Networks and Business Development: Analyzing the Efforts to Start an Electric Bus Manufacturing Plant in South Boston

by

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Abstract

This case-study analyzes the efforts of South Boston Community Housing Inc., the Economic Development Department at Boston Edison and Specialty Vehicle Manufacturing Corporation in starting Boston Electric Vehicle Company (BEVC) in South Boston. This case study is based on fifteen open-ended interviews with key actors conducted between January and March 1997, archival research, and participant observation between December 1995 and August 1996.

In merging research on business development and networks, this case-study analyzes the failure of South Boston Community Housing, Inc., Boston Edison and Specialty Vehicle Manufacturing Corporation to start Boston Electric Vehicle Company. There are three components to this analysis: (1) a characterization of the network consisting of South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation; (2) an application of Timmons (1986) model of business development to understand the extent to which these three organizations brought the necessary resources to bear to start BEVC and (3) an understanding of the reasons South Boston Community Housing and Boston Edison devoted time and resources to starting BEVC. One of the main recommendations is the need for community organizations to gain the knowledge and experience to evaluate business development opportunities for themselves. In addition, this analysis suggests the need for community organizations to continually evaluate the networks they utilize to start businesses. I provide a useful framework for practitioners in deciding to start a business in their community.

Thesis Supervisor: Karl Seidman
Title: Lecturer
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While only my name appears on the title page, I do not deserve all the credit for completing this thesis. First and foremost, I am grateful to my wife, Virginia Duplessis, for all of her love, encouragement, support and friendship. There will never be enough adjectives in my vocabulary to describe all that she means to me. I am honored to have worked with Karl Seidman and Aixa Cintron both of whom offered thoughtful advice and suggestions from beginning to end. Also, I feel privileged to have worked closely with the members of South Boston Community Housing, Inc. who have provided me with more than a year and a half of friendship and invaluable experience in community and economic development. Lastly, I thank my parents for all of their support.
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Chapter 1: Introduction

Introduction

This case study focuses on the failure of South Boston Community Housing, the Economic Development Department at Boston Edison (Boston Edison) and Specialty Vehicle Manufacturing Corporation (SVMC) to start an electric bus manufacturing company, Boston Electric Vehicle Company (BEVC), in South Boston. While South Boston Community Housing (SBCH) and Boston Edison began working together in January of 1995, this case-study is limited to analyzing the efforts of these three organizations to start BEVC from December 1995 to August 1996. This choice has to do with the fact that SBCH and Boston Edison were not working with SVMC until December 1995. More importantly, without SVMC, SBCH and Boston Edison did not have the technology nor the experience in electric vehicle manufacturing to start an electric bus company in South Boston.

Because SBCH, Boston Edison and SVMC relied on one another to start BEVC, rather than an entrepreneur, I apply a network approach to business development to analyze the ways in which these three organizations facilitated or constrained the business development process. Given that SBCH, a community development corporation in South Boston, played such a large part in this effort, I use this case-study to elaborate on the potential roles a community organization can adopt in starting businesses with the private sector. As a result, this case-study is relevant for both private and public sector organizations interested in working together to start businesses.

In applying the literature on both networks and business development to analyze the start-up of BEVC, I developed the following questions to guide my analysis:

1. Why did South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation work together to form an electric vehicle manufacturing plant?
2. Did South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation bring the necessary resources to bear to start BEVC?

3. Did South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation adequately manage the business start-up process?

4. In what ways did the network consisting of South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation influence the business development process?

Recognizing the diverse audiences which may read this case-study, I would like to provide a brief road map for the reader. For the remainder of this chapter, I expand on the importance of start-ups to a local economy, the role community organizations can adopt in starting businesses and the importance of networks in starting businesses. Chapter 2 describes the methodology and analytical frameworks applied in this case-study. For those not interested in research methods, I suggest skipping this chapter and beginning with chapter 3. Chapter 3 is crucial to understanding this case study because it provides an overview of the effort to start Boston Electric Vehicle Company. The analysis spans chapters 4 through 6. Chapter 4 characterizes the network consisting of SBCH, Boston Edison and SVMC. Chapter 5 applies Timmons (1986) model of business development to understand the extent to which BEVC brought the necessary resources to bear to start BEVC. Lastly, chapter 6 delves into the reasons SBCH and Boston Edison chose to start BEVC and work with SVMC after knowing that BEVC was not feasible. In conclusion, chapter 7 offers lessons for practitioners interested in business development.

**The Role of Start-ups and Small Businesses in the U.S. Economy**

Community organizations and economic development practitioners should consider supporting the start-up of businesses as a means to create jobs and stimulate economic activity in
their communities. Birch (1987) has shown that new businesses not only created the majority of jobs in the U.S. economy from 1981 - 1985, but,

...the healthiest economies have more rather than less internal turbulence. They experience greater levels of start-ups, of growth — and often decline and failure as well — than do the more stagnant ones. (pg. 21)

Birch (1987) draws his conclusions from an analysis of data provided by Dun and Bradstreet. What distinguishes this data from County Business Pattern Data and the Census of Manufacturers is that Dun and Bradstreet keep records of the employment rolls, age, and location of each business. Having compiled a comprehensive database of new and dying firms from 1969 to 1985, Birch obtains a picture of the economy that few are privy. As opposed to aggregate measures such as Gross National Product and Unemployment, Birch observes the employment gained and lost to the birth and death of new firms.

The results Birch provides are astounding. From 1981 to 1985, “companies with 1-19 employees accounted for 82 percent of the job expansion and concerns (businesses) with over 5,000 lost 13.5 percent net.” Since startups are more likely to hire anywhere from 1-19 people, rather than 5,000, Birch attributes this employment growth to start-ups. Looking at this data by location, Birch finds that, “variations in aggregate job growth from place to place are much more a function of variations in replacement rates than in loss rates.” For example, Charlotte, with the highest loss rate at 40.4%, created the second highest number of jobs at 7.5% because it possessed the second highest replacement rate at 48%. Thus, not only are small firms creating the majority of the jobs, but areas in which there is a high degree of start-ups, witness the highest degree of job growth, regardless of the loss in employment for that period.

Piore (1990) corroborates Birch’s results with an analysis of County Business Pattern. Although his results are not as extreme, they are in the same direction. Similarly, Piore
demonstrates that the majority of jobs created since the seventies can be attributed to small businesses. Small businesses, as Piore defines, hire less than 100 people, employed approximately 55.9 million individuals or 55.9% of all employment is accounted for by establishments which hire less than 100 people.

Differences in employment growth can be attributed to the data sources as well as to the different techniques employed by the two authors. Dun and Bradstreet data is specified by firm, while County Business Pattern data does not identify businesses, therefore it is not possible to follow one firm through time as does Birch. Still, it does not reconcile that Birch found such a large employment effect attributed to firms employing less than twenty people, whereas Piore cannot attribute the same amount to firms which employ less than 100 people. Another possible explanation is that County Business Pattern data looks at employment at a particular point in time, while Birch is able to look at employment created through time. This is important because it may be the case that when the census was being administered a number of firms had recently closed or were not accounted because of sampling error.

Community Organizations and Business Development

While Birch demonstrates that fostering the growth of new businesses is one way to create jobs and stimulate economic activity, he does not discuss the role of community organizations in starting these businesses. The purpose of this section is to elaborate on the ways in which a community organization can participate in the start-up of a business. Instead of an exhaustive review of the literature, I use Michael Porter’s (1995) model of economic development as a spring board for this discussion.

My focus on Porter’s model of economic development is intentional. In this case, Boston Edison, the “private sector”, initiated efforts to start Boston Electric Vehicle Company. In
addition, Boston Edison asked SBCH, a not for profit organization, to participate in this project as a means to garner community support. Because of the similarities between Porter's model of economic development and the role of Boston Edison and SBCH, I feel that this case offers a unique opportunity to demonstrate that Porter's model of economic development is simplistic – private sector involvement does not guarantee the success of business development efforts in the "inner-city". Thus, instead of seeking partnerships with the private sector, community organizations should focus their efforts on promoting viable businesses.

Porter’s model of economic development, while subject to criticism on a number of different levels, forces community development practitioners and government to consider what role they are going to play in creating jobs for low-income and displaced workers. Porter subjugates the government and community-based organizations to the private sector. Government can facilitate the growth of businesses in the inner-city by investing in infrastructure improvements and ensuring that vacant sites are environmentally sound. Porter entrusts community based organizations to assuage community resentment in the development process. Thus, in Porter’s model, the government and community-based organizations serve the private sector.

While it may be the case that experience demonstrates the need for the government and community organizations to fill these roles, Porter ignores the dangers associated with community organizations passively working with the private sector. First, if the private sector fails to deliver on a promise to develop a business in a particular area, then a community organization might jeopardize its reputation and waste valuable resources in organizing their community. Second, the government may have diverted resources to improve the land and infrastructure when there may have been other more successful projects to devote the money. Instead of blindly trusting the private sector, community organizations and the government need to understand the business
development process and internalize the capacity to evaluate business proposals so that they can minimize the probability that they will squander time and money promoting businesses that the private sector is confident will succeed.

**Business Development and the Role of Networks**

Crucial to Porter’s model of economic development is the collaboration of organizations to start a business. While Porter advocates for a specific network consisting of community organizations, government and the private sector to start businesses in the inner-city or other distressed areas, within the business development literature, there is a growing recognition and understanding that networks composed of organizations or individuals are important to starting businesses. This section reviews some of the literature surrounding the role of networks in business development. For community development corporations (CDC’s) and other community development practitioners interested in business development, this section is important because it is more than likely that a community-based organization will rely or participate in a network to start a business. This follows from a recent piece by Keyes et al. (1996) in which they demonstrate that CDC’s depend on networks to develop affordable housing.

Recent work by organizational theorists abandon personality based theories and rational actor models of entrepreneurship in favor of models that emphasize the relationships that individuals/organizations rely on to start a business and the ways in which these relationships influence the business start-up process (Aldrich and Zimmer, 1986, Van De Ven, 1993, Powell 1990, Malecki, 1994, Granovetter, 1985 and Granovetter, 1995).

Personality-based theories and economic models have been unable to adequately predict the success of business start-ups. Personality-based theories seek to uncover the traits that are common to successful entrepreneurs. Unfortunately, personality-based theories have been unable to locate
the one trait or locus of traits responsible for successful business creation. As a result, personality-based theories consistently under predict the rate of entrepreneurship and new firm formation (Aldrich and Zimmer, 1986). Aldrich and Zimmer’s criticism of personality-based theories is best explained by Granovetter (1985). Granovetter (1985) argues that personality-based theories oversocialize the economic agent such that:

> Once we know in just what way an individual has been affected, ongoing social relations and structures are irrelevant. Social influences are all contained inside an individual’s head, so, in actual decision situations, he or she can be atomized as any Homo economicus, though perhaps with different rules for decisions.

In other words, personality-based theories suffer from a tendency to assume that only people with specific traits will start businesses. The problem with these models is that individuals who deviate from this stereotype are ignored. Also, those who do fit the model may not necessarily start businesses.

Aldrich and Zimmer (1986) argue that rational actor models have not had much success understanding the business start-up process. They argue that humans are not rational actors: people have difficulty judging information objectively, making causal statements and limit themselves to easily accessible information. Granovetter (1985) adds that rational actor models tend to “undersocialize” individuals in that they assume individuals operate alone maximizing utility independently.

In lieu of personality-based and rational actor models, Granovetter (1985) opts for an embedded analysis of economic action. Granovetter (1985) defines embedded analysis in the following passage:

> At the other extreme lies what I call the argument of “embeddedness”: the argument that the behavior to be analyzed are so constrained by ongoing social relations that to construe them as independent is a grievous misunderstanding. (pgs. 481 - 482)
Using an embedded analysis should enrich our understanding of the business start-up process because:

Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of social categories that they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relations. (Granovetter, 1985, pg. 487)

Essentially the first to apply Granovetter’s (1985) theory to the business start-up process, Aldrich and Zimmer (1986) argue that in order to start a business, entrepreneurs need “linkages” or networks. Following Aldrich and Zimmer are a number of models of the business start-up process that incorporate the role of networks (Van De Ven, 1993 and VanderWerf, 1993).

Van De Ven (1993) argues that new businesses require an infrastructure to develop. This infrastructure is composed of three elements: proprietary functions, resource endowments and institutional arrangements. Proprietary functions include the market that is available for a product, the technological development and the network/resource channels available to an entrepreneur. Resource endowments include the basic research a product is based on, the money available for product development and the labor supply. Institutional arrangements include the prevailing technology standards, government regulations and trust between organizations. In his theory, Van De Ven captures the importance of environment and networks, only with different labels.

VanderWerf (1993) posits an innovative model for analyzing new firm formation as the new firm interacts with the environment through time. He conceptualizes the business start-up process as a funnel. The funnel is wide-open in the beginning and slowly narrows through time as individuals or groups of individual interact with their environment. Factors which influence the shape of the funnel are: technological development, business opportunity, publicity, competition, and profit. Each one of these factors can exert a positive or negative impact on the business start-up process, such that a positive influence widens the funnel and a negative influence constricts the
funnel. For instance, the more companies that enter a market, the lower the profits, discouraging people from entering in the future. At the end of the funnel, VanderWerf credits the will and motivation of the entrepreneur for success. Thus, VanderWerf implicitly subjugates the network involved in the business start-up process to the individual entrepreneur.

VanderWerf’s (1993) model, designed to apply to businesses in emerging industries, does not necessarily apply to new manufacturing companies. An alternative theory posed by Dean et al. (1993) does not incorporate the importance of networks, rather purely focuses on market organization to predict the likelihood of new firm formation. They argue that perceived business opportunities in manufacturing are dependent on the organization of firms within a particular industry. They predict that new manufacturing firms thrive in those industry’s where existing firms are hierarchical, beauracratic and slow to respond to technical change. On the other hand, industries in which firms respond quickly to demand discourage new firm formation.

Models of the business start-up process which have followed from Aldrich and Zimmer (1986), while giving credit to networks and the importance of social relations, do not explicitly isolate networks and discuss their influence in the business start-up process. Instead, Van De Ven (1993) and VanderWerf (1993) present theories in which networks are just another way to analyze a business start-up, while Dean et al. (1993) completely ignore the role of networks. Perhaps, this may be because networks do not in and of themselves explain the success or failure of a business start-up. On the other hand, it may be due to the fact that it is difficult to isolate networks and study them. Granovetter (1995) argues that networks are difficult to study because they are not legal entities and thus do not generate an abundance of data to analyze. This does not mean that networks have not or cannot be studied, just that the task can be difficult.
Understanding Networks

In order to facilitate the study of networks, I turn to the literature on networks. This is important because it has been shown that networks vary in their form and organization. Also, the characteristics of effective networks have been identified. In this section, I elaborate on the characteristics of successful networks and discuss the ways in which they might vary as background for chapter 4 in which I characterize the network consisting of SBCH, Boston Edison and SVMC. By characterizing the network consisting of SBCH, Boston Edison and SVMC, I am able to discuss the ways in which their relationships influenced their efforts to start BEVC.

Powell (1990) argues that networks, similar to markets and hierarchies, offer a means of exchange. In contrast to the impersonal transactions that occur in the market and the beauracraty involved in firms Powell (1990) distinguishes well functioning networks by reciprocity, collaboration, trust and mutual obligation:

Networks are “lighter on their feet” than hierarchies. In network modes of resource allocation, transactions occur neither through discrete exchanges nor by administrative fiat, but through networks of individuals engaged in reciprocal, preferential mutually supportive actions. Networks can be complex: they involve neither the explicit criteria of the market, nor the familiar paternalism of the hierarchy. The basic assumption of network relationships is that one party is dependent on resources controlled by another, and that there are gains to be had by the pooling of resources. In essence, the parties to a network agree to forgo the right to pursue their own interests at the expense of others. (pg. 303)

There are benefits which accrue to those engaged in a network. For instance, networks offer the opportunity to share risk and to spread information more quickly. Also, networks offer the opportunity to pool needed resources. For all the benefits associated with networks, there is still the risk that things will go sour. Challenges confronting networks emanate from the inability of goals to converge, individual organizations may conceal agendas and there is the possibility that a participating organization or individual will walk away with valuable information.
In order to understand why some networks are successful, while others fail in attaining their mission, it may be necessary to understand the conditions under which they formed. In his analysis of business groups, which are similar to networks, Granovetter (1995) argues that, “The why question has in fact been addressed several times in the literature.” Four reasons Granovetter cites for firms or individuals to engage in networks: (1) resource dependence, (2) the need for strategic alliances, (3) the need for individuals or organizations to unite for a “cause” and (4) the idea that through coalitions firms or individuals can extract “rents” from the economy. Because the “why” question has been sufficiently answered, Granovetter (1995) argues that it is more important that researchers pay attention to the “how” question – “how economic actors construct these alliances?” In order to answer this question, Granovetter (1995) reviews the literature to show that networks can vary in five ways: (1) why they come together, (2) differences in ownership structure, (3) variations in authority, (4), the importance of morals and (5) the influence of the state.

Granovetter (1995) argues that there are many reasons business groups may form. He uses the term “axis of solidarity” to classify these reasons. Among the reasons Granovetter lists include, ethnicity, region, religion and an interlocking directorate. For Granovetter, the importance in understanding what binds a group facilitates the researcher in predicting what will destroy a group. For instance, if living or working in the same region is the reason for a group to form, then there is always the issue that when the region changes that the group will no longer stay together.

Granovetter argues that the more successful groups have more than one “axis of solidarity” to unite around. Similarly, Powell (1990) provides a similar list of categories that serve as motivations for individuals or groups to form networks, but adds, “the more homogenous the group, the greater the trust, hence the easier it is to sustain network-like arrangements.”
With respect to ownership, there are four options that Granovetter makes explicit: multidivisional form, holding company, managing agency system and no ownership links. In the multidivisional form, there is a central bureaucracy that controls resource allocation and decision making for all units. In a holding company, the central unit, merely holds stock in all of its subunits, but allows each subunit to raise capital and make decisions for itself. In the managing agency system, a group of firms will sign an agreement with one company to perform all management duties. Lastly, companies in a business group may not be owned by one another and remain completely autonomous.

Similar to the discussion of ownership above, there are two extremes in which authority structure differs. Authority structures may be hierarchical such that one firm controls the actions of all those in the business group or network. At the other extreme, power may be diffused among the members in the group such that each firm remains autonomous and has the right to make its own decisions. In an empirical piece looking at networks in Japan, Goto (1982) finds that both extremes exist in Japan. Goto found that firms involved in a network in which every member has equivalent power use the network to share invaluable business and technology information and benefit from the transaction of intermediate goods. For business groups in which one firm controls the actions of all other firms, he found that small to medium sized firms fell into this category because of their need for access to funds and other resources. Thus, the authority structure may relate valuable information about the needs of the groups involved.

Research on networks and business groups points to the fact that there are many ways in which they may vary. In characterizing the network or business group composed of SBCH, Boston Edison and SVMC in chapter 4, not only do I explain how and why this network formed, but I analyze the extent to which trust and reciprocity existed between these three organizations.
Conclusion

As I mentioned in the beginning of this chapter, my aspiration is that both community and economic development practitioners will read this case-study. There are three reasons for this. First, to provide them with an opportunity to see how a particular network influences the business development process. Second, to learn from a failed attempt to start a business. Third, to debate the ways in which community organizations can participate in the start-up of businesses. By looking at the ways in which South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation worked together to start BEVC, I accomplish these goals.
Chapter 2: Methodology

Introduction

This chapter discusses the data collection methods and theoretical frameworks employed to analyze the influence of the network consisting of SBCH, Boston Edison and SVMC in starting Boston Electric Vehicle Company in South Boston. To this end, this thesis analyzes this case in three ways. First, I characterize the network consisting of South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation. Second, I apply Timmons (1986) framework of business development to ascertain the extent to which an entrepreneur, the business opportunity and the necessary resources existed to start BEVC. Lastly, I elaborate on the reasons SBCH and Boston Edison chose to work with SVMC.

Collecting Data

Sources of Information

Information for this thesis derives from three sources: (1) an extensive compilation of memorandum, letters, meeting notes and personal notes saved by Gallo at South Boston Community Housing, (2) 15 open-ended, face-to-face interviews of varying length with just about everyone involved in this project and (3) impressions I formed while working on this project at SBCH. Interviews were conducted between January and March 1997, while information compiled by Gallo spans from January 1995 to August 1996. It is important to note that the notes, memos and letters are more than a compilation of material sent from SBCH to other organizations, because of the extensive communication between Boston Edison and SBCH, it includes information sent exclusively to Boston Edison. With these three sources of information, I was able to triangulate assertions made in the interviews.
Sample

The sample for this analysis initially consisted of 14 individuals, divided into two groups. Because two people could not be reached and three people were added to the sample, a total of fifteen people were interviewed for this thesis. The three people that were added were referred by the original 12 interviewees.

Individuals within this sample were separated into two groups: The first group consisted of “network” members and the second group consisted of “non-network” members. Individuals and organizations in the network members group assumed responsibility on a daily basis for starting Boston Electric Vehicle Company. More precisely, network members contributed to strategizing, business planning, and fundraising. Organizations included in this group are South Boston Community Housing, Boston Edison, and Specialty Vehicle Manufacturing Corporation. Of the 15 people interviewed, 6 people were placed into the network members category. The other 9 people, representing such organizations as the Boston Empowerment Center, Bank of Boston, and Northeast Alternative Vehicle Consortium were placed into the non-network member category. Individuals in this group were not responsible for starting BEVC, but were asked to review the business to provide some form of assistance. There is one exception to this rule. Although Mr. John Powell of the Electric Transportation Vehicle Institute neither reviewed the business plan nor was approached to support the project, he was interviewed because of his extensive knowledge of the electric bus industry and its technology. Please refer to Appendix I for a detailed list of those interviewed.

Interview

Two interview schedules were developed for this thesis – one interview for network members and one for non-network members. Because the questions were open-ended and face to
face the time to complete an interview depended on the responses of the interviewee. Some interviews were completed in fifteen minutes, while others took almost two hours. I administered all of the interviews and took notes during the interview as a means to record responses.

For both network and non-network members, the interview consisted of five sections. Network members were asked to characterize their working relationships with other network members, evaluate the project, provide background information on their company or organization and describe the reaction of non-network members to this project. Non-network members were asked to evaluate the project, the network members, the business opportunity and market for electric buses and provide background information on their involvement. Importantly, network members were all exposed to the same interview, while non-network members were exposed to the same interview. Please refer to Appendix 2 for the questionnaires administered to non-network members and network members. The questionnaire attached for network members was administered to South Boston Community Housing, Inc..

Analysis

The analysis is designed to accomplish the following goals: (1) characterize the network consisting of South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation, (2) apply a framework for business development to ascertain the extent to which the necessary resources existed to start BEVC and (3) understand the reasons why SBCH and Boston Edison chose to start BEVC after discovering that BEVC was not a viable business.

Characterizing the Network

In order to characterize the network, I relied on the interviews conducted with network members. Initially, I intended on using the interviews with non-network as well, but non-network members were hesitant to judge and evaluate Boston Edison, SBCH and SVMC. Most people
claimed that they had not worked with either organization long enough or had only met with them once or twice.

In characterizing the network, the goal is to understand the extent to which trust and reciprocity existed between SBCH, Boston Edison and SVMC. Enduring networks are characterized by a high degree of trust and reciprocity (Granovetter, 1985, Powell, 1990, Keyes et al., 1996). In order to develop trust and reciprocity, it is crucial that organizations share common objectives, exchange sensitive information about one another’s organization, are in frequent communication and are dependent on one another to accomplish their goals. As such, I asked questions designed to ascertain the extent to which these qualities were present and present these results in chapter 4.

*Applying a Framework for Business Development*

Timmons (1986) identified three elements necessary to start a business: the entrepreneur, the business opportunity and resources. Chapter 5 applies this framework to the efforts of SBCH, Boston Edison and SVMC to start BEVC. Information for this chapter derives from all of the interviews.

The analysis in Chapter 5 corresponds to the elements Timmons (1986) argues are necessary to start a business. First, I evaluate the roles of SBCH, Boston Edison and SVMC to understand the extent to which an entrepreneur existed. Timmons provides the parameters for this analysis when he defines an entrepreneur with the following qualities: committed, creative and experienced. Next, I evaluate the presence or absence of a business opportunity. For Timmons, a business opportunity is defined by a competitive environment in which a market exists to sell one’s product at a profit. In this case, the business opportunity will be analyzed by looking at the market and competition for electric buses. Lastly, I look at the resources SBCH, Boston Edison and SVMC brought to bear.
Timmons defines resources as the presence of a management team, start-up capital and a business plan. I make use of the same categories in my analysis.

Why Start BEVC?

In order to discuss the reasons SBCH and Boston Edison continued to start BEVC in spite of the fact that it was not a viable business opportunity, I rely on interviews with both network and non-network members. For the most part, I relied on the interviews conducted with members of SBCH and Boston Edison. The themes I use to structure the chapter were expressed by both members of SBCH and Boston Edison.

Bias

There are numerous sources of bias, some of which I feel have to do with the unique character of the project, but others have to do with the methodology. Because SVMC was being sued for fraud, there is the chance that network members were hesitant to elaborate on their opinions for fear that this thesis could be submitted as a court document some time in the future. Another potential bias has to do with the fact that I am asking people to talk about failure. Because BEVC does not exist, it may have been difficult for people to criticize themselves and their actions. In order to deal with these biases, I used the memos, letters and notes provided by Gallo to corroborate the interviews. Because I worked for South Boston Community Housing, interviewees from both Boston Edison and Specialty Vehicle Manufacturing Company may have felt that I would regurgitate my findings to those involved with the project at SBCH. In order to manage this worry, I tried to reassure everyone that these interviews were confidential, however, this does not guarantee that they believed me.

Lastly, the fact that I was doing this case-study over two years after SBCH had been approached by Boston Edison and almost a year after they had started working with SVMC to start
BEVC, there is no doubt that this case-study will miss some of the details and suffer from the biased recollection of those interviewed. More than once, those that I interviewed would say that they had not thought about the case in a while, or have not thought about the case in quite some time. Nonetheless, once people started talking, it was more of a challenge trying to stop them than getting them to answer another question.
Chapter 3: Setting the Stage

Introduction

To some, including myself, it is not necessarily intuitive that an investor owned utility would join forces with an electric vehicle manufacturing company and a community development corporation to start a business. Nonetheless, from January 1995 to August 1996, South Boston Community Housing, Boston Edison, and Specialty Vehicle Manufacturing Corporation worked together to start an electric vehicle manufacturing company in South Boston – Boston Electric Vehicle Company (BEVC). In this chapter, I elaborate on the efforts of all three organizations to start BEVC. For a chronology of events please refer to Appendix 3.

This chapter demonstrates that the project drastically changed from its initial concept to what was brought to bankers and potential investors. Originally, it was conceived by the Chief Engineer and Project Manager (Chief Engineer) in the Electric Vehicle Division at Boston Edison that Alternative Vehicle Systems, a Tennessee based manufacturer of electric buses, would partner with Solectria, a local research and development company known for converting gasoline powered automobiles to electric-powered. ¹ This merger did not come to fruition. Instead, the banks and other potential investors were introduced to Boston Electric Vehicle Company. BEVC was a partnership between South Boston Community Housing and Specialty Manufacturing Company formed to assemble electric buses in South Boston.

The Original Plan: A Merger and an Integrated Manufacturing Facility

In January of 1995, Don Walsh (Walsh), Director of the Economic Development Department of Boston Edison approached Martin Nee (Nee), Executive Director of South Boston Community Housing, Inc. to participate in the start-up of an electric vehicle manufacturing plant in

¹ Due to a request by Boston Edison, I have concealed the identity of the Chief Engineer of the Electric Vehicle Division in Boston Edison. For the rest of this case-study, this person will be referred to as the Chief Engineer.
South Boston. At the time, the Chief Engineer had already identified Alternative Vehicle Systems (AVS) of Chattanooga, TN. and Solectria of Wilmington, MA. as partners for this project and had developed a business concept that would form the basis for a proposal to raise a three-year grant valued at $700,000 from the Federal Government through the Department of Health and Human Services.

As pitched to SBCH, AVS and Solectria would bring their technology and management to, "develop, market and manufacture electric vehicles during the three year grant period and construct a 100,000 square foot integrated manufacturing facility." At the time, AVS assembled a 22 foot electric-powered bus, while Solectria had gained notoriety for its successful conversion of a gasoline powered vehicle into an all electric powered vehicle. SBCH was to lend AVS/Solectria grant funds from the Department of Health and Human Services, Office of Community Services (OCS) in order to begin initial manufacturing, while Boston Edison was to donate one of their buildings, as well as 7.3 acres for a manufacturing facility. In addition, Boston Edison agreed to provide discount electricity, while SBCH would devote its efforts to hiring, firing and training potential employees. Additional financing was expected to come from the Bank of Boston at $6 million, while the Local Initiatives Support Corporation (LISC), a local funding intermediary, was expected to contribute $200,000. This project was expected to generate 200 jobs over the three-year grant period, with 75% of the jobs being filled by low-income persons. This project is depicted in Figure 1 on the following page.

The Role of Boston Edison's Economic Development Department

The Economic Development Department at Boston Edison, perhaps an unexpected participant, was responsible for implementing the project conceived by the Chief Engineer in the
**Figure 1: Original Plan to Produce Electric Buses in South Boston**

<table>
<thead>
<tr>
<th>Real Estate</th>
<th>Labor Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston Edison: Building and 7.3 acre site.</td>
<td>SBCH: Responsible for hiring, firing and coordinating training.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Financing</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SBCH – OCS Grant Funds, $700,000.</td>
<td>AVS and Solectria</td>
</tr>
<tr>
<td>2. Bank of Boston -- $6 million.</td>
<td></td>
</tr>
<tr>
<td>3. LISC -- $200,000.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author.

Electric Vehicle Department. Because of current restructuring at Boston Edison, the relationship of the Economic Development Department to the rest of Boston Edison is unclear, however, Mark Ferri (Ferri), Senior Economist in the Economic Development Department, said that it is expected that the Economic Development Department will report to the Headquarters Group. The Headquarters Group consists of senior management.

According to a recent article prepared by Ferri (1996), the Department is responsible for sustaining businesses and implementing strategies that will generate revenue for Boston Edison. As a result, they work closely with the sales and marketing divisions at Boston Edison. Currently, some of the services offered by the Economic Development Department to businesses throughout the Greater Boston Metropolitan Area are: (1) assistance in locating industrial sites for businesses (free of charge), (2) a 40% discount off base rates for customers who add 25 new manufacturing jobs and add 150 kilowatts of new monthly demand and (3) corroborating with Community Development Corporations to create jobs in their respective communities.
While the Economic Development Department within Boston Edison is the focus of this thesis, from here on, they will be referred to as Boston Edison. Also, even though the Economic Development Department consists of eight people, this analysis will focus on the work of Ferri and Walsh because they consistently worked on this project for its duration. Walsh, the Director of the Economic Development Department, has a history and commitment to working with Community Development Corporations. Before coming to Boston Edison, Walsh was responsible for founding Dorchester Bay Community Development Corporation. Ferri, originally hired as a special project consultant at Boston Edison, is now the Senior Economist at Boston Edison and is responsible for forging strategic alliances between businesses.

Raising OCS Grant Funds

With the financial support of Boston Edison, in February of 1995 SBCH hired Mr. Bob Brandweine (Brandweine), President of Policy & Management Associates, to complete a Department of Health and Human Services OCS (OCS) grant application. Brandweine worked with SBCH, Boston Edison, as well as AVS to complete the OCS Grant application. Gallo expressed that Brandweine was the right person for this project because of his reputation for raising funds for economic development projects. In this case, Brandweine felt that SBCH and Boston Edison should apply for the $75,000 planning grant available to community organizations through the Offices of Community Services. In spite of his opinion, Brandweine was urged to submit an application for the full $700,000 available.

Six months after submitting the OCS grant application, Donna Shelala of Health and Human Services announced that South Boston Community Housing had qualified for $600,000 in OCS grant funds. With the announcement of the OCS Grant came a distinct change in the way SBCH and Boston Edison worked together.
South Boston Community Housing

South Boston Community Housing (SBCH) is a community development corporation, located in South Boston, Massachusetts. SBCH was formed by Nee, the current executive director, in the late eighties. SBCH has a history of engaging in both affordable housing and economic development projects. To date, SBCH has completed 47 units of affordable housing and will complete approximately another 80 units of affordable housing this year. Although the electric vehicle project was the largest economic development project SBCH had ever participated in, it was not the first. Previous to this experience, SBCH administered micro-loans for the City of Boston. Currently, SBCH is involved in another city-wide micro-loan program. Also, SBCH is working with the Community Economic Development Assistance Corporation and other community development corporations throughout Massachusetts to investigate the opportunity to expand its services into workforce development.

Currently, there are four people working at SBCH. Aside from Nee, SBCH consists of Beverly Byer Gallo (Gallo), the Director of Development, Eliza Edelsburg, Project Manager and Effie Parker, the Office Manager. Both Gallo and Nee will be the focus of this thesis from SBCH's perspective.

The Search for More Money and Broad-Base Support

Up until SBCH had received notification that they were awarded the OCS Grant, SBCH had not contributed much to this project, however, once SBCH received the funds, their involvement changed. As opposed to working separately on this project, SBCH and Boston Edison worked together debating and devising potential opportunities to make this project a reality. At this time, SBCH and Boston Edison continued looking for investment funds from the public sector, organized a steering committee for this project and laid the foundation for implementation.
In order to garner support for this project, SBCH and Boston organized a steering committee in September 1995. Seventeen people were invited to attend a meeting in which steering committee members could learn about the project and meet those involved. Of the seventeen individuals invited, only eight attended. In a Chronology prepared by Gallo, there is a sense of disappointment in the steering committee:

SBCH discovers that there is less interest and more skepticism surrounding the venture than originally thought. The Steering Committee, it would appear, was not going to be as powerful of a vehicle in promoting the EV manufacturing concept/venture. SBCH takes time to reconsider their positions and begin to regroup.

In spite of the apparent failure of the Steering Committee, support came from other sources. Vic De Luca, Program Officer of the Jessie Smith Noyes Foundation visited SBCH in September of 1995 to consider SBCH's proposal for general operating support. In this visit, De Luca recalls being greeted and introduced to the electric vehicle project by a diversity of individuals and organizations. Among the participants were the staff and board members of SBCH, Boston Edison staff, city officials and residents of the nearby BHA public development. The meeting was a success; one month later, the Jessie Smith Noyes Foundation awarded SBCH $30,000.

In another attempt to raise funds from a public foundation, South Boston Community Housing, Inc. and Boston Edison met with Matt Thall (Thall), Program Director, of LISC. SBCH and Boston Edison met with Thall to discuss the opportunity to receive a $35,000 in a recoverable grant from LISC for planning and support purposes. Thall was introduced to the project by Walsh, Nee, Gallo and Marty McDonough of the Public Facilities Department. Thall did not respond with same enthusiasm as De Luca. In fact, Thall denied SBCH's request for grant funds.

**Managing Adversity**

Aside from raising funds, SBCH and Boston Edison were busy managing their relationship with the Chief Engineer in the electric vehicle division in Boston Edison. The Chief Engineer was
responsible for developing the relationships and industry contacts necessary to make this project a reality. In fact, Ferri attributes the Chief Engineer with establishing the contacts with AVS and Solectria, as well as providing the vision for the project in its initial stages. In the process of putting the deal together with Solectria and AVS, it was discovered that the Chief Engineer had formed Pristine, Inc. to perform research and development, manufacture and market electric vehicles.

In order to devote more time to Pristine, the Chief Engineer left Boston Edison. Instead of working for Pristine, SBCH wanted to use money provided by Boston Edison to hire the Chief Engineer as a consultant. Unfortunately, SBCH and the Chief Engineer could not come to terms on an acceptable relationship. The Chief Engineer wanted SBCH to hire Pristine to be in charge of the project, while SBCH did not see any reason to work with the three attorney’s which composed the rest of Pristine. Gallo’s reaction to not being able to obtain the former Chief Engineer as a consultant is summarized in a chronology she prepared:

SBCH meets with Pristine. Meeting does not go well. SBCH (Nee and Gallo) are very up-front about their concerns about the Pristine structure and questioned how these three attorneys could possibly add anything to further our mission and objectives. The Pristine lawyers, in turn, get very defensive and likewise question the validity of a local housing developer as the proper entity to carry out such a plan. The meeting crescendo came when the former Chief Engineer announced that he had decided to commit to Pristine - if SBCH did not hire Pristine, we did not get all of his proprietary knowledge and industry contacts.

Unable to come to any solution, SBCH and Boston Edison decided to sever all business ties with the former Chief Engineer at Boston Edison and attempt to implement the project without him.

Redefining the Scope of the Project

Because the former Chief Engineer at Boston Edison was a liaison to the electric vehicle industry, his departure meant that there was a void in leadership that needed to be filled. Both Ferri and Gallo were asked to fill this void and make something happen in South Boston.
One of the first decisions made by Gallo and Ferri was to pursue a partnership with SVMC and Solectria instead of AVS and Solectria. To say that Gallo and Ferri made a conscientious decision to pursue SVMC over AVS is misleading; Gallo says that, in reviewing documents, it was discovered that AVS possessed licenses from SVMC and that SVMC really owned the technology. As a result, both SBCH and Boston Edison decided to pursue an arrangement with SVMC.

Initial Introductions

In what became a series of trips to Downey, California, Gallo first met and introduced herself to Duffy of SVMC in December 1995. In her initial trip, Gallo confronted a small company, that produced electric buses, as she put it, “from the ground-up”. SVMC, assembled their buses entirely by themselves. This includes assembling the chassis, manufacturing and attaching the frame, as well as painting the bus. Unlike other companies that may strip an already pre-built bus of all of its internal combustion components, SVMC built an electric bus from raw materials.

Throughout January of 1996, Gallo compiled substantial information on SVMC. Based in Downey, California, SVMC has been in the business of designing and manufacturing specialty transportation equipment since 1983. While they have never mass produced an electric bus, those within the electric vehicle industry consider SVMC to be pioneers in the electric bus industry -- of the 87 electric buses in service in the US were designed and developed by SVMC (BEVC Business Plan, 1996). SVMC now offers a diverse and growing product line. Among the products offered are a 31 ft. electric powered bus and a 22 foot electric shuttle. In the future, SVMC aspires to produce an electric powered cargo van and school bus.²

² Information on SVMC’s future goals was provided by Newton Montano, Vice-President of Operations at SVMC, in an interview conducted on January 20, 1997.
Convinced that SVMC offered an impressive product line and substantial experience in the electric vehicle industry, all parties agreed to work together to start an electric vehicle company in South Boston.

**The Framework for a Working Relationship**

Because Duffy did not have a business plan, Gallo assumed responsibility for designing the company that would start in South Boston. Before this could be done, SBCH, SVMC and Boston agreed to a framework that would serve as the basis for the business plan developed by Gallo. The agreement, known as the Memorandum of Agreement (MOA) signed on January 26, 1996, “set out the principles which will form the basis of a contractual and investment arrangement between South Boston Community Housing Inc. of Boston, Massachusetts and Specialty Vehicle Manufacturing Corporation.”

The MOA explicitly detailed the ownership arrangement for a developing company, licensing guidelines, investment and financing, as well as royalty guidelines. In the MOA, SVMC stockholders are offered 80% ownership, while stockholders of a subsidiary created by SBCH are offered 20% ownership. Also, BEVC is offered an exclusive license to manufacture a 31 foot electric powered bus to a minimum of 50% of the domestic market developed by SVMC. Another product that BEVC had rights to was an electric powered delivery van. In order to obtain the license to this product, BEVC had to secure five purchase orders for SVMC. Upon the fifth order, BEVC would receive a similar license as the one issued for the 31 foot bus. In terms of investment and financing SBCH agreed to invest $400,000 and also raise $3 million for start-up costs. For royalties, SVMC agreed to 4.5% of the vehicle selling price, with payments starting in the business’ second year of operation. The wholly-owned subsidiary created by SBCH, Boston Alternative

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3 This quote derives from the MOA dated January 26, 1996. The MOA was signed by Nee of SBCH and Duffy of SVMC.
Transportation Manufacturing Partnership (BATMP), was to receive 2.5% of the price of the sale of every vehicle they secured. Details of the MOA are depicted in Table 1 on the following page.1

With all parties agreeing to the terms in the MOA, Gallo worked closely with Duffy, Ferri and other technical staff to complete a business plan.

**Putting the Business Plan Together: One Surprise After Another**

In what was originally intended to be a “cut and paste” job, in which Gallo would work with Duffy to amend his current business plan, in the end, entailed Gallo developing a business plan from scratch. In working on the business plan, Gallo confronted many difficulties. Gallo discovered that Duffy possessed a limited understanding of the electric vehicle industry and his competitors. In addition, he did not have an adequate business plan nor did he maintain audited financial statements.

In dealing with these obstacles, Gallo assumed responsibility for developing the business plan. In so doing, she had to be creative in integrating limited information from Duffy, market research from Ferri and technical information from members of the Electric Vehicle Division in Boston Edison. Gallo did receive financial information on SVMC, but it was not in the form of financial statements, but a stack of numbers generated by a friend based in Madison, Wisconsin. In her drive to obtain this information, Gallo learned that Duffy was in such financial distress that he was on the verge of declaring bankruptcy.5

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1 In early documents, Boston Alternative Transportation Manufacturing Partnership was referred to as the Electric Transportation Consortium.

5 In a letter dated August 12, 1996 from Fred Elder, Don Duffy’s accountant. Elder acknowledges that SBCH and Boston Edison were made aware of Duffy’s financial distress in the “first week of 1996”.
Table 1: The First Memorandum of Agreement

<table>
<thead>
<tr>
<th>Organization</th>
<th>Ownership</th>
<th>Product</th>
<th>Financing</th>
<th>Royalties</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATMP</td>
<td>20% ownership by stockholders</td>
<td>N/A.</td>
<td>Invest $400,000 into BLVC. and raise $3 Million</td>
<td>2.5% of the price of every sale secured by ETC</td>
</tr>
<tr>
<td>SVMC</td>
<td>80% ownership by stockholders</td>
<td>License 31 ft. electric bus, cargo van and school bus</td>
<td>Receive $500,000 up-front. Receive $3 million for work-in-progress and start-up.</td>
<td>4.5% of the vehicle selling price beginning in year 2</td>
</tr>
</tbody>
</table>

Source: Author.
Working with a Company in Distress

Weighing the potential ramifications of working with Duffy, Nee and Walsh decided to continue working with him. The consequences of working with Duffy, as summarized by Mr. Bob Pitts, Duffy’s lawyer, in a letter dated February 9, 1996 are two-fold. First, if it is found that SVMC transferred assets to SBCH and Boston Edison below market value, the agreement could be revoked. Second, if Duffy files Chapter 11 his creditors have the opportunity to competitively bid for his technology. Gallo believes that SBCH and Boston Edison should have stopped the project at this time, however, she argues that Nee and Walsh wanted to continue working with Duffy in hopes that he would amend his finances if he could be shown that a deal was imminent. With that understanding, Gallo created Boston Electric Vehicle Company.

Boston Electric Vehicle Company

Composed of many of the elements in the MOA, BEVC’s mission was to produce a 31 ft. electric bus in South Boston for municipalities and other interested organizations. Ownership was split between SVMC and Boston Alternative Transportation Manufacturing Partnership, a for-profit subsidiary created by SBCH. The seven member board was supposed to consist of four persons appointed by SVMC shareholders and remaining board members were appointed by SBCH. In terms of financing, $6 million was the target emanating from a blend of public and private sources. Of the $6 million, $1.3 million was expected to come from a private lender, $2.2 million from equity investors and $2.5 million from the Section 108 Loan Guarantee Program. For management, the business plan says: “Staffing of BEVC’s initial management team pulls from SVMC’s existing staff...It is BEVC’s intent to bring in a professional manger to assume the position of president, or CEO within the first year.” (BEVC Business Plan, 1996).
The Quest For Capital

Armed with a $600,000 OCS grant and the desire to see this project come to fruition, the BEVC business plan was submitted to both the Bank of Boston and the Boston Empowerment Center for funding. In total, BEVC asked for $3.8 million from both organizations -- $2.5 million from the Boston Empowerment Center and $1.3 million from the Bank of Boston. At the Bank of Boston, Nee and Walsh contacted Mr. Mike Glavin who referred them to Mr. Robert Ocko and Mr. Joe Pellegrino who are responsible for reviewing and providing loans to small businesses. At the Boston Empowerment Center, Nee contacted Mr. Frank Tocci, Assistant Director of Financial Services, to review the business plan. Neither organization was willing to lend money to BEVC based on what they read in the business plan. Both organizations requested SVMC’s historical financial statements for two reasons. First, they needed to be convinced that Duffy was a credible partner for this deal. Second, they wanted proof that this business could be profitable. Knowing that this information did not exist, SBCH and SVMC tried packaging this deal in other ways to make it more attractive to the banks. Also, both the Bank of Boston and the Boston Empowerment Center wanted to see a stakeholder with substantial equity in the business to absorb some of the risk.

Managing Distress: Devising Alternative Deals

Given the constraints posed by Duffy’s distress, SBCH and Boston Edison tried many different things to respond to the needs of the Bank of Boston and the Boston Empowerment Center. They tried to find another entrepreneur, work with Duffy’s creditors and raise equity capital. Unfortunately, none of these alternatives worked.
In trying to recruit another entrepreneur to run BEVC, SBCH relied on the resources of Boston Edison and personal networks. Although many people responded, according to Gallo nobody was willing to put their careers on the line and try to start BEVC.

Although an entrepreneur could not be found, there was still hope the project would survive as SBCH and Boston Edison were working with Mr. Lanny Johnson, counsel for Subaru of America in their development deals in the United States, to have Subaru invest in an equity position in BEVC. Gallo expressed that working with Subaru was good for the project because they would accept a lower return in exchange for access to the technology and the opportunity to get involved with electric vehicles. According to Gallo, unlike the other manufacturers in the auto industry, Subaru had yet to get involved in the electric vehicle industry. To date, SBCH and Boston Edison have not heard from Subaru. Gallo feels that the attention SBCH and Boston Edison received had more to do with the fact that Johnson is an environmentalist and wanted to see the project happen and the fact that he is married to one of Gallo’s close friends.

Unable to meet the demands of the Bank of Boston and the Boston Empowerment Center, options were limited and morale was at an all-time low. Momentum suddenly shifted in the early part of May 1996 when Ferri introduced the ACL/AAI project. The ACL/AAI project was designed to demonstrate that SVMC’s technology was viable and that demand for electric buses existed.

ACL/AAI, located in California, was hired by SVMC to assemble several electric buses. Unable to pay ACL/AAI for their work, ACL/AAI never completed all of the buses. Capitalizing on the experience gained by ACL/AAI, Ferri designed a project in which ACL/AAI would transfer their work-in-progress and assist in the assembly of buses in South Boston. In return, ACL/AAI would be repaid with BEVC funding.
Even though the President of ACL/AAI, Mr. Tom Wurzel, was willing to work with SBCH and Boston Edison, the deal was never implemented. Ferri expressed a number of reasons for the project’s failure. First, the ACL/AAI project did not solve any of the fundamental problems inherent in BEVC – Duffy was still on the verge of bankruptcy. Second, Ferri felt that raising the capital needed to obtain the technology and expertise of ACL/AAI, about $600,000, was impossible given the amounts already needed to finance BEVC.

The Second Memorandum of Agreement

While the first MOA expired, Duffy ventured to Boston in the beginning of July of 1996 to work on the second MOA. Initially, Duffy was still clinging to the idea that BEVC could become a reality. After days of negotiations a second MOA was drafted, however, it was never signed. The second MOA was substantially different than the first MOA. The main differences had to do with the financing of the project. Duffy still wanted a $500,000 technology transfer fee, but agreed to finance it over time, such that he would receive $125,000 over four years. Also, the ownership was drastically different. In this case, SVMC shareholders were to own only 35% of BEVC, 25% by BATMP, 10% by Boston Edison, and the remaining 30% to be reserved for future investors. Not only had Duffy reduced ownership, but allowed his technology transfer fee to be dispersed over four years. While Duffy may have appeared to be making compromises and ready to rethink his role in BEVC, Boston Edison had hired an outside consultant to evaluate the BEVC business plan and their participation in general.

Evaluating the Business Opportunity

In June of 1996, Boston Edison hired Amy Auerback to evaluate the BEVC business plan and develop a business plan for the Economic Development Department. In reviewing the business plan and performing what she calls the necessary due diligence of Duffy, Ms. Auerback
argues that Duffy is not capable of running his business and is not a suitable partner for this venture. At first, she confronted the same difficulties as Gallo did in composing the business plan – she could not obtain reliable information from Duffy on his company. Also, Auerback discovered that Duffy owed money, not only to ACL/AAI, but to many other companies. In addition to this debt, Duffy failed to fulfill contracts to municipalities or other nonprofit agencies. Although nobody knew how Auerback would respond to BEVC and Duffy, it was sure to be negative once she received news that Duffy was being sued for fraud by CALSTART.

The Final Straw

CALSTART, a consortium of electric utilities and private companies devoted to the promotion of electric vehicles, notified both Boston Edison and SBCH that they intended to sue Duffy for fraud, the day Duffy had left Boston after working on the second MOA. CALSTART had contracted with Duffy to produce an electric powered school bus. In order to produce the bus, CALSTART provided Duffy with the financial resources to produce a prototype. Instead of producing a prototype, Duffy had nothing for CALSTART. In order to recoup their funds, CALSTART decided to sue Duffy.

With this information and fear that Boston Edison and SBCH would be held accountable, Auerback advised both Boston Edison and SBCH to sever all business ties with Duffy. Heeding her advice, on August 2, 1996, SBCH and Boston Edison sent letters to Duffy expressing their desire to discontinue business negotiations with him.

Pushing on

Working on the project, it was difficult not to see this day coming, nonetheless, we were all somber when those letters were sent. Initially, Boston Edison and SBCH tried to revive the project by working with other electric vehicle companies. For instance, Gallo and Ferri identified Bus
Manufacturing Incorporated (BMI), an electric bus manufacturing company located in Northern California as a potential business partner. In a visit to California, Ferri and Auerback found that BMI was not manufacturing any buses. As a result, Boston Edison and SBCH decided not to pursue a business relationship with BMI. In addition to BMI, South Boston and Boston Edison were looking at the potential of developing partnerships with other businesses, but the outcome was similar – either the business was not worthy or the opportunity was not there.

Conclusion

For those involved in this project, including myself, there was a genuine optimism that this project would work, not necessarily that it should work, but that somehow and some way everything would fall into place. Unfortunately, that was not the case -- after a year and eight months, from January 1995 to August 1996, there was no BEVC and no real hope for its resurrection. Despite the efforts of SBCH and Boston Edison, they were unable to convince investors and raise the funds to capitalize BEVC. The next chapter begins the analysis to understand the influence SBCH, BEVC and SVMC had on the start-up process. Specifically, the next chapter characterizes the network consisting of SBCH, Boston Edison and SVMC.
Chapter 4: Characterizing the Network

Introduction

The purpose of this chapter is to analyze the working relationships of South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation. Information for this chapter derives from interviews conducted solely with network members. Network members include Gallo and Nee of SBCH, Walsh and Ferri of Boston Edison's Economic Development Department and Duffy and Montano of Specialty Vehicle Manufacturing Corporation.

Network theorists argue that trust and reciprocity are the glue which binds organizations together (Powell, 1990, Keyes et al., 1996, Hansen, 1996). To the extent that trust and reciprocity exist, naturally, the more that is present, the better organizations work together and endure periods of adversity. On the other hand, when trust and reciprocity do not exist, networks quickly dissolve. In order to measure the extent to which trust and reciprocity existed between SBCH, Boston Edison and SVMC, I characterize there relationships along the following dimensions: common objectives, shared information, frequency of communication, degree of dependency and the existence of a formal relationships. Networks that are categorized with a high degree of trust and reciprocity are those organizations that share a common motivation for working on a project together, exchange sensitive information on their organization with one another, are frequently in communication and are dependent on one another (Granovetter, 1985, Keyes et al., 1996, Powell, 1990).

Why Work Together?

Trust and reciprocity develop in environments where organizations share a common set of objectives for working on a particular project. According to Granovetter (1985) the more objectives
that organizations share, the more likely it is that a network will endure periods of adversity. Also, by understanding why organizations work together, one can predict why networks dissolve. For instance, organizations that unite solely to elect a particular candidate for political office are likely to dissolve once the election is over. On the other hand, if those same organizations had not only united to elect a candidate for political office, but advocate for the passage of particular legislation, they are less likely to break-up if their candidate loses because they still have another reason to maintain the network. By looking at the motivations of SBCH, Boston Edison and SVMC in working on this project, I hope to develop a similar type of insight.

Creating Jobs

To those involved in this project at both Boston Edison and SBCH, BEVC represented an opportunity to create manufacturing jobs for low-income and working-class residents. While Nee and Gallo felt that BEVC would provide real job opportunities to South Boston residents who had endured the downsizing of the shipbuilding industry in South Boston, Walsh felt that this opportunity provided jobs for people in a disappearing sector – manufacturing. Creating manufacturing jobs is important to Walsh because he feels that the service sector does not offer wages to raise a family.

The Role of Capital

Both SBCH and SVMC agreed to start BEVC because they perceived an opportunity to raise money for their own organizations in the process. Nee feels that the OCS Grant is a tremendous resource that would be useful in future development projects. As a result, the opportunity to gain access to these funds was deserving of organizational attention. Also, the fact that Boston Edison paid for the consultant to complete the OCS Grant and that Boston Edison subsidized Gallo’s work made joining this project feasible. Similar to Nee, Duffy got involved in this
project as a unique opportunity to gain access to start-up funds, however, Duffy needed these funds to bail himself out of financial distress.

The Economic Development Department at Boston Edison was focused on the opportunity to profit from starting BEVC. In their mission, pursuing revenue generating projects for Boston Edison is central. To the Economic Development Department, revenues would come in the form of increased electricity use both from the addition of a manufacturing company, but also from the charging of electric buses.

*Location*

Both Gallo and Nee attribute Boston Edison’s desire to work with SBCH to location. In the original OCS Grant proposal, Boston Edison was going to donate a site at 621 E. First Street in South Boston to spawn an integrated manufacturing facility. Importantly, if Boston Edison had identified an alternate site, then both Gallo and Nee believe that SBCH would never have been approached to get involved in this project. Besides the location for the manufacturing facility, Ferri believes that there are other qualities to South Boston that made it attractive for this project. Some of these qualities include the fact that Boston Edison has generators in South Boston, the Mayor lives in South Boston and many political leaders emanate from South Boston.

*Environment*

Surprisingly, environmental protection or preservation was an explicit motivation of only SBCH. One of the attractive elements of this project to Nee was the fact that the product, an electric bus, in his opinion, minimizes tailpipe emissions. Since South Boston suffers from the highest rate of air born carcinogens as compared to any other city in the Commonwealth, Nee felt that this project would in some ways contribute to the improvement of South Boston’s air quality.
An Opportunity to Grow

Both SVMC and SBCH felt that BEVC offered the opportunity to grow. Duffy mentioned that one of the main reasons he got involved with this project was to expand the market for electric buses. Currently, he feels that the Northeast market is untapped and BEVC would enable him to be a first-mover in the area.

For SBCH, BEVC was a platform to expand SBCH’s services to workforce development. The role envisioned by Nee is something I spent the summer developing. Essentially what I created is best summarized by Nee in his analogy to the “triage” service hospitals provide. Nee saw an opportunity for SBCH to screen and assess potential job candidates, sending qualified individuals to the electric vehicle company and other individuals to training and work opportunities throughout Boston.

Reputation

Another important goal of Boston Edison’s Economic Development Department is to enhance Boston Edison’s image. According to Ferri, these investments are called reputational capital. By supporting and investing in the start-up of BEVC, Boston Edison could take credit for creating manufacturing jobs and protecting the environment. In return, Boston Edison hopes to prosper with a positive image in not only South Boston, but other neighborhoods as well.

Personal Responsibility

Only one person claims responsibility for her organization’s involvement. Gallo feels that SBCH remained involved in this project because she was willing to assume responsibility for the project and do the work. This is important because nobody else said that they were committed to this project personally.
Community Development

For Ferri, an objective of the project is to contribute to the community revitalization of South Boston. In contrast, neither Nee nor Gallo expresses community revitalization as priority, however, De Luca believes that this community revitalization is an important mission of SBCH. In his visit to South Boston, De Luca feels that Nee supported this project to distract those interested in putting a stadium in South Boston. By bringing an electric vehicle company to the area, De Luca understood that Nee could demonstrate that manufacturing still has a role in South Boston's economy. This makes sense given the recent outrage Nee expressed to the New England Patriot's desire to move to South Boston.

Survival

Everyone involved, or more precisely, those who were aware of Duffy's financial situation expressed an opinion that he was involved in this project to bail his company out of financial distress. Organizations and individuals expressing this opinion are SBCH, Boston Edison, Boston Empowerment Center, and Amy Auerback. Of note, SBCH and Boston Edison were convinced that his financial distress was attractive, in the sense that it may provide Duffy with the motivation to see this company come into existence.

Dependency

SBCH, SVMC and Boston Edison depended on one another for this project to succeed. Each organization brought a necessary component to this project: SVMC brought the technology and management expertise, SBCH brought community support and Boston Edison brought both the financial support and reputation to sustain SBCH and SVMC while they tried to start BEVC. Other organizations, such as the Boston Empowerment Center, Bank of Boston and the Jessie
Smith Noyes Foundation felt that each SBCH, SVMC and Boston Edison needed one another to implement this project.

Gallo feels that SBCH could not have gotten as far as they had without the help of Boston Edison. First, Boston Edison funded Gallo’s position for a year and provided the credibility necessary to meet with potential equity investors and players in the electric vehicle industry. Without SBCH, Boston Edison could never have raised OCS Grant funds for this project. Lastly, without SVMC there would never have been a project because the technology would not have existed.

While SBCH and Boston Edison admit that SVMC was a crucial component to this project, because of Duffy’s financial troubles, there is a general feeling that SVMC depended on SBCH and Boston Edison more than they would have liked. Because Duffy was in financial trouble and did not maintain adequate financial records, both the Bank of Boston and Boston Empowerment Center did not feel that they could lend money to BEVC. First, Tocci made it clear that the Boston Empowerment Center could not lend money to BEVC because of the worry that the funds would go straight to his creditors. Secondly, because he did not possess historical financial records, it was impossible to verify that an electric vehicle company could pay back its debt or grow. As a result, it seems that Duffy needed Boston Edison and SBCH to start BEVC; SBCH and Boston Edison brought the credibility and connections necessary to get the project heard.

Communication

Hansen (1996) found that the more frequently organizations communicated with one another, the stronger were the ties between them. Both Boston Edison and SBCH were in constant communication with one another, however, both organizations do not feel that they were in contact with Duffy as often. Specifically, Ferri and Gallo report that they were on the phone with
one another every day, often times several times a day. On the other hand, Ferri and Gallo do not feel that they had the same communication with Duffy. While composing the business plan, Gallo was on the phone with Duffy almost every day, however, once the business plan was complete, both Gallo and Ferri report that communication with Duffy deteriorated. Both feel that when the business plan was completed, the only time they heard from Duffy was when he was asking for more money, trying to apply pressure to get the project going or wanting to find out what was happening.

**Formal Agreement**

SBCH, SVMC and Boston Edison, with the help of Brandweine, developed a Memorandum of Agreement, which both SBCH and SVMC signed on January 26, 1996. Nee described the MOA as a “promise to promise something”. As described in the previous chapter, the MOA described the royalty stream, technology transfer fee, ownership structure and products that would be available to BEVC. For the most part, the MOA served as a framework for the BEVC business plan. More importantly, it was an agreement among all three organizations to commit resources and proceed in a particular direction if BEVC were to be implemented.

**Shared Information**

Because SBCH, Boston Edison and SVMC were working together to start an electric bus manufacturing company, they depended on Duffy to provide financial information on his business and share his expertise on the electric vehicle industry. Unfortunately, Gallo had a terrible time in obtaining this information from Duffy. In soliciting financial and market information from Duffy, Gallo found that he did not have audited financial statements, nor did he have an understanding of his competitors. In order to generate information on the electric vehicle industry, Gallo had to rely on other resources such as trade journals, organizations which sponsor the development of electric
vehicles and the research of Ferri. For financial information, Gallo did receive a stack of spreadsheets, but they were not in a standard format for analysis. Further, after having to wrestle with Duffy for this information, she found out that he was in financial distress and on the verge of filing bankruptcy. Thus, by not providing financial records or sharing his viewpoints on the electric vehicle industry, Duffy was hiding his financial distress and the fact that he could not manage SVMC.

**Conclusion**

In terms of functionality, the network created by SBCH, Boston Edison and SVMC in many ways makes a lot of sense. Boston Edison brought the credibility and financial resources to sustain the participation of SBCH and SVMC. SVMC brought a reputation for being a pioneer in the electric bus industry, proven technology and experience in running an electric bus company. Unfortunately, Duffy did not live up to his reputation—he was on the verge of financial distress, unable to maintain adequate financial records and did not know much about the electric vehicle industry. SBCH was attractive because of their potential to attract public funds to finance BEVC. Unfortunately, dependency is not enough to build trust and reciprocity, elements such as shared objectives, communication and shared information are important.

In looking at the shared objectives of the organizations involved, what is most interesting about the list of objectives is that it does not include starting BEVC—not one person or organization explicitly stated a “passion” to start BEVC. What this suggests is that no one was really interested in starting BEVC, just capitalizing on the outcomes of this business. For instance, all three organizations were using BEVC as a means to generate revenue for themselves. For SBCH, starting BEVC would have meant obtaining the OCS grant funds and providing jobs for South Boston residents. To Boston Edison, BEVC provided an opportunity to generate additional
revenues and enhancing their reputation by supporting economic development. In reviewing the MOA, it is clear that Duffy was using BEVC to bail himself out of financial distress. By starting BEVC, he would obtain a $500,000 technology transfer fee, ownership in BEVC, and a royalty stream.

Even though Boston Edison, SBCH and SVMC did not display the characteristics of a network with a high degree of trust and reciprocity, I have only begun to explain why they could not start BEVC in South Boston. In the next chapter, I extend this analysis by applying a framework for business development developed by Timmons (1986). I use the framework to understand the degree to which an entrepreneur was present, a business opportunity actually existed and evaluate whether or not Boston Edison, SBCH and SVMC brought the necessary resources to bear to start BEVC.
Chapter 5: The Bare Necessities

Introduction

Timmons (1986) has developed a framework for analyzing business start-ups. In general, Timmons argues that there are three essential ingredients to start a business: the entrepreneur, the opportunity and resources. This chapter will apply each one of these elements to the efforts of Boston Edison, SBCH and SVMC to start BEVC.

Entrepreneurship

Timmons (1986) defines an entrepreneur by the following characteristics: experienced, creative and committed. While these adjectives do not necessarily describe all entrepreneurs, Timmons points out that these qualities are some of the most prominent across all entrepreneurs. Also, Timmons is not explicit as to whether or not it makes any difference whether or not one person demonstrates all of the characteristics or if organizations can pool their resources, talents and experience together. By looking at the roles of Boston Edison, SBCH and SVMC, I will evaluate the extent to which an entrepreneur was present or whether or not these three organizations pooled the necessary qualities together to be considered “entrepreneurial”.

Boston Edison

Boston Edison provided the commitment, support and creativity to sustain this project. Walsh says that Boston Edison deserves all of the credit for organizing the project and bringing SBCH and SVMC to the table. Both Gallo and Duffy agree that they would not have been involved in this project had Boston Edison not taken the initiative and offered financial support. In its beginning stages, the Chief Engineer of the Electric Vehicle Division was responsible for finding electric vehicle companies that would be willing to move to South Boston. Originally, the Chief Engineer had preliminary agreements from Solectria and AVS that they would merge and start an
integrated manufacturing facility in South Boston. Also, Boson Edison provided SBCH with $100,000 to pay for a consultant to complete the OCS Grant application, allow Gallo to devote a substantial amount of her time to this project and to provide SVMC with a loan to start BEVC. Also, Boston Edison provided SVMC with $80,000.

Aside from developing the project and pledging financial support, both Gallo and Nee expressed that Boston Edison brought credibility to this deal because of their presence in the electric utility industry. To Gallo and Nee this was important because they did not believe that any CDC, especially SBCH, would be taken seriously if they approached banks looking for money had Boston Edison not been involved. De Luca of the Jessie Smith Noyes Foundations admits that Boston Edison’s participation “provided cover for SBCH” and was a motivating factor for supporting the project.

Throughout the project’s life, Ferri devoted much of his time in working with Gallo developing the business plan and devising alternate deals to enable BEVC to become a reality. For instance, when it had become apparent that Duffy’s financial distress was insurmountable, Ferri looked for alternative ways of obtaining the electric bus technology. In doing research, Ferri found out that Duffy owed money to ACL/AAI, a company based in California which had been hired by Don Duffy to assemble buses. Because Duffy could not pay, ACL/AAI did not return inventory and work-in-progress. Ferri felt that he could craft a deal that would divert some of the loans to ACL/AAI in exchange for the work-in-progress.

*South Boston Community Housing*

Originally, Walsh thought that SBCH would use the OCS grant funds to invest in BEVC, recruit a local labor force and provide community support. Nee was comfortable with this role, but admits that SBCH was much more involved than initially planned. Gallo wrote the business plan for
BEVC and with Boston Edison tried to raise funds from the Boston Empowerment Center and Bank of Boston.

Nee attributes the increased involvement to the OCS Grant funds. Up until the money arrived, Nee felt that the role of SBCH was limited to vocal support. With the OCS grant funds there was motivation to assume more of an active role to ensure that the OCS funds were not squandered, however, Gallo argues that SBCH would never have devoted time to composing the business plan and searching for financing had the Chief Engineer of Boston Edison’s electric vehicle department continued working on the project.

Even though SBCH received the OCS grant funds, the Chief Engineer was still responsible for working with the electric vehicle companies and bringing them to South Boston. When the Chief Engineer left the project, there was a gap in leadership – no longer was there anyone to work with companies such as Solectria and AVS and to facilitate fundraising. Gallo filled this void and devoted her efforts to writing the business plan with Duffy. Also, SBCH obtained a lease for a building located on the Marine Industrial Park. Working with the Boston Redevelopment Authority and the Public Facilities Department, Nee and Gallo negotiated a three-year lease for a building on the Marine Industrial Park.

In terms of recruiting potential workers, SBCH never had the opportunity to demonstrate whether or not this was something that they could really do. I was hired to help develop an employment and training component for this venture. The SBCH proposal involved the development of a for-profit subsidiary of BEVC that would recruit, screen and train potential

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6 In Chapter 3, I mentioned the use of a Boston Edison building located in South Boston at 621 East First Street. Unfortunately, this building was not available for the BEVC project. As a result, the Subaru facility located in the Marine Industrial Park was chosen as an alternate site. SBCH obtained a lease on the Subaru facility with the help of Mr. Marty McDonough at the Boston Public Facilities Department.
employees. The organization would be called Boston Alternative Transportation Manufacturing Partnership.

*Specialty Vehicle Manufacturing Corporation*

Ideally, Boston Edison and SBCH expected that SVMC would be responsible for more than licensing their bus technology to BEVC, but raise the necessary funds to implement BEVC, as well as train workers and manage the new company. Nee believes that once it became apparent that SBCH and Boston Edison were doing their best to find a management team for the Northeast operations, Duffy fixated on maximizing his royalty stream and technology transfer fee. Ferri corroborates Nee’s impressions of Duffy, except his opinions are stronger. He does not believe that Duffy ever really played an active role in this project. Ferri argues that Duffy was never involved in the planning and strategizing -- he was only interested in talking to Boston Edison when he needed money.

Duffy does not seem to agree with any of these allegations; this seems to be because he had a different impression of his role. His position is that his role was to bring the technology and management capable of starting a company in Boston. In response to people’s opinions that he did not put the effort into starting a business, Duffy maintains that there was little he could do because SBCH could not raise the necessary funding to capitalize BEVC.

*Conclusion*

Whether or not they are viewed individually or collectively, SBCH, Boston Edison and SVMC did not possess the qualities of an entrepreneur starting an electric bus manufacturing plant. As demonstrated by the time, energy and effort they devoted to starting BEVC, SBCH and Boston Edison were clearly committed to starting BEVC, but lacked experience in manufacturing electric buses. In order to make up for this lack of experience, SBCH and Boston Edison recruited SVMC.
Unfortunately, Duffy did not know how to run a successful business and could not provide the experience the Bank of Boston and Boston Empowerment Center expected of an entrepreneur.

The Opportunity

Timmons argues that a genuine business opportunity hinges on many factors: the nature of competition, the market, profits and the amount of risk. Instead of trying to go through each one of these categories, I would like to rely on the words of bankers and experts in the field in defining whether or not there was a business opportunity. I expect to demonstrate the extent to which other people believed that there was a business opportunity. Of all the people asked to review the business plan, there is a general consensus that there is no market for electric buses. Among the reasons cited are: inadequate technology, lack of competition and lack of orders.

Technology

Currently, the technology associated with electric buses is not sufficient for electric buses to compete with diesel powered buses, nor are electric buses capable of enduring in the Northeast. Electric buses depend on batteries for fuel. The problems with these batteries are numerous, especially when one considers using them in the Northeast.

One of the main problems with the batteries has to do with their weight. Montano, the Vice-President of Operations at SVMC believes that designing the buses and balancing the weight of the batteries has been a challenge. Another issue has to do with the range of the buses. Estimates of range vary from source to source and heavily depends on the environment. The Electric Transportation Vehicle Institute reports that electric buses can last anywhere from 40 to 90 miles depending on climate and terrain. Importantly, the Institute points out that in colder environments, such as the Northeast, this range is not attainable with buses powered solely by batteries. These limitations, while not necessarily insurmountable, have meant that electric bus companies have
looked to developing hybrid buses as an alternative. For instance, Montano is currently developing a bus at SVMC that has both an internal combustion engine and batteries. The internal combustion engine is smaller than what would be found in any other bus and is only used when battery power is low.

**Competition**

Currently, the competition within the electric bus industry is meager. Outside of the electric bus industry, electric buses compete for contracts with municipalities with the likes of Bluebird and Thomasbuilt – established producers of diesel powered buses. Powell of the Electric Transportation vehicle Institute agrees. For any contract, there may be two companies bidding, but it is more likely that there will only be one company. The reason for this is the fact that each company produces a different size bus – AVS produces a 22 foot bus, SVMC produces a 31 foot bus and Bluebird is working on a 35 foot bus. Powell does expect competition to increase. According to Powell, many bus companies, which focus on diesel buses, are in the process of designing electric buses. These companies include, Thomasbuilt, Orion and Nova.

Explaining the dearth of competition relates to the poor technology of the electric buses. Because the technology is not adequate, municipalities are hesitant to purchase electric buses. As a result, the only way for a company to survive is through government subsidy. There are a number of organizations that have been developed to support fledgling electric vehicle companies. In the Northeast, there is the Northeast Alternative Vehicle Consortium and in California, there is CALSTART. The purpose of these organizations is to sponsor research and demonstration projects to promote awareness of electric vehicles and advancement of the technology. Importantly, Auerback points out that the fact that industry is subsidized and that established bus producers are hesitant to enter the market is a strong signal that profits are not there.
Market

The market for electric buses is thin. Municipalities provide the demand for buses. The factors that are important to municipalities when they purchase buses are quality, cost, and service. Webb, of the Northeast Alternative Vehicle Consortium, reports that municipalities are under pressure to purchase buses that are simultaneously durable and cheap. Further, they need to know that the company that they are purchasing vehicles from will provide service support if there are ever any problems with the vehicles. This combination of quality, cost, and service automatically disqualifies electric buses and electric bus companies from competing with manufacturers of diesel-powered buses. Electric buses are not only more expensive than diesel powered buses, but are not comparable to diesel powered buses; electric buses cannot travel as far as diesel buses and have demonstrated their susceptibility to malfunction. Unfortunately, because electric buses are small and under-capitalized they do not have the resources to provide the same service as a diesel bus manufacturer.

Resources

For Timmons, resources include the availability of start-up capital, the business plan and individuals interested in joining the management team. In this section, I hope to touch on these issues as the Bank of Boston and Boston Empowerment Center grappled with them. Both of these organizations reviewed the business plan and met with representatives from either one or all of the participating organizations. Both the Bank of Boston and the Boston Empowerment Center felt that BEVC’s request for $5 million was unreasonable given the lack of equity, market and historical financial statements of BEVC. As a result, neither the Bank of Boston nor the Boston Empowerment Center could support BEVC.
Business Plan

Both the Boston Empowerment Center and the Bank of Boston felt that the business plan was both well written and researched. On the other hand, they felt that the growth rate in the business plan had no basis in the reality. Based on the market and state of the technology, neither investor believed the projections. They did not think that municipalities would purchase the buses and that they could compete with diesel powered buses. As a result, they could not be convinced that they could ever recoup their investment.

Another problem that the Bank of Boston and the Boston Empowerment Center had with the business plan was the lack of historical documents to support the projected growth in the business plan. Tocci said that before the Boston Empowerment Center would lend money to anyone, he needs to know that the business has grown to the point at which it can support the loan even if the growth projections are not met. Ocko and Pellegrino of the Bank of Boston, voiced similar concerns. Unfortunately, SVMC could not provide these document for either the Bank of Boston or the Boston Empowerment Center. As a result, they could not be convinced that they would ever be repaid.

Start-up Capital

Both the Boston Empowerment Center and Bank of Boston felt that BEVC did not bring sufficient funds to the table to start a business. For this type of venture, Tocci felt that BEVC should have $15 million in equity. Instead, BEVC did not have an equity investor and the only available funds for equity was the OCS grant of $600,000 – far short of the $15 million Tocci was looking for. Tocci felt that a $15 million equity position was important to assure him that he would be repaid. Ocko provided another motivation for an equity position – risk management. Having
equity in the company would allow BEVC to survive in case the business were to have any trouble in implementing the business plan.

Management

In the business plan, Duffy was identified as interim President of BEVC until someone could be identified to take control of the business. Also, he was supposed to bring part of his management team to facilitate the implementation of BEVC. Neither the Bank of Boston nor the Boston Empowerment Center doubted the capabilities of Duffy or his team, but were concerned about the fact that a team had not been identified to take over their positions.

Unknown to the Boston Empowerment Center and the Bank of Boston is that Duffy had no intentions of running the business and that SBCH and Boston Edison felt that he was an incompetent manager. Ferri believed that he had no control over his costs and did not know what it meant to take a company from research and development to manufacturing. Both Nee and Gallo concur. As a result, Gallo and Ferri searched for potential entrepreneurs to run BEVC. Unfortunately, they were not able to find anyone to run BEVC. There was nobody willing to take the risk of trying to implement this business.

Conclusion

Timmons has identified three elements that are necessary to starting a business: an entrepreneur, an opportunity and resources. Between SBCH, Boston Edison and SVMC, one could argue that collectively, they performed the duties of an entrepreneur, however, looking at each organization on its own, it would be impossible to argue that each organization could have played the role of the entrepreneur alone. Similarly, there does not appear to be the opportunity and resources sufficient to start BEVC. In fact, it seems difficult to identify any glimmer of hope,
forcing one to ask how this project ever made it as far as it did and why was it ever brought to the Bank of Boston and the Boston Empowerment Center. Chapter 6 will address these issues.
Chapter 6: Justification

Introduction

Based on the analysis in Chapter 5, BEVC is not a viable business opportunity – neither the opportunity nor the resources existed to start BEVC. When asked whether or not they would have lent money to BEVC, if enough equity had been present and a market for electric buses existed both the Bank of Boston and the Boston Empowerment Center said no. For instance, because of Duffy's financial distress, Tocci of the Boston Empowerment Center was worried that Duffy's creditors would have rights to any money lent to BEVC. In summary, based on the analysis in the previous chapter, some would argue that the BEVC should never have been implemented.

In spite of such criticism, the fact is that SBCH and Boston Edison tried to start BEVC with Duffy as the technology partner and purported manager. The purpose of this chapter is to explain why. Among the reasons discussed in this chapter are: (1) the differences between economic development and business development, (2) “overzealousness” and optimism and (3) a reliance on the work and reputation of others.

Economic Development vs. Business Development

One of the most prominent explanations provided by Gallo, Nee, Walsh and Ferri for working on this project is the belief that economic development deals are different from business development deals. Because of this difference, both SBCH and Boston Edison believed that BEVC deserved special attention from the Bank of Boston and the Boston Empowerment Center.

Gallo, Nee and Walsh argue that BEVC deserved differential treatment from the Bank of Boston and the Boston Empowerment Center because it was an economic development deal, not your typical business. According to Gallo, business deals that fall under the rubric of economic development include, “those deals that the market would not carry and need public funds to
provide that extra necessary boost.” In translation, economic development is the business of helping to start those businesses that have been rejected by the private sector. Nee emphasized this dichotomy when he expressed his concern that businesses are hesitant to get involved with CDC’s because of all the social issues, such as having to hire low-income workers, that are bundled with their involvement.

Walsh perceives a similar difference between economic development and business development, but has a different way of expressing his thoughts. To him economic development is a necessity. Economic development is a process in which you build on your needs, assess your strengths and weaknesses and pool the necessary resources to accomplish your goals. To Walsh, Boston needs manufacturing jobs and BEVC means to accomplish this goal. Because it filled a void in Boston’s employment needs, Walsh believes that the City of Boston should have worked closely with Boston Edison and SBCH to implement this project. Unfortunately, Walsh does not believe that the City of Boston provided enough support.

To him, this is attributed to the fact that they have a different interpretation of economic development. According to Walsh, the City has a conservative approach to economic development and only supports “bankable deals”. Walsh does not agree with this outlook and thinks that the City of Boston should take more risks.

“Overzealousness” and Optimism

Of those interviewed within SBCH and Boston Edison, there is a common feeling that if they had the opportunity to start over again they would all do something different. I think that Ferri best explained this regret with the term “overzealousness” and optimism. A rough translation of overzealousness is that everyone was so excited to see this project happening that they would do
whatever it took to make it happen. The optimism emanated from the fact that both Walsh and Nee felt that everything would work out in the end.

Gallo, Nee and Ferri all agree that Duffy should have written the business plan, instead of Gallo. Gallo wrote the business plan because she perceived that Duffy did not know enough about his business to develop a satisfactory business plan. If they could start over, Gallo, Ferri and Nee argue that Duffy should write the business plan to demonstrate his desire to implement this project. To both SBCH and Boston Edison, writing the business plan demonstrates a commitment to the project. In this case, Gallo showed that she wanted the project to occur, but the technology partner and purported manager, Duffy, did not because he did not write the business plan.

Optimism is responsible for the ways in which SBCH and Boston Edison interpreted the financial distress of Duffy. Gallo recalls coming back from California after having learned that Duffy was considering bankruptcy and suggesting that they stop working with Duffy. Instead of heeding her advice, she recalls both Nee and Walsh urging her to continue working with Duffy in hopes that he would get his act together if he saw progress being made.

Lack of Due Diligence

In her review of the business plan, Auerback felt that if the necessary due diligence had been conducted by SBCH and Boston Edison, then this project would never have occurred because SBCH and Boston Edison would have realized that Duffy was an inadequate manager. To Auerback, there are many elements that compose an adequate “due diligence package”. Some of the elements are a credit check, industry analysis, talking with customers and asking questions such as, “Has the business or manager ever performed what we are asking him or her to perform?” or “Has the company ever expanded or relocated?” In performing this analysis, Auerback found that Duffy did not manage his costs, owed money to many companies, had not completed a variety of
contracts and had never expanded his operations. As a result, Auerback does not believe that Duffy was qualified to run BEVC and recommended that Boston Edison and SBCH sever all business ties with Duffy – both SBCH and Boston Edison agreed.

What is interesting about Auerback’s conclusions is that SBCH and Boston Edison had the same information, but interpreted it differently. For instance, SBCH and Boston Edison knew that Duffy had trouble fulfilling his contracts. Instead of using this as evidence to discontinue working with Duffy, SBCH and Boston Edison tried to secure outstanding orders for BEVC. As part of a demonstration contract, in 1993, SVMC had been contracted by the Northeast Alternative Vehicle Consortium to produce two 31 foot buses for the New York Power Authority. By 1996, SVMC had not completed the buses and had not forecasted a completion date. Using this as an opportunity to secure business for BEVC, SBCH and Boston Edison expended much time and energy working with the Northeast Alternative Vehicle Consortium to maintain these contracts.

In talking with Gallo and Ferri, it does not appear that they were ignorant to due diligence as Auerback defines the term, but that they relied on the reputation and work of each other. Gallo admits that she did not find SVMC through exhaustive research, but found them through the work of the Chief Engineer in the electric vehicle department at Boston Edison. Also, she feels that she was willing to work with SVMC, sacrificing due diligence because Boston Edison was willing to work with SVMC. To Gallo, there was no reason to believe that Boston Edison would get involved with a company that did not offer a real opportunity. From Boston Edison’s perspective, the Chief Engineer was responsible for researching and developing relationships with businesses. Because the Chief Engineer identified AVS, Solectria and SVMC, there appears to be a feeling that his work was adequate and did not merit criticism.
Conclusion: Promoting Viable Business Opportunities

The fact that SBCH and Boston Edison could justify submitting the business plan to the Bank of Boston and the Boston Empowerment Center in spite of the fact that BEVC was not a viable business opportunity and Duffy was an inadequate manager is problematic. It demonstrates that SBCH and Boston Edison did not understand the needs of the Bank of Boston and the Boston Empowerment Center. As a result, the Bank of Boston and the Boston Empowerment Center may question the integrity of future business deals brought by either SBCH or Boston Edison.

Both members at SBCH and Boston Edison felt that the Bank of Boston and the Boston Empowerment Center reacted conservatively to the BEVC business plan. Importantly, the Bank of Boston and the Boston Empowerment Center are inherently conservative organizations. The Bank of Boston will not lend money unless it can be certain that its funds can be recouped. This explains Ocko’s belief that BEVC should have substantial equity in the business to act as collateral. For the Boston Empowerment Center, job creation is most important. Tocci did not want to lend money to any business that could not create long-term jobs. Instead of pursuing money from these two organizations, SBCH and Boston Edison should have considered pursuing venture capital. Traditionally, venture capital has assumed more risk than banks.

The ramification of advocating for BEVC to both the Bank of Boston and the Boston Empowerment Center, in spite of its flaws, is that SBCH and Boston Edison jeopardize their credibility. Next time either of these organizations bring business deals to either the Bank of Boston or the Boston Empowerment Center, they run the risk of tainting the project because of their past failure. Because many community organizations, like SBCH, are new to business development, they need to pay special attention to their reputation.
One way for community organizations to enhance their reputation when it comes to business development is to pursue viable business opportunities. A viable business opportunity is one with a market and someone to lead the business with adequate experience in the industry and business. Community organizations may choose to partner with the private sector to bring these businesses into their community or foster these businesses on their own. Regardless, this chapter, in conjunction with the previous chapter, demonstrates that the Bank of Boston and the Boston Empowerment Center were not interested in anything but the viability of the business.
Chapter 7: Conclusion

Introduction

Originally, I intended to demonstrate the influence of the network consisting of SBCH, Boston Edison and SVMC on their efforts to start BEVC, however, since fundamental business issues, such as a lack of market and competent manager were not present, the network was not an influencing factor on BEVC. For instance, because organizations such as the Bank of Boston and the Boston Empowerment Center did not think that there was a market for electric buses nor did they believe Duffy was competent to run BEVC, these organizations were not concerned with the ways in SBCH, Boston Edison and SVMC contributed to starting BEVC. As a result, my analysis in chapters 5 and 6 have led me to an understanding that before community organizations devote time and resources to starting businesses they need to take the time to evaluate potential business opportunities to ensure that there is a market and a qualified individual to run the business. Without a market and a competent manager, private-sector support may not be enough to start a business and the business is unlikely to succeed.

Although I am unable to discuss the influence of the network consisting of SBCH, Boston Edison and SVMC on the business development process, I did have the opportunity to characterize the network in chapter 4. In chapter 4, I discovered that SBCH, Boston Edison and SVMC did not develop the trust and reciprocity characteristic of successful networks. Rather than ignoring the fact that these organizations could not work together, I use this experience to discuss one way in which future organizations can work together to build a successful network. One of the ways SBCH, Boston Edison and SVMC might have improved their relationships is if they had taken the time to clarify their expectations and roles. By putting all of this information into a “network document” at
the beginning of the process, they could have referred to it throughout the business development process to evaluate each other’s performance.

Merging the need for community and economic development practitioners to evaluate business opportunities before devoting time and resources to the start-up of a business and the need to develop a “network document”, I have constructed a framework to guide practitioners in their decision to participate in the start-up of a business in their community. The framework is presented on the following page as Figure 2.

The decision making process begins with identifying a business opportunity. Once a business opportunity has been identified, the next step is for the community organization to evaluate the opportunity. The evaluation process is broken into two stages. The first stage is preliminary and is designed to screen out those businesses that do not have either a market nor a competent manager. If there is a market and manager, then the next step is to proceed with the second stage of business evaluation. The purpose of proceeding with the evaluation is to ensure that the market is sufficient, the manager in question is truly competent and most importantly, starting the business is consistent with organizational goals. If the second stage evaluation is successful, then I recommend community organization take the time to develop what I call a “network document”. Importantly, if either the first stage or second stage business evaluation is unsuccessful, in other words, there really is no market or the manager is not capable of running the business, then my recommendation is to stop pursuing the business opportunity. For the rest of this chapter, I argue for the need to apply this framework and elaborate on the need for community organizations to evaluate businesses and develop a “network document”.
Figure 2: Decision Making Process for Business Development

Potential Business Opportunity

1. Is there a market for the businesses' goods/services?
2. Is there a competent manager?

Yes

Proceed to second stage of business evaluation

No

Stop working on the project

1. Are you still convinced that there is a market and competent manager?
2. Does starting the business meet your organization's objectives?

Yes

If appropriate, organize network and develop network document

No

Stop working on the project
Evaluating Businesses

One of the most important lessons I have drawn from this thesis is the need for community organizations to evaluate businesses for themselves. Within this evaluation, there are two stages. The first stage includes screening the business opportunity for a market and competent manager. With both of these elements, I recommend community and economic development practitioners proceed to a second stage of analysis in which community and economic development practitioners conduct further research on the business opportunity and debate whether or not the business opportunity is consistent with organizational goals and community needs. Importantly, without either a market or a competent manager, there is no need to move to the second stage.

Before the BEVC business plan had been completed, individuals at both SBCH and Boston Edison learned that Duffy was in financial distress and was an incompetent manager. This was demonstrated by the fact that Duffy did not have adequate financial statements and did not know much about his industry. Nonetheless, Gallo completed the business plan and submitted it to the Bank of Boston and the Boston Empowerment Center for funding. This proved to be a waste of time. After reviewing the business plan, there was overwhelming agreement from Ocko at the Bank of Boston and Tocci at the Boston Empowerment Center that BEVC was not worthy of investment. They were both concerned that Duffy could not run BEVC and that any money invested to BEVC would go directly to his creditors.

In the framework I have developed, SBCH and Boston Edison should never have completed the business plan. Although I benefit from hindsight, the consequences of bringing the business plan to the Bank of Boston and the Boston Empowerment Center are potentially severe. Both SBCH and Boston Edison threaten their credibility by promoting a business deal that is not viable.
On the other hand, if there is a market and a competent manager for a particular business, then I suggest that community and economic development practitioners proceed to a second stage of analysis. The second stage is meant to increase the comfort level of a community organization in starting a particular business. In order to assist community and economic development practitioners in the second stage of evaluation, I have composed a list of questions that should be answered. These questions are meant to stimulate further research on the potential manager and business opportunity. At the same time, they are meant to provoke community organizations to consider whether or not starting a particular business is consistent with their goals. In preparing these questions, I draw not only from my experience in preparing this case-study, but my interview with Auerback. With eighteen years of experience in the banking community, Auerback understands the questions that individuals should ask in evaluating a business.  

1. Does creating this business satisfy the goals and mission of my organization?  
2. What is the track record of the entrepreneur? Has this person successfully started businesses in the past?  
3. Has this person or business you are working with successfully achieved what you are asking him or her to accomplish now? *  
4. If going to partner with them, need to know where are they located and have they ever relocated? *  
5. What do current suppliers, customers or creditors say about this person or business you are working with? *  
6. How would you characterize the industry for the product or service? Are the barriers to entry high or low? Is competition fierce?  

* Questions influenced by Auerback are denoted with an asterisk.
While this list of questions is partial, I believe it provides a base for community and economic development practitioners. Unfortunately, the difficult part is saying which questions are more important and what happens when only some of the questions have been answered positively. How to proceed can only be determined by the person doing the research and evaluation. In order to determine the next step, my hope is that the person doing the research will either have experience in starting businesses or consult with someone who does. Assuming that there is a real opportunity to start a business, and that a community organization intends on working with other organizations to start the business, the next step is to develop what I call a “network document”. I elaborate on this document in the following section.

**Evaluating Networks**

After evaluating the business opportunity for a market and manager, the next step for community organizations is to develop the organizational infrastructure necessary to work in a network. My recommendation is that when organizations first start working together they take the time to create a document which establishes a clear set of expectations, goals and time-lines for one another – this is what I have been referring to as a “network document”. By revisiting this document throughout the business development process, organizations can use this document as a means to evaluate the performance of one another. For instance, when partners cannot fulfill expectations or perform duties in a timely manner the network can be dissolved.

SBCH, Boston Edison and SVMC did not take the time to develop a set of expectations, goals and time-lines for one another or for the project to start BEVC. This proved to be problematic. For example, when Duffy did not provide Gallo with audited financial statements on SVMC or information on the electric vehicle industry, both Gallo and Ferri have made the case that in the future they would not intervene and write the business plan, but would insist that the
purported entrepreneur compose the plan. In this case, I would argue that Gallo wrote the business plan because the roles and responsibilities for each organization were never defined. The only formal agreement that existed between SBCH, Boston Edison and SVMC is the first memorandum of agreement (MOA). If you recall from chapter 3, the first MOA specified the potential ownership structure of BEVC, board representation, royalty stream and protocol for technology transfer.

There were no guidelines for which organization should write the business plan, search for funding and when these tasks should be accomplished. As a result, even when it had become more than apparent that Duffy was not going to take the lead in starting BEVC, SBCH and Boston Edison continued trying to start BEVC because it was never explicitly defined that the project hinged on Duffy's cooperation.

Creating a document which defines the roles and responsibilities of an organization engaged in a network can facilitate the evaluation of network members throughout the business development process. Depending on the time-line for the project, organizations can meet monthly, quarterly or semi-annually. In these meetings, organizations should review the document and compare their progress. If an organization is unable to accomplish specified tasks, then this organization should be forced to justify their failure. In enduring this process, it should become clear which organizations in a network are capable of fulfilling their roles and which are more interested in free-riding. If an organization cannot justify their inability to complete a task and this proves to be a repeated occurrence, then this organization should be asked to leave the network. In this case, Duffy should have been asked to leave the network because he could not be trusted to run BEVC nor was he willing to invest time to find alternate ways of starting BEVC without his leadership.
Undoubtedly, instituting this layer of formality will be a burden for networks and community organizations, but it will be extremely useful in the long-run. It will help prevent community organizations from investing time and effort in a project that is not going to succeed and improve the credibility of community organizations in their efforts to sponsor business development in their communities. Simultaneously, it ensures that networks optimize their relationships with other organizations in the network.

**Revisiting Porter’s Model of Economic Development**

Before ending this case-study, I would like to conclude with some final remarks on Porter’s model of community and economic development. This case-study demonstrates that Porter’s model of economic development is too simple to guide economic development practitioners interested in business development. The fact that the private sector supports a business development initiative does not necessarily guarantee success. For instance, in this case, Boston Edison initiated and supported efforts to start BEVC, yet BEVC does not exist. I have argued that this has to do with the fact that BEVC is not a viable business. Thus, what should really matter to community and economic development practitioners is whether or not the proposed business opportunity is viable, not whether or not the private sector supports the business.

Another refinement to Porter’s model is that community organizations gain the knowledge and experience to evaluate business plans and decide for themselves whether or not they should work with the private sector in starting a business. In contrast, Porter relegates community organizations to positions of powerlessness; Porter advocates that community organizations devote their efforts to organizing community support for private sector business development initiatives. In this case, SBCH bought into the reputation and credibility of Boston Edison. As a result, SBCH did not act on the many signals which indicated that BEVC was not a viable business and that
Duffy was incapable of running BEVC. By trusting Boston Edison, SBCH jeopardized their reputation. If community organizations want to maintain their credibility and establish a reputation for supporting successful businesses, they must gain the experience and knowledge to review potential business opportunities for themselves.
Appendix 1
Interview List

Network Members

1. Ms. Beverly Byer Gallo
   Mr. Martin Nee
   South Boston Community Housing

2. Mr. Mark Ferri
   Mr. Donald Walsh
   Boston Edison -- Economic Development Department

3. Mr. Don Duffy
   Mr. Newton Montano
   Specialty Vehicle Manufacturing Corporation

Non-network members

1. Mr. Robert Ocko
   Mr. Joe Pellegrino
   Bank of Boston

2. Mr. Bob Brandweine
   Policy & Management Associates

3. Mr. Martin McDonough
   City of Boston – Public Facilities Department

4. Mr. Francesco Tocci
   Boston Empowerment Center

5. Ms. Amy Auerback

6. Mr. Tom Webb
   Northeast Alternative Vehicle Consortium

7. Mr. John Powell
   Electric Transportation and Vehicle Institute

8. Mr. Vic De Luca
   Jessie smith Noyes Foundation
Appendix 2

Survey Instruments

Interview Questions: Non-Network Members

Name ________________________________

Organization ____________________________

Phone Number ____________________________

Interview Date ____________________________

Introduction

Hello, my name is David White and I am a second year Master’s candidate in the Department of Urban and Planning at the Massachusetts Institute of Technology. My thesis focuses on the work of South Boston Community Housing, Inc., Boston Edison and Specialty Vehicle Manufacturing to start an electric vehicle manufacturing company in South Boston. In this interview, I strive to get information and your opinion on your organization, the project and the relationships of the organizations involved. Do you have any questions, before we begin?

I. Background Information

Could you tell me about the mission and priorities of your organization?

Could you tell me about yourself? What are your responsibilities?

II. Electric Vehicle Industry and Manufacturing Opportunities

What opportunity(ies) exist to manufacture electric buses? Do these opportunities exist in Massachusetts?

What are the barriers to entry for a start-up in the electric vehicle industry? More specifically, for anyone attempting to start an electric bus company in Boston, Massachusetts?

How would you characterize the competition to produce electric buses? Who are the competitors? On what basis do they compete?
III. The Project

How did you and your organization get involved in the project to manufacture electric vehicles in South Boston?

Why did your organization get involved in this project? What were your objectives?

What did you perceive as the strengths of the project and the organization involved? What about weaknesses?

IV. The Network

In what ways do you think each organization contributed to this project?

Now, I would like to ask you four questions in order to characterize the working relationships between South Boston Community Housing, Boston Edison and Specialty Vehicle Manufacturing Corporation?

For this project, what do you think was the vision each organization had for this project?

To what extent do you think these organizations worked together?

To what extent do you think these organizations trusted one another?

In what ways do you think each organization depended on one another?

What critical components of success were present among South Boston Community Housing, Inc., Boston Edison and Specialty Vehicle Manufacturing Company? What was missing? What was missing?

What do you think are the qualities of successful team members?

V. Management

Why do you think electric buses are not currently being produced in South Boston?

What do you think needed to change for their to be electric bus manufacturing in South Boston?

Did you ever make any of your opinions or recommendations known to any of the team members? Yes No
If yes, how did SBCH, Boston Edison and SVMC respond to your suggestions? If no, why did you not say anything?

VI. Conclusion

Thank you very much for taking the time to let me interview you for my thesis.

Would you like a final draft of my thesis? _____ Yes _____ No

Do you have any other questions for me?

Is there anyone else you think that I may contact to enrich my analysis?
Interview Questions: Network Members– South Boston Community Housing

Name _______________________
Organization _______________________
Position _______________________
Phone _______________________
Interview Date _______________________

Introduction

Hello, my name is David White and I am a second year Master's candidate in the Department of Urban and Planning at the Massachusetts Institute of Technology. My thesis focuses on the work of South Boston Community Housing, Inc., Boston Edison and Specialty Vehicle Manufacturing to start an electric vehicle manufacturing company in South Boston. In this interview, I strive to gather information and your opinion on your organization, the project and the relationships of the organizations involved. Do you have any questions, before we begin?

I. Background Information

What were your responsibilities as they pertained to starting Boston Electric Vehicle Company?

Why was your organization/ department interested in electric vehicle manufacturing in South Boston?

II. Characterizing the Network

What was your vision or expected outcome for the project? What was the vision of SBCH?

How did you find out about Boston Edison?

Why did Boston Edison ask you to get involved in the project?

How did you find out about Specialty Vehicle Manufacturing Corporation?

Why did Specialty Vehicle Manufacturing Corporation get involved in this project?

What role or roles did Boston Edison play? SVMC?

Did a formal arrangement exist between SBCH, Boston Edison and SVMC?

What was done together and what was done separately?
What were the most important assets SVMC brought to this project? SBCH? Boston Edison?

How were decisions made? (Any specific examples)

How often were you in communication with Boston Edison? Specialty Vehicle Manufacturing Corporation?

How were tasks accomplished?

What did SBCH see as the necessary resources to succeed? What were the gaps?

III. Management

How did other organizations respond to this project?

Bank of Boston:

Northeast Alternative Vehicle Consortium

Boston Empowerment Center:

Subaru of America:

In what ways did you respond to the suggestions of these organizations?

IV. Evaluation

Why do you think electric buses are not being manufactured in South Boston?

What do you think needed to change in order to manufacture electric buses in South Boston?

What might you have done differently?

V. Some Case Specific Questions

Originally, AVS was supposed to work on this project, whatever happened to them?

When did you first find out about Don’s financial difficulties?

How did you find out about his financial difficulties?

Why was NAVC involved in this project?

What was the purpose of the ACL/AAI project? Why was it never implemented?

What was the role of the Chief Engineer in the Electric Vehicle Department in Boston Edison?
Why is the Chief Engineer no longer working on this project?

What do you think was the impact of his leaving the project?

VI. Conclusion

Thank you very much for taking the time to complete this interview.

Would you like a final draft of my thesis? _____ Yes _____ No

Do you have any other questions for me?

Is there anyone else I may contact to enrich my analysis?
Appendix 3
Chronology of Events

1995

December

The Economic Development Department at Boston Edison approaches SBCH to participate in a project to start a business to manufacture electric vehicles.

February

SBCH hires Bob Brandweine and completes the Department of Health and Human Services, Offices of Community Services grant for $700,000.

August

SBCH is awarded $600,000 from the Department of Health and Human Services to start and electric vehicle manufacturing plant in South Boston.

September

SBCH and the Economic Development Department at South Boston invite local business leaders, academics and politicians to join a steering committee.

Vic De Luca of the Jessie Smith Noyes foundation awards SBCH $30,000 in general operating support.

November

The Chief Electric Vehicle Engineer and Project Manager in the Electric Vehicle Division leaves Boston Edison and is unable to come to terms with SBCH on a contract for employment.

December

SBCH unsuccessfully attempts to raise $35,000 in general operating support from the Local Initiatives Support Corporation.

Gallo travels to California to meet Duffy of Specialty Vehicle Manufacturing Corporation and discuss opportunities to collaborate and start an electric bus manufacturing company in South Boston.
1996

January

Gallo travels to California to collect market and financial information for the Boston Electric Vehicle Company Business Plan.

SBCH and the Economic Development Department at Boston Edison learn that Duffy is in financial distress and considering filing for bankruptcy.

SBCH and Duffy of SVMC sign the First Memorandum of Agreement.

February

Gallo of SBCH completes the BEVC business plan.

March

The BEVC business plan is submitted to the Bank of Boston and the Boston Empowerment Center for funding.

Boston Electric Vehicle Company is incorporated in Massachusetts.

April

Both the Boston Empowerment Center and the Bank of Boston refuse to invest in BEVC.

Ferri and Gallo try to recruit someone to run BEVC.

Ferri and Gallo meet with Subaru of America to discuss the opportunity to invest equity in BEVC.

Gallo and Nee of SBCH negotiate terms for a three year lease on at the Subaru Facility at the Marine Industrial Park in South Boston.

May

Ferri devises the ACL/AAI deal to obtain Duffy’s technology.

June

Duffy travels to Boston to develop the second memorandum of agreement.

The Economic Development Department at Boston Edison hires Auerback to evaluate the BEVC business plan and Duffy.
July

SBCH and the Economic Development Department at Boston Edison are told that Duffy is being sued for fraud by CALSTART in California.

August

SBCH and the Economic Development Department at Boston Edison sever all business ties with Duffy.
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