistent with that story. I have, because of my background here as an ex-President and CEO at (name of company), which is the biggest device company in the region, I had the opportunity to join numerous boards, and I turned down a lot of them. So, I think most of the people who know me well would say, you know, if he's hooked up with NewCount then he really likes the opportunity and he really respects the CEO.

Question Eleven: Why do you think other critical team members have joined?

I think for maybe two factors. Everybody has their own issues. In this case there is a certain increasing positive with joining a start-up. Maybe it's RIT-specific, maybe it's RIT business school graduate specific. There seems to be, you know, a real risk orientation towards some of the graduates to: 'Let's go to the start-up route as opposed to McKinsey.' So I think it was that factor, and I think the other thing was that there is a problem being solved here, that's pretty clear – it's a pretty profound one. Also, I've seen this numerous times, and one of the reasons why I would not have joined a lot of boards I was asked to join, is that someone has an answer to a problem that doesn't exist. In this case the problem is pretty clear.

Question Twelve: What did Sven and Gary consult you about?

I considered myself to be a very broad general manager, so I can say that they probably talked to me about any number of things, including company financing, personnel issues as they attempted to build their teams, FDA approval issues, the appropriate subcontractors to use, manufacturing, design, process issues. There's really been a variety of thing that any start-up runs into.

Question Thirteen: What have you talked about in terms of personnel?

They have tried to – I have tried to emphasize, even though they have been successful to date in fundraising, that they have to be careful, going back to a point that you alluded to earlier, about mistakes that could be made early on in the company, and what it can cost the company in terms of cash, which is very scarce; in terms of time, which is very scarce; and in terms of equity, which it should be given away and if it doesn't work out, is impossible to get back. So, I think I've tried to maybe give them some better leadership on the types of people to add, the types of people that can help as board members, the types of people that can help as consultants and don't need to be added to the team full time, and in those cases where there is concern whether they needed to add someone to the team, understand what they were thinking and either concur or disagree, appropriately.

Question Fourteen: When you say “types of people,” could you elaborate on that?

I think I would look not only at the position being filled, but the type of individual they are trying to bring in. So, I have some pretty strong opinions in two or three start-ups, of the types of position and, given the company circumstances with the products' progress, what types of people need to be brought in when in terms of positions. And after we've established that this position is critical, what does the personality of the person and the experience of the person need to look like in order to give that person a high chance of success? And a lot of it is experience, but it's also the work ethic and the reasons for why they joined, compatibility with the group, recognition that some of the folks that will join will not be the person that takes that position to the top as the company continues to grow.

Question Fifteen: What does team means to you? How do you define a team?

My experience is that ultimately the leader, that's the founder, the CEO, whoever the leader is, has to establish a vision, has to establish a reason for being that is higher than just any paycheck. And, a team would then form around that reason and a really, really strong team is a combination of folks who not only believe in that mission, but are technically superior, which is necessary to take the team to the end results. It's really a group of people solidified first by the vision, and second by the fact that you have a small group of people in very close proximity, all of whom can appreciate the technical, the different technical expertise, of the individuals involved.

Question Sixteen: Who are the critical players to this team's success?

When I first started with the team, the team was pretty much this way today. Sven was involved and Gary was involved. I'm embarrassed to tell you I don't remember the name of the technical guy – the engineering person.

Question Seventeen: Darren?

Darren? These three folks were involved and I think, all of them in their way are critical to the success. Actually the strengths and the weaknesses of all three, individually and collectively, led...the CEO to go on top of them. So I think all three were critical; they all have very, very specific strengths and very specific weaknesses. And I think Darren is a nice addition to be placed on top of that group.

Question Eighteen: Tell me a little bit about the decision that was made to bring in the CEO.

If you analyze the company, it's four members and so you're constantly in an analysis mode. Every conference called, every board meeting, every piece of paper, every package that you get in company, you're evaluating what you're seeing in terms of

quality. It became very clear to me, based on my experience, that we had to have very, very strong individuals, who were attempting to almost...CEO.

One gentleman, Sven, being a very strong technically-experienced engineer, who has a knowledge of the development process, and had very good team building skills, but who was very inexperienced. On the other hand we have Gary who had, I thought, some incredibly strong networking skill and the ability to open doors that would be closed to a lot of people, but also a real, real shallow experience level in terms of high growth start-ups. It became very, very apparent as they were trying to raise money, that there were more tasks to be done than could be accomplished by even two very strong individuals. That's why I thought it would be good for Dan to come in, and really take the administrative and fundraising responsibilities off Sven's plate, so Sven can make more progress with the product, Gary can make more progress with the clinical and customer issues, but more importantly that we played with this deadlock of having maybe a two-headed monster at the top of the company. It is now very clear, at least in my mind, that with Dan as the CEO, he needs to be making some pretty clear decisions.

Question Nineteen: How did Sven and Gary react when bringing in an outside CEO?

Their reactions were a little different. Sven was very accepting and thought that the company needed help. I think Gary was not as accepting but acknowledged that the company needed help. It's not that people don't have the chance to refute their bosses, and in this case, I didn't think that Sven or Gary should necessary approve the hiring of Dan, but they should certainly be aware of the process, have an opportunity to meet Dan, and have an opportunity to give input. But it was really a board decision to bring a new

CEO. So, I think after a while, they kind of understood how I was thinking and how I wanted them to look at Dan as a possible team leader, and made sense to them. But I wasn't asking necessarily for their approval as much as I was asking for their opinions.

Question Twenty: What was the opinion of the other board members?

I think there is a certain frustration that sets in with any board when there is a clearly solid understanding of the problem, and clearly solid understanding of the solution. When a certain amount of time passes, because of product building, because of technical issues that come up, because of approval issues, because of clinical issues, I think there was a little bit of concern at the board level that we only had a finite amount of time, and a finite amount of money and we had to make real progress.

Question Twenty-One: Was this an anticipated move?

I think so. I need to make all these comments a little carefully. This is a private company, and I'd be concerned about saying the wrong thing or having Sven or Gary or Dan even seeing the wrong kind of ...? Sven having five years worth of experience as an engineer and then having a couple of years experience with NewCount, as the founder. As the company goes to a potential venture, financing round, my belief is that they would be potentially not fundable. I think VCs would look at the experience levels of Sven and Gary and maybe insist upon having a more experienced CEO come in. The founders of Google probably didn't have much CEO experience, but somehow they pulled it off.

Question Twenty-Two: They probably learned from Netscape. They worked there.

They got an operation person in there as president and COO...

Question Twenty-Three: You are from a company making a couple hundred million dollars...people are going to bother you. We've talked a lot about the CEO. Have Sven or Gary been pushed to add any other team members or has it just kind of been as the need arises?

I think in the early stage they have an engineering leader, they have in Darren, they've hired a guy out of (name of location), and an RFID engineer who was working there and is planning to relocate here. At this point, that's probably all.

Question Twenty-Four: I know there were a couple failed engineering hires. Any input on that?

When you are in a start-up, my only comment is, when you are in a start-up there is no place to hide, you have to deliver, you have to be really a strong problem-solver. Given the circumstances, I don't have any further comments beyond that.

Question Twenty-Five: Has the venture seen any major setbacks?

I think the only thing that could be seen as a setback at this point is the amount of time that has passed. Again, I think we have to raise money again, but this may fail. They haven't received FDA approval yet – the product has been designed and prototypes have been built, and it's been tested in the clinical trials to raise money. So arguably, you could probably relate to this since you have Internet company experience, compared to some other start-ups, they have actually done quite well. They have done a lot of very good things. I think there is probably in terms of setbacks, it's just an uncomfortable feeling that a lot of time is passing and they need to have more progress.

Question Twenty-Six: Do you think that additions to the team would have sped up this process?

The technology they are dealing with, the RFID, the specific technology they are dealing with is very tricky stuff. I think they have done as well as it could be expected.

Question Twenty-Seven: My last set of questions. Were you or any other team members consulted when an addition to the team was considered?

Actually I am on the board of a much larger public company, an 80-90 million dollar public company, and the difference in roles as a director on a privately-owned start-up versus a public company are tremendous.

Question Twenty-Eight: How is that?

Well, you get involved in almost everything in a private company. If the public company is hiring an engineering manager, I probably saw it on the annual budget plan, and that is probably my involvement. But at the privately-held start-up, Sven has been very good at bringing the directors in via phone calls. We have weekly or every-other-week update calls on Friday afternoon. Sven has been very, very good. I have to give him a lot of credit for bringing the directors in, saying, 'Here, I'm trying to hire this RFID engineer from (name of location). Here is the scenario, here is where he is now, here are what his problems are, here is what we have been talking to or offering him.' So he has a lot of details of how to build the team, and yes I have been involved in a lot of these cases.

Question Twenty-Nine: Were any additions to the team dictated by you or the board? I would assume Dan?

No, I don't think dictated is the right word, I don't think that's how it works. I think we are dealing with a company where we have two very young co-founders, who have a lot of the team going forward, so it really would be a bad thing on the part of the

board to dictate changes. I think we've suggested the need for leadership. I think with their ownership percentages, what we would like them to be able to do, and I think they've done this, is to look at this from the standpoint of, not as their careers, but as of shareholders of the company, and understand the value of this thing. And Morton and Archie, and others have consulted with them. Hopefully, Sven and Gary would be here saying, 'These guys have been around, and I think they have given us pretty good advice.'

Question Thirty: That's my script. That's interesting.

Darren – Engineer with NewCount

Question One: OK, Darren. I have a script to follow, so some of the questions might repeat themselves. I know that some people have the tendency to elaborate and then when they elaborate I have to come back to it, but methodologically I follow the script.

What's the program you are in?

Question Two: Corporate Strategy at the University of Pittsburgh.

Cool.

Question Three: OK, tell me a little about yourself, your professional experience, education.

Sure. I guess I am a medical device engineer. I started out at (name of university) University, as mechanical engineering student, moved onto Georgia Tech for grad school, and did biomechanics, which is mechanic engineering with the body. I did vehicle crash safety research with airbags, then I moved on to medical devices.

I spent the last year and a half doing medical devices and orthopedics, specifically. And after that, actually in grad school, I came up with the idea that we

patented. I was hired as a consultant after grad school to continue working on that orthopedic device with the company, and took that about a year. From there we kind of exhausted all possibilities with that. I got a wife, years later actually. Anyway, from that I went on to work for a defense contractor, working in a kind of a remote sensing technology, kind of related to the biomedical stuff I had done. I wasn't a very big fan of the atmosphere, in the defense contractor, at least where I worked there were a lot of pompous, incompetent people.

Question Four: So what was the atmosphere? OK, pompous incompetent people. Was it a big company?

It was a big company – it was my first experience in a big company. And I kind of, I got hired as a biomedical engineer staff member, but they cancelled all the biomedical projects as soon as they hired me. So they put me in other projects, and they didn't want to let me go because I had all the skills to cross over, so they kept me. But the guys that I worked with, after a while, it was the kind of place where you realize that the guys that are in charge don't know anything. It was kind of frustrating that way. There weren't, it wasn't the typical scenario.

I've told about this story before, I won't tell the whole story, but the atmosphere, the people I worked with, the guys I worked with everyday, my fellow colleagues were really smart guys, good guys. The people in charge had never gone through the ranks and really learned all the things they needed to learn to run a government project like that, so a lot of things fell apart and I was there to experience all of that. In the year I was there, people quit, including myself. So it was a bad place to work, and while I was there I felt that I was kind of wasting away and losing all the knowledge I had. They didn't nurture

any of the employees at all, which was very frustrating because I had just come out of this really intense research-oriented project with orthopedics and medical devices, and I thought I was going to get to do more of it only, you know, like government-funded top-secret medical devices, you know, that was kind of the guise that they presented to me when I interviewed with them.

Question Five: We have many projects but we cannot tell you about them.

That's right, that's not even a joke – that's exactly what they said! Then I got my clearances and found there is nothing going on. There was nothing. So that's why I have the strong feelings about them. Anyway, I wanted to get back into it. I posted my résumé everywhere I could possibly find, well it's not true, not everywhere, but in the medical profession and also in orthopedics. But, I posted it I think on the Greenhouse website, one of the Life Sciences websites, in Buffalo. And these guys actually found me and called me up, and asked me, you know, would I be interested in, they wanted an updated résumé, and I had been actually trying to move back here for a little while.

I'm from here, originally from here, I've got family here. I thought it would be nice to come back here for a couple of years because I hadn't lived here in a long time. So, I met with them, we had a couple of kind of emails, phone conversations. It wasn't, it was more of us interviewing each other kind of, you know. Because I don't want to get, especially from the company I was in where a lot of people said they knew things that they didn't, I didn't want to do this to these guys. I didn't want to tell them that I was capable of building devices or doing things technically, that I didn't know how to do.

So, we took, spent a couple times emailing, calling each other and trying to get on the same page to what was expected of me, to what level of detail I would need to design

things, and my specialties, and my background, and what I knew how to do and what I'd be able to figure out. I wanted to let them know that, you know, I have a general idea about this thing but we might need to hire additional people, that kind of thing, anyway.

So we ended up having a meeting in person, Sven, Gary and I. I think it was only Sven and Gary at that point – they had worked with a couple of consultants to try to build a device and they had built one and it didn't pay out. I guess that guy wasn't interested in, he just wanted to do some contract work and send them part – he didn't want to come on the team. Since they were looking for someone to come on the team, so after meeting with them and kind of lining up our expectations, we seemed a match-up, and they seemed like they were a good fit for me, and I was a good fit for them.

Question Six: There have been other engineers here, correct?

Ah, no, I am the first employee, everybody else came as a consultant, unless I don't know.

Question Seven: I know there have been other engineers working on the project, but are not officially employed.

Oh yeah, there is, everybody is on a consultant basis, or interim. I'm the only, I'm the guy.

Question Eight: How many of the engineering consultants worked out?

Ah, you know probably. Well, there are two different answers to that. One is there are people who we interviewed to be consultants that didn't work out. It's probably – it's hard to find, ah, I guess I can give some numbers, so. The consultants, I wouldn't say it's 50-50, it's probably more like 70-30, most people seem to worked out. But the only reason they seem to have worked out, you know, 70% of people worked out, and the

reason they worked out is because we did a very good job interviewing them in the first place. We didn't really blindly hire anybody. Only one or two people didn't work out, as far as consultants. That was mostly because of them, I would say – they just didn't fit the atmosphere, I don't think. Both of the guys I can think of that didn't work out. There was one fellow that just couldn't grasp the concept that we needed to create products and he couldn't just do research all day. He was a smart guy, but he kind of, he didn't fit well in that way. He also dropped off the radar so we couldn't hire him. Yeah, we were actually going to hire him, and he disappeared for whatever reason, maybe went back to his home country or something, he was a post-doc. Anyway, that was one guy.

Another fellow was, he was older, a retired engineer who was doing consulting. The reason he didn't work out was I think he felt like that there was definitely an age difference, he was kind of an old-school engineer. He wasn't really open to compromise, I guess. He didn't know a lot of digital technology, kind of more analog. There's nothing wrong with that, but we needed somebody that was more up-to-date with current technology. But he actually also didn't want to come up all the time, and he did his consulting for us in the early stages, and after that...but he did actually write a lot of the technical documents that we started out with anyway. That was something that is really helpful from somebody like him, older and experienced.

But other people we interviewed, and while we interviewed, one important thing I found as we interviewed a lot of the consultants was that they didn't have an understanding of the size of our company. We are only four guys, three guys, we needed no frills, kind of get the work done, we don't need all the research, we don't need the user study, we don't need all this stuff, we just need you to do this, this and get this done. You

know, and a lot of them just could not let that go. They had to spend six months on doing user studies. The only things which we are, you know, doing ourselves or bringing somebody help us with.

Question Nine: How much time would you spend in a typical interviewing of consultants?

An hour, maybe. Well if you were brought in, an hour, I mean plus emails.

Question Ten: If it's somebody you decided to work with?

Yeah. If it is somebody we decided to work with, initially we sent email back and forth. Usually a lot of people we got a hold of were through personal contacts – somebody of economic development groups present connections of people. For instance, one of the major consulting contracts we have is with the people that do a lot of the electronics and our documentation for the electronics and for the product. That was a big deal to find these people. We wanted to find somebody that was down-to-earth, who had an understanding. You know, we don't have a lot of money now, we'd like to, we need to grow this, we don't need, we can't start the kind of budget that large corporations have, and we need to cut structure so we can grow with the consultant. A lot of companies, a lot of consultants we brought in were here back and forth, they'd email and say, 'OK, we'll bring them in,' brought in maybe three and ended up working with one. And the one we ended up working with is really good, because he can, the guy that runs it kind of grabbed...

Question Eleven: Who's the guy – the one in Cleveland?

Yeah, there is a guy in Cleveland, (name). They are great, they work with companies in town. They understand the process, and they used to do work with people

on our side. And, they are good, it seems to be going really well, laying down the ground work of all the documentation, the internal processes that we can't take care of. Those kinds of things are taken care of really well. You know, if he doesn't know something he tells us, 'I don't know, but I know someone that knows' and he goes and finds somebody. He is, you know, nine times out of ten he has found the answer, and if he doesn't find the answer, he'll find it from somebody. That's really helpful and that will push you up, so.

Question Twelve: Did Sven, as we are talking about the interviewing, did he regularly consult with you when they were looking at hiring other team members?

Yeah, we do, I mean I look at the résumés. Actually, this morning I needed, you know, every time I find there is, if I need help, more help technically, there's a lot of things I just don't have the time to do, and there's so much to do, I just kind of send out a wish list of the kind of characteristics – these are the people I need. And they are good at finding them, whoever he finds, no matter where – he finds them, right? – craigslist, the local places, and there are a lot of good students coming out of local schools that we can use right out of school. Things like that.

Question Thirteen: You are looking to hire another engineer?

Yeah, I need some more, we need some more people that might have a few years of experience, so we can at least, ah, it's hard to have to explain the whole system to them, the whole small business thing, and it helps to have somebody who doesn't want be in Microsoft or IBM or somewhere huge. It helps to have somebody self-motivated that can organize their time well, because we don't have time to keep up with each other, let alone, what somebody else does.

Question Fourteen: How critical was Sven to your joining?

Pretty critical, I think. The way he presented the vision of the company, I think that was pretty critical. I am a pretty independent thinker – I need a lot of room to just bring up my ideas. You know, there are some boundaries. I'm not going to bankrupt the company by trying some ridiculous ideas, but I guess I need people to trust me, there is a trust issue. I felt that I could trust Sven to do his job, so he can trust me to do mine.

Question Fifteen: What does team mean to you?

I think right along the same line, that's what team means: I can trust people to do, you know, we can count on each other, back each other up. We have an understanding of what needs to get done, and we work toward that goal together.

Question Sixteen: Who are the critical team players for this team's success?

Well, I think it helps actually, in the background, to have a board that motivates us in the right direction, and it seems that the voices, the more prominent voices on our board have the vision and are directing us in the right path.

Question Seventeen: Can you identify who?

Oh, Mike...

Question Eighteen: Archie?

Archie, yeah. I know he helps a lot in business aspects, and I know I'm forgetting people that deserve credit, but pretty much everybody on the board. You know, that's why they all manage this thing, they have experience in this. It helps to have people on the board that are people that have gone through the same process and done this, and been successful at it. That's critical for us I think. And the fact that we all enjoy this atmosphere that's pretty important. Sven, Gary, and I enjoy this kind of high-risk thing.

Question Nineteen: Have any critical members of the team left?

Ah, nobody has left, most have been the consultants. At this point, nobody has left that caused any problem at all. You know, consultants have been consultants, not that many.

Question Twenty: As you make additions, either consultants or full time people, are the needs anticipated or are you making the addition out of necessity?

I think we are at a transition period as far as that goes. I have a lot of needs that are necessity, but we are also looking down the road, and we know, based on this product getting lost, and what we're going to be doing after, and things that are in the pipeline, it is pretty obvious to us which additional members we need on the team.

Question Twenty-One: Early on it was more necessity and now...?

Yeah, I think right now, as we speak, we are at that transition period because we, I think, it all kind of hinges on the FDA approval. Once we get the FDA approval we'll be more in the clear to think about the future.

Question Twenty-Two: Have you had any setbacks that led to the addition of a team member?

Not necessarily setbacks, but technical challenges, that led us; technical challenges led me to contact a lot of people. We brought in an intern for the summer, which we found, we finally did that this summer I guess because we did it last summer. This summer we actually had some defined tasks, we are not just researching different ideas, we have a device now, we have a product launch date, and accessories and changes to be made. We have lot of work to do now.

Question Twenty-Three: Engineering interns? Or, business interns as well?

Yeah. Actually we have another guy who Gary and Sven brought on who is helping more in the financial and clinical trials side.

Question Twenty-Four: Is he an employee or an intern?

He's an employee actually, and Angie, she is an employee also.

Question Twenty-Five: Tell me about the interns. How are you utilizing them?

I try to come up with things. We have an unbelievable amount of technical things to get done here, and there are a lot of things that are, they are not too technical but some of them require some knowledge of product development, which they don't have because they are still in school, so they haven't developed products. They've gone to classes, but, you know. I try to break it down into different aspects of the product development and give them tasks on sections of that. They get actually pretty important tasks here as compared to other places because everything we do here, you know, we don't have time, you know. I can't just say here is something to worry about, everything we do goes directly into the product. But we, there is, for instance, I give them kind of daily things that come up so there are always background projects that they are working on, and when I don't have daily things for them to do, they work on the background project and when things come up throughout the day, they just push that aside, and, you know, get this current thing done. Then, they go back to the project. One is currently working on an accessory, and in addition to the device that we are thinking about adding to the next round of the product, and (name) is helping him with that.

Question Twenty-Six: That allows you to look at things that you normally wouldn't because, maybe let's say, it expands your capabilities?

Yeah, right, exactly. Yeah, and I give them some things that help them. It's the first time I ran anything with interns, but it seems that it helps out that, when I'm researching something, some technical aspects of our device, our product, a lot of times I give that research to them and have them, kind of, just compile everything, read through and give the good stuff. I think through that process it causes them to read and get kind of an expanded background, kind of come up to speed. They definitely, just in the few months they've been here, two months, they've definitely learned a lot in here. Especially as our company needs to trust them to answer questions about things.

Question Twenty-Seven: Are they at (name of university) University?

Yes.

Concluding Statement: OK, that's all I need.

Dr. Marty – Advisor to NewCount

Question One: I have a script that I am following and basically what I am researching is how entrepreneurs build their team, so most of them just focus on how you tied with these guys, but I began I guess the kick off, can you tell a little bit about your background...maybe start about your education.

I have a double degree in electrical engineering from (name of university) University, MSED from (name of university) University, and PhD from (name of university) University, so I am experienced and I've been here for a few years.

Question Two: OK, and in regards to your professional experience you've been a professor the whole way?

Except for some time I spent with IBM, a little bit with Westinghouse, and Exercise foundation...other than that, I've just been a professor.

Question Three: Any entrepreneurial experience?

Yes. I've been part of at least three start-up companies, one of which was more successful than the others...and trainers from, for universities from around the world. But that company did business for 17 years and the principals were getting older and we decided that we wanted to change the technology so we just...cut out

Question Four: Did you sell out or...?

Well, we sold everything we had...we just sold the pieces not as a company, but all the pieces we had.

Question Five: Looking at NewCount, do you have a relationship with any of the team members prior to the venture?

No.

Question Six: How did you meet them?

I think the initial meeting was with (name), who was a faculty member at RIT.

Question Seven: Did you have a previous relationship with him?

Yes.

Question Eight: Is his tech transfer role here? Was (name) critical to you becoming involved with these guys?

I don't know. It was very early on and we might have come in contact later because of the commonality of the work they were doing and we were doing but I don't know. I think we had probably come in contact. We had become in contact, I am not sure if it would have been at the same roles, but that was sort of the beginning.

Question Nine: Let me rephrase a little bit. Why did you decide to become involved with the group after your initial meeting?

Well probably for three reasons. One was that one of the jobs at the university is to try to foster entrepreneurial groups and so that would have been for that reason, but also because there were...R&D, which is something I was interested in, so that focused it a little bit more, and probably three, just because of the, I am interested in any entrepreneurial efforts.

Question Ten: What is it that the entrepreneur has consulted with you about?

Usually it was how well the technology works whether or not they can find what they want, what kind of hardware they needed...and also general questions about where the technology was, so that they can figure it out what the, how they can fit into it, small companies can become captives of a particular technology they are relaying into. They were trying to figure it out, where it was going and I think they have reason to stay away from became....

Question Eleven: What does team mean to you?

I grew up in a football town and team means that there is a lot of players on the team and they all don't know to do the same thing, but boy, you better all be going in the same direction. A team is critical the most today; most entrepreneurs' activities require is a team.

Question Twelve: Who would you say are the critical team members at NewCount?

Probably, well there are only two that I really know of, Sven and Gary.

Yeah. Somebody else I know, there are two other guys but Gary and Sven are the two that I know of. I guess they both seem like they worked well in a way that they don't both have to be there when you are doing something. Sven can work by himself and Gary

can work by himself. I think that's important you got to be a team but got to, you don't have to be there and made things happen which means it involves trust and I see to trust each other is how you get there.

Question Thirteen: Can you describe your relationship with NewCount?

We did a couple of projects for them. First of all, they were asking me questions, OK, they just wanted to ask questions because, in doing what I do one of the ways which I find out things is by the questions people ask. For example, I use the analogy that sometimes we want money from industry but the biggest thing industry has is problems, but because we know where the problems are we can solve them, we can easily get the money. So, I always have an open ear to listen to what people are talking about needing, because that tells you where the hurt is. So, they were asking me questions initially because of, I don't know, I guess because of..., how we actually got started but they've been asking me the questions because we have, we had the press involved. Anyhow, so that's what I was doing for that reason and then they asked me to be on their advisory board which is usually just a narrow....so they can ask you questions without paying any money and then we just develop specific projects...I'm trying to think, I did two projects for them.

Question Fourteen: Is there any compensation involved?

Yeah. Not for me, but there was the class that was doing a project for this center...for 700 dollars, that's the students' team, graduate students, faculty advisor, I think they did at least two of those. And, I was trying to do some testing, when you are in the business they're in and then trying to find a commercial off-the-shelf something that all make, but they wanted to work, they need to have, to make sure that what they know

about it is with total spectrum, so one of the things the students were doing is trying to help to find...the possibilities and testing the various possibilities.

Question Fifteen: Were you involved with the students' projects?

Yeah.

Question Sixteen: Would they continue to need your help down the road?

I don't know. It is the best answer I can give you. I think they will. Whether they know or not and I don't know.

Question Seventeen: How often do they consult with you know?

What I would say is as much as consult written, probably once a month, once every two months, something of that nature. It used to be more often but hasn't been much lately.

Question Eighteen: Are there any other members of the scientific advisory board?

I am sure there are but I don't know of them.

Question Nineteen: So, you don't have any interaction?

I don't have any interaction.

Question Twenty: No formal group?

No formal group, so I just can't answer these questions for you. And if I am doing that I answer...because, make sure that way, because I have to answer why I am answering questions...to see who you are contact with, in cases of conflict...

Question Twenty-One: One interesting piece of information that Sven told me is that you refuse shares.

Yeah.

Question Twenty-Two: So, are you doing this because you are curious about the technology, curious about the application?

Yes. I am curious about the technology but the reason for the turning down is just probably more that, for, good Lord, my life was already complicated with contracts and arrangements that my contracted venture forms for the University are over a quarter of inch thick when I turned them in, and the more you added, the more legal exposure you had and I didn't even need the money, it wasn't worth it.

Question Twenty-Three: I don't want to get into your personal finances, but I was just curious.

That's the reason. I don't; what other money I do get, I get back to the university anyhow, but the, if you have stock, if you have equity it causes some, I sit on the university entrepreneurial oversight committee and it's a conflict of interest to me, and those...problems if you have stock in a company and asking and answering questions and how do you might usually within regards the University. It's just simpler this way.

Question Twenty-Four: Has Clear Count asked your advice any time when they added another member to their team?

Yes...by their team you mean the corporate team? Yeah

Question Twenty-Five: Can you elaborate?

They were looking hard at the engineering about from a year ago now and they were maybe looking at somebody, a potential candidate they had, and then they were looking for one of the people that I..., graduate students, and they talked with him and I think they even used him for a while maybe hired him for a while.

Question Twenty-Six: So, regarding the first candidate, did they hire him or not...do you know?

I don't know.

Question Twenty-Seven: So you don't know if they took your advice or not?

I really, I am...I take to get people personal advice like that in a small company because it takes a team to work together, and I think the graduate students that they were talking to, had financial interests that may have not been convincing that they were looking for and probably at the skills and the type they were looking for. I think they were looking for someone with all he could do it very easily was a hands-on type of person who can pound things, wire things and just a very clever individual which she was being also a PhD, so we can have researcher...but they were too small to handle somebody like that, but somewhere in there I didn't get involve because I like Sven and Gary both, and I don't want to get in the middle of something personal.

Question Twenty-Eight: Going forward, do you think you will be more deeply involved or less deeply involved with the entity?

Probably less deeply involved, at least until they reach some higher milestones or further milestones, because once they said they're set into something that works there is a lot of other things I have to use for business case and a lot of marketing and sales and there which really its not going to involve what I do, not until they get to the point when they really need a whole bunch of more of what they are getting or they can see that the hardware that they have or the technology that they have is...in fact what is suppose to their reputation.

Concluding Remark: Thank you, those were my questions.

Angie – Regulatory Affairs Coordinator

Question One: Really what I am looking for is what role you play for the team.

Tell me about your professional experience.

This is my first time really working in business corporative tax structure. I came pretty much right out of school and I am the clinical challenge administrator here. Basically what my sort-of defined role is: taking care of the regulatory issues involved with setting up clinical trials; getting what it is the institutional review boards, the clinical trials offices need; and coordinating all the PIs and other participants that go through all of the trials that we do. Then, of course, on the other side there is still some because there are always things that come up and you end up helping right at the MRD and these other things.

Question Two: What is your experience to do all this?

My background is in research and scientific research, genetic in particular. Program clinical trials have always been there, different kinds of trials, obviously, but I had to deal with some IB issues and some writing protocols and things of that nature and stuff my dad finds interesting. I loved my PhD program for many different reasons, including I want to work more with people and have a more broad understanding...

Question Three: Where are you pursuing your PhD?

Cornell, so one of the roads that I thought I was going to the future is courts and trials in genetics and biomedical fields. This is not exactly biomedical but it sure gives me the chance to really dig into all the regulatory issues; I've been already setting trials from scratch, so that's what interested me.

Question Four: How did you come across the job?

Probably Craigsist.

Question Five: What did you think whenever Gary contacted you?

It was very fast, very sort of unexpected. I was just sending out a lot of emails to a lot of people when they called me back for even ten minutes so it was...

Question Six: What was the process they used with you?

The first call was very quick probably because the ad was for the office manager position and they were looking for a new administrative assistant office administrator. They called me at the PhD program you want to be an assistant it's just quick and I was interested and that's what we are going to do and then...I don't think you met him...he was supposed to become a senior...so we set a time to meet, which I was and he didn't come so we wait until I was in town we just met in a coffee shop very informal, first thing we did to find before he can even tell me what was...about what the position really was and then just you know informally tell me what they've up to, questions about how much I have dealt with the clinical job that we were doing during school and he had to set me with the tasks they were looking at the university's digital first trial he just wanted me to look into the ib and drop of a schedule of what we going to have to submit what we going to have to do ... for them and take that I came into the office met with Sven and I had made one page quick overview of the UBMC's IB process and the ... ever saw them taking care.

Question Seven: So what employee number were you when you came on?

I was the fourth employee.

Question Eight: Number four...so that's Sven, Gary, Darren, and then you. So you guys will get as big as Microsoft you have to cover the number four. What drew you to these guys?

It was a very neat opportunity to come to town. Number one, I had never even been to Buffalo, as I was just moving here for personal reasons and this was really you know...it is the right...to get a lot responsibility to get to see something from the very beginning just exiting, my boyfriend is also into...technology and...these were also pushing into it.

Question Nine: Did this have more chance or did you consider would your background you obviously could have gone to work for a university doing I don't know research.

Yeah, I also wanted to take a break from the academics setting...so long, just something totally different which it was and then of course everyone is young and...it's just very different, very funny, everyone is really nice.

Question Ten: So, in the end, what was the position process when you decided to take this? For example, if I were your father and I said, 'Tell me why you want to do this?'

Because it's a big opportunity and right now I have the freedom to, you know, big chances to work for a small company...there is no guarantee that would be here six months from now and I have the freedom to do that, when I looked back, at myself twenty years from now I did something really different and exiting when I was young

Question Eleven: When Gary made the offer, how long did take you say yes?

I knew right away that I was going to say yes. What I wanted to do was look over the contract and really think about it; it took me about two days to get back to them.

Question Twelve: Was it the excitement of the position or anything else that went into your decision?

Just the excitement of the position.

Question Thirteen: Obviously they are going to be hiring new people as they grow. What do you tell people regarding why you work here?

Because, I guess it is dependent what stage, right now it's still, we are so small that you can be in anything you want here, you can find your niche...find everything you are interested in.

Question Fourteen: So that fits your personality?

On some levels, yes; on some, no. I guess I am not really, I don't think I could ever start my own business. I am not that entrepreneurial, but to join to someone leading the way, I think it's more my style.

Question Fifteen: If I would have come to you when you were starting your PhD program, would you have ever seen yourself starting in an entrepreneurial role or being part of the start-up of an entrepreneurial venture?

No. Maybe a biotech adventure but probably not.

Question Sixteen: So you were thinking you were more destined for university life?

More for pharmaceutical life, but joining one of the big companies and not really going out and taking the risk with a small company.

Question Seventeen: Obviously the company is doing well. What part, what role have you played in making the company do well?

I think first credit of course goes to the engineers because of the products...but I think the trials are a key part of what is going to make the product, the company successful because that's what really takes to, at least what we are trying to sell. We are selling to, saying we have used it and tried it in so many patients and these are the results that are really what is going to try the first couple of sales.

Question Eighteen: What do you bring to the company?

I hope I bring my...learning of the process...all that responsibility in, you know, all the regulatory issues.

Question Nineteen: I know the tasks you handle. Do you do anything beyond your tasks? Is there anything this company knows because they brought you in? Something they wouldn't have otherwise?

I don't know...let me think about it. Probably they didn't have...I don't know, I think we are still so small, we are not really so developed ...

Question Twenty: Have you brought a network with you? In other words, we are having a problem and, 'Oh I know Joe Smith up in Cornell...'

No, fortunately no, because my world is totally different. I don't know any, you know, everyone is asking, 'We are looking for more engineers and do you know engineers' and of course no, I don't know any.

Question Twenty-One: Have there been any setbacks at the company: any real days of concern, problems, etc.?

There has been. Before the first trial we had a couple setbacks. The IB process... and the university is a little bit different than the other schools because they want to really get details and all at the same time...behind schedule set enough time to test it and so... the device wasn't ready, but that was a little bit disappointing. Daniel...were...pushing where this is going and the trial...took longer was we were looking strange because we realize that while doctors...say they are excited. They are not very motivated you sure have to really send out...took it longer that you wanted to and now you know so every trial we go from now from the right beginning we are adding three times as many surgeons as they...wanted us to add so sort of learning first now. I think should be going so much more simply.

Question Twenty-Two: How do you see the team developing? How long have you been here?

Since September – nine, ten months.

Question Twenty-Three: How have you seen the team evolve?

Trying to get more organized, more I don't think the professionals the professionals are more company-like in front of the CEO. I got to see the board meeting which in I the first time I really sat on more the business side of it, just seen everyone pull together and really try to make a vision, I think, before we had the devices more like were...exciting, developing knowing the device we take it to meetings which...tough ...it's really become more real and more tangible.

Question Twenty-Four: Have you been consulted in hiring in the CEO or any other employees they are bringing in?

Not the CEO. I know we hired a third person recently. Before he was hired I know he came in just for a day because he went to school with Sven...and...just told me ahead of time that he was coming and he is like, you just know...'Tell me if there is any problems just sort of you know when Dan and I interact'...and what I thought of him and if he could do the things that we were looking for another person to do.

Question Twenty-Five: If the company would go away tomorrow and have some FDA issues, would you get involve with another start-up?

Oh, yeah I am not used to it. I think it would depend what the...is and also the sort of ...in town for so long getting...right now in town maybe a little questionable but I think it's fun yeah I would think so.

Question Twenty-Six: If the company would go away tomorrow, what would you look to do?

Probably do more IRB things...maybe back into biomedical field.

Question Twenty-Seven: Why don't you step back. Who do you see as the key team members to this company from your unique perspective?

I think Sven and Gary and Archie, and Mike, I know when he first started they would have a weekly meeting with him every morning. He sort of really guided them...they talked about two or three hours. I think he has been really important.

Concluding Remarks: That's wonderful. I think I got what I need.

Kim – Intern with NewCount

Question One: OK Kim, I have a script that I follow, so people tend to elaborate on a point, but we might revisit an issue, but just to be methodologically correct for my

dissertation I have to follow the script. To start, tell me just a little bit about yourself, education and professional experience.

I'm going into my senior year at the University of Buffalo. I'm a bioengineering student, concentrating in bio-signals and imaging. Before this, I had an internship with Dr. (last name), [with whom] I worked on developing electronic travel aids for the visually impaired.

Question Two: So, how did you come in contact with the company?

U of B sponsored, through our bioengineering undergraduate seminar, trips to see biomedical companies in the Buffalo area, and this was one of the companies on the list. I'm not sure how they communicated in the first place, but I came here on a tour for that program and I was really interested and so I contacted them to see if they had any internships.

Question Three: Great. How did you meet Sven?

Well, that was at the tour.

Question Four: OK, was talking to Sven critical to why you joined NewCount?

Mmm...it was definitely a factor. I was impressed by the people here. I thought they were the kind of people I wanted to work with, and the environment I would like to work in. It was definitely a factor.

Question Five: Why would your co-workers tell me as to why you joined?

Depends on if they were joking or being serious.

Question Six: For being serious.

Probably because I wanted be experienced in the area; I wanted to, I would like to work in the industry...

Question Seven: What did NewCount ask from you?

As far as working?

Question Eight: Yes.

I do a lot of technical documentation, I write a lot of tech plans, and then carry them out. I'm currently working on getting the device to pass FDA standards, and I've been working on device improvements for the next version. That's mostly what I do.

Question Nine: How does it work with the interns here?

They pretty much give us a task and we do it, and report back, and say, you know, 'I was able to find this or not find this.'

Question Ten: So, you've been here about a month?

I've been here since the beginning of May.

Question Eleven: So two and a half, two months?

Yes.

Question Twelve: How long are you going to be engaged?

I will be here until August 11th.

Question Thirteen: If they ask you to work during the school year, you'll be interested?

Probably not, just because it is the senior year and so we have senior projects that take like 30 hours a week.

Question Fourteen: Fair enough. How about after graduation, if they ask you to come back?

I'm not sure. I'm not entirely decided whether or not I want into the industry or to go to grad school or not, or go into government, like the FDA or NIH.

Question Fifteen: Sure. What does a team mean to you? Define a team.

A group of people working together for a common goal.

Question Sixteen: OK. Who are the critical players on this team?

Definitely Darren...he is ah, he made everything as far as I can tell, and Sven [is also] kind of in charge. I think that everybody really plays their own role. I don't know if I can really think who would be the most important.

Question Seventeen: Have you worked with anybody on this venture, maybe an outsider, who isn't officially listed as part of the team? Anybody you've consulted outside?

We consult with, ah, I guess it's like an engineering consulting group. I don't know how to describe it.

Question Eighteen: OK, I'm just curious if you go to anybody at school?

I don't, truthfully.

Question Nineteen: Looking at the relationships, have you seen any major setbacks since you've been here?

Getting advice through the FDA approval, I guess, is time-consuming. I think as soon as that happens, we get the approval and I can move on to a whole lot of other stuff, but right now we're still working – I mean, that's the main focus.

Question Twenty: Did you have any crises?

We are just working on passing all the tests. We haven't finished all the tests yet, so...

Question Twenty-One: Have you recommended the addition of any new team members?

No.

Concluding Remarks: OK. I just skipped a couple of questions at the beginning, but that's helpful, thank you.

Appendix B

BetaCad Team Interviews

Heidi – Founder and CEO – BetaCad

Question One: Methodologically, I have a script to follow. As you elaborate, you might come along and address a point again. We can start up with: can you tell me a little bit about your history prior to starting your business? Maybe looking at your education, your professional experience?

Yeah, actually my profession is radiology. I, after finishing high school, I pursued a career in radiology and went to Rhode Island Hospital School of X-Ray Tech. I finished that, and then went to Nuclear Medicine School. I finished that, got my degree, you know, weekends and evenings, took a couple of years...and, then moved up to the Provisional Radiology Director.

Question Two: Did you get a Masters? Bachelors?

Bachelors in Radiologic Technology, and then a certification in ultrasound, CT, and that kind of stuff. So, I took the administrative track and was the Director of Radiology for many years in numerous hospitals. When we moved to Buffalo I went to UBMC and I was a manager in there in what they call the High Tech Imaging Department, which was the high modality of CT, MRI, that type of thing...and then an opportunity came up and I went to Buffalo Hospital as a Radiology Director. And, because it is a specialty hospital, your scope of focus is much, much smaller. You are into women's health, not only general radiology. So mammography became a high volume area for me – that's where my responsibility was so huge – it evolved into my area of expertise. I didn't have an interest. It's funny, before I went to UBMC, I would look at

professional journals and every time I would read an article about mammography I would flip the pages. I like the CT, I like the MRI, I like the high tech stuff, not mammography, and then when I went to UBMC; that's pretty much what I did. So, it just evolved into my area of managerial expertise, and then it became my area of interest. It was kind of a situational type thing that ten years ago I would never say I'd like to do mammography.

Question Three: Is this your first entrepreneurial adventure?

Well, I was at UBMC for 13 years. Actually, I retired maybe twice. My VP kept on saying, 'Don't retire, don't retire, take a week – Buffalo is for you.' Obviously, I kept on going back to work. I was ready to do something different. I didn't know quite what to do. Actually I retired, maybe twice, and my VP kept saying "oh, you know, don't retire, don't retire, take a leave, Buffalo is for you." I mean, obviously I kept on trying long going back to work. So I was ready to do something different. I just didn't know quite what to do.

And, one day I was sitting in this meeting and it was with the Medical Director of (name of hospital) Hospital who was in charge of the mammography division. We were talking about her department, her plans, and you know, what she was looking to do. At this time CAD was very new technology – it was Computer Aided Detection, and what you actually did was you took mammograms, and digitized them. You had a proprietary software that analyzed them and looked for characteristics of breast cancer, and it found it, marked it on a film or a reproduction.

So what the intent was is that the radiologists would look at the mammogram, come up with their own impression, look to see what the computer found and then re-look at those areas to see if they were significant or not. And many cancers are missed

because of oversight. They just didn't perceive the change there and CAD had shown to increase cancer detection by 23%.

Now, because I was at UBMC we were, by far, the very first to get CAD equipment, I mean, we were into the latest and newest technology. So, we had it for about a year and then I was sitting in this meeting with her and she made a comment, I suppose: 'Are you looking at CAD?' and she was like, 'I would like CAD but it's just too expensive – administration – I can't get the money, I can't get it approved in the capital.' And then, after I left that meeting, I was thinking, 'Gee, I wonder if I got into a viable business...but we've got to have a pretty substantial amount of mammos to justify this equipment. I wonder if I bought one, centralized it and, contracted it with other people, could I make this work?' And then for weeks, I'm driving back and forth, thinking about this idea that I couldn't get out of my head. So, I start to put together, you know, I talked to my friend and she said, 'Yeah, yeah, let's do it.'

Question Four: Who is your friend?

She was – actually her husband is the CEO of the hospital, and they were people that we've known prior to coming to Buffalo. She and her husband and my husband work together, and so, we kind of talked about the idea. Then I started to play with the financials, and I was looking at that and I put together a business plan. Then, it was one of those things I really never, ever had a strong desire to go and start a business. I had the desire to do something different. But what happened here was, once I put it on paper and I had the idea, I was convinced I could make it successfully, and that if I didn't do it I was gonna [sic] regret it. So, that's were it was, I've got to do this, because if I don't I'll regret

it.

Question Five: Was this your first business plan?

Yeah. I always thought about it, you know, start a little ceramic thing shop, stuff like that.

Question Six: It was the first time you wrote it on paper?

Right.

Question Seven: Did you do it yourself or did you get any help?

No, I did it myself. But I mean, I was at an administrative position. I did an awful lot of proposals and writing and that kind of thing. So doing that wasn't a complex thing at all and doing the financial sure wasn't complex. Trying to figure it out and structure it, and I think probably in reality the biggest risk was you're paying a lot of money for a new technology and what was gonna [sic] happen with this new technology? Was it going to evolve into standard care or was it going to be something that cost a lot of money, they tried it, didn't work, and would end up left? And being in the radiology profession, I've seen technologies going both ways. So that was the risky part.

And I talked to the Medical Director at UBMC who I worked with for 15 years, and I asked him, 'What do you think about CAD? Do you think it's here to stay?' He said, 'Yeah, I do. This is, I think, ten years from now, computer analysis will be probably better than the initial interpreter.' And, I said to him, 'I think so, too,' you know, and I moved on from there. Then, I didn't wanna [sic] tell anybody what I was doing and I didn't want anybody to steal my idea, and all that kind of stuff. Now I've come to the conclusion that it doesn't matter, people are talkers and very few are doers. But, then I went to my husband and he just kind of went, 'What? Are you nuts? What are you gonna

[sic] do? We are getting close to retirement. This is not time to go put things at risk. Why didn't you think of this ten years ago?' Well, I didn't; I thought of this now. I said, 'I don't know. Well, I really need to start up this now.' He said, 'Well, if you really wanna [sic] do this, we'll think about it.'

Question Eight: What's your husband background?

He is Chief Operation Officer at Western New York Hospital. So this is where the relationship comes out. So then, he says, 'Well, if you really wanna [sic] do this, write the business plan. You need a business plan and a financial plan.' Then I went and got them. I'm sure he thought this would discourage me, but it wouldn't. I went on and did it. So then he went to Saul, he worked with Saul, and Saul was very much into start-up businesses, as in looking. So he said, 'Saul, my wife got this idea, would you look at this business plan and see what you think?' Saul, as courtesy, said, 'Sure, I'll do that.'

And so then Saul went back to me and said, 'You know, I've probably read 15 business plans in the last year or two and this is by far the best one I've seen. It is not only well-thought-out and written, but what a perfect world, because you are contracting with a hospital for a service that is being paid by Medicare, which is a third party. Who loses? No one loses here: the patient benefits, the hospital benefits, Medicare is paying for it.' So Evan goes, 'Really, you think so? You think it is good?' 'Oh, absolutely.' 'You think we could get the money to do this?' 'I'm sure we could.' And that is pretty much how it started to launch. And then you know we had a lot of stumbling blocks because the amount of money we anticipated we needed to start up the company was far more than what we really needed, because we were successful very early.

Question Nine: Good problem.

Yeah, it could have gone the other way. But, you know, so then we are trying to raise a lot of money. And that's another thing in this job, you talk to people and certainly in our social circles we know people that have financial resources or that could do this and everyone is really interested. Then there are all kind of excuses why so, we attempted to raise a certain amount of money; we didn't get to the target, then I re-looked at that and what we ended up doing was finding somebody that was willing to fund the equipment. So, we didn't raise money to purchase the equipment – we had a third party funding the equipment.

Question Ten: Tell me more about how you tried to raise up the money?

It was pretty much Saul. You know, Saul kind of said, 'I have the idea and I was going to do the operation.' Saul knew all these people that he could raise funds with. And I think it was just timing, you know, we started in 2003 and had we tried it two or three years earlier, when the stock market was pretty good then and there was a lot of extra money, it would have been OK. But I think a lot of people got hurt there and so the timing just was like, 'Mmmm, I don't want to kick around – too risky.' And it was risky. If I had to do it over now, I wouldn't have raised it from anyone; I would have put in 100% and done it as a solo company. And my husband is time and time again, "You know what fools we were?" But, you do wanna [sic] kick the risk, you know, and this thing is if you really wanna do this, fine, but you know what, we are getting close to retirement and we if we risk this money how are we gonna [sic] make it up? Ten years ago we could make it up, but we can't now. So, nobody wants to risk the money, whatever.

So Saul had a lot of contacts, there were a lot of people interested, but then the bottom line was the money – everything fell through. I was gonna [sic] put a certain amount; Saul; wanted to put his expertise, you know, my friend wanted to put just the minimum amount to be involved, you know.

Question Eleven: The friend you initially talked with? Does she have a name?

What are you gonna do with her name?

Question Twelve: Can we give her a pseudonym? I can disguise everything.

Judy?

Judy is good. Let's call her Judy! So what happened was, we didn't get the money and then my husband's like, you know, “Well this is the end of this; it was a good thought but it didn't work out.” But I had my heart set on this. This was what I was gonna [sic] do. I was literally scaling down to part time provision at my current job, I had a termination date, I had given my notice and the scariest thing to me was, ‘If I didn't do this, what was I going to do?’ When I got up in the morning, what was I going to do? This is all I thought about, you know, for the last eight months.

Question Thirteen: Let me ask you – how many years of experience you had?

In radiology?

Question Fourteen: Yes.

Oh, God, 30. So my husband is: ‘Well, honey, we can't get the money, and that's it,” and there is a moment when I was kind of: ‘What am I gonna [sic] do? I really want to do this! I really wanna do this!’ A few times I cried, ‘Oh my God, what am I gonna [sic] do tomorrow?’ Anyway he said, ‘If this really mean that much to you, if you really wanna [sic] do this, then I'll do what I can to get the money.’

And then he is the one that actually approached the guy that financed the equipment. He knew him from a business dealing and went to him and said, 'We've got a proposition for you – this is our plan, this is what we wanna do' and this guy buys a lot of radiology equipment, that is the business he is in, and this was minor to him. And he's buying equipment in the millions, and we are looking at \$144,000 and so we kind of offered him, if he was willing to finance the equipment, we'd paid him 7% interest over the next course of time and all forgiven, 10% of the shares in the company. So, he said to my husband 'For you, I will do it, no problem.' So that's pretty much how we ended up getting the financing we needed to do.

Question Fifteen: You wanna [sic] give him a name?

We'll call him Tom. Judy and Tom.

Question Sixteen: Are you willing to share the capital structure with me?

Sure.

Question Seventeen: Who owns what percentages?

I have to think here. There are five shareholders. What happened was when we first started it, consider the co-founders were Saul and I. And so, we got a certain number of shares for the initial start-up. I think mine were 23 shares, Saul's were like 15, and we ended up giving Tom, the guy that financed the equipment ten. And then the rest of the shares were sold.

Question Eighteen: Sold to?

Then what happened was the shares were sold. I was kind of sitting on the reserve and what was not sold I was going to buy, because otherwise I wouldn't, but the start-up was a good thing. And then we had a certain amount of shares that were committed. Saul

had a friend who was going to buy 15. He backed out. So, Judy bought four shares and another friend who, and again she was interested in working with us, and my thing was, “Well, there is no company. If you really wanna [sic] do that, you know, you've got to buy the minimum number of shares.’ So I got another person that bought two. That was a stupid decision on my part, but...

Question Nineteen: Why was that?

Because, I could have, you know, because we were successful, it was a stupid decision. I didn't know that at that time. We had a friend who bought 14.

Question Twenty: Why did these people buy? Friendship, businesses relationships, or curiosity?

I think the two of them purchased the shares because they viewed it as ‘not only am I gonna [sic] have a little piece of the company, I am gonna [sic] have employment,’ and they were looking to work for the company. This guy, 14, he bought it because he thought it was a great idea and made sense and he's not making a lot of many investing the way he is and so why not?

Question Twenty-One: OK, this was an investment chance; the person that bought two was looking to work with you?

Employment.

Question Twenty-Two: Does she currently work with you?

That didn't last long. Not any more. And there is the fourth. Pretty much the same thing. She was a registered nurse who wasn't working, she had lot of little kids and wanted out the house and to be part of something, so that was an employment thing.

Question Twenty-Three: Is she still with you?

Yeah, she's still with me.

Question Twenty-Four: Does she have an office?

Yeah, she has been since we started. I mean, she is fabulous now, looking back at it, you know, she is very committed. The attitude of 'what we gotta [sic] do, we gotta [sic] do' type thing. You know, she doesn't view herself as somebody that wouldn't wanna [sic] run these businesses nor run the office, but she is here when she needs to be here. She is fabulous, the other one with the two shares, it was a personality conflict between us. That story about you 'don't get into business with you friend,' that's what came in.

Question Twenty-Five: Sure, so is anybody else buying?

Let me think. Now that's six shareholders. What happened was we did start-up with the money we got. We still have ten or something like eight shares that we never sold. And, after the first year I went around and said, "These shares are unsold and are available to be purchased." So all the shareholders had the opportunity to purchase additional shares if they chose to – that's how we did it.

Question Twenty-Six: Did they buy them?

Yeah, Saul bought additional. Let's see. After the first run, Saul bought additional shares, I bought additional shares, the 4% bought additional shares, and so did the 14%.

Question Twenty-Seven: How much did you raise selling the shares?

I'm trying to think. I think it was something like \$11,800 a share, something like that. That was the first round. The second round we had increased the shares because we had equity in the company – maybe it was \$14,000 for the remaining eight.

Question Twenty-Eight: How are your current revenues?

We are in a downswing, and I tell you why, which was to be anticipated. This was a new technology that was a loan. But what's going to happen is that, it's just like, it's a computer. Basically it's a computer and software. The first machine we purchased cost \$140,000, the second was \$125,000, the third was \$105,000. The fourth, they came down with a scaled-down tabletop model for \$55,000. Now, when I did the businesses plan, the whole success of the company was to have a niche and it was all timing. We started the business before anybody had CAD and we started when the CAD equipment was extremely expensive and not accessible. Now it's going down in price and is accessible to everyone at \$55,000. I had thought we had about a five year window for making it a viable company and then after five years it will very quickly decline because of the conversion to digital technology. So, knowing that last year, our gross revenue was about \$950,000. This year it's probably gonna [sic] be \$800,000, and that is due to loss of accounts, but also we had to restructure our pricing, because the equipment is decreasing in cost.

Question Twenty-Nine: Cut in the price?

Yeah.

Question Thirty: How long do you think the business will continue?

Well, I mean, I knew it was gonna [sic] go down, but when it started to go down it bothered me and of course I was looking at other ways to get around it. And looking at that, you know, I've got a machine here that I was gonna [sic] have to pay off for the next five years for \$140,000. So I can have the exact same worth at \$55,000, so what I decided to do is, I have a couple of clients that were very high volume accounts, really could have purchased their own equipment and cost justified it, and I knew I was going to lose them,

because if I were a radiology administrator that's what I'd do. So, I approached them and said, 'You know what, we are providing this service to you. I'd be more than happy to take one of my machines, put it in your facility – you won't have to pay for transportation of film – I'm not gonna [sic] have to staff it so I can give you better pricing and you will have it on site.' So, it all depends on who it is. One site took advantage of that because they wanted their own machine but didn't have the budgeted dollars, and they had just acquired a lease so they had no money. So, I have this machine sitting there.

Question Thirty-One: Are they essentially the same machine?

These are identical. This is the tabletop model that they're promoting for low volume.

Question Thirty-Two: 2005. Let me see this, you use this?

Oh, yeah.

Question Thirty-Three: Are they the same quality?

I mean my goal is to get rid of these, place this one and then do my in-health with this. But you can look at them. You know, I use this on accounts interchangeably.

Question Thirty-Four: These are all off-the-shelf technology? You don't have to do anything to them?

It's FDA proprietary technology.

Question Thirty-Five: Who provides them?

The company that we use is R2 Technology. And that was another thing, too. When we started this business, there were actually three FDA approved CAD equipment manufacturers in the market. R2 was the first, but it was only by six months and it was the most expensive, but I thought to date, the best technology on the market. So when I

started this company I could have gone to one of the other vendors and got phenomenal pricing. But I knew that we would have to have at least what was perceived as the best quality technology to do it. So, buying R2 cost a lot of money, but I think we made the right decision, I think we would have lost a lot of business if we had viewed it down and got the cheap machines and not the best. Are we following your format?

Question Thirty-Six: More or less. There are still some questions on here I was trying to go through to make sure. I think we mentioned it, but when you were looking to, when you decide to launch this business, what advice did you need? You realized this thing I need to know? What advice or what things did you need?

Probably, how to get the money?

Question Thirty-Seven: That's financing.

I had done a lot of programs start-ups in my career, not that I own, but at UBMC. A lot of initial start-ups so that piece, I didn't find writing the business plan and researching the data, was complex at all. I truly believe in that if you're gonna [sic] start-up a business, you gotta [sic] know the business before you start the business. I don't think this business would have been successful at all if it weren't that I was well-known in the mammography world, and when I start calling on clients, the fact that I was the director at UBMC, I got in the door.

Question Thirty-Eight: So, you went to hospitals that knew you?

Right. For me, I found the most difficult part of this was sales. I'm a non-sales person. And I don't know how to take rejection, I never had to in my career. I was always like...that's the most difficult thing.

Question Thirty-Nine: So, tell me about your self process?

First of all, you don't hire anybody. If you're gonna [sic] start a business, you've got to do pretty much everything yourself. And so I'd just get on the phone and I would get these butterflies in my stomach, and, 'Oh my God, I gotta [sic] call,' and I would just call and start talking, and you know, 'Can I talked to you about CAD?'

I think, only because people knew I was in the UBMC Health System, knew the radiology directors, so it was through relationships that this company was successful. It wasn't the product, because when I first started, I spent a lot of my time explaining what CAD was, you know, at first they had no clue. Then that changed, the technology was accepted, they went to meetings, they heard about it, but initially they had no clue. And I would go into a presentation; I met the radiology director, he was a friend. He said, 'OK, I will set up this meeting' with his medical director who was a radiologist. I went through and gave this presentation. I had all my files and everything else, I was ready to go, and the guys said, 'Oh, that's interesting, OK,' and then kind of walked away and the radiology guy said, 'You want to talk to Dr. S, who treats at UBMC, first about it?' And so that was another connection. So he called Dr. S, who is the guy that I worked with. He said, 'You, Heidi came down here and gave us a presentation about CAD, what you think about that?' He said, 'Do you think it is something we should do?' and he said, 'Yeah, absolutely, I believe it going to be standard care, and if we could get it available, yeah, I think you should do it. I think it would help you, absolutely.'

Question Forty: So, Dr. S was your old boss?

Right.

Question Forty-One: And his endorsement of the technology really helped?

Yes, because at this stage it was very new, so most radiologists or breast imagers would look at Magee and the expertise in breast imaging so they were asking his opinion: ‘Should we look at that?’ So that helped. Me knowing people getting in the door helped.

Question Forty-Two: Were any big customers early on so you could say, you know, Hospital X is using this technology?

Oh, yeah, that was really important. First of all I found out, which that surprised me, that no community hospital in this region cared what UBMC Hospital did. The reason being is they didn't care what technology UBMC had because they expected them to have the latest technology. That didn't mean that the community hospital should have the latest technology, so the fact that Magee had it meant nothing. The fact I was from UBMC, they assumed I was knowledgeable of what I was talking about. So I found interesting. So, the only thing that helped me as I acquired more customers when I go and say to Ohio Valley: ‘Well I have X, Y, Z Medical Center,’ and they were: ‘X is doing this?’ That's when it was [helpful] – when they saw people too close to them doing, this then I'd get them. So probably over the course of this time, we acquired like 22 accounts.

Question Forty-Three: What was your first key?

My first key was, when do I find my first contract?

Question Forty-Four: From?

The very first contract I got was with was X Medical Center. I'm setting there, starting with business, machines, and I didn't have a contract, so I called people, called people, couldn't get in the door: ‘Oh yeah, there's people on vacation, come back.’ So there was a radiologist I knew in (name of location), and I called him: ‘Oh, Heidi, how are you?’ That type of thing, you know, ‘Oh, yeah, sure, sure, we'll be interested. Have

you talked to someone about it?' I said, 'No, I'm not sure who to talk to.' 'Oh, I'll mention it to him, if I don't hear anything.' And now I am getting really nervous.

When I'm looking back, seeing how aggressive I was, I think I was like desperate; I had to make this work. So I called him again, and I made an appointment... 'Can I come in? Can I come in and talk to you?' 'Well, have you talked to...?' I said, 'No, I haven't, but I thought you were the key contact, so do you think I could set up a time to go?' He said sure, so finally I got a meeting. I went in there and he introduces me to the audience; the chief radiologist was in there, so I did my little presentation and I was really nervous. They sat there and said, 'This makes sense, is this gonna cost us anything? Are we gonna make some money?' 'Well. I don't know if the technology is good, but what's it gonna hurt? Yeah, makes sense, let's go through the process.' And then one of them said, 'Joe, we don't have to anything with it, you and I can make the decision. Let's move with it.'

Question Forty-Five: Interesting that the process doesn't cost; the hospital doesn't pay?

No.

Question Forty-Six: You bill Medicare?

So the hospital pays me, but what they pay me is less than what they are getting from Medicare for the service. I put my pricing below Medicare rates. So they're making money.

Question Forty-Seven: Interesting. You can't lose. And people would say no?

You know, it shocked me, it shocked me. Some of them don't care about mammography; some don't wanna [sic] be bothered with the time and effort.

Question Forty-Eight: So they will charge for the normal radiologist fee and this will be an additional service that the government pays for.

And it pays two components – for the technical and the professional. So, the radiologist, if they run a mammogram, they get X amount of money, if they run a mammogram with CAD, keep in mind, with CAD it means to look at a piece of paper, they get an additional three dollars. Now, in their world three dollars is minimum, but in reality this did not cost the hospital, nor the radiologist any money.

Question Forty-Nine: So they get three dollars for you doing your magic. And what do you charge them?

The reimbursement was about \$14.80 per study, and my charge for them was \$11.50. So the hospital got another couple, three dollars, or the radiologist got three dollars and I get \$11.50. And some insurance companies, like BlueCross were reimbursing \$25 dollars, you know.

Question Fifty: So they really made out.

Yeah. So, you think that it's a sale but it was kind of like, 'It's not in the top of my priority list' – that's pretty much what it was, you know, 'I don't like mammograms and I don't care about all those mammogram patients who go to Magee. We shouldn't even do them.' You know, so it just wasn't something that I run into. But in this flight, suddenly I saw these two radiologists that had to be a good thing. The Radiology Director, the Administrator is like: 'If they want it, fine, I'll do it. OK yeah, let's go, let's do it.' And they often got a private office. So they said 'You know what Heidi, it's gonna take forever to go through the legal system, through the hospital, so why don't you start at our office. Sure, you could start next week.' So that was my first account.

And then the Radiology Director said: ‘Well, you might not wanna [sic] do that, doctor.’ ‘Why not?’ he says. ‘Well, we are gonna [sic] negotiate this contract and, you know, some of those terms may change and you don't wanna [sic] start with the old contract.’ I turned around and I said, ‘Doctor I guarantee you whatever terms I'll negotiate with the hospital I would modify your contract to meet those terms.’ So he said, ‘OK, let's go ahead, let's started.’ I now go home and I am so excited I got my first account; my excitement lasted about two days.

So then these two radiologists were sitting there like he can make the decisions – what's the deal? So he calls me back and says, ‘We got a little problem, because we told our group that we are gonna [sic] do this. They are not quite sold on this and you have to come back and sell it.’ Now I am going in and meeting with group of radiologists who are not too happy that they were not involved in the decision making process, so I go in there and there is two of them who I am meeting with and one guy, I mean he just pretty much lambasted me. He was sitting there and I go through and do my little spiel and he starts asking me all these questions, like ‘What is the probability and the biopsy rating? How does it make sense, I mean how can you tell me you are increasing your cancer detection but it has no impact on the biopsy, that doesn't make sense to me.’ I finally said, ‘Doctor, you are asking me questions that I can't even answer. I am just telling you what a radiologist should do, but I am not a doctor.’ He goes, ‘Maybe not, maybe not’ and then he turns to his buddy and says, ‘Tom, what you think, you know it's not going to cost, if nothing else it's worth to try.’ So that's how I got the first account, and those guys became the strongest advocates now, you know, but it was tough.

Question Fifty-One: Did you use them to help make sells in the future?

You know I've never used them too much.

Question Fifty-Two: Never even said, 'Talk to Dr. Smith and...'

No. I did. I did make a couple of calls because Dr. Smith told me to give you a call but...it was...I think what happens in the community health, in the radiology world, mammo is not a big deal to them and this little business is minor; it is a little niche but it's not important. I mean now they talked about it, there was a radiologist that was reading at (name of location) and now was starting to put together his private office and wants a cut and he calls me and says give me a proposal – not one of these 20 page jobs – one quick little page, sell it out on one page. I asked, 'What is it gonna [sic] cost, what they are gonna [sic] make,' and he says, 'I don't care about the money. I want CAD.' So then: 'I have to tell this if he wants, I'll get this account for you,' so that type of thing. So you know, a little world in health, but not much.

Question Fifty-Three: You are with 20 hospitals?

About 22.

Question Fifty-Four: Are you trying to grow it or maximize it?

You know, I am not gonna [sic] make myself crazy. I have looked at the technology changing and what I predicted occurred. Everyone is converting, people that want CAD, they can buy it at \$55,000, so I pretty much kind of turned and focused on retaining what I have and restructuring. But you know we've been out there long enough and we've done trade shows. You know, most want their own equipment and so I don't feel a lot of potential clients out there. The ones that are out there that are smaller and smaller in volume are the ones – I think pretty much we are in a stable maintenance spot, which is OK.

Question Fifty-Five: What does team means to you?

Team to me is sharing ideas and working collaboratively to reach a goal – some people are better at teams than others.

Question Fifty-Six: Who are your team members?

I would say Judy, my 4%, my husband – I think because he understands the healthcare profession – I mean, I think the fact that we have the same professional background, makes the difference. Then, to be honest with you, probably my other team members are my employees. That's where I bounced my ideas, my thoughts.

Question Fifty-Seven: How many employees do you have?

We have, there are three employees and then I have one selling person, so that is four plus me.

Question Fifty-Eight: Is Judy one of the three?

Yeah.

Question Fifty-Nine: Honestly this is important to the process. When there's gonna [sic] be key people to come in and out, like we were talking about the doctors, you told me that you were using doctors to help you make a couple of earlier sales or your boss at Magee that helped you make a couple of earlier sales, that may been important then, but, you know, might have fallen away. Not being an important team member so part of this you know building relationships is I have leverage somebody at one point, do they continue to be important or not.

You know bringing that up is like what I did my very first year, because one, I was walking in there and no one knew what CAD was. I did sponsor an educational program at dinner and invited radiologists that I had been talking to it and I have these

two radiologists from UBMC do a presentation. So, I did do that approach, but as time goes on you know they all knew what CAD was, they just didn't know the final details.

Question Sixty: Yeah, that is the process. Did you consult with anybody who didn't really become part of your team?

You mean, in the beginning from back three years ago? Probably to me, whose endorsement I sought, my nervousness was, I thought technology was gonna [sic] evolve to standard care but I wasn't a physician. In the very beginning, getting the opinion of Dr. X was important to me, and I remember, when I told them I was going to resign, and he was: 'What are you gonna [sic] do?', and I said that I was going to start a business. He asked me doing what, and I said, 'I can't tell you now,' and he asked me, 'What did I mean?' So I said, 'I got this idea and I wanna [sic] do it and don't want to say anything too prematurely – I don't want anybody to take the idea.' Then, I said, 'All right, I am gonna [sic] tell you.' So he looked at me, and he says, 'Oh my God, Heidi, that's a fabulous idea and it's been staring me in the face right every day I walked down the hall – why didn't I think about it?' So I said, 'Hey, it took me two years to think about it – why should you think of it any sooner?'

I needed the reinforcement that it was a good idea. Not people saying, 'Yeah, yeah, you know we can make money,' but someone saying, 'Yeah, I would use that.' So that was critically important – he could have been an investor or something, but it didn't turn out. It was just I needed some kind of validation...doing the right thing. Then there was a researcher at UBMC who, after I told this to Dr. X, I said, 'Please don't say anything to anybody.' He promised me that he never would, and I guess this researcher was involved in the department and asked him what I was gonna [sic] do and he said, 'I

can't say.' It was like a big secret now why I am leaving, what I am gonna [sic] do, so finally when I told this researcher what I was doing, he said, 'I would love to read your business plan.'

Now he is reading a lot of grant proposals, huge funding sources, you know, from the government, and I give him the business plan and he kind of approached me and said, 'You don't need to be running around to find all this money, because I can get you the money tomorrow.' I said, 'Oh really?' He said, 'Yeah I have a friend and I can get you the money,' and I could tell he was gonna [sic] give the money but he was gonna [sic] take control. He said that I overestimated the volume and said, 'You know I don't think any hospital is going to pay you 11 dollars – you need to be in the eight dollar range.' So I said, 'Well we will see'; if I started at \$8.00, this is not going to be successful. So then, I thought this is an endorsement – I am doing the right thing – here is this guy who wants to take it over.

And looking back at it you know, I was a little naïve. I didn't know how complex it was, the start-up of a business, find the equipment, and find the place and you know, documents and you know, how the taxes go and I was...

Question Sixty-One: How did you end up here?

What happened was the guy that finances the equipment, he had an imaging office in (name of location) and he said, 'I have space here, use our space,' and I was petrified over signing a lease. And that scared me. I ended up moving into this space, and then a year and half later he sends me an email – I think you then have enough time to get established, so we are gonna [sic] increase the rent by 40%! I responded back, I understand you increasing the rent, but 40% I think is a little steep. I said I would be

more than willing to pay more – it went from like a six hundred something to 850/month and he said, ‘Fine.’ I just did that for about six months and then I started looking for space. This is originally where I was going to be, but this time around I wasn’t so nervous about signing the contract and when I placed those machines in those facilities, I did that with a three year contract so I know I would have a viable business for another three years or so.

Question Sixty-Two: Great. Cash flow is King.

Oh, cash flow is important.

Question Sixty-Three: Were there any critical team members and critical developments?

I think Saul was actually critical. I think my husband was so skeptical about this business that he needed that validation and as I was looking for validation from the technological side and he was looking for a validation from another side. So, I think Saul walking in at that time and saying to my husband, ‘I think this is a good idea’ made him a critical team member. Because he was there to say that to my husband, that it would go anywhere, I think otherwise he would have been one of those that people dream and think, but don't do .

Question Sixty-Four: Can you draw me a picture? That center dot is you – draw me what your team looks like. It could it be network, or a web if you will.

I am at the top?

Question Sixty-Five: You can put yourself on the top or anywhere you want. I just put it in the middle for the heck of it – turn it sideways if you need to.

OK, I am giving you real names here.

Question Sixty-Six: That is fine. When I write this up to show it to anybody I'll run everything by you. If there is anything that you don't want shared or you would like to have changed, we can make up a different technology. That is not the important part of it – it's the network.

Pretty much the way I look at it, I am here, what I do and don't do with the company. I see my husband here, we own, after the deal was done, 47%. That's pretty much all I need – one shareholder to carry the decisions – then I see two of my employees. I see Ruth as my next level team members and then I have two other employees, to a lesser extent and then I see my shareholders. That's it, a small team.

Question Sixty-Seven: That's interesting – customers don't come in?

Oh. What I was thinking is the team that was running the business.

Question Sixty-Eight: No, I want your impression, that is interesting.

The customer thing is, you know this whole philosophy about 'the customer is always right,' basically my philosophy is if they call whatever they want we will do, we will accommodate, it doesn't matter how ridiculous it is, if they call and say they've lost this CAD paper – can we do it for free, the answer is yes. It is just whatever they want we will do, and so it's not an issue with the customer, retaining them is an issue. I think if you approach any of our customers they would say our service level is excellent, we accommodate, we communicate, so it is not a problem area and because I have that philosophy, this people, is so easy for them. The customer calls; we say, 'Whatever you want,' you know – there is no decision.

Question Sixty-Nine: It is interesting R2 didn't show up.

No, well R2 is – that is a sticky situation, it is a love-hate relationship. When I am buying equipment, I am a very important customer; when I am not buying equipment, they see me as a competitor. I have 22 clients that they could have sold machines to, so it is no a great relationship.

Question Seventy: So did any of the machines break?

Yeah. I would say probably my most important is gonna [sic] be my transportation service, my courier service – they are a critically important alliance that can adversely impact my business.

Question Seventy-One: Who do you use?

(Name withheld) and FedEx.

Question Seventy-Two: Why did you pick them?

This guy is a great business man, I had acquired a new account, and they wanted to mess around with the pricing. They didn't want to pay the pricing and I had committed to UBMC when I negotiated the contract for purchasing. So the guy said to me, 'You know Heidi, you need to commit to me that whatever pricing you were giving them so then we would have the most favorable pricing.' So, I said to him that we would, so I get "a big hospital" thinking that they are so important. I said, 'I can't do anything with the pricing – you know this is the way it is unless you want to do your own transportation.' So they say, 'Fine, if we got a courier we will do that.' I said, 'OK, just bring it to your office and pick them up, then we will happy to help you.'

So, this guy from (name withheld) walks in and introduces himself and he says, 'You know I do all the courier services to the "big hospital system" and I just wanted to introduce myself and see if there is anything I can do for you.' I said, 'Well, yeah,

actually we are gonna [sic] need courier services.’ I said, ‘You know, maybe we can talk about pricing?’ He says, ‘Well, you can ally with the “Big Hospital System” – if you work with them, I see that as an alliance, I’ll give you the pricing.’ And so that's how he came in and I thought it was fabulous. I started to use them. So, to me he is the most important one because he can adversely impact upon the quality of my business. If he screws up, you know if he delivers the wrong film, if he doesn’t pick them up, he is critical. The other critical one is FedEx, but I can’t control FedEx; I can control this guy. I can control what is important. With FedEx, I am at their mercy. So other than that, I mean, there is really Archie for the service. I have more than one machine so we can deal with that. You know I pay service contracts so they have an obligation to do that.

Question Seventy-Three: What is your average daily volume?

When we are doing it in-house – we call this in-house – we are doing about 220 a day and then we've got one machine in (name of location) and my guess is they...

Question Seventy-Four: You just lease them the machine and they can do whatever they want?

No, I get paid. Well, I got two different structures – one of them is per procedure. So, I got them weekly printouts of how many studies they’ve done and I charge them for that. Butler wouldn’t go that route – they wanted the flat monthly rate so I did that.

Question Seventy-Five: That is wonderful. I would like to talk with some of the people that you identified as partners if you are amenable to that.

Like Judy and Ruth...?

Question Eighty: Saul, people who I can talk to and Tom. If you are not comfortable I don’t have to, but...

I forgot who I said Tom was....

Question Seventy-Six: Tom is the guy that owns the 14% and has the space in (name of location). I'll show this to you and if there is anything sensitive we can just...

It is not sensitive, I mean I understand.

End of interview.

Saul – Investor and Board Member – BetaCad

Question One: Tell me about your background?

I am a lawyer; I've been practicing for 19 years. I went to the University of XXX undergraduate school. I went to the University of XXX's School of Law, and have my masters in Public Health and Health Care Administration from Harvard. I started practicing law in 1987 in Philadelphia. Then, I went to (name of law firm) in Pittsburgh, where I was in their health care group. I then moved to an in-house position with Albert Einstein Medical Center in Philadelphia. I was then recruited to come back to Buffalo to be Deputy General Counsel and then became General Counsel at (a big) Hospital, and was at (the big hospital) from 1995 to 2001. I then was the General Counsel at Western New York Hospital. I left practicing law in 2003 in order to work on entrepreneurial efforts including BetaCad, as well as a number of other start-ups, and then returned to practicing law in September of 2005 in my own law firm, (name of firm), which is based in Philadelphia.

Question Two: Did you have any other entrepreneurial experience before this?

Yes, I had worked in four or five start-ups, of course, CMC Matrix, which you know about, as well as an educational software start-up enterprise in Philly which was my first introduction to start-ups. I have also worked on start-ups in the transportation

area, biotech medical device, and weight loss. So I've probably worked on eight or ten start-ups.

Question Three: Describe your relationship with Heidi.

Yes, Heidi and I were friends who became business partners. Heidi had an idea for starting a business, which was CAD (computer-assisted detection) mammograms. Heidi ran the radiology department at UBMC. UBMC was the only hospital in Buffalo CADing mammograms. Scientific evidence suggests that the CAD mammogram results in an earlier detection of breast cancer in somewhere between 20% and 30% of the cases, depending on the study you read. There is also insurance coverage for CAD, so the idea was very simple. Put together a group of hospitals that didn't have the capital to buy CAD equipment, which at the time was very expensive, in 2003 and 2004, and buy the CAD equipment, CAD the mammograms, provide a community service, reduce breast cancer in the Pittsburgh area, and have an opportunity to make a little money.

Question Four: How did you meet Heidi?

Her husband, Evan, was a Chief Operating Officer at UBMC and then Chief Operating Officer at Western New York Hospital, so Evan and I were working together at Western New York when he asked me if I would have lunch with Heidi in order to discuss essentially the idea behind BetaCad.

Question Five: What factors convinced you to become part of this venture?

Three factors. First, Heidi is a very bright, capable businesswoman who knows her stuff; second, when we very quickly determined that there was insurance reimbursement, I knew that there was an opportunity for a company to be able to make money; and third, even the quick due diligence that I did based on what Heidi had said to

me confirmed that in fact hospitals were not buying CAD equipment, and that UBMC was the only hospital in Buffalo providing it, and that if you could link together three or four hospitals that weren't making the capital investment to buy the CAD equipment, you could have enough volume to fill the machine. It was really kind of a fancy Kinko's.

Question Six: Why, and concerning what, has Heidi consulted you for?

In the beginning, I was consulted to form the corporation, help raise the capital – we did a private placement memorandum, which was the vehicle we used for start-up capital, to buy the first machine. And I've continued to consult with her on both business and legal issues.

Question Seven: Define this team for me – the BetaCad team.

That's a good question. Operationally or investment?

Question Eight: Well, define what team means to you.

It's a group of people who work together toward a common objective. For BetaCad, the investment group would be all of the shareholders; there is also a board so each investor was given a board seat and has proportional representation. And then the operational team is Heidi, Judy, and Ruth and one or two part time people who help press the buttons on the fancy Kinko's equipment.

Question Nine: Is the board only the investors, or are there others outside of the investor pool?

The board is the only investor. We made a conscious decision to keep it simple. And we, Heidi and I, very early on agreed that we would maintain 51% of the shares, and at least 51% and therefore control not only of the shareholder group, but also of the board.

Question Ten: Was there any problem or instance where an outside board member would have been helpful?

No, none that I can think of.

Question Eleven: Have you sought outside expertise or resources for this venture?

Expertise, yes. At one point, Medicare changed some of the basic CPT codes and what went into the CPT codes for the reimbursement for the CAD, and John, who is a billing insurance and coverage expert, is a colleague and acquaintance of mine, and we engaged him to sort through not only what we thought the Medicare reimbursement was going to be, but to just confirm what we were telling the hospitals to bill was in fact correct and we had an opinion to back-stop what we were saying.

Question Twelve: What is a CPT code?

A CPT code is the way you bill for a procedure under Medicare, so it makes sure that a CAD is an add-on to mammography, and you want to make sure you bill the correct add-on to the mammography.

Question Thirteen: So you hired John on as a consultant?

Right. I don't remember exactly what we paid him, I think \$3,000-\$5,000 to look at the question and give us a letter, a written letter that we could rely on as an opinion.

Question Fourteen: Are there individuals you worked with early on in this venture with whom you've lost contact?

There were some potential investors who decided not to invest, but no one who was a critical member of the team or key investor.

Question Fifteen: Were any critical team members added at a critical phase in the venture?

When we first started off the idea was that we were going to take the \$500,000 and buy the equipment, or lease it, and then we would go through a typical buy rather than lease analysis, but we had a contact who was interested in both leasing space to us and assisting in the actual acquisition of the equipment, because he owned and ran eight radiology centers, and mammography is a radiology service. And so he had preferred access to both discounted purchase arrangements as well as creative financing through the finance arms of the medical equipment companies, and we were able to strike a much better deal through him than we could get through a traditional bank. So, in exchange for his stepping up to the plate and helping us essentially enter into a lease purchase agreement where (name) bought the equipment and then leased it to us, we would make payments on a 3-5 year schedule, and at the end of that schedule we could buy the equipment for a dollar. In exchange for that, (name) got 10% of the shares of the company.

Question Sixteen: That's not bad.

Yeah, but it was also him taking risks, because obviously, if the company had gone belly-up, he had bought the equipment. As you know, medical equipment, when you re-sell it, it is massively discounted.

Question Seventeen: Did Heidi anticipate the need for any additional team members?

I would comment differently. Heidi put together a very cogent business plan which pretty much covered all of the bases and all of the key requirements, and that came from the fact that she had essentially set up the entire mammography center, including the CAD component, and UBMC.

Question Eighteen: Who makes decisions on who is added as a team member?

I would say the ultimate decision rests with the board, but the way it has worked has been that Heidi makes the recommendations, and those recommendations have made sense so they've been approved by me, and in some cases we've included (name of individual), who is a substantial investor and also in the healthcare area, he works for UBMC, so when we've needed to make operational decisions, she's the CEO of the company, she simply does it. If it's a big decision or one she needs advice on, she comes to me and sometimes to (name of individual).

Question Nineteen: There haven't been any major personnel decisions since they started, have there?

No. It's pretty operational now.

Question Twenty: No other questions, we've pretty much covered it all.

Ruth – Employee – BetaCad

Question One: Tell me about your professional experience and your education.

I basically did some college, that was in accounting, and then I worked for a CPA for about three years and then I went to an air tool company and did just about everything. There was kind of, they didn't officially call it controller – but you [were a controller] and then I quit those jobs to raise my children. And then my husband knew her or whatever and I saw this wonderful opportunity so here I am now.

Question Two: How did that happen?

She was renting this space of his company and he is working in MRI so they met up through that.

Question Three: Describe your professional relationship with Heidi. Did you have a relationship with her previous to the venture?

No, I did not.

Question Four: How did you meet Heidi?

Through a job interview.

Question Five: How was the opportunity presented to you, through your husband?

Yeah, yeah.

Question Six: So your husband told you about the opportunity?

Right.

Question Seven: Does your husband have a relationship with Heidi?

No.

Question Eight: OK. I am just going through questions that you already eliminated.

Why did you join BetaCad?

Well it was, it fits into my schedule. First, I started up as per diem [employee]; as I figured it, it was something to do while my kids were still young and that stuff and then school and then it eventually evolved to what I do at work, four days a week now.

Question Nine: What will the rest of the team tell me why you joined?

Why I joined. Because I was bored at home, I needed some adult conversation and stuff.

Question Ten: Tell me about, what is your role with the company?

I am a CAD technician but I also help with the bookwork and stuff. I do, you know, all the FedEx things, the shipping, stuff like that. I am trying to think because there so many like little parts of it that you do during the day, but you don't really think of...

Question Eleven: What does Heidi consult with you about?

She is actually pretty good with consulting with all of us. She would come up with an idea, and ‘How do you think this would work, what would you think if we changed this to that...’ She pretty much bounces a lot of ideas to all of us to see. You know, how we feel about it all, and go with the flow...

Question Twelve: Do you have an option or stake with the company?

No.

Question Thirteen: What does team mean to you?

Team? Basically everybody working together for a common goal.

Question Fourteen: Did you join when the company started? When did you start?

I think it was fairly new, I would say March, fairly new.

Question Fifteen: Who would you identify as the key team members for BetaCad?

Besides Heidi?

Question Sixteen: Yes.

Me and Judy, that’s it.

Question Seventeen: Anybody you know not on the BetaCad payroll who are critical team members?

Our couriers.

Question Eighteen: Are there any individuals that you’ve worked with early in the venture who you’ve lost contact with?

Yes, Darla. She quit early on.

Question Nineteen: Darla was another technician?

Yes.

Question Twenty: She terminated the employment?

Yes, she left.

Question Twenty-One: Were there any critical team members added during a critical phase in the company – you know, when there was a problem going on and somebody had to be brought in or any disasters?

No. We were pretty much disaster-proof, so no, I don't think so, no.

Question Twenty-Two: Has the venture had any setbacks?

I don't believe so. I mean, I think there had been some minor ones with people buying CAD equipment themselves, but, you know, nothing major. We've lost a few clients and stuff.

Question Twenty-Three: When a minor setback occurs, how does the team react?

I would say concerned first, and you know, we're always wondering what's gonna [sic] happen, because we usually get an idea before it happens and then we usually pull together and figure it out the way we can either not lose any more business or you know, get them back and stuff like that, so some of that we can do, some of it, you know Heidi has to do.

Question Twenty-Four: It is in a supporting group?

Yeah, yeah...

Question Twenty-Five: Have you been consulted by other team member when other additions to the team had been considered?

I wouldn't really say consulted, no. I've always known about it and you know, she's said things about the person but I don't feel that she would. I don't think she would introduce them to me prior to hire them. But, I mean, I've known about them, some of their personality and their background and stuff, but as far as decision making, no.

Question Twenty-Six: You mentioned the couriers – tell me about a little about the relationship with your couriers?

The couriers I am speaking of is (name withheld) and they are responsible for local stuff; we do some FedEx shipments, but they are responsible for a good portion of our films arriving to us. If they don't do their job right we get our films late, we get them back, and I mean it could screw up our whole day, like you won't believe. They're just very conscientious of what they do, they know what is in that bag and when something is wrong or different, they know about it. They notify us – we've had a very good communication, so which makes everybody's job much easier.

Question Twenty-Seven: There are very often problems that they solve?

No, no.

Question Twenty-Eight: You know you said if there is something wrong, something different, can you think of any example of the time when it was an issue?

Yeah, a bag color was different, so it's like, 'Wait a minute, this bag color is usually this color and it wasn't that color,' so they, you know, they notice the small things. It could cause a big problem if they decide, like, 'I am not gonna [sic] deliver this because it's not the purple bag, it's the pink bag,' stuff like that.

Question Twenty-Nine: Was it a problem? Or just a new bag?

No, it was a problem, in the fact that it shouldn't be purple and it wasn't, you know, like that stuff, you know.

Question Thirty: They pay attention to detail. Do you normally work with the same individual, every day?

Mostly the same individual is here every day. There is a couple of different ones –

we have one guy that does probably about six accounts, but we have other ones that do a night pick-up and, you know, different things like that, so we have about four, five, I guess, total.

Question Thirty-One: Is there anything we didn't hit? Another question I didn't ask you and I think I know the answer is did you direct the addition of any team members?

No.

Concluding remarks: Thank you – that was it.

Appendix C

Alphasense Team Interviews

Eddie – Founder of Alphasense

Question One: OK Eddie, I have a script that I follow, just to stay methodological, I'm going to go through that. If you expand on some questions we might go back and hit on a point again. If you'd just tell me a little bit about your professional experience prior to starting this business – what is your educational background?

I got my bachelor's degree and PhD in physics, and I then switched fields into biology for post-doc. I came to Ohio State in 2000, in the biology department...

Question Two: Is this your first venture in the industry?

Yeah, I would say so. The first of significance.

Question Three: Tell me a little bit about your business.

We developed new ways to use MRI. We are adapting MRI to visualize cells and molecules in the body. Initially, MRI was thought of as a diagnostic tool, to diagnose soft tissue lesions. We are adapting it to visualize specific populations of cells and molecules in the body. This sort of technology is going to allow one to visualize a new generation of therapeutics that involve the administration of therapeutic cells or therapeutic molecules that are created in situ inside cells. So, for example, molecular medicine type of therapies. And so, we're developing technologies, a new generation of therapies.

Question Four: So when somebody is being administered a drug, you'd be watching and see how it is absorbed?

Not necessarily small amounts of drugs – for example, therapeutic cells that are administered to a patient. We could visualize where the therapeutic cells distribute in the body.

Question Five: Like gene therapy type of research?

Well, that would be a therapeutic sort of molecular type medicine That would be one example, yeah, that would be cell therapy.

Question Six: How long since you conceived the idea?

The technology or the business?

Question Seven: The technology.

Probably around 2002 or so. Actually 2001. It's basically more than one technology, but the first one, I would say 2001 when I really start thinking about this.

Question Eight: What led to that?

I don't know. Spontaneous creation of ideas...I worked in the area of MRI for a while.

Question Nine: So you came up with the idea in 2001. How long did it take you to actually start working on a business plan?

Well, the first professional business plan, I would say was created end of last year.

Question Ten: 2005?

Yeah. That's our professional business plan, not the one I wrote necessarily.

Question Eleven: When was your first "back of the envelope" moment where you started writing it all down?

I don't know. 2003, maybe?

Question Twelve: How long did it take you to start seeking partners for this venture?

Co-founders or funding partners?

Question Thirteen: When did you start bouncing it off people?

Probably 2003.

Question Fourteen: Who did you bounce it off?

My early interactions actually came through the Life Science. That sort of introduced me to the business community here in Columbus. That was the most important contribution, connections, early on.

Question Fifteen: When did you start looking for you formal partners?

It was just a slow evolution. I don't know if there was a conscious effort to say these are my formal partners, but a group of people sort of became enthusiastic and just point whether they'd devote their own time to it when they were uncompensated. That's how we got our founding group together.

Question Sixteen: Tell me a little bit about the individuals that formed this nucleus for you. Were you introduced to them through the Greenhouse?

Yeah, one of them. We have people on the board, Pete – do you know him?

Question Seventeen: I don't. Tell me about Pete.

Pete is a senior surgeon, founded a company called (name of company) that's a successful company here in Columbus. He is the director of Central Ohio Biotech Initiative – what's it called – at the governor's office. Other people are Rod, Director of the *Business Week* for 22 years, and also best-selling author; Harold, Director of the Cancer Institute here in Pittsburgh; Chad, who is a business person, partner, and capital advisor. You're probably going to interview all these people. Start with Pete; he will introduce you to the other people.

Question Eighteen: Tell me about Pete. How did the initial meeting go?

Nothing, I just, I made a presentation. Basically did the same thing over and over, presenting the technology to people. People got excited about it, presented a vision of what our business model would look like built around the technology. And basically, we've just been embellishing it from then on.

Question Nineteen: So, who actively works on this project?

We have one full time employee, Chad, and there are a variety of consultants.

Question Twenty: Chad?

Yeah. CEO, CFO, secretary. I do a lot around, too.

Question Twenty-One: How many consultants?

Ah, we have, well I'm technically a consultant, so about six.

Question Twenty-Two: Let's step back for a second and look at your board members. Are all these people you mentioned formal board members? Or are they just in an advisory capacity?

Board members.

Question Twenty-Three: How were they brought together?

It was just through connections.

Question Twenty-Four: And as you meet each of them, you just...?

I just kind of got my hook in them!

Question Twenty-Five: Was there any sort of romance process or was it just one meeting?

No, it's complex, you know, many meetings over an extended period of time. Meetings, at which we are having discussions, discussions, discussions. I don't know if

there is any method of persuasion and then talking about possibilities, brainstorming for a long period of time.

Question Twenty-Six: Were these one-on-one meetings or group meetings?

One-on-one, or group, over the phone even. I don't know.

Question Twenty-Seven: I'm asking you to elaborate.

Now, we are sort of, I would say, established. Early on, I mean, basically, meetings were irregular, then they became regular. And in between, meetings were all there, we were on the phone with each other, discussing things or emailing back and forth over a months-and-months period of time. And looking at different possibilities, there's always a desire by people to see their enterprise formed, it's a natural sort of tendency. If people see if there is a good response out there, then people become interested and become engaged. That's how it comes together, basically.

Question Twenty-Eight: Have any of your board members made any financial commitment to the company?

Everybody has, including myself.

Question Twenty-Nine: Would you give me a ballpark figure?

Less than six figures.

Question Thirty: OK, are they all shareholders as well?

Yeah.

Question Thirty-One: What percentage of the company do you hold?

More than 50%.

Question Thirty-Two: OK, and what is the typical board member hold?

I don't know exactly. Typical board member, 2%, maybe.

Question Thirty-Three: Chad?

He is more of the executive type.

Question Thirty-Four: When did you incorporate?

We incorporated in June of last year. We've been around over a year.

Question Thirty-Five: What were you looking for once you decided to launch this business. What were you looking for in your partners?

Good question. People that were experienced, no one that was green. People that knew much more than I did. People that were no bullshit. People who bring something to the table in terms of skills, not overlapping. People that, you know, you trust.

Question Thirty-Six: What skills did you need most?

Well, the obvious, I mean. People that know how to run a business, who know about financial matters, legal matters, how to write a business plan. Scientific stuff I take good care off.

Question Thirty-Seven: So you take care of the scientific and Harold takes care of cancer, does that sound correct?

Yeah, he knows about the clinical things.

Question Thirty-Eight: OK. Is he going to help you go through the FDA hurdles?

Yeah, he can be helpful there, but he's also helpful from his science background and also his MD background.

Question Thirty-Nine: What do you do for legal assistance?

We have several attorneys that we use – one is one block from here in town – one in Boston for intellectual property. So, we use corporate lawyers and IP lawyers in separate, separate places.

Question Forty: How is your university involved?

The university issues the company's licenses for the technology; in return they take equity in the company, a small amount. They hold and own the patents, they have life.

Question Forty-One: So they did the all the patent work, they filed the patents?

Initially, the initial patents were paid by the university. The company had to reimburse those costs when we licensed it.

Question Forty-Two: Do you know what percentage does the University hold?

6%.

Question Forty-Three: And how much did it cost you to license the patent?

Just the patent costs.

Question Forty-Four: Up to 20.000?

No, it's more than that, because you have to internationalize them. Two patents, internationalized. You can figure it out...

Question Forty-Five: How did you identify your needs when you wanted to launch this venture?

The needs of launching the company or the customers?

Question Forty-Six: Your needs for launching the company.

Well, as I said before. Just basic business, running your business and as I said, I can only be credible in scientific matters, and that's it. So everything else has to be done by other people. Legal, financial, marketing...I have some ideas about things, but I don't know how to cast a form that will be credible to investors. Basically, everything.

Question Forty-Seven: So you were very trusting with the Greenhouse and Pete?

I don't know, the Greenhouse did hands-on work per se; they were helpful as a catalyst, I think, early on, at the early stages. When I came to town I didn't know anyone, I'm not from here, so I think they were an important catalyst early on for me, but that's about it, not a lot of hands-on, day-to-day running of things.

Question Forty-Eight: So you picked Chad as your CEO. How was that decision made?

By consensus among the founders, and also the availability of his time – a lot of different issues, availability of time, the motivation, the skills, you know, it was done by consensus with the founders.

Question Forty-Nine: Is he compensated?

Yeah. Although not much because we don't have a lot of money.

Question Fifty: What percentage of the decision was yours?

It's hard to say. I mean, definitely a lot of it.

Question Fifty-One: Who is your number one sounding board for ideas for this company?

The CEO.

Question Fifty-Two: OK, Let's talk about the customers. How did you realize the customers, the medical community, would be interested in this product?

Well, I just saw a need. Professionally, you travel a lot, you read journals, you go to meetings, you understand trends. It's a very complicated, ah, type of knowledge, it's developed every year. Lot of it is instinct, lot of it is following trends, you know, from the scientific perspective. So, just, you know, a very intimate knowledge about the field, that's what I think. And you see what is going on in the future and how you synthesize the

market, the ideas for the market. And then you go out and talk to customers. Recently, a lot of our thinking and strategizing was paid off, is paying off. Hopefully, it will pay off.

Question Fifty-Three: What is the state of your product?

I'd said it's about three months away from being developed. We are already to manufacture – contract manufacture organizations produce them.

Question Fifty-Four: How long it will take to get FDA approval?

I don't know exactly, hopefully not long, year and a half, maybe. At least to get it to start trials on it, but full approval, I don't know.

Question Fifty-Five: What's it going to look like?

It is basically a bottle of solution, a little bottle, you know, 20 ml bottle, like a pharmaceutical product.

Question Fifty-Six: What does team mean to you?

A team means to me, ah, you have a collection of people, and every person has a unique sort of skill set, and someone helps combine that skill set into solving a very complex problem that could not be solved by any one person. Is that a good definition?

Question Fifty-Seven: It's your definition. Which of your team members have been critical to your success?

I don't think any of them matter.

Question Fifty-Eight: Nobody's been critical?

Wait, my success, our success?

Question Fifty-Nine: Your success in the business.

I don't think anyone here.

Question Sixty: Why is that?

Because it's going very well. I think everyone has been really positive.

Question Sixty-One: So, if I would have taken any of these people away from you, you'd be where you are right now regardless?

Mmh, you could maybe take one away, it's hard to say. I think, right now they've been all important – no extra-hangers-on that could be strictly avoided.

Question Sixty-Two: No, no, by critical I mean who are the key people.

I think they all have been, they are all our team, as I said, they are all important. They all serve a different function, so they've all been important. I think the CEO is very important for day-to-day things, and I am certainly as well, but collectively all of them are important, and if they weren't, we'd get rid of them.

Question Sixty-Three: OK. Who did you consult with in forming this business that ultimately did not become part of this team?

Lots of people. Dozens.

Question Sixty-Four: Can you give some examples, maybe?

Names?

Question Sixty-Five: No, just tell me about scenarios.

People at the Greenhouse. I consulted a lot of people there but they never ended up playing any formal role in our company. They'd give advice about this or that, or whatever, or attorneys for example, or customers, or other scientists.

Question Sixty-Six: Do you have continued contact with any of these people?

Yeah.

Question Sixty-Seven: Do you expect any of them to come on board and be part of the company in the future?

Probably not.

Question Sixty-Eight: OK. Were any of your team members added at a critical stage of the development of your organization?

Consultants, certainly consultants, that where we had motivation for bringing consultants on.

Question Sixty-Nine: Tell me about your consultants.

We have a bunch of consultants – people with special skills, like people who know about the FDA, people who are involved in chemistry, know chemistry very well, things like that, technical expertise, regulatory expertise, or that sort of thing.

Question Seventy: They're just service people?

Yeah.

Question Seventy-One: No equity stake.

No.

Question Seventy-Two: Do you use them regularly or it's just like 'I have a one time problem'?

As needed. It's more like, as needed.

Question Seventy-Three: Who makes the choices in who to add as a team member? Is it a board decision?

Yeah, a couple of people will figure out the discussion and decide. Usually, it's not a big debate, the decision is pretty obvious. We are not like a big company or something like that where a lot of people have to decide.

Question Seventy-Four: Do you expect the company to grow?

Yeah.

Question Seventy-Five: What's your vision of how big?

I don't know, I don't know what plan, I know to what point it would get large. It doesn't need to grow too fast, actually, but one or two more people a year.

Question Seventy-Six: What will the skill sets be?

People that are product managers.

Question Seventy-Seven: Managers.

No, like more technical background, like PhD manager.

Question Seventy-Eight: Has anybody on your team dictated the addition of any team members?

No, suggest maybe.

Question Seventy-Nine: How has your role at the university been affected?

I don't think it has.

Question Eighty: Didn't it give you a sense of comfort? That your future doesn't depend on?

Of course.

Question Eighty-One: Does it make you more or less likely to want to launch another venture?

Oh, I'll do it again.

Question Eighty-Two: But you intend to stay at the university? Do you want to be a career faculty member?

Who knows, depends.

Question Eighty-Three: OK. Could you draw me a picture – if you don't mind?

Of course. Is it a self-portrait?

Question Eighty-Four: Sort of. I want you to draw me a diagram of your team, and if you as the center is not a good spot, I'll give you a fresh sheet.

(Laughter) OK.

Question Eighty-Five: Flat?

Flat, no hierarchy structure.

Question Eighty-Six: Interesting, it's different. I'd like to, as I go forward, set up meetings with your other board members. The typical interview with these guys will take 15 minutes, 20 minutes, tops.

Yeah, could you do it on the phone?

Question Eighty-Seven: Yeah. If they have time to do it in person, great. What I've typically done is, I'd send you a memo saying, 'Thank you for agreeing to work with me, would you mind helping me to set up a meeting with your board members, and other critical members?'

These guys are pretty busy. It's hard enough to get them on the phone. You're going to be – you may be able to get them on the phone – they are pretty busy.

Question Eighty-Eight: I definitely need your business guy. Thanks for helping.

Pete – Chairman of the Board – Alphasense

Question One: Could you give me your name and position?

I'm Pete. I'm Director of Columbus Biotech Initiative, and the Medical Advisor to the Columbus Life Sciences Greenhouse, and I'm on the board of scientific advisor for Cellbio company.

Question Two: Could you tell me about your background, education, and professional experiences?

I went to medical school at Jefferson in Philadelphia, and interned at the University of Pennsylvania Graduate Hospital, and then went to Mass General for general surgery and neurosurgery training, and was on the faculty of Harvard and Mass General for eight years following my residency, and was Director of the Bureau of Neuro-Oncology Center program and Principal Investigator of an NIH program project on brain tumors and assistant professor at Duke. I was made chairman of neurosurgery (or actually called surgical neurology) at the National Institute of Health, and I was also the clinical director of the neurological institute at NIH, and was in charge of brain tumor programs and also CAT scan programs; the IRB and Chief of Surgery and a few other jobs.

Then, following that I was made Chief of Neurosurgery at (name of facility), I was named chair of an endowed chair in neurosurgery and I was a professor/chairman of the department of neurosurgery of Beth Israel – then at the Ohio State University as Vice Chair of Neurosurgery and head of the Neuroscience Center, with the mandate to develop a neuroscience center and build a new department of neurosurgery.

And then in 1995, I left neurosurgery and became the CEO/President and Chairman of the Board of Cellbio, one of the first new neuron-biotech companies in Pittsburgh. I continued in that role for six or seven years, and still remain with a small relationship with Cellbio. I brought in a new team and the team has now raised 62 million dollars and is moving ahead very nicely under Ted's leadership. And about three years ago, I moved from the position on the board of Ohio Bio to the first Central Ohio representative, and have been with the Greenhouse exception as an advisor to the Greenhouse and the director, and became involved with a series of companies, one of the founders of several of these companies over the last four or five years.

Question Three: How many companies?

Roughly about ten companies I'm affiliated with, either to a greater or lesser degree.

Question Four: Describe your relationship with Eddie for me?

I knew Eddie early on, really when there wasn't a company. I met Eddie and he had what I thought was an extremely exciting idea, because studying therapies are just at their beginning and are supposed to be proven, and confirmed; a major limiting step to development of all cellular therapy is tracking and not being able to know where the cells are going, how long they're going to stay in one place, what is their fate. All of that at the present time is very, very difficult to visualize in the living patient or animal. Real time studies by MRI would clearly be a dramatic improvement, and Eddie's study is clearly a brilliant solution to the problem. It was clear he was able to get his work published in *Science*, it was clear there was approval of what he was doing. He already, before I met him, had a Greenhouse PDF award, one of the earliest ones, and it was very exciting to see someone from Ohio State who was in the life sciences area who had a very interesting idea and excellent scientific background as well.

It was clear that to get this idea moving forward, he'd need a team, and one of the things I learned with Cellbio was that you build the team by building both the leadership group and a board. And you do that right away, before you even incorporate the company or raise any money or anything you're doing, it is necessary to do that.

I put together a board which I currently serve as Chair of that Board, and I invited Harold, head of the Ohio Cancer Institute, to be on the board, and Ted, who was formerly CEO of Cellregen, and is now the CEO of CellSpecial, and had been a professor at Ohio

State to join as well. He had a tremendous breadth of experience and had actually had three companies that led into CellSpecial, so CellSpecial is actually his fifth company, so that is good experience for an entrepreneur, and he is really one of the pioneers and founders of the industry in Columbus. And Dr. Harold is one of the cancer experts, and had really integrated these. I also invited Rod to be an officer of the company and on the board as well. Rod has had extensive administrative and other experience and background, one of the editors of *Business Week* prior to his entrepreneurial career in Columbus and his Incubator group has now sponsored five or six companies which are on the road to various levels of success. I wanted him to play a role and he came in both to represent himself and also to represent his incubator. As a board member and initially as the initial CEO for a very, very short time as CEO and subsequently and is still a board member.

The key step was to identify someone as the CEO, and Chad and I had been friends and colleagues, and he was VP of National City Bank. And he had been on the board observer of Cellbio, my original company, and he was most impressive. If there is anything such as an entrepreneurial banker, Chad is it. He asked me if there might be some opportunities for him, interesting, exciting activities to carry out, and though he had not had a specific scientific knowledge, he does admit to a little bit of training and basic knowledge of chemistry, though he didn't have a degree in it, he had at least a feel for it. I knew him from my prior activities to be someone of the highest integrity and extremely efficient and capable leader. He, after several steps, gradually accepted what is now a full time position as CEO and President of what has now become Alphasense. That was a key step.

Eddie is the fountainhead of ideas and the chief scientific officer of the company. I'm serving not only as board chairman, but as an active advisor/participant, I'm not an official officer of the company, but I have daily involvement with Chad and Eddie as we move forward. Once the core team was booked, the four of us met regularly. We added an additional board member, Jack, an investor and former colleague of Chad's, and he's been very supportive and helpful in building the company as well. So the team is now in place, the top levels, and we are now in the process of recruiting the essential scientific people, preferably two people, to join our staff and become essential elements of the next phase.

Question Five: Who is heading up the recruitment of the scientists?

Chad and Eddie. I'm interviewing them as well.

Question Six: Who identifies them?

We put an ad in *Science*, and we've gotten some outstanding applicants.

Question Seven: It sounds like Eddie has trusted you to pull a lot of this together.

Yeah. He needed help with the business side, and again the principle is to get a board together, to get a team together, and the founding scientist, unless that scientist is willing to leave their academic position and unless they have had significant administrative or leadership or entrepreneurial experience, it's best to have someone who is a business person leading as a business partner.

Question Eight: Why do you think Eddie trusted you so much?

Well, I think he felt that...Eddie is very smart, and he realized, he felt that he needed someone else to do the business part. And I think that what happened was that Chad was able to build a nice relationship with Eddie where they travel all over the

country and the world together, and he had a direct relationship with Eddie, and he was influential to put together a team to make it all happen. I think Chad had a lot to do with it.

Question Nine: So right off the bat you had a good strong board put together.

What motivated the board members to jump on? I'm sure they got approached with good ideas.

I think the idea is an exceptionally interesting one. It is a novel idea, and it has been made clear from all sorts of feedback from meeting with government people and so on that the initial impression is correct, if it follows what it is supposed to do, this would be a tremendously facilitating technology for the advancement of all types of cellular therapies. We don't know if we're going to put cells into the heart, we don't know if they stay in the heart or they move all over the body. We need to know that. So if we treat Parkinson's disease in a small nucleus of the brain, and they aren't there after two days, we need to know. And there are so many things, like regulatory levels as well as scientists, anyone in the field, we have to know where those cells are. This is essential technology, it is not a novelty or some fringe benefit, it is an essential tool for opening up a whole new field of therapy. I think that the board members saw that immediately and understood that it was an important thing.

Question Ten: Some of your colleagues tell me that you wanted to be a part of the team.

I wanted to be part of the team for a variety of reasons. For one, I found this technology very interesting. Second, I had had the experience of developing tech scanning; I might have invented tech scanning or the concept of tech scanning, but I was

put in charge of that and shepherded that program from a general research program into one that is now the standard of practice for evaluating cancer patients as to where their tumors are and whether they are growing or not growing, whether they are accurately malignant or not accurately malignant. I had worked on this both in the laboratory and clinically, and I saw Eddie's program as the next logical step in this therapy development, and I found it scientifically very exciting. I think it was very important.

And I saw this as an opportunity to do something that was important for Columbus, and that was to get Ohio State fully engaged in the life sciences. This has been a little bit more difficult for them, they basically have hard sciences, robotics, etc., and so I think this was something that was very much needed. I think it was clear that Eddie needed some help.

Question Eleven: Have you been involved in any of the financing activities?

Yeah. But primarily Chad handles this. He has a lot of contacts, friends, someone who would like to contribute some money. He has credibility in that area. That is the value of having a credible business person. No scientist could do that.

Question Twelve: Have you sought outside resources to assist with this venture?

I mean people who are not part of this team.

I think we've talked to a few consultants. Chad has contacted potential people to speak to. They aren't actually customers, but experts to advise us what the market needs. That's the major group we've contacted, to utilize the material, collaborate with us, or whatever.

Question Thirteen: These are ongoing relationships?

Yeah.

Question Fourteen: Were any of the team members added during a critical phase of the development of the organization?

I think the first batch is now ready, where we're ready to add the appropriate scientists to this, so we're about ready to start working with some major corporate entities, and so this is the first big critical issue.

Question Fifteen: Did you anticipate this need, or is it out of necessity?

No, this was anticipated, and we're just delighted that we're in the position to: (a) pay them, and (b) have roles that need to be filled.

Question Sixteen: Define team to me.

Team is a combination of the officers, the scientists, and the board. The total for the small company. It was for my company. I probably went overboard on the number of board members, and probably had more than most companies had, but I had a huge number of investors. The board was responsible for getting those, because I didn't have the contacts. For this company that Chad's got, we don't need that large of a board.

Question Seventeen: Were any additions dictated by the financiers?

No, not directly. Maybe Jack was something that was natural because he was sort of a representative of the investment people.

Concluding Statement: That takes care of the formal questions. Thanks.

Jack – Member of the Alphasense Board of Directors

Question One: Can you tell me about your background, including educational experience, professional experience, and entrepreneurial experience in business?

Sure. I was a lawyer. I graduated from law school in 1958. I was a lawyer for 17 years and then I took a couple of years off. I retired from my law firm and went with some friends and bought a few companies, so I guess I've been an adventure investor since about 1961 and an entrepreneur since about 1976. I was a partner in a small law firm, and so that's an entrepreneur, too. And, I was an owner and manager of several small companies during the next 15 years, so maybe it's the last 30 years.

The first companies were small buyouts from larger companies; generally, a furniture company, a restaurant china company, and a door and window company I've been a part of, or owner/manager. Once I became a manager, my focus was on the financial officer and administration of the company that owned small companies. We did this in the early 80s, a computer work station company, an early one in Buffalo, Pett, which was originally Erie Canal Computer here. I was here then for ten years working with Pett and the aftermath of Pett, and some of the throw-offs of Pett: Expert Technologies and Pett Systems, which was in software.

I then was involved with a start-up doing clinical trials for a phase-two trial on age therapy. Then, I moved to Boston to become involved as an officer/owner/start-upper of a couple of Internet situations, in fact several Internet situations over the years, from about 1994 through 2004. And then I just retired in 2004, though every once in a while I've taken a position on a board of a company, like Chad's company.

Question Two: Wow, so it looks like you definitely got your hands dirty.

Yes, I did indeed.

Question Three: Describe your relationship with Alphasense for me. How did this all come about?

I'm a director of Alphasense, and was asked by Chad to join the board after the last financing, which was really the Series A financing, which was a friends-and-family round, and I was a part of the friends and family, and I told Chad I would be happy to come on the board, and I'll probably be on the board until we complete the next financing.

Question Four: How did you meet Chad?

I met Chad in 1982 or 1983 in connection with Pett. Chad was with National City Bank and he was in charge of the Pett account when the Pett situation went bad, and he was in the workout part of National City at that time. We got to know each other, and we've known each other ever since.

Question Five: What factors convinced you to become part of the Alphasense team?

Making an investment. Being asked to join the 'hood.'

Question Six: Why did you make the investment?

I invested in Chad. For the record, I should say that when you invest in a start-up, when you invest in any small company, you invest in the CEO, and Chad was the CEO.

Question Seven: Was Eddie in any way, shape, or form critical to your becoming involved?

Sure. It was good that he had invented this potentially good product and processes, and of course you do that, you put them together, but it was very impressive what he had done. What he has done and is doing is very impressive, and I'm pleased to be part of the team.

Question Eight: What logistics did you do on the technology?

Practically none. Talking to Chad is what I did on the technology, and I have a smattering of intuition, and I read the documents, and I read what he had written and all that stuff. Other than due diligence to me, you go out and do more than what I did for this. I invested in Chad. That's the right way to do it.

Question Nine: That's actually a very common answer. What does the Alphasense team consult you on? What expertise do you bring?

Well, I guess financial. I surely don't bring the science, the other two or three guys are very good with the science.

Question Ten: Can you give me any examples on how you've been involved in a decision?

In this company? Well, I don't know. I guess financial things that have come up, since I've only been involved in the company for about four months. The financial things that have come up are the financing, which I read the documents, and worked with Chad on, the stock option plan and the options; I have a lot of experience having done these things, basically the part of a CFO's territory. Wherever Chad has asked me to get involved in, I have. We're now doing an interim round, and I'm helping advise him on that, and then on the 'B' round when we start on that in a couple of months.

Question Eleven: Define what team means for you.

That's a good question. I mean, I don't know, that's people working together. How's that?

Question Twelve: Who are the critical players to the Alphasense team's success?

They are the people currently involved.

Question Thirteen: Have you sought to bring in any outside expertise or resources to this venture?

What do you mean by that?

Question Fourteen: Is there anyone from the outside that you've tried to bring into the venture?

Have I talked to people on the outside? I'm not sure what you mean. I've talked to potential investors and advisors which...I don't know what you mean about bringing in a resource. My interest and abilities to assist have to do with potential investors to the company, and I have started to work in that area.

Question Fifteen: Are there any members you've worked with in this venture who are no longer part of the team?

Not that I know of. Not here.

Question Sixteen: Were any critical team members added per your recommendation?

No, other than investors. If the team is the people you are interviewing, then no.

Question Seventeen: Would you say Eddie anticipates his needs, or makes changes or additions out of necessity?

Both, like anybody else.

Question Eighteen: Has the venture had any setbacks since you joined the team?

Sure, everybody does. We were supposed to have a base product by November and it has just now started being delivered here in the middle of January.

Question Nineteen: How does the team deal with setbacks?

Very well. Everybody understands it doesn't always work, it takes longer, and it costs more.

Question Twenty: Are there any critical skills the team needs to add in the short term?

What's the short term? Six months? Sure, and we're adding them. We need and are interviewing a man to be the "salesman" if you will, but it's far more than that, he's the man who will deal with our major customers and needs to be an expert in the science, and he needs to be senior enough to be able to talk to anybody at any company that is likely to be our customer. We are talking to a couple of people like that right now. We've just added a young fellow to help us in the regulatory area, and as we need them we are going to add them.

Concluding Statement: Great. That's all I have in my script. Thank you for the interview.

Rod – Board Member – Alphasense

Question One: Your background and experience?

I hold a Bachelor's of Science degree in journalism from Northwestern University. After college I worked as a journalist, principally for *Business Week*. I worked 22 years there in a variety of reporting and editing positions. I left *BW* in 2000 to start a bio-technology incubator in Columbus, the aforementioned launch site. Since that time, I've been involved as an entrepreneur in the biotech world, assisting in the formation of new biotech companies in Ohio. I had no entrepreneurial experience prior to 2000. My experience is in forming the incubator itself, and in the formation of six ventures as part of my launch site activities. I've been involved as a founder or co-

founder of seven ventures of which launch site is one, and six portfolio companies are the remainder.

Question Two: Can you describe your relationship with Eddie?

I met Eddie, and I can't remember exactly when or how, but long before Alphasense was formed, when he had the first glimmer of interest in forming a new venture around some of his discoveries. I can't tell you how I was introduced to him, but I met with him in the office of the Greenhouse where my incubator happens to be a tenant, and where a number of my companies are domiciled, and I met him and learned about some of his early work, and was intrigued by him and his work. But I didn't become involved with his technology or commercial ambitions until some time later, when Pete entered the scene, and I'm sure you have heard about that story. So that's how I became acquainted with Eddie. Since Alphasense was formed, I've of course gotten to know him much better, and functioned briefly as the founding CEO of Alphasense, and so I collaborated with him on the development of the business plan and now serve on the board of directors with him.

Question Three: What made you become part of the venture?

It was, I think, first and foremost, how compelling the technology was. It was in an unusually advanced stage of demonstration, compared to other technologies I've been involved in commercializing. I liked Eddie, his creativity and drive, and I was intrigued by the unmet need in the marketplace that his technology seemed to address.

Question Four: Was Eddie critical to you joining?

In what way? Did he persuade me or was his involvement critical? Was it Eddie or the technology? It was probably more the technology.

Question Five: What would the other team members say was why you joined?

I would guess their answer would be similar, and they would say, this would be part of my answer as well, that joining the group provided an opportunity to earn some equity, which is held not by me personally but by my incubator. That was another motivating factor for me, but I'm sure that's what Pete, Eddie, Chad, and others would say, but I think that's all they'd add to what I just described.

Question Six: How was the decision made to bring Chad on as CEO?

That idea was brought forward by Pete who had an existing previous relationship with Chad. Although I was substantially involved in the early days, it was clear I had real limitations on my ability to become more substantially involved, in part due to the growth of another incubator company, VVV Neurosciences, so almost from the very beginning Pete, Eddie, and I had to grapple with the fact we needed someone to assume a more day-to-day leadership role. Pete brought forth Chad's name as someone who was very experienced in finance and administration and contract negotiations, and those would be some of the activities that would be essential to the company in the early stages of development, so we rallied around that idea of bringing Chad on board.

Question Seven: Why do you think other critical team members are involved?

I think Pete is involved first of all, in his capacity as the Central Ohio representative of the Ohio Biotechnology Association. Part of his mission is to stimulate biotechnology venture development in Central Ohio, Pennsylvania, and he does that to the point of getting involved in getting companies formed. I think he's also involved because he loves this activity and might be doing it regardless of his day job with Ohio Bio. Thirdly, I think Pete is involved because of the particular area is of acute

professional, that is medical, interest to him; it is an area in which he has extensive background and can bring a lot to the party.

I think Eddie is involved because he wants to see his technology brought to the marketplace and wants to see it become a commercial success. Chad is involved because, I think, his motivation may be more complex. I think he, like a lot of people in the investment world, recognize that life sciences is the next big thing, and he saw this as an opportunity to jump into that arena. I think also, he has a lot of respect for Eddie and his scientific creativity and rigor, and because of his respect for Pete from their prior relationship.

Have I covered all of the team members? We do have team members from the Lifesciences Greenhouse, (name), whose involvement is as an executive in residence, and I think he has some special interest in Alphasense because of his background in medical device development, including cardiovascular and cancer diagnostics, both of which are a sweet spot for Alphasense. We have someone I would include as a member of the team, Jack, who is a member of the Alphasense board, and he is involved principally as an investor. He individually is an investor, and some of his friends and family are investors. So, I think his principal motivation of being on the team is to achieve return on investment, but I think he also has a lot of respect for the technology and a great deal of respect for Charlie, and those are his reasons for being involved.

Harold from the Ohio Cancer Institute is a key team member, and actually functioned in a founder capacity and I think his motivation is almost entirely associated with the potential for the company to meet unmet medical needs. Those needs sit squarely in Harold's area of interest and expertise as a researcher and an oncologist. I

think also Harold may have some subsidiary motivation in his long relationship with Pete, and a third factor may be that he, too, is interested in stimulating biotechnology development in Central Ohio, as he serves on the Board of the Ohio Biotechnology Association, as I do, incidentally. And then, we have as another team member, LT, who in a vein similar to Harold, came aboard early-on in a co-founding capacity. I think his principal motivation is as a leader in the entrepreneurial community in Columbus. He is very interested in fostering biotechnology development in the region. He has a specific technology interest in the area of cellular imaging, which is related to the Alphasense technology, so that's an additional motivator. And I also think his long-term relationship with Pete was instrumental in his deciding to become a team member. I'm probably forgetting someone, but that generally rounds out the active team members.

Question Eight: Why and regarding what topic has Eddie consulted you?

Over the life of this project I would say our principal interactions have related to the business plan of the company, which first and foremost involves understanding, researching, and articulating the strategy of the company. It also involves an understanding of market needs and dynamics, of development requirements for the technology, and all the other factors inherent in building the business. The additional reasons Eddie, well, the interactions between us have involved the leadership of the company, such as recruiting Chad, constituting the board of directors, licensing the technology from OSU. I advised Eddie early in the game, but it was really Chad who substantially conducted the licensing negotiations. I think most broadly what I provide to Eddie is a business and entrepreneurial perspective which he has not had the experience to develop as an academic researcher.

Question Nine: Define team for me.

I would say it is a group of people who create more than the sum of their parts. Each individual on a team is an agent in a system who interacts with other agents so that each team member creates more than he or she could do individually.

Question Ten: Who are the early members of this team?

If you define a team as constituting a minimum of two members, then I would say the earliest members were Eddie and Pete. I think I became the next member, either in parallel or shortly before Harold and LT. Once that nucleus was established, Chad came on board. As the leader of the effort to raise money, it was Chad who brought Jack aboard. Now there is a footnote to all of that, and that involves the role of the Columbus Life Sciences Greenhouse. They were involved with Eddie prior to any of the rest of us, including Pete, as a funder of some his academic work. And the representatives of the CLSG in the interactions with Eddie have changed over time, but if you want to call CLSG as an institution a part of the team, then I would amend my answer by saying they were certainly part of the founding of the organization.

Question Eleven: Who are the critical players in the team's success?

At this point in the process, I think the troika that is most important is Eddie, Pete, and Chad: Eddie as the originator of the technology and the entrepreneur who identified the commercial opportunity and venture creation opportunity, Pete as the initiator of the networking that created the company, and Chad as the day-to-day leader of the team's activities.

Question Twelve: Have you sought outside resources for this venture?

Sure, we have outside legal counsel, outside accountants, whose name escapes me now. We have a regulatory consultant, who plays an important role. Those are sort of the individual members of an extended team. There are also some institutional members, particularly key vendors, such as the company that is manufacturing the active material used in the technology and the company formulating the final material, and then the company or multiple companies who will do the safety and toxicology for the product.

Question Thirteen: Do you consider these outside groups part of the team?

Yes, I do. I would consider them part of the team, maybe the second ring, or the third ring surrounding the team, depending on where you place some of the rest of us. But they are members of the team. And this is certainly the case in some of the other ventures I'm involved in, the more closely the third-party vendors interact with the inside team members the more efficient and effective the operation becomes.

Question Fourteen: Are there any people you were involved with early who you've lost contact with?

None that come to mind. The only response would be representatives of the CSLG whose involvement were taken over by other representatives.

Question Fifteen: They left the Greenhouse?

Lisa left and Jim shifted his responsibilities.

Question Sixteen: Were any critical team members added at any critical points in the development of the organization?

Yes. I would say I was added at the time that a business plan was required. Chad was added at a time when the legal formation of the venture, the completion of the

license and the raising of financials were required. Jack came on board as initial financing was completed.

Question Seventeen: Were the needs of these individual anticipated, or made out of necessity?

They were all anticipated.

Question Eighteen: Did the venture have any setbacks that led to the addition of a team member?

No, I can't think of any situation where that happened. They were all added because of an anticipated requirement.

Question Nineteen: Who makes the choices of bringing on a new team member?

At this stage, most such choices are made by the board of directors, though the board delegates most of the authority necessary to bring aboard someone new to Chad as the CEO.

Question Twenty: Were any additions dictated by others, maybe financiers?

I believe that the CLSG financing requires that the CLSG have observer and advisory rights, so I suspect you could say that that is a dictated appointment. But other than that, I think not. (Name) serves on the board as representative of the investors, but investment agreements did not obligate the company to include such a representative. Chad proposed recruiting a representative of the investment group and proposed Jack as that representative, so it was not a requirement but was taken at the company's initiative. So I think other than the CSLG involvement, there are no required members of the team.

Appendix D

Gluhera Team Interviews

Rod – Founder of Gluhera

Question One: John spoke very highly of you, and said that you have a neat product; he described it to me as gorilla glue for surgery.

That is it, that's where my inspiration came from. I often take inspiration from consumer products, partly because academics usually don't, they think of them as inelegant and I like to do things the opposite way, and turns out they are elegant, because the constraints are much tougher for a consumer product than for something that is purely a laboratory product. On a laboratory product the constraint for purity might be high, but constraints on constant performance aren't that great, because many times laboratory people are stuck taking what is available. Consumers often have many choices, so I really like consumer products and often find an inspiration for, in other words, go the other way. Many times people think that if you start with high tech and then, in terms of the disruptive innovation model, work it simpler and simpler and lower cost and lower cost. I actually prefer to go the other way, start with something that is a consumer product and learn from that and create something that is high performance. It's just fun, I mean, see, in academics you don't try to do something different, you just basically, in a place like (name of location), you just sort of sink into the same thing. So that's what it is, it's a glue to be used internally.

Question Two: For a while I worked with a carboxyl metal cellulose space dressing. However, we weren't able to get the traction, it was too much of the desert in the funding community – it was 2001 and 2002 and people were starved for cash.

Yeah, that's true, I can see that. I can easily see now that I've done this, how and why, probably, most little companies that come out of the university go down in flames. I think it's pretty easy to see how it could happen, in fact what is remarkable, it that any of them get through at all.

Question Three: Well, you think about what is going to happen once you start bumping into against the big guys, if they can reverse that engineering around you, you are finished.

Actually, I am not so worried about that. I think the big guys need this, what I gather in looking at these companies, they don't prize their technical talent at all, their technical talent is induced to leave the technical stream as soon as possible, wherever in their career they are they don't treat their technical talent very well and they're not willing to listen to their technical talent when they come up with creative new ideas. I think for most of these guys it is just so much easier to let a little company take the risks and then simply buy them. You know, when I was in the industry 20 years ago I would've agreed with you. I think a lot of them spent a lot of time trying to engineer around people stuff, now I think, that was when technical companies were run by technical people; now, no offense, but they are ran by these MBAs.

Question Four: We resemble that quite often.

And to be quite honest, that means that they just, if you've never been technically trained at all, I mean and even if you've got a BS degree in theoretical specialty, I don't think that you can really appreciate what part of design they can do for you and even how your team might be able to give an advantage by engineering around something. I think you look at it as a business man, so your job is acquisition. It's to grow the business, and

so you look into it and say, 'This is something cool, I bet even they would agree if we bought them for this much money,' and you know by spending that money you will have laid off some on these nerds, but then I can use some of them anyway. I honestly I think that is the approach and that's what I think, so, to me if we can get the product into human clinical trials, I think they'll come by and make an offer, because that's been the trend. I've seen there have been a couple of small companies recently than have been bought for a lot of money with a very thin product portfolio and it's remarkable.

DuraSeal, which has a sealant, it's healing for the Dura, just in the head, and that's the one product they have, they were bought for \$245 million dollars by Tyco in June. That's a lot of money for a single product and this type was interested in their potential to develop another product, so it's amazing, isn't it? Let's see the company that sells Jubiderm or Ubiderm, its, ah, hydrolytic acid, tissue implant, for making us all look younger, well that's the B-2 product, there is already hydrolytic acid products out there, but the company that makes Jubiderm was bought for \$200-300 million, just in the last six months for just that one product. So, for me it's: 'I am not worried about the big guys, I think they will be allies, suitors, you name it, but, it's getting the company to a point where it's valuable' and in this city it's not straightforward for any number of reasons.

Question Five: I think you are right. I have a script to follow for the dissertation, but feel free to go off target anywhere that it's interesting. I guess to start off with the script, could you tell about your professional history and start with education?

BS degree, chemical engineering (name of university) University – that was 1980; three years in industry, first in Monsanto and then Union Carbide and that was, basically, polymer product development. Carbide wanted to promote me up the business ladder; I

still remember I asked him this hilarious question: ‘How much time is involved in that?’ He said, ‘You are not understanding this,’ and they said, ‘None.’ And, I wanted more, but you don’t do that in a big U.S. chemical company which is the best to create those products. So, I went back to get my PhD degree in polymer science and finished that late in 1987. By then, my interests changed and Union Carbide had changed quite a bit, so there was nothing to go back to. So, I did a post-doc at (name of location), and then I came here in 1989, and I’ve been here ever since. In the meantime, this was all the usual promotions, and I was associate dean for research for a while, I was chairman at chemical engineering, paid my dues there and now I am co-director of Sustainability Initiatives. So that’s why I am sitting here.

Question Six: Tell me about your business, where the idea came from.

A friend introduced Todd to me in the late 90s, maybe 2000. Todd is an Oral-Maxi-Facial surgeon; he was in the dental school at that time – I am a polymer person, and my friend was the first director of the Michigan Tissue Engineering Initiative (MTEI). He fought for tissue engineering to grow locally, people that never spoke to each other, he had to work to break those down, and so what we did was a lot of match-making.

Todd and I got together, we hit it off; he had an idea for a research project that I can contribute to, because I am a polymer guy. We got the money from MTEI and while we were working on this, there was one material that we were playing with for tissue engineering and Todd saw that was injectable and he asked me if this would make a good, what is called a guided-tissue regeneration membrane. I said, ‘No, Mike, you know, that’s not going to work, because this is going to bloody stick to everything!’ The

light bulb went on in his head: he says, 'We can make glue out of that.' I thought surgery already had glue. Mike says, 'No,' and I thought, 'How could they not, here we are in 2000 and how could they not have a suitable adhesive?' He said, 'No, we don't have anything that's any good,' and that's where the idea started.

Then, it was a long process to convince the university to protect the idea, it was very hard. To be quite honest, this is where personalities can really set things back. The previous director of the office of technology management thought of himself as an expert in biomaterials; unfortunately, that was not true.

Question Seven: This was before (name of individual) or was it after (name of individual)?

No, it was after (name of individual) and before B. It was Dr. X – he thought he was an expert in biomaterial, and unfortunately he was not, so he wasn't very much help in getting us through it. It took a long time to get convince them to protect the IP, and then so they filed the provision, then they almost stopped the provision, which is weird! It was this close to going away, so I said, 'Well give me something in writing to that effect, because the Michigan Life Science Greenhouse wants to meet with us in three weeks to talk about this.'

Two weeks later, all the words were pretty well-known. And then it sort of got protected and Todd and I always wanted to turn it into a company, because we felt that either should become a business or just stop, because it wasn't really suitable for a typical NIH grant. But, it really needed serious product development, so we kind of sort of wandered along for a while in a very low level, because Todd's a good surgeon, I think

I'm a good damn polymer person, but we needed a business person, we needed to find somebody.

We went over the other usual strange hurdles, and we started working with the Life Science Greenhouse who saw potential in it immediately. But then, we went through four mentors in the first 18 months. So, we would start working with someone, kind of break them in and he would break us in and then their former employer would be gone, and we'd start over again. So, we spent really 18 months spinning the wheels, because we didn't have any single mentor.

Question Eight: What was it? They're just leaving the Greenhouse?

They would be fired, they would leave, different reasons, but it was very difficult. We spent really 18 months just spinning the wheel and interviewing people to be CEO, and the Greenhouse trying to help us to find someone and the interviews, some of them were so sad, that I wanted to cry. I mean, the lack of talent is palpable; it is really unfortunate.

Question Nine: Any guess on how many people you went through looking for CEO?

I don't know, probably about a half of dozen people we talked to, just, they were not even close, I mean it was very depressing. Todd and I would joke, we would point to each other – "I'm not going to be CEO, are you?" because we knew that this was a complicated process, and we knew our limitations. Todd knows surgery backwards and forwards, and so he is our link to our consumer base; I can't ask for a better one, I mean he knows his stuff so well, and I am a materials person. We needed a business person and we did not have one, and so we got lucky, just flat dumb luck.

Question Ten: That's how the best discoveries are made.

Well what's interesting is, it was one of the guys that was going to help us raise money for the company that he knew someone we should meet.

Question Eleven: Who was that?

You mean our fundraiser? Mel, I think he was from (name of company), and then he introduced us to Ned, who was at Medtronic. In his 40s, he'd worked in this base, he's ex-military, worked for a surgical division, had brought a new medical device to the market, turned into one hundred million dollar business. He knew the space, he knew the people, he knows working with surgeons, he has been in and out of operating rooms for most of the 10-15 years, he is perfect, and we left out saying this is as best as we possibly could, we got some early investors to kick in some money to bring Ned on board and then he went out of town and he and Mel, I mean they've been brought on board from the university, she was working for Carolyn at that time, she's been kind of our mentor within that office while we were trying to form. You know, they're a real business team, Marge and Ned are a team to be reckoned with, Marge knows the regulatory stuff backward and forwards, when we went down to the FDA they clearly adored her and Ned is a real business guy, he knows how to run the show and that's what made it go, without those two were dead, I think absolutely dead, they were critical.

Question Twelve: How did Marge come in again?

Marge was with Carolyn's office, that is called the, what is it – Office for Enterprise Development (OED) – and we got hooked up with him, because I called Carolyn at one point, and asked her to adopt me, even though I'm in engineering, because we don't have anything on this side of the fence. Carolyn's office did wonders for

entrepreneurial activities in medicine; we had nothing like that over here, we still don't really, here you are on your own, that's why I figure, well, I asked Carolyn to adopt me. She thought it was funny, said sure, and assigns us to Marge. Marge was the one helping us navigate, you know, getting the company formed, the university helping us find the CEO. She started two months after Ned did and she's been just great, I can't say enough about those two, I mean, that's why the company is real, not because the product is. I think the product is pretty damn good, but without Ned and Marge, it would have been a pretty damn good product that did die undermined, no question in my mind.

Question Thirteen: So what is the activity level of you and Todd right now?

Mine is pretty limited – it has to be – the university has very strict rules. I can't be the PA on work to give a research contract to the university. I can't be the PA, it's not clear that I cannot be the co-PA, I really can't have any research relationship with them. Also, I can't consult, because the university's rules are, anything I think of, they own. Another university has rules where anything that is essentially developed substantially with the use of their facilities, they own, that's the difference. It just means that you really can't, any consulting agreement that you sign, with any company would say that the IP belongs to the company, while those agreements are valid if you are a faculty member at one university, they are invalid if you are a faculty member here, so I can't have any involvement, basically I can just sort of, you know, help making pitches to investors. You know we talk to people I go down to the FDA to explain the chemistry, I do as much as I can, but it's almost impossible to have any hands-on duties.

Question Fourteen: Anything moving forward that you can explain what had happened, basically. And Todd?

Todd has left the university. He is in private practice, so he has a lot: he is on the board, he is a board member for the company, so he can have as much activity as he wants, and it varies, because he is in private practice, so some weeks he has a lot of involvement, but he is under no restriction. Our university is one of the most restrictive universities in the country when it comes to that, it is the only one that we found that has the IP description that I gave you, that anything, that IP framework is the same as Fortune 500 companies, like Dupont. Most universities follow a more liberal model...

Question Fifteen: Understood. What were you looking for once you decided to launch this as a business?

Well it was, again, Todd and I, we were looking for a CEO, that was number one, and then, I think for us it was, the notion of doing something other than just straight research, that we both had been doing for a long time. Most of the time your research ends up in publications. In engineering, we are a small school here, dentistry was the same, when Todd was here, and they don't give a damn for publishing papers.

Because we are so small and you can't rise above the noise that medicine creates, it was a chance to do something real, which was fun, do something different. Todd and I, we were both doing this for quite a while, he longer than me; we started this, we'd both been at this academic game for 15 years, so it was exciting. This technology wasn't set up to be a research product, it wouldn't fit in well with the way NHA looks at life, you know hypotheses, methods, etc. This needed product development and I've got tell you that academics – I would think 99.8% of academics don't understand product development at all. So, trying to write a proposal that was about product development and have it reviewed by academics, it's, we might as well writing it in Cyrillic. But, the investment

community understands and so, they understand this stuff much easier than an academic would; it is not because it is difficult. It's because academics are divorced from industrial reality. When I started as the faculty member, many faculty in engineering had industrial experience, now none do, so the industrial reality and the academic reality are almost totally divorced from one to another. This one just wouldn't fit in academia, it wouldn't get recognition, it wouldn't get funding from the investment community. They thought it was a no-brainer, but the academic community would have lot of trouble with many of the concepts.

Question Sixteen: When you started to go and talked to the finance community, how did you get you started? Who pointed you in the right direction?

Mel.

Question Seventeen: Mel. How did you meet Mel?

Mel, that's a good question, I don't remember how we met now. I don't know how we were introduced to Mel. I don't remember, but suddenly Mel appeared, and he agreed to raise money for us and in return he got a small stake in the company. But, he did a great job, what he did was, he would find people and then we would make the pitch, and what they seemed to like is that we made the pitch as a team, it would be all of us: Bart, Me, Marge, and Ned – we will all have our roles, you know we will talk about different aspects of the product. You know Ned about the business case, Marge about the regulatory path we would have to follow, I would talk the stuff itself, and then demonstrate the product. We would glue things together for them – our favorite was sponges, because you can make them moist and then stick them together; we would let the investors do that, glue them up. But they seemed to like us a lot, because of the team,

it was good that we got along well, we interacted well. Mel introduced us to all kinds of people. But ultimately we had 18 angel investors, between them, put in about 6.5 and 7 million dollars. It's damn good for an angel investment company, especially for this town, you don't see numbers like that that.

But, this is the funny part, Ned was told over and over and over again by locals, I mean the locals, that he set out to try raising 15 million dollars, because that was what it would take to get us all the way through human clinics, and everybody said, 'It's impossible, you can't do it, so you shouldn't try. Well, they'll say no, no.' They told us again, from people locally, they think small, and nothing is spontaneous, everything has a history, they told us we could probably raise a million, because that's what they remember from eight years ago.

Question Eighteen: When you say 'they,' who are 'they'?

The locals, people that were born here, people that grown up here. I remember only 18% of this county comes from outside the county. People like me, like Ned, people like Marge, like Bart, that is a coincidence, isn't it? The locals feel the precedent is everything. You know that is why Joe Paterno still won't play Pitt in football because of the precedent established in 1982. The locals are precedent-oriented; you can't do something new, because it's new, and so they were very firm indicating that we couldn't raise more than a million from angels, that we really should shoot for more than three quarters of a million.

What the hell, you know? Ned and I are New Yorkers, Marge is from Atlanta, Bart is from the eastern part of the state. Fine, you can say that, pat on your head and send you on your way, but Ned really wanted to raise 15 and we got halfway there in one

shot. Now we're cruising along product development, we are making great strides, we got a really cool product now, the product now is substantially better than it was. When we seriously started the development in May, going from the research lab to a real product is still a big stride, but Bart...Bart is the best I've ever seen, so, and he's been actually looking at places to manufacture the ingredients, so we've just been doing great stuff.

Question Nineteen: How did you identify your needs?

This is a really clear road map, we need to get what is called an IDE – the investigational device exception – that requires a battery of tests for a device. We need a laboratory space, which we didn't have, web labs are few and far between; you know in this area, it is the local development people, when you say lab, they tend to think of a room like this with a DSL line in it, they are very software-oriented. If you and I were in a software company this would be damn good lab. So, when you say lab space, that is what they think of – they point you to a modern-looking building that's wired, but it's not really useful for our stuff.

Beyond the IDE then come in human clinicals resulting in the PMA, the manufacturing dilemma, which is also FDA, and again, it is a very clear path. The other need we had was legal talent, we needed, this is where Ned began to take a lot of flights, because his idea was to go out nationally and find the best legal talent there was for corporate stuff, for FDA regulatory stuff, and for IP. So, we went with (name), they are in Minneapolis or Chicago, I forget which one. For regulatory stuff we went with (name) and they're hands-down the best and everybody knows it, so that was to me a no-brainer. Then, the general corporate stuff is (name); they are good at that too, but Ned actually liked that, because two of those three were outside town, and you know, the usual is, why

we have to go out of town, we have plenty of good hands, yeah but they are not the best, and (name), when I met them, amazing, of the 15 PMAs that went before us to FDA last year, we represented nine of them. No other firm did that.

Question Twenty: They know their stuff.

Damn well, they are great. That was, the needs were actually pretty clear-cut and also we needed at the time; it was Marge, Ned, me, and Todd and we needed a technical person. We needed a Bart, because it had to be a pair of hands that couldn't be me.

Question Twenty-One: How did you find Bart?

Another...He was a post-doc at school and it just so happened that he was interested in looking at small companies. I think he replied to an ad that we put out, but that was also starting to get depressing, we could not find technical talent locally. Mostly, if you need someone to do self-coaching, there are hundreds of people out there that can do that, but we needed someone who can do polymer product development, so anything outside the traditional medical research is a real lack of talent locally. So anything other than that, you are in trouble, unless you can recruit nationally like Bayer. Bayer can recruit internationally, so they can recruit in eastern Europe and bring someone to town, but if you're a small company and it is not software and it is not traditional medicine, then you're stuck.

Question Twenty-Two: Did you consider cherry-picking from a company like Bayer?

Yeah, but the kind of people that want to go work for Bayer, it's not likely that you could offer them much, you know, it is very conservative. I considered it because Bayer goes through layoffs from time to time and I thought I'd pick someone there, but

the other thing is, to be quite honest, Bayer hadn't really hired in four years. They've been reorganizing continuously for four years and they only start hiring this year. Once you are at Bayer for a few years, that's where you're going to stay, because that's the kind of life that you like – this kind of crazy lifestyle wouldn't appeal to you.

It's hard because some places have the excitement, but you don't have the stability in the facilities. Bart has become, he is now extremely valuable, he has no idea, thank God, it is more likely that someone would want to cherry-pick from us, because what Bart has done is to interface with the people manufacturing a lot of the materials. Now he's seen how that goes and helped negotiate the deal with them. He has to design the new labs; he did a lot of product development and set up the new laboratory. If Bayer is smart, they will cherry-pick him. In fact, most of what I worry about is someone stealing members of our team, because they are so good, and now that they've taken the company this far, and now they've got experience, which is sadly lacking locally. That is my biggest fear – that someone will realize these people are extraordinary talented and valuable. All I can offer them right now is, 'It's going well and this is really cool.'

Question Twenty-Three: The dream, right?

Basically.

Question Twenty-Four: What does team mean to you?

Well, the whole is greater than the sum of the parts. I think that is simply it, that and you can't imagine replacing the pieces, I mean, you are terrified at having to replace some of the pieces that work so well, that's what I got right now. That and it's just a joy to watch the team work as a team. It was so much fun to watch them present to the investors, because it was, it was kind of rugby, one of us would go and then put the ball,

take it and go, and it just was fun, because the investors adored that. They actually complimented on the team. They said, ‘You guys are really a good team,’ and that came up again and again, and it’s just because everyone has roles, and the roles are important; everybody knows what their roles are.

Question Twenty-Five: Who did you consult with in forming this business but did not ultimately become part of your team?

Interesting – well, Carolyn. She ultimately joined a different company, but Carolyn was often consulted. Other than the investors who didn’t invest, I can’t really think of anyone. The people we interviewed for CEO that we turned down, and I guess another one would be an individual at the Greenhouse, who was our final Greenhouse mentor and who ultimately was not brought on.

Question Twenty-Six: Are there any individuals that you worked with early in the venture that you later lost contact with?

Yeah, there was this guy, (name), who seemed really interested. He is a real estate developer, he did (a local shopping mall), and he seemed very interested early on. I thought he would eventually become an angel, in somewhere around quarter million dollar investment market, but he never did. We’ve lost touch with him ever since he seemed very fired up over the business.

Question Twenty-Seven: I think he is in financial trouble right now. His mall went bankrupt.

Maybe that’s why, he was an early buster, and seemed he would help us find talent and investment and then we kind of lost track of him, so we haven’t heard from him in quite a while, you might be right. I am trying to think of someone else – Peter,

because Peter lived in North Carolina, he was an earlier advisor and very valuable. Peter was the one that introduced Todd and I, years ago, when he was part of MTEI...then because Peter left the university to run another company. We lost touch with Peter when he joined another small venture in North Carolina, and when he was just in North Carolina as a consultant it was easy to interact with Peter; he was an early board member. But, since he joined another venture, from an ethical and conflict of interest standpoint, he had to invest his time in that. He was an early member of the board, but eventually was...

Question Twenty-Eight: Who is in your board?

Let's see if I can get all these names right: Mike; also let's see, Jay, he heads up an investment group; Dora is the chairman, he was formally the director of Life Sciences Greenhouse, he's been involved in half a dozen start-ups that we know of; Al, who is, he was a former executive at Sears, his experience is in the manufacturing arena; Ned and Todd – we have seven – and I am an observer. And then Eric from (name of law firm), he is the recording secretary; he is not a member of the board, but he sits in.

Question Twenty-Nine: How did you pick board members?

Well, some of those are investors, in fact all of them are investors. Let me see, yeah, except for Dora, all of them are investors, and if you look at Dora, we're thrilled to get him onboard. He could only come onboard after he left the Greenhouse. Dora knows the space backwards and forwards; he has started about a half dozen of companies. Mike...is all about medical devices, he knows the space backward and forward, and in particular is a very strong business person – he knows how to run a business correctly –

he is really good at that. Mike is in finance and understands all about the financial side of things, and he is also an investor.

Question Thirty: Did you ask them to join the board or do they say, 'If I am going to be an investor, I want a board seat'?

That's a good question; I am sure there was some back and forth on that. I didn't take part in that. I suspected that some of these guys we wanted to be on board all along. I mean because, for example, with (two individuals), actually they all have expertise that is helpful; (two individuals) with devices, Al with manufacturing, Dora just generally the space, and Jay with finance, and the fact that they were investors, I think they sort of mutually agreed.

Question Thirty-One: I haven't heard a lot about you. You know, you've talked about most of these guys – did they contribute a lot to the business?

Yeah, we have regular board meetings and when I sit in, what they do is contribute, and particularly, what I find fascinating is appropriate business practice, which, you know, includes instituting procedures and control, at this point in our careers lifetime which would serve it well down the road. I think it's really interesting and they contribute a lot; they also have good experience with the FDA, so that's very useful, and they have contacts that we need for, because we need a delivery device designed and manufactured. Eventually we're going to have the product manufactured by someone, I imagine. We are talking with some companies for that. But, they contribute quite regularly, and actually we have a board meeting next week.

Question Thirty-Two: When you consider who to add as a member of the team, who's consulted?

Well, it's small enough so that, it's the, right now we have four employees and me and Todd, so it's six of us. I'd say that normally when this kind of decision is made, the initial discussion is Marge and Ned talk about the needs of the business. And, you know, what happens is, you describe the type of person that is needed. And then when it comes to interviewing, we all get involved, but we are informed what their future plans are for hiring. So I think the next person to be brought onboard is going to be a regulatory, Director of Regulatory Affairs, which is correct. You know, that frees up Marge, because Marge is doing business development and regulatory stuff right now, and it will free up some of her time. Of course, for a medical device you got to have a Director of Regulatory and Clinical stuff, so it's a good choice and then we have to find somebody. But, yeah, the initial discussion is Marge and Ned, but it's pretty cool, I mean, with six of us.

Question Thirty-Three: Has your board dictated any additions to you?

Not yet – at least, not that I'm aware of.

Question Thirty-Four: OK. I'll ask you to draw me a picture. I'll just put you in the center of the paper; if you think the center is not a good spot, I'll let you do it yourself, but I'll start with you and maybe you could draw me what your team looks like.

What my team looks like? Interesting.

Question Thirty-Five: Little dots and lines – just a little chart.

This is interesting. Put...over here, and then, it's funny, I like it this way. This is going to be interesting. I can't draw too much of an overlap, because that's not allowed. Here's SurgiGlue. You have to have the product. I would say that this is the way it works – this is all about the product. I don't like this diagram.

Question Thirty-Six: Start over.

I like that better. Bart and then Lisa somewhere in here.

Question Thirty-Seven: Who is Lisa?

Lisa is the Office Manager. She is kind of the connected tissue. It's all about the product. So make this our team. Put Todd somewhere in here. There we go. (Laughter).
That's it!

Question Thirty-Eight: That's different. I like that.

Well for us, it's all about the product. So the product sort of dominates life. We spend all of our time thinking about it. And, you know, we're in this doughnut with the product holding everything together.

Question Thirty-Nine: Interesting, nobody puts the board on this.

No, you are right. The board right now for me is...I think I talk to these guys multiple times per week, and I see the board once every three months.

Question Forty: OK. So there is not a lot of regular contact?

There is, but it's with Ned. He is the connection to the board. For example, I know he talks to Dora, the chairman. Those two, because they get along very well, they see eye-to-eye in a lot of things, so they communicate regularly. Also with the other board members, there is a lot more than every three months, it's just that I only see them every three months. So, for me, they're on some other layer of this, somewhere in the galaxy far, far away. But I only see them once every three months.

Question Forty-One: One other question. I didn't asked you – do you use outside consultants?

Yeah, what's her name? We use one. She's done manufacturing work for Pfizer, and she helped us find possibilities for designing the delivery device and possibilities for manufacturing the product. So she was brought on. She only wanted to work part time because she's got a small one at home and another one on the way. But she's done a lot of manufacturing work for Pfizer. She was another, I don't know how we found her, it was another lucky one. A lot of this is luck. Lisa the office manager, she's really good – Ned needed work on his knee, and he was at an appointment and started talking to Lisa and at the end of the discussion he said, 'If you are ever looking for a change, let me know.' Lisa called; now she's running the office, and I think she's much happier.

A lot of this is luck. You really have to work hard to find talent locally, with the declining population for 25 straight years, we're out of bodies. I'm very serious. You can't have growth if your population shrinks, so it's really tough.

Question Forty-Two: This is wonderful, thank you. Very interesting, having done a lot of this, this is a very good interview. Would you mind working with me to coordinate interviews with your teammates?

Sure. They may a bit more reluctant because they worry about things getting out.

Question Forty-Three: This is an academic case study and I don't care about IP, I care about the team.

Exactly, I know. I'm just saying, that's what they are usually reluctant about. But, yeah, I can probably set things up.

Question Forty-Four: What I've typically done with people, I'd send you a generic email that you can forward out to the team and then I can just coordinate with them via email. I'll send you one this afternoon and we can take it from there.

Perfect. Fine. And, like I said, our open house for a new lab, that's the other news. It's going to be real lab space, of which there is not a lot outside universities. Yeah, we are short on a lot. Actually, I look at this, and I'm like, 'Wow, how did we get this far,' because I can see so many places, it is like the hockey stick, you know, they can just trip you up and screw up the whole thing. And, there's really not a lot of help. I mean, there is a lot of discussion about help, but most of it is not true. You're on your own, in so many different ways, when you're doing this. For all the talk about trying to create a system to promote this, it's amazing. Most of the "helpful organizations" are truly unhelpful.

Ned – CEO of Gluhera

Question One: Do you want to tell me your name and your position?

I am Ned.

Question Two: What about your background, start with your education and professional experience?

I am a 1986 graduate of the U.S. Naval Academy. I served in the military for seven years and took a job with Medtronic. I was promoted to international sales manager. Within the last six months of me being there, they asked me if I would stay and do it in India, Korea, and most of the Asian Pacific for a new tech. In January of 2000, I was to become a product development manager in marketing. Within those jobs I launched many products, one of which is the hand-assisted laparoscopic surgery.

Then, they asked me to go back out into the field. We had grown so much, they said they wanted me to be a regional sales director, with the thought being that I always wanted to have as many different jobs as I could before I was a general manager because I would have all that experience in all of them.

But it got to the point where I realized that it was time for me to do something different. I had made a lot of connections in my 15 years there, and the at first glance I didn't think that Ann Arbor had a life sciences community, and through a friend I knew here, Rod and Todd, who had this kind of technology, that's all they had and they sort of incorporated this into the company, and they had no money. It was kind of scary because I had a couple other offers and this was the rawest and the roughest and the most work, but man, when you believe in something, it's so cool. So I was offered the job on December 19th, 2005 and started the job January 2nd of 2006.

Question Three: Is this your first experience outside of a big corporation?

Yes. We met, well, first of all, my relationship with my founders is nothing short of spectacular. Not only do we get along professionally, we get along personally. I respect them [the founders] professionally and personally, and that is something that is seen as a treat. The founders are willing to let go. The relationship with them is fantastic, and the fact that Rod has joined as chief scientific officer is great. I met Todd first, and when I was out here looking at other options, I met Todd and a woman named Marge who is now our Vice President of Development at the Greenhouse and over the phone twice actually to talk about the chemistry.

Question Four: What factors convinced you to become part of the venture?

A strong belief in the technology. I think any time you're going to do an entrepreneurial venture, if you don't believe in your heart and soul and everything you do that the product you have is really good and has potential as opposed to doing something just for the money, this is about truly having an opportunity to make a real contribution to

the technology of the medical device business. There's nothing more rewarding at the end of the day.

Question Five: Are the entrepreneurs critical to your joining?

Yeah, absolutely.

Question Six: What is the reason you joined?

Because I love to coach, I love to lead. I really enjoy watching other people become successful.

Question Seven: Why do you think other critical team members joined?

I think they see the vision. One of the things I try to do in any business I'm in, I have a great ability to set a vision for people.

Question Eight: What have the entrepreneurs consulted with you on – technical or managerial?

I think, this may be a round-about answer, but the thing going back to an earlier question. Rod and Todd have not necessarily consulted with me on the business aspects of what we're doing. We have an open relationship where I'm constantly asking for their feedback; before coming on board, you know, they came to our Friday team meeting even though they aren't members of the company, but every Friday afternoon we have a two-hour team meeting, and then every other Friday we have a happy hour where we bring spouses and kids and make it very much a family event. I would say what made Rod and Todd a good set of founders is that they turned the business over to me, and whereas we may consult on things collaboratively, they don't come and say to me, 'Well, why are we raising funds this way? or, 'I don't think we should do this *this* way.' They leave the business to me.

Question Nine: What about bringing other team members on board?

Actually, it was the other way around. Any time I was going to bring someone on of a technical background, other than Marge (Marge was my first hire). bring on a technical person like Bart, who is our product development engineer and has a PhD in chemical engineering, I would do all the pre-screening of potential candidates with Marge, but no candidate got even considered for the company until they reviewed them.

Question Ten: Did they bring people to you?

No, they haven't brought anybody to me.

Question Eleven: What does team mean to you?

The absolute, no-questions-asked respect for what each of us is doing here for the company, a culture of collaboration, of passion, of energy, of no politically charged issues. If we have an issue we think needs to get addressed, it gets addressed. Obviously, there are situations where someone's feelings get hurt. I mean, I've stepped over that boundary, I've made mistakes where I may have been short with someone, not meaning to be, or not even thinking, 'It's late, it's Friday afternoon, you're tired.' The first thing I have to do, as the leader of this company, is that I have to step up and when I see I do it, I have to stand up and say, 'Hey, I apologize, you know, that's not the culture of the company.' It is a group that believes in our mission and our vision, and we'll work as hard as we can to get there. And we're having a lot of fun doing it, and that's the key. We have an absolute great time working together. There's more laughing and joking and fun stuff going on, as well as serious stuff, than anywhere I've ever worked. I run to work everyday. I really do. I live really near Rod, he lives in (name of community), and I'm in (name of community). I get up at 5:00 am, go to the gym and work out, and I get in here

between 7:00 and 7:30 and I usually leave between 7:30 and 8:00 and my wife and son come in and we really have a blast here.

Question Twelve: Where did you find your critical team members?

Well, the first one was a lay-up. Dottie was a part of the office of enterprise development, and I made it a point that the first person I wanted to hire was her. I said this at the (name withheld) dinner and I said it when we got some grants, that the best hire I ever made in 16 years was Marge, by far, no questions asked. I truly believe that she will be a CEO one day.

How do we find them? I mean, like with Bart, we found through persistence. We were looking for a product development engineer and had some specific criteria, but the problem was that we kept getting more chemically-focused people rather than chemical engineers. We found Bart through a website that we just kind of found. He was that good that he could have gone anywhere he wanted, but gratefully, he chose us – realized we had a good thing going.

Lisa we found, uh, I have to be careful how I say this. I was getting my knee worked on at the (name of medical office), and I had been going there for maybe three months doing rehab. I ended up having surgery; they thought they could do it without it, but I wound up having to have part of my _____ taken out. But it's a zoo down there, there's hundreds of people at a time coming in, and it's like a train terminal. I was watching this woman for months. I like to observe people. So, I'm watching this across the board, and some of the men and women working there weren't very customer-focused, not very pleasant. I was just observing from afar, I wasn't really there very much, and so one day at my final appointment – it was late in the day, I usually went

early – but there was hardly anybody there, and she’s sitting there, and I said goodbye, and I’m walking out, and something grabbed me, you know. I got to the door, and I stopped. I turned around and I took out my business card and I very quietly slid it to her, and I said I didn’t know if she was looking and she asked me if she could call me. I said absolutely. Then she called me, we interviewed her, and then I checked her references. Dr. (last name) is a big fan of hers. We hired her; she’s now our office manager, and she’s getting her degree at night.

Question Thirteen: Do you have any expertise or resources with this venture?

For example, we put together, I think, for a start-up, one of the best _____ members of our board. And then we have two out-of-the-city guys, (name), who was a senior, and Al had a 34-year career at Sears Roebuck, and (name) is the managing director of _____ and his father-in-law is the owner of the (name withheld baseball team). I hired a board with a lot of experience and _____ to me every day. I didn’t want a shrinking-violet-board that was _____ - me hard.

Question Fourteen: What do you draw from that?

Well, simple things. Like how to run board meetings. A lot of entrepreneurs don’t understand is how to set the company up right at the beginning. You have to be adamant about our finances. I hired an outside CFO instead of taking on that responsibility. I still do all of the finances, we have quick books, but basic business concepts is right down the street. (Name withheld) is with an outsourcing firm that is working on my audit right now with Alpern and Rosenthal. (Name withheld) has been with us since day one, and working with the books, and she sits right next to us with all of the expertise of a 30-year tenured CFO, she’s got it. And it’s wonderful to sit down with your auditors, and things

get answered, boom, and my audit, instead of taking three weeks, basically they've been here a week and they're done. So that's things that the board has helped, setting your governance, making sure it's correct, your audit committee, your comp committee, having outside board members like independent directors as well is that they have connections within the business which are very helpful.

Question Fifteen: Any individuals with whom you worked early in the venture with whom you've lost contact?

I think that early on when we were getting started and our big impetus was to raise funds, we used a local fund raiser, who worked with us for about six months. But now we're not in a fund-raising mode. But everyone we've started to build relationships with we still work with.

Question Sixteen: Were any critical team members added at a critical phase in the development?

Rod – July 1st of last year was critical – we had the product developed and we knew what it could do. We never had a chance, since it was such a new company to put it through the ringer, the _____ was key at the time because we spent a good six months. The other equally important was the addition of Lisa at three months, they weren't going to be able to handle it. We jokingly call the way we work as “gluetime” because what we do in a week we think takes most people a month, and it's pretty funny when you look at the stuff we've done in 13 months, it's amazing. And I don't say that to brag, I say that because I've seen it with other companies. So Lisa was really key because she's got the finance background, she's a wonderful office manager, and she wants to play bigger than just being and admin.

Question Seventeen: Did you anticipate the need of Lisa and Bart or was this made out of necessity?

Yes. No, when I first came onboard I did an exercise called display thinking, and Mike Nance worked for Walt Disney back in the 40s and 50s and he invented this whole display thinking, and I could show you the board or process for getting all of the internal information out on 5 x 8 cards. Back on January 2nd of last year I took Marge and Todd, the co-founder, and another gentleman who was consulting for two full days doing display thinking. And some people chuckled at me when I did this, but last year at the beginning of the year I put down things as if I was Johnson and Johnson or P&G and it went all the way up to 2010. Your plan is three main areas, you know, R&D, and marketing, and it was down to the dime, and it was painful, for like four whole days. But it's interesting, because we've kept it very consistent.

Question Eighteen: Did you have any setbacks that led to the addition of a team member?

No. One of the things I explained to Rod in the early stages is that someone of his stature and abilities, he's the technical expert. Todd has the medical experience. A company like ours doesn't have the continuation products and doesn't have refinement we need, and him being two miles away, his undivided attention wasn't here. To his credit he had a wonderful career at the university, and may still continue. But then when he saw we raised seven million for a life sciences start up in Ann Arbor...when he saw that he realized this was it.

Question Nineteen: Has your relationship changed with Rod now that he's here?

Not at all. We're loyal and supportive; he's our mad scientist and he's a wonderful man to have.

Question Twenty: Are any additions to your team dictated by an outsider, an investor or board member?

No.

End of tape.

Bart – Project Development Engineer – Gluhera

Question One: Tell me your name and your position.

Bart, and I'm Project Development Engineer.

Question Two: Background.

I got undergrad at University of (name of university) and I got my bachelor's, my BS, in chemical engineering there. I then did four rotations with 3M – I did a co-op, multiple internships with the same company, so I worked in all kinds of divisions with them from floor chemicals to adhesives to electrical technologies, and then my last 2-3 years I was an undergraduate researcher, doing more biotech work like working with ee-cells, working with bacterias, making proteins for therapeutics, mostly anti-bodies for drugs.

After that I went to the University of (name of university) graduate school also on the biotech side, again with the same things. Again, I was like a product development engineer, working with enzymes at really high temperatures and pressures that might be useful for industrial applications, to supply those kinds of enzymes for companies. I was also in an industrial internship looking at improving their process development, so I did that for a while; had a great time in San Francisco for the summer. Then, I finished a PhD

at (name of university) in chemical engineering in 2003 and then I came to Michigan for a post-doc in tissue engineering. There is a Michigan Tissue Initiative in the city, a consortium which is really interesting, because you can work with this post-doc program, you can have one mentor at the university, and you can work at a project which joins all of their expertise. I actually chose three. We're working on hydrogels, _____ to create a tissue system that will implant in the body, to work on tissues, to follow those cells around. I just finished up there last June and I started here July 1st.

Question Three: Why did you choose this as opposed to academia?

After seeing the professors, and how hard it is to get grants, and all the hassles they go through, especially at Michigan where the graduate students are really expensive, I just figured it wasn't for me. I like the industrial side, the practical side, deadlines, and what you do makes a difference – not that academics don't make a difference, but I know what I'm working on, you can see it in the market. It's really fun, the innovativeness, and I like that part – the faster pace.

Question Four: Explain your relationship with Rod and Todd.

I met Rod when I interviewed, and so I knew him and he was looking for someone with product development, so I had a relationship with him. Another post-doc in the (name of program) program did his first rotation with his mentor, Rod, so I got to know him through the professor. And I knew he got into technology and tissue engineering a little bit through the university. So when I came to interview, I met him. I didn't meet Todd until I came in for the interview process.

Question Five: What factors convinced you to become part of this venture?

Well, I wanted to join a start-up company, and I figured at my age I could take the risk and if it didn't work out, I could take the experience and go somewhere else. I liked the technology. I liked the idea of working with Rod and getting involved in some technology – I didn't have a lot of expertise in medical, something I had some experience with, but not a lot. I figured having Rod there to help with that would make it work, it was an easy choice. Everyone gets along very well; the culture was the culture I fit in well with.

Question Six: Was Rod important to your decision to join this venture?

Yes, I believe so. Again, I told him right away, I'm not a chemist, and if you want a chemist, don't pick me. I mean, by the time I learned it, it wouldn't be worth it, you know, with a start-up, we'd be behind, but with Rod there to help advise and bring me up to speed was critical.

Question Seven: What would your other team members say was your reason to join the venture?

I think the same reason, I wanted to learn, not just more science, but to get involved in the business side, I made that pretty clear early-on. I didn't just want to be involved in the science, but the business of the venture. I think Marge hit on that early, so did Ned. I think when I joined, I think just for the experience. I figured if it didn't work out I could move on. It was good timing for me.

Question Eight: Why did other team members join?

I think for Rod it was the excitement of being involved in something new, a new product, getting the ideas maybe moved outside the university setting. I think for Todd as well, outside the norm, outside the academic setting. The academics are kind of slow, and

if you have the application, if you have the bug about application, this is a great way to do it. I think for Marge, too, it's the same. She says she's gotten bitten by the bug. For her that was a big drive. I think for Ned it's the same as well, looking for the next step in his career. And the excitement of this product and the team brought him in as well.

Question Nine: Why and what has Rod consulted you about?

In teaching some of the chemistry. When I work at some of these products I have ideas and observations, but I don't know how to convert that into carbons and nitrogens. Having him around has helped me know, 'Hey, I need my glue to be more hydrophilic' or something, so we sit down and figure out what we need. I don't have the expertise, but he does, so the combination of the two of us working together, we bounce ideas off each other, and also he brings the chemistry expertise I need to show me how to get done what I need to do.

Question Ten: What expertise do you bring?

Well, I have a PhD, so if nothing else, it teaches you how to think, and how to do research. I know how to do research; I have some chemistry so I can do synthesis, analyze my results, I can interpret my results, and relay that information in reports, and things like that. So in some aspects it is frustrating because I can't carry it an extra step and design my own projects because of not knowing chemistry, but that's why having Rod here is great. I think he liked the idea of a PhD who could come in and start right in and perform experiments and not have to be trained on all of the little things that you learn as a PhD; I think that's why they hired me. I think it's because it's how you are trained to think as a PhD.

Question Eleven: Define the team for me.

This team is awesome. This may not be the best descriptor, but I like environments where people work hard and party hard. These people work hard while they are here – they work very hard. But, when they leave here, they know how to relax and celebrate and really become a family. I really like that. They are always looking out to help you and grow the company. When I came in I was very new, and they'd come in and help, Ned would come in the lab and work with me. He may not have known what he was doing, but he wanted to help and get to know me and build a rapport. He did come into the lab, and Marge came in and showed me things because she was doing things before I came, and even Ned would come in. It was great. In a lot of companies you wouldn't see the CEO doing that, you know? They'd say, 'See you next week!' I really love that camaraderie. If I succeed, the company succeeds, and if I'm having a problem, then the company could have a problem. It's in our best interest to support each other.

Question Twelve: I heard you were lonely on the South Side?

It was tough for a while. Once in a while they'd come down, or I could go there for a while. But it was good to be on my own; if I wanted a certain piece of glassware, it was mine to use, I had the whole lab to myself and could do what I wanted. I had some friends down the hall, a guy from the university I worked with has a company in the same building, so I'd go down and say 'hi,' use their break room, and I had a radio – I'd sing along to the radio. No one complained about my singing, so it was OK. Now this lab is great. It is nice to have everyone together. We have everything here we had in the other lab things that were meant for another lab. This is wonderful, it is fully functional.

Question Thirteen: Who's in the lab now?

Right now it's me and Rod and a new technician. He is doing great, he's relatively new, but he's learning quickly and excited to do the work. He's making good contributions. He's worked at a lot of different companies doing technician work, worked at chemical companies, worked at Baxter. He has a technical background.

Question Fourteen: How have things changed since you've gotten this lab?

It's been good. Having new tools is good...safety-wise and for productivity, it's good. The logistics are good. Great space, it's been good to be able to have this. Wilson's good.

Question Fifteen: Have you sought outside expertise?

Yes, we have a couple of consultants. One good one, (name withheld), who's giving us advice on manufacturing. She's found both companies and we're working with both. The device side is going well, and the manufacturing side is slower only because we're not yet ready to manufacture. She's been fantastic. She's working with Marge and Ned, but I'm coordinating. She's a free agent. She's a chemical engineer from Penn State. She was working for Pfizer, but left and is doing consulting. She may still be consulting for Pfizer. She's awesome. She fits our company culture very well. She is on pregnancy leave right now, so she doesn't come in too much, but she'll come in for team meetings and other stuff. Sometimes I call her on the phone. She's in Detroit.

Question Sixteen: Are there any individuals you worked with early-on who you've lost contact with?

Not me, because I came in when things were getting set. I don't know if Ned talks to the CEO they were talking with before just to get started, you know, the

Greenhouse project supplies CEOs, but since I came, no. (Name withheld) is the only one, and we're still in touch with her.

Question Seventeen: Were any team members added at any critical phase of the organization?

The critical stuff came along right before I came onboard, but obviously getting Ned in as CEO was critical. Having our own CEO was important. Of course, having his expertise with fundraising. He and Marge are the two powerhouses for the company, and Rod's expertise has been immeasurable.

Question Eighteen: Who makes the decision to add new team members?

If we need a new technician, we start tossing it around, thinking about it, getting close to the end of a project in the lab, then we decide to go do it. Ned may say in six months we'll need a new marketing director and then they initiate that. But basically in our life cycle, it is by our need. We're thinking we will need a new technician by the summer, so we're tossing that around.

Question Nineteen: It sounds like the technician brings a lot of experience. How did you find him?

Actually, we went to the university website and started looking at résumés for people. No, he's not an alum, but he was on the website.

Question Twenty: Lots of websites help startups.

Right, it's a good resource.

Question Twenty-One: Has your venture had any setbacks?

We find little hiccups in our product development, but in any technology there will be issues, so you have little setbacks in the laboratory. But we're making progress all

the time. Every problem we've ever had, we've fixed. I think we've had great luck. We learn from it. I think we have great fundraising, doing all the work ahead of time, getting a device developed and manufactured ahead of time, which most companies don't even do. We're working with a manufacturer to supply one of our raw materials. The only supplier in the world has stopped making it, so we have a huge batch in the refrigerator, so we've contracted with a local company to make it. They've proven that they can make it, so if we need it now they can make it. We got that taken care of. Everything is going well.

Question Twenty-Two: How's product development going as opposed to your projection?

Well, I'm sure that it's a little behind, but it's hard to predict sometimes how long it will take to finish a product. Some people take a couple years longer; some ahead of time. The product itself is very simple, it doesn't take much to make the glue, but when it was made, they didn't think about shelf life, stability, viscosity; each one of those is easier to solve itself, but putting the three of them together, it is more difficult to make one glue do all those things. So, we're a little behind the timeline, but they built in some buffers in the business plan, so there's definitely pressure, but it isn't time to panic yet. And they understand that as well. I think that Ned does a good job communicating that. We're making progress, but there's potential here, but it takes time to make a discovery into a product.

Question Twenty-Three: Since he's working closely with you, how is it working with Rod full time?

It's great. I think that's one of the reasons I took the job, working with Rod. I knew I'd have to because I needed his expertise to learn how to be able to do it myself. He's fun, kind of kooky. He's one of the professors who is extremely smart but also very social, interactive – he's not like, 'Do it and don't talk to me.' He's very hands-on, fun to work with; if I don't know something he will say, 'Here's how you do that,' and help me, so it's been very good for me. He's a great mentor, and we've gotten along very well from day one.

Lisa – Office Manager – Gluhera

Question One: Give me your name and position.

Lisa, Office Manager.

Question Two: Tell me your background.

I got my Bachelor's from (name of university) University. Pretty basic, and I worked through school, the Saturday program. And once I was done with school, I worked for a (name of company), doing real estate closings, which wasn't much fun, so I left there. Then I worked for a technology company, IT stuff, setting up servers, computer technology, and then I realized that wasn't for me. Then I worked for a medical office. After that, I worked for the Sports Medicine Center, ran the front desk, registration, customer service, and that's how I met Ned. He was a patient, and he saw that I could handle myself in a very hectic situation and gave me his card and told me to give him a call if I was ever looking for a job. I called him the next day and came and interviewed, read about the company, and decided it would be a good fit for me because it would put me in a role where I could move through a company more easily. In terms of being office manager, I would have control over things and not have to follow step-by-step rules of a

big company. That's good, but when you're starting out and learning it's good to be able to touch on everything. So I took the job and have liked it ever since.

Question Three: Do you have entrepreneurial experience?

No, not really. The company I worked for had been in business for about 15 years, so I really didn't. I did business development but I wasn't good at it; it wasn't a good fit. This is my first start-up business.

Question Four: Describe your relationship with Rod and Todd.

Rod and Todd are great guys. I think it's very good we all get along very well. Rod and Todd are the founders; they are very intelligent, but they don't make you feel inferior to them at all, which is key. They know, and Rod and they've all said it. Rod knows his laboratory stuff and the chemistry. I know the running of the office. It's a fun balance, because if he has questions he asks me, and if I have questions I ask him. Each of us has our own expertise, if you will. But they are great to work with and I think it's a good relationship.

Question Five: How did you meet the entrepreneurs?

Through Ned.

Question Six: What factors convinced you to become a part of this venture?

Working with sports medicine and orthopedics, I really dealt a lot with patients coming in after having reconstructive surgery, surgery on their knees, shoulders, they'd have complete knee replacement, and they'd come in after going through that, with God-awful drains sticking out of their knees. I know working with that, is that people have difficulties and infections and things. So, when I came here and interviewed, I did a lot of reading on this company and what they are doing, and their technology, and I realized

that it could revolutionize the whole medical field, from orthopedics to plastic surgery. It was really interesting to me because I had worked with those patients beforehand, and to see what the idea is – I thought, ‘It is just fantastic,’ and I want to be part of that.

Question Seven: What would your team members say was the reason you joined?

Why I joined? It is the work environment. I’ve been told at many places that we’re like a family, but in big corporations they say that, but it’s not true. They have 500 employees, and I could leave tomorrow and be replaced, and wouldn’t be missed. Here, it is true, there is that sense of ‘we all want each other to succeed’ and we’re all pushing for each other to succeed. I think that is one of the reasons, and I think they’d say that. Seeing Ned and Marge working together, they work together so well, they complement each other. Where Marge’s strengths are, Ned isn’t that strong, and where Ned is stronger, Marge isn’t that strong. They are pulling each other up together. Everybody does that, and they would say that was one reason why I joined. It was that unity, and everybody has the common goal.

Question Eight: Why do you think others joined?

Same reason.

Question Nine: What does Rod consult you on?

Everything in that lab. I don’t know anything about chemistry. Consult me on in terms of the office? Nothing in the office. Technology. Our technology, our actual product, if I have questions about that.

Question Ten: What do they ask you about?

Benefits, their employee benefits, compensation, vacation is a big one, purchasing, I do all of the purchasing for the office. They give me lists. I also do

purchasing for things in the laboratory. They tell me what they need and I handle purchases, invoices, expenses. What they ask me for is everything outside of the lab, everything in the office, the day-to-day things.

Question Eleven: Define this team.

We're very strong. Everybody is very strong. We all have strengths that work so well together. We all have basically the same work ethic, we aren't 9:00 to 5:00 people, we're very dedicated workers. We're all working toward the purpose of getting our product developed and out there. Whether it's doing payroll, or purchasing a chemical, or them actually making the product, the formulation. Defining it, it isn't easy to give you a definition. But it is just, there are so many things about all of us – it isn't easy to put into words. It's a very special team, and we have a very special connection and we do well together. No one makes anyone else feel they aren't worth something. Everyone is here because they do contribute tremendously.

Question Twelve: Are there any individuals you worked with earlier who you've lost contact with?

No, not really. I just came in September, so basically everybody here I've worked with.

Question Thirteen: Has anybody been added at a critical time?

I think the new technician; it was important to add him. It was very critical that they added him for the formulation.

Question Fourteen: Was there any setbacks that led to him being hired?

Not that I'm aware of.

Question Fifteen: Was he added due to anticipation or necessity?

Both. We knew we were going to need a lab technician – it was a necessity. That frees up the PhDs to do more of the advanced chemistry. It's been great for them, because he is good, he doesn't need much direction, they show him and he just goes and does it.

Question Sixteen: Who made the decision to hire him?

I think it was Bart and Ned.

Question Seventeen: Were other team members contacted?

Yes, we all were.