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Evaluating Strategies to Create Successful Business Incubators in Massachusetts Gateway Cities

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EVALUATING STRATEGIES TO CREATE SUCCESSFUL BUSINESS INCUBATORS IN MASSACHUSETTS GATEWAY CITIES

A Thesis Presented

by

SONYA C. SMITH

Submitted to the Graduate School of the University of Massachusetts Amherst in partial fulfillment of the requirements for the degree of

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EVALUATING STRATEGIES TO CREATE SUCCESSFUL BUSINESS INCUBATORS IN MASSACHUSETTS GATEWAY CITIES

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ABSTRACT

EVALUATING STRATEGIES TO CREATE SUCCESSFUL BUSINESS INCUBATORS IN MASSACHUSETTS GATEWAY CITIES

SEPTEMBER 2010

SONYA C. SMITH, B.A. HOBART AND WILLIAM SMITH COLLEGES

Directed By: Professor Henry Renski

This thesis evaluates economic development, planning, public policy, and business strategies to create successful business incubators in Massachusetts’ post-industrial cities. These post-industrial cities in Massachusetts are dubbed “Gateway Cities” because they were once the economic engines of the region as well as areas of entry for many foreign-born residences to live and work. These cities have been recently plagued by high unemployment, poverty, and low business investment as many businesses, especially manufacturing, have located elsewhere. Legislation and policies involving redistribution of wealth to these Gateway Cities has recently been enacted to strengthen these communities. Although there isn’t a cohesive policy for business incubators in Gateway Cities, this thesis strategizes that such an approach could be beneficial for these cities, their regions, and the state as a whole.
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CHAPTER 1
INTRODUCTION

In the nineteenth and early twentieth century, mill cities in Massachusetts were a large part of the thriving national economy. During this time, the industrial revolution was in full-swing and industrial mill complexes dominated smaller to mid-sized cities in Massachusetts. Specialized industries began to develop in these cities such as the cotton and textile industries in Lowell, armory and precision manufacturing industries in Springfield, fishing and whaling services in New Bedford, and cotton and cloth manufacturing in Fall River. However, as many of these manufacturing industries in Massachusetts’ industrial mill cities relocated to the south or overseas, many of these cities struggled to regain their strong economic vitality.

Near the middle to end of the twentieth century, the economy of Massachusetts post-industrial cities went from being their great centers of commerce to eyesores. Many manufacturing mill complexes were left vacant or highly underutilized and communities became plagued with high unemployment, loss of population, poverty, and blight (Forrant, Robert 207-208). Other negative effects of deindustrialization, such as diminished wages and property values, became ubiquitous features in these smaller to mid-sized cities (Forrant, Robert 207-208).

These Massachusetts post-industrial cities have been trying for decades to reinvent their manufacturing-based economies by shifting their economic focus to the New Economy with a knowledge-based focus (Forrant, Robert 208-209). The framework of the New Economy is based on competition, consumption, innovation, and knowledge (Atkinson, Robert 3). Instead of former assembly-line manufacturing, New Economy
industries focused on the development of new products and processes (Atkinson, Robert 3). Many of these New Economy industries, which include high growth start-up companies, prefer to locate in post-industrial cities including former mill buildings (Forrant, Robert 208-209). However, many of these companies choose to locate in larger, more established cities, as well as in newly built technology parks on “greenfields”, which additionally left these cities lagging behind (Muro, Mark 5-10 and Forrant, Robert 207-209).

“Gateway Cities” is a term developed in 2007 by MassInc and the Brookings Institute to develop economic and public policy strategies to revitalize medium-to-smaller sized, post-industrial cities in Massachusetts (Muro, Mark 5-10). This policy emphasizes the disproportionate business activity and other economic indicators between the largest cities in the Northeast, such as Boston, to Gateway Cities such as Fall River, Springfield, Lowell, and New Bedford (Muro, Mark 5-10). A part of the policy’s goals include transferring some of the economic wealth from these larger and established business centers into the heart of Gateway Cities (Muro, Mark 5-10 and Schneider, John 26-29). For example, the Gateway Cities Initiative tries to further leverage the state’s well-educated and skilled workforce, large number of small business start-ups, excellent research and development facilities, and large amount of financial investments and capital flows to revitalize Gateway Cities (Muro, Mark 5-10 and Schneider, John 26-29). Gateway Cities also tout many other advantages over booming metro technopoles, such as low-cost commercial space, shorter commutes, affordable housing, a strong sense of place and history, walkable cities, and great cultural and recreation activities (Forrant, Robert 207-209 and Schneider, John 26-29). To some, this makes Gateway Cities a great
place for people to live and work, yet these places still struggle to attract people and business investment (Schneider, John 26-29).

One of the many economic development solutions to revitalize Gateway Cities includes subsidizing business incubators to help foster small business growth. “Incubators generate jobs and income and create linkages with firms inside and outside a local economy” (Markley, Deborah 1995). As a tool to attract new business start-ups, business incubators can provide shared and discounted resources thus decreasing business start-up cost. Some of these amenities may include shared office and laboratory space, access to university resources and technology transfer, and access to financial capital and consulting services (Lewis, David 1-2). However, one of the most beneficial aspects of business incubators are the interactive learning and networking opportunities that can help a small business succeed.

While often not explicit, it is implied that a successful business incubator complements the asset base of the larger regional economy -- typically by providing services or other assets that would be difficult for small and new businesses to obtain otherwise. For example, many incubators tout below market rents and ready start-up space as a major draw. However, Gateway Cities are already known for affordable rents, business costs, and plentiful mill space begging the question of whether establishing a business incubator to offer these services is an effective use of scarce development funding and resources.

**Purposes, Goals, Research Questions, and Outcomes**

The purpose of this study is to understand the use of business incubators as an economic development strategy in Massachusetts Gateway Cities and Regions. It
explores how the assets and services of these business incubators can be used to
compliment the economic assets of Gateway Cities, or possibly offset their deficiencies.
The study also looks at the businesses within these incubator facilities to determine why
they located their company in a Gateway City as well as the future needs and
opportunities of businesses in the business incubator. The goal of this study is to
understand and determine the local and regional characteristics of these cities to support
small business incubators. More specifically, this study addresses the following research
questions:

1. Why do business start-ups and ventures choose to locate in a Gateway City Business
   Incubator? How is the entrepreneurial climate in these places? What can be done to
   further strengthen this entrepreneurship?

2. What types of assets, opportunities, and challenges are common across Gateway
   Cities and regions which are unique to each?

3. How can these characteristics serve as a foundation for building a strong
   entrepreneurial climate and how might business incubators be used strategically
   within each context.

4. What are the strengths, needs, and deficiencies for specific sectors and industries
   supported by these Gateway City Business Incubators?

5. What are some emerging areas of opportunity for the Gateway City Business
   Incubator?

   The outcome of this study will help determine how business incubators can utilize
these assets in the future or create better opportunities for the economic prosperity of
Gateway Cities and regions, both individually and as a unified state or regional economic policy.

**Chapter Outline**

The study is organized as follows. The first chapter begins with a brief introduction. It is followed by the purposes, goals, research questions, and outcomes of the study. The end of chapter one presents a chapter outline.

Chapter two includes a literature review on Gateway Cities and public policy initiatives, business incubators, economic development policy and theory, and small business and entrepreneurship policy and theory. The third chapter includes an overview of federal and state policies that apply to business start-ups in business incubators. It also includes a discussion of the potential strengths and weaknesses of business incubators in Gateway Cities.

Chapter four describes the study methodology as well as study assumptions and limitations. Chapter five presents a socioeconomic and industry study in the four Gateway Cities and their three regions. Chapter six discusses four incubator case studies in the four selected Gateway Cities.

Chapter seven discusses the research findings of my survey of businesses affiliated with a Gateway City Business Incubator. It also includes interviews as well as the strengths, opportunities, and challenges those incubators and small businesses face in Gateway Cities. Chapter eight provides a conclusion that will include areas of potential regional or state economic development policy and future research opportunities.
CHAPTER 2
LITERATURE REVIEW

This chapter provides an overview of the literature, definitions, and background information for this study. It starts out by discussing pertinent literature on “Gateway Cities”, business incubators, and the definition of a “Gateway Business Incubator”. It explains how business incubators benefit the local and regional economy, mentions lessons learned from business incubator studies, and economic development and policy theory to support business incubators.

What are “Gateway Cities”?

“Gateway Cities” is a term developed by MassInc and the Brookings Institute to establish a new economic development policy to revitalize Massachusetts’ former industrial cities (Muro, Mark 5-10). Cities considered to meet the criteria of a “Gateway City” have a minimum population of 35,000 people, high poverty rates, and low education attainment levels (Muro, Mark 5-10). A city is also classified as a Gateway City if it exhibits a strong manufacturing heritage and is located outside of the Greater Boston area in Massachusetts (Muro, Mark 5-10). The cities are deemed “Gateways” because they were once gateways to the next era of the state’s economic success and because of the diverse, often foreign-born status of the residents’ (Muro, Mark 5-10). Massachusetts Gateway Cities currently include: Brockton, Fall River, Fitchburg, Haverhill, Holyoke, Lawrence, Lowell, New Bedford, Springfield, Pittsfield, and Worcester (Muro, Mark 5-10). For the purposes of this study, the focus will be on Fall River/New Bedford, Lowell, and Springfield.
According to the Gateway Cities Initiative, disproportionate economic factors and strong geographic differences remain between Boston, the region’s center of business activity, and its smaller post-manufacturing counterparts (Muro, Mark 5-10). This further motivates public policy for Gateway Cities. For example, a larger proportion of jobs with high income and high education-attainment, known as knowledge-based jobs, are located in the Great Boston Area compared to Gateway Cities (Muro, Mark 6, 14). According to the Bureau of Labor Statistics, as provided in the MassInc and Brookings Institute study, knowledge-based industries for the Greater Boston Area have a location quotient of 1.40 while the Gateway Cities have a location quotient of 0.98 (Muro, Mark 19). This shows that there is a greater concentration of industry sectors in Boston than in Gateway Cities. Also, “Despite containing 13 percent of the state’s jobs, the Gateway Cities generate less than 10 percent of the state’s payroll” (Ansin, Robert 19). This demonstrates that overall salaries are lower in Gateway Cities than in the Greater Boston Area.

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1 Location quotients measure concentrations of industry sectors in a city. A location quotient greater than 1 shows high concentration of industry, which can also be referred to as an industry cluster, while a location quotient less than one shows lower concentrations of a particular industry.
Tapping into knowledge-based jobs by improving the education of the middle-class in and surrounding the Gateway Cities is a strategy recommended by MassInc and the Brookings Institute (Ansin, Robert 14). “Just 16.5 percent of Gateway City residents possess a four-year college degree” (Ansin, Robert 21). This will be accomplished by improving education attainment in jobs that are in high demand and have high salaries (Ansin, Robert 33, 43-44). It will include promoting knowledge-based jobs such as information technology, healthcare, green jobs, biotechnology, engineering, and financial services (Ansin, Robert 19-21). The study also recommends strengthening underperforming schools and supporting linkages between public universities and community colleges and businesses (Ansin, Robert 33-34, 43-44). Other recommendations in the Gateway City study include making public and private financing more active and available (Ansin, Robert 39-42 and Schneider, John 28). These knowledge-based policies can be further supplemented by promoting workforce development such as on the job training, assistantships, internships, classes in new skills, mentors, and business incubators (Ansin, Robert 33-34, 43-44).

Officials from these cities have recently joined together to strengthen state policies and funding for Gateway Cities. The Gateway Cities bill was filed on January 1, 2009 to promote economic development in Gateway Cities (The Commonwealth of Massachusetts). If enacted, this bill will allocate more of the state’s budget to Gateway Cities for revitalization. Although state legislators originally overlooked the bill, in May 2009 a stronger more unified economic development strategy for Gateway Cities emerged with the signing of a compact from the mayors of all eleven Gateway Cities (The Commonwealth of Massachusetts). The goal of the Gateway Cities Compact was to
work together with Beacon Hill to support the message that these cities have value (Schneider, John 26-29). It was also to support more state money and private investment spending in Gateway Cities (Schneider, John 26-29 and Ansin, Robert 39-42).

Since the formation of the Gateway Cities Compact, a legislative caucus and a “roundtable” meeting with the city’s economic development directors has been established (Schneider, John 26-29). The Gateway Cities Legislative Caucus, including legislators from districts in each of the 11 cities, has filed a bill called “An Act to Promote Economic Development in Gateway Cities” (Schneider, John 26-29). This would expand upon the Gateway Cities bill by focusing on the state’s historic tax credit program, providing resources for market-rate housing, and enhancing the state’s Economic Development Incentive Program (Schneider, John 26-29). Specifically, these Gateway City strategies target small businesses by adding a job creation tax credit and by creating better economic development incentive programs that would target investment in focused areas (Schneider, John 26-29). Another goal of the bill is to eliminate tax abatement caps so more money can be filtered into Gateway Cities (The Commonwealth of Massachusetts).

**What are Business Incubators?**

The use of business incubators as an economic development strategy was developed in 1959 and became widely used in the 1980s to nurture and grow small businesses (Lewis, David 7 and Lalkaka, Rustam xvi). Small businesses start-ups are particularly vulnerable because of the high risks and costs involved during the early years of development (Lewis, David 1-3 and Lalkaka, Rustam xiii-xviii). To aid such start-ups, incubator facilities provide a host of essential services to companies in such diverse
sectors as biotechnology, information technology, green companies, creative businesses, and cultural or ethnically diverse businesses.

According to the *Technology Business Incubation* toolkit, a business incubator is a shared “workspace with support services provided to selected start-up and early stage ventures to enable them to develop their product or services for entry into the market” (Lalkaka, Rustam xiii-xviii). A typical business incubator provides facilities, services, and a nurturing and entrepreneurial environment to help businesses get established (Lewis, David 1-3). Business incubators try to create an atmosphere of spontaneous interaction and the sharing of ideas, knowledge, and business networks (Lewis, David 1-3). The aspiration of the business incubator is to provide a setting so a business can eventually “hatch” or succeed on its own (Lewis, David 1).

Tenant companies usually have access to free, discounted, or partially-subsidized or shared resources (Lalkaka, Rustam xiii-xviii). Typically, these include shared conference rooms, access to general and specialized equipment, and administrative or photocopy support services. The range of services an incubator provides depends on the theme of the business incubator facility, its tenants’ needs, and the types of industries it supports. This typically includes a combination of the following: management assistance, marketing, branding and patent assistance, financial and accounting services, access to financing, legal counsel, business development assistance, recruiting services, links to strategic partners, networking, and training.

Incubators often use a combination of private and publicly-funded or university-affiliated facilities and services. Below market-rate rent (or facilities and services), sometimes subsidized by the government or a university, is a common attribute. Private
companies sometimes provide a low-cost service, such as marketing consulting, or funding for a certain part of a project, such as a new laboratory facility. For example, many incubators have local or incubator-graduated business leaders on their board of directors to mentor businesses in the facility. University professors often have offices, research projects, or business spin-offs at incubator facilities. Additionally, many incubators have student interns and share additional laboratory space or other resources such as specialty equipment with the university.

**What is the definition of a “Gateway City Business Incubator”***?

To clarify the purpose of my study, I developed a definition of a “Gateway City Business Incubator”. The definition of a “Gateway City Business Incubator” is “shared physical space with shared services with its goal being economic expansion for the larger public good in Massachusetts Gateway Cities”. Typical business incubator activities include commercial, light industrial, research, or office-related activity and a combination or public and private funding sources as well as partnerships with universities, community colleges, and quasi-public entities.

This definition does not include creative economy incubators such as artist live-work space or technology or industrial parks (although business incubators may be located within artist space or industrial parks). Mixed-use, privately-run buildings, and outreach centers are not considered in the definition. The intention of the Gateway City Business Incubator is to provide jobs and foster small business creation, with a focus on supplementing local and regional assets such as existing workforce skills, community colleges and universities, and industry clusters.
How do Business Incubators Benefit the Local and Regional Economy?

Overall, business incubators can benefit the local and regional economy by supporting small businesses by increasing jobs and creating wealth. For example, the National Business Incubator Association (NBIA) member incubators have historically shown that 87 percent of all businesses that have graduated from their incubators are still in business (National Business Incubator Association). This suggests that incubators are an effective means of supporting and incubating businesses through their turbulent early years of life. “NBIA estimates that in 2005 alone, North American incubators assisted more than 27,000 start-up companies that provided full-time employment for more than 100,000 workers and generated annual revenue of more than $17 billion” (National Business Incubator Association). These numbers show that many jobs were created and large amounts of revenue were earned through business incubators.

Although many studies tout the benefits and successes of business incubators, it is hard to determine if and by how much business incubators actually benefit the local and regional economy. It also is hard to determine these economic and social benefits if the incubator did not establish itself in the area in the first place.

What are the Lessons Learned from other Business Incubator Studies?

David Lewis completed one of the most comprehensive studies on business incubators for the United States Economic Development Administration. Although Lewis’ study mostly focused on strategies to measure incubator success, he also looked at location characteristics of the incubator’s facility. Lewis brought up the research question that location characteristics of an incubator can make or break the overall success of the incubator because of the local market and need for an incubator, industrial
and occupational mix, education attainment, presence of institutions of higher education, and financial and public investment (Lewis, David 2, 13-18). He also researched other complementary policies at the state, regional, and local level that would improve the return on public investment of the incubator (Lewis, David 2, 13-18). He used Wolfe’s theory as a basis to determine the characteristics of a region that can increase the likelihood of a successful business incubator. These regional characteristics of successful incubators include the presence of one or more technology generators (such as a university, national laboratory, or research and development laboratory), a sufficiently-skilled labor force, a technology culture in the community, sufficient investment of capital activity in the region (angel investors, venture capital, traditional financial markets, SBIR grants, state-funded deed and venture funds, and corporate partnership money) (Lewis, David 21). Although his incubator case-studies and analysis did not specifically target incubators in Massachusetts, these questions were partially used to develop my case-studies, methodology, and guide my research in the following sections.

I specifically sought to research business incubators affiliated with state universities given the state funding sources for state university-affiliated incubators and the number of university-related incubators in Massachusetts Gateway Cities. According to literature on business incubators, one of the most successful university incubators is the Advanced Technology Development Center located at the Georgia Institute of Technology in midtown Atlanta. A recent study by Rothaermel and Thursby examined 79 incubated ventures from the Georgia Tech incubator between 1998 and 2003 (“University–incubator firm knowledge flow” 305). They looked at knowledge-flows between the university and the incubator facility and performed a multivariate regression
on numerous performance metrics such as revenues, total funds raised, venture capital funding, rate of failure, graduation, or remaining time in the incubator facility (“University–incubator firm knowledge flow” 309). They found that companies holding a Georgia Tech license had significantly lower failure rates following graduation (“University–incubator firm knowledge flow” 318). Also the study found that consistent support for university citations and citations to academic publications had positive effects on knowledge flows, but revenues were a poor measure for incubator firm performance (“University–incubator firm knowledge flow” 318).

An additional study completed by Rothaermel and Thursby suggests that exclusive licensing grants by the university’s Office of Technology Licensing (OTL) have a higher probability of success than companies not having a license (“Incubator firm failure or graduation?” 1085-1088). This study also suggests the positive role of faculty cooperation in successful commercialization of university inventions (“Incubator firm failure or graduation?” 1085). Lessons learned for my particular study include the success businesses in incubators can have when they collaborate with universities, especially to help license their products.

**What are the Economic Development Theories and Policies for Business Incubators?**

Economic developers ideally use a combination of “nuts and bolts” incubator strategies along with a variety of development theories when engaging in city economic development projects. For example, economic base theory (EBT) via endogenous and exogenous growth theories are typically used in economic development practices. Goals of endogenous policies’ are to promote growth from within the community while
exogenous growth aims to promote growth from external markets (Isserman, Andrew 174-177 and Feser, Edward 51). EBT divides the regional economy into two sectors, basic (businesses that are depend upon non-local businesses and factors) and non-basic (local companies depend on other local companies and factors) (Feser, Edward 52-55). This theory has its applications in regional economic development by attracting “a suitable proportion of industries whose products are in heavy demand from outside the region” (Feser, Edward 52). Through the “supply-side” creation of jobs and increases in income in a community, this is a common framework used to promote growth in former industrial cities (Markley, Deborah 277).

However, more common strategies for Gateway Cities typically focus on endogenous growth and neoclassical economic development theory. Promoting growth through local job creation and increased wages enhances the basic industry’s multiplier for goods and services thereby increasing local jobs and the consumption of goods and services in the market (Isserman, Andrew 182). Multiplier effects also generate positive spillovers into the local economy, such as contracting for services with local businesses, and more localized spending in general (Isserman, Andrew 182 and Feser, Edward 53). However, a problem with this theory is that it assumes constant returns to scale (or constant input and output resulting in constant growth) and doesn’t include government correction for market failures, such as explained in post-Keynesian demand-side public policies (Feser, Edward 130-133, 140-145).

The product cycle theory (PCT) is an endogenous economic development approach that can be used to focus on attracting and retaining new and small businesses in Gateway Cities. In the PCT, the first stage, or the innovation stage, can be enhanced
by trying to promote small start-ups in industries related to research and development (Feser, Edward 175-178). This is typically done by establishing an incubator in an area where a comparative advantage or value-added industry or technology exists (Lewis, David 7). This may be supported by already established links to universities, community colleges, and well-educated workers (Lewis, David 13-18).

When a business incubator tenant begins to mature, it becomes more stable and may be ready or forced to move out of the facility on its own. When this happens the local and regional economic development officials should make every effort to accommodate the growing business so that it remains in the region, otherwise the front-end investments are lost. Some business incubator facilities, such as the Springfield Business Incubator, are located in technology parks to aid in accommodating growing companies who wish to "stay local" (STCC Technology Park).

New growth theory (NGT) provides an example of an endogenous theory which builds upon earlier approaches, such as the PCT. Its goal is to create an environment which increases economies of scale (having a larger output compared to the same input thereby increasing growth over time) by promoting policies that enhance knowledge, technology, and innovation (Feser, Edward 130-131, 136-138 and Cortright, Joseph 2). NGT has been popular with the New Economy’s promotion of human capital, on-the-job training, and collaborative workforce development strategies (Feser, Edward 123-125, 132-135). NGT tends to focus on high-growth and high-return industries as seen in the following technology-related industries: engineering, biotechnology, nanotechnology, computer and information technology, and green companies (Lewis, David 1). The benefits of targeting these industries can further strengthen agglomeration economies,
local supplier networks, spillovers, positive externalities, and higher multiplier effects which benefit the regional economy (Feser, Edward 123-125, 132-135 and Lewis, David 21 and Cortright, Joseph 2).

Specific industries targeted by the region, city, and sometimes the business incubator can be selected by looking at industry clusters or the area’s biggest, largest growing, and top performing industries (Isserman, Andrew 183-187). Industry clusters are determined by studying interconnections of businesses and the balance of trade between similar inputs and outputs in the region (Isserman, Andrew 183-187 and Cortright, Joseph iv-v). For example, in the Lowell region, the largest employment sectors are education, health, and social services; manufacturing; and wholesale and retail trade (City of Lowell Website). The largest employers in the Springfield area are in metal working, insurance, chemical, paper, government, and health care facilities (City-Data.com, Springfield: Economy).

Having an adequate supply of labor and the particular skills of workers in the labor market are also important determinants of growth. If there is a mismatch between existing skills of unemployed members of a community and skills needed by a company or industry cluster, creating additional training and education programs is essential as well as some consideration in certain circumstances to wage-subsidies, public service employment, and other demand-side policies to increase jobs for the poor (Bartik, Timothy 208). As markets and technologies change, the incubator’s funding sources, offered services, and training programs need to change as well (Lewis, David 24-25). I feel this is especially true in Gateway Cities, where a once relatively large manufacturing base has created labor-supply skills mismatch. For example, Springfield’s typical
metalworkers may be ill-equipped to find employment in business incubator-enhanced firms in many knowledge-based economy sectors without substantial retraining.

Many scholars argue that businesses are engines of growth and innovation in the United States economy, David Birch possibly being the most well-known (Birch, David 194). Birch’s study of the relationship between enterprise size and job creation has been widely cited and debated, producing many heavily repeated claims such as that small companies are more entrepreneurial, tend to grow and decline rapidly, and adapt more readily (Birch, David 7). Although many of his numbers have been discredited primarily because Birch failed to mention deaths of these new establishments (among other things), this created a new public policy agenda for business incubators as an economic development strategy (Birch, David 194). Despite these debates over the specific percentages, it is widely acknowledged that small companies have the potential to eventually grow into larger companies and create more jobs and spending in the local economy. Small businesses have also been linked to regional innovation. “Small to mid-firms increases the level of entrepreneurial activity in a region” (Birch, David 194).

In order to draw businesses into cities, a variety of tax credits and abatement policies are used. For example, cities can grant property tax reductions or tax abatements to businesses to locate in the area (“Going for Growth”). Tax increment financing (TIFs), which uses future taxes expected based on a rise in property values to finance current redevelopment projects, are also a popular tool used to lure businesses into distressed cities and are currently used under the Deval Patrick’s administration (“Going for Growth”). An enterprise zone is a Massachusetts term used to combine a combination of
the above incentives to promote revitalization and business development in targeted areas
(“Going for Growth”).

Conclusion

Business incubators have great potential as an economic development strategy for
Massachusetts Gateway Cities. A business incubator can provide a mix of facilities,
services, and knowledge-sharing opportunities that can draw small businesses into these
cities to help them grow and prosper. A business incubator can also provide linkages
with state universities, community colleges, faculty, and tech transfer programs to further
leverage the assets of the region. This, used appropriately with other economic
development policies and theories, can help create focused areas of growth in
Massachusetts Gateway Cities.
CHAPTER 3
FEDERAL AND STATE POLICIES FOR BUSINESS INCUBATORS AND SMALL BUSINESSES

Federal and State policies can be very important to help shape the regional economic and business climate. The correct allocation of tax rates, credits, regulations, funding, and other regulations and laws can either hinder or strengthen small businesses.

This chapter begins by highlighting the state’s assets. It then discusses current strategies and challenges between federal and state small business and incubator policies. An introduction of policy terminology and strategies discussed by business incubator managers and people that I interviewed and/or surveyed in proceeding chapters was discussed. The chapter concludes by discussing some of the strengths and weaknesses of Gateway Cities in general.

What are some Assets of the Massachusetts Economy that Support Relationships with Business Incubators?

Massachusetts ranks near the top in the nation for the best universities, the most skilled workforce, and the finest technology and innovation. This seemingly makes it an ideal location for university-affiliated business incubators. In 2008, Massachusetts was the highest-ranked state in the country on the Milken Institute’s Science and Technology Index and on the Kaufman Foundation New Economy Index (Forman, Benjamin and Vidal, Samantha). This shows that technology, entrepreneurship, and business creation are flourishing in the Bay State.
What are Some Missing Linkages in State Policy that Do Not Support Business Incubators?

Despite these strong economic, workforce, and technology indicators in Massachusetts, business incubators have historically played a fairly limited role in the Commonwealth. According to MassInc, “Going back to 1991, no Bay State incubator has been recognized by the National Business Incubator Association, which confers several prestigious annual awards to the most successful US incubators” (Forman, Benjamin and Vidal, Samantha). This is perhaps because there has been little need to rely on incubators to build “entrepreneurial clusters” because there are so many strong research institutions and other resources within the Boston area (Forman, Benjamin and Vidal, Samantha). Also, the effectiveness of business incubators to create jobs and spur the economy is hard to measure and can be uncertain (Forman, Benjamin and Vidal, Samantha). However, given the right context and environment, “incubators can be effective in seeding entrepreneurial clusters in smaller regions given the right context” (Forman, Benjamin and Vidal, Samantha).

What is the State Doing to Redirect or Accentuate these Assets to or in Massachusetts’ Gateway Cities?

To reallocate more of the state’s funding to disadvantaged areas, such as Gateway Cities, Massachusetts currently funnels state funds into Economic Target Areas (ETA) and Economic Opportunity Areas (EOA). Criteria to meet ETAs were those cities and towns in Massachusetts that exhibit the greatest economic need, such as communities that are below the median household income or meet unemployment thresholds (Massachusetts Economic Target Areas and Economic Distressed Areas). EOAs are designated zones within cities and towns that meet certain criteria, such as blight and
plant/business closings, with additional focused tax breaks and advantages for new businesses (for an additional description on TIFs and Enterprise Zones, see Chapter 2). This policy became outdated when the majority of cities and towns in the Commonwealth met this criteria for “targeted” funding, spreading sources too thin to make a large impact (Schneider, John).

The Economic Development Incentive Program (EDIP) was amended in January 2010 to address the changing needs of the state and redirect more funds to Gateway Cities (Massachusetts Economic Target Areas and Economic Distressed Areas). Under this amendment, Gateway Cities are now eligible for Certified Expansion Projects and Manufacturing Retention Projects (Massachusetts Economic Target Areas and Economic Distressed Areas). Select businesses that wish to relocate to Gateway Cities may qualify for a 10% investment tax credit under the Certified Expansion Projects as long as they contribute to full-time job creation and have substantial sales outside the Commonwealth (Massachusetts Economic Target Areas and Economic Distressed Areas). Businesses that qualify under the Manufacturing Retention Projects have to create greater than 100 permanent manufacturing jobs in a Gateway City (Massachusetts Economic Target Areas and Economic Distressed Areas). Although these incentives seem promising to promote large industrial jobs, I don’t think these benefits can help small technology businesses relocate to Gateway Cities since they aren’t initially expected to create greater than 100 manufacturing jobs or pay for large capital costs since they tend to rent space or equipment. However, I think it may help small incubator spin-offs stay local when they “hatch” and outgrow their space.
Although focused tax strategies may be beneficial to Gateway Cities, more accountability and strategic policies could help target these areas more effectively, especially for small business and business incubator support. “Efforts to prioritize and pursue economic development more strategically could ensure taxpayer dollars are utilized effectively, particularly in Gateway Cities, where public support can help eliminate barriers, catalyzing new waves of private development.” (Forman, Benjamin and Vidal, Samantha). Also, I think that more direct investments for small businesses, such as guaranteed loans, capital grants and loans, or tax credits may support greater growth for small businesses in Gateway Cities.

**State and Federal Policies to Support Small Businesses and Business Incubators**

The state has policies geared to help small business owners. For example, Governor Patrick filed legislation in early 2010 to help small businesses hire new workers and to reduce the costs of doing business for small firms. “Taken as a whole, these business growth and job creation measures are predicted to create or retain 20,000 jobs, and save small businesses upwards of $400 million” (Commonwealth of Massachusetts).

The small business job creation tax credit established a $2,500 refundable tax credit for small business owners who hire new full-time Massachusetts employees during the 12-month period beginning on April 1, 2010 (Commonwealth of Massachusetts). Another bill recently enacted limited the amount that health care premiums can increase for small business owners (Commonwealth of Massachusetts). Unemployment insurance reform was also a technique to help small businesses survive.
Many workforce development grants and industry-specific grants are available to businesses in certain industry sectors. In Massachusetts, a Workforce Training Fund enables the government to match 50% of employee training which usually amounts to $3,000 per course per employee (Workforce Training Fund Overview). Types of training vary but may include classes that prepare students on the newest techniques or software such as an energy audit class or a Computer Aided Design (CAD) class (Workforce Training Fund Overview). Massachusetts also provides industry-specific funds through quasi-government organizations such as the Massachusetts Renewable Energy Trust. This organization provides funding to many renewable energy start-ups in the state and business incubator facilities in Gateway Cities (Massachusetts Renewable Energy Trust).

However, Massachusetts does not have incentives explicitly to support and evaluate business incubators. “While the governor’s regional economic development strategy offers an excellent framework for addressing regional disparities, it defines no role for incubators” (Forman, Benjamin and Vidal, Samantha).

What are Some Federal Policies to Support Small Businesses?

The Small Business Association (SBA) is a national organization that provides loans and grants, as well as services, to small businesses. In the SBA's loan program, up to $2,000,000 in low-interest-rate loans are available to most prospective businesses (US Small Business Administration). Additionally, there are a variety of other types of loans that are available for new businesses. Grants are generally available to a few select types of businesses or individuals. The most common grants awarded by the SBA generally include Small Business Innovation Research (SBIR) and Small Business Technology and Transfer (STTR) grants. Many SBIR grants are awarded with other federal agencies,
such as the National Oceanic and Atmospheric Administration (NOAA) or the National Science Foundation (NSF), for companies with areas of specialties (Mackenzie, Keith. Personal Interview. March 19, 2010). SBIR grants are available to fund early-stage private sector businesses whereas STTR grants are for university affiliated businesses to expand their research (US Small Business Administration).

The SBA also offers services for small businesses and many offer Small Business Development Centers (SBDC) in or next to business incubator facilities. The state SBA center is called the Massachusetts Small Business Development Center (MSBDC) which helps guide businesses with services and training seminars (Massachusetts Small Business Development Center). These services and MSBDCs will be discussed in greater detail in Chapter 5.

**What are Some Federal Policies to Support Business Incubators?**

Federal policies to support business incubators and small businesses have recently been enacted by policy makers. “President Obama’s FY 2010 budget proposal included $50 million for business incubation programs in distressed communities” (House Small Business Committee). Although national funding for business incubators initially provided 50% to 80% matching grants for “bricks and mortar” facility start-ups, this funding has recently become more adaptive (Business Incubator Promotion Act). In 2009 and 2010, the Business Incubator Promotion Act was enacted through the American Relief and Recovery Act (ARRA) to encourage new incubator startups not only by providing easier access to matching start-up funds, but by also providing grants for business incubator feasibility studies. It was also ratified to help business incubators
implement these plans by helping them become self-sustainable (Business Incubator Promotion Act).

Additionally, the federal government is trying to pass legislation for more funding to be allocated to “intangible costs” such as incubator services. The House Small Business Committee had a meeting on March 17, 2010 on “Business Incubators and Their Role in Job Creation”. Overall, this meeting discussed advantages and challenges to business incubation as well as emerging industries (House Small Business Committee). A main outcome of the meeting was to promote regional industry-specific incubators that were high growth and high job-creation industries (House Small Business Committee).

“One promising trend has been the emergence of incubators that are especially tailored to an industry located in their community… These industry-specific incubators allow new firms to tap into local knowledge and business networks that are already in place. By leveraging a town or city’s existing assets, these incubators can accelerate economic development -- and create local jobs” (House Small Business Committee).

**Case-Study: Ann Arbor USA, SPARK Business Accelerator**

Structuring and implementing the Gateway City Business Incubator model can be completed by looking at other states’ and region’s models. By studying Ann Arbor, Michigan’s SPARK Business Accelerator model, which covers three incubator facilities in southeast Michigan, we can determine areas of application for Massachusetts’ Gateway City business incubators. The business incubators are located in Ann Arbor, Ypsilanti, and Plymouth (between Ann Arbor and Detroit) and are composed of two general business facilities (called the SPARK Central Business Incubator and the SPARK East Business Incubator) and one wet laboratory (Michigan Life Sciences and Innovation
Center). They provide entrepreneurial education and training, consulting services, physical incubator facilities, funding and incentives, and business idea and development (Michigan Life Sciences and Innovation Center). The SPARK business accelerators particularly stand out from the Gateway Business Incubators because of their large amount of available funding, rapid ability to commercialize their products, high ability to generate revenue, cooperation between the University of Michigan and other local incubators and stakeholders, and their ability to perform job connection services and networking events (Ann Arbor, Michigan’s SPARK Business Accelerator and Finney, Michael).

The SPARK business accelerator provides loans and financial capital to help businesses grow. For example, micro accelerator loans help to support innovative, high-growth start-up companies in the area as they near commercial viability (Ann Arbor, Michigan’s SPARK Business Accelerator and Finney, Michael). This endowment was created with borrowed funds from a variety of sources which reduces risk to the lender (Ann Arbor, Michigan’s SPARK Business Accelerator and Finney, Michael). The Michigan Pre-Seed Capital Fund and seed funding is also available for initial business start-up costs as well as grants. For example, Michigan Strategic Fund (MSF) is dedicating up to $1.4 million to match federal funding opportunities for exceptional commercial opportunities in Michigan (Ann Arbor, Michigan’s SPARK Business Accelerator and Finney, Michael). The state also provides a job-training grant of nearly $1 million, matching dollars for SBIR/STTR projects, and the Michigan Initiative for Innovation and Entrepreneurship (MIIE) (Ann Arbor, Michigan’s SPARK Business Accelerator). The MIIE is a consortium of all fifteen Michigan Public Universities acting
together strategically to foster a new Michigan knowledge economy based on entrepreneurship and innovation (Ann Arbor, Michigan’s SPARK Business Accelerator). The Michigan Small Business & Technology Development Center (SBTDC) provides business consulting services and business plan services similar to the MSBDC (Ann Arbor, Michigan’s SPARK Business Accelerator).

The SPARK accelerator and the incentives above work to locate businesses within a “smart zone”. A “smart zone” is similar to an empowerment zone in Massachusetts and utilizes TIFs and other tax enhancement incentives (Ann Arbor, Michigan’s SPARK Business Accelerator). The Michigan Ann Arbor SPARK also sells equipment from large companies cheaply to small start-up companies or incubator facilities (Ann Arbor, Michigan’s SPARK Business Accelerator).

Many of these aspects of the SPARK business accelerator program can be used as a case-study for the Gateway City Incubator model in Massachusetts.

**Conclusion**

The once-thriving manufacturing-based economies in Gateway Cities and their transition to the New Economy have been difficult. The Boston Metropolitan Area has shown a disproportionate amount of economic prosperity and growth in the state compared to Gateway Cities. Although economic development policies and small business incubator subsidies have been useful, the state, regional, and local governments as well as business incubators need to keep reinventing themselves and keep up with recent policies to keep its strong state economic vitality.
Gateway Cities have much to offer for successful business incubation. Former mill buildings represent affordable space for start-ups and using such existing space promotes smart-growth principles (Forrant, Robert 209 and Schneider, John 17). Also, many Massachusetts Gateway Cities are on rail lines, have decent public transportation, and walk-able downtowns which can be an attraction for businesses to locate in Gateway Cities (Ansin, Robert 17). Because of the increase in the quality of life, many businesses and employees may want to locate in these cities and regions (Forrant, Robert 209 and Ansin, Robert 17). In addition many Gateway Cities now have an interesting blend of ethnic restaurants, art galleries and other cultural amenities, fantastic architecture, working waterfronfts, professional sports franchises, higher education institutions, and many exciting things to do (Ansin, Robert 17). Richard Henderson, Vice-President of Real Estate at MassDevelopment, stated in an interview by Architecture Boston regarding the hidden assets of Gateway Cities, “People are starting to ask how we can leverage the fantastic architecture, the great access, the amenities like rivers and waterfronfts, into being the next great places in the Commonwealth in which to live and work” (Ansin, Robert 18).

The socio-ethnic diversity of Gateway Cities can be an asset to promote growth. “Many have growing immigrant populations eager for jobs, as well as culturally and socially rich urban environments that can attract young workers and middle-class families” (Ansin, Robert 28). Although Gateway Cities try to market their brand to “young professionals and empty nesters”, they also are great places to start a family (Ansin, Robert 18).
Gateway Cities also provide affordable and attractive spaces for new businesses to grow. The rent and the cost of living in these cities are considerably less than in Boston, New York, and their immediate suburbs (Muro, Mark 5-10 and Ansin, Robert 19). For example, according to John Aubin, architect of Open Square in Holyoke, in an interview with Boston Architecture, “If you move a typical Boston business out to western Massachusetts or some of the other Gateway Cities, you’re automatically giving your staff a 30 percent raise because of the lower cost of living” (Ansin, Robert 20).

Another strategy of MassDevelopment is that they are trying to sponsor conferences and other events to “get people to come and kick the tires and see what there tremendous opportunity there is [in Gateway Cities]” (Ansin, Robert 19).

One of the largest advantages of locating a start-up business in a city is the presence of an interrelated network of similar businesses, an industry cluster. For the Harvard Business School’s Michael Porter inner-city businesses can utilize their potential linkages with other firms located in their area by becoming suppliers or co-vendors to each other (Harrison, Bennett 1). Potential linkages include selling goods to other local ethnic communities in the hospitality, health, finance, wholesale distribution, and entertainment industries (Harrison, Bennett 1). According to Harrison and Glasmeier, Porter also suggested that training programs should be planned around the region’s most important industry clusters (Harrison, Bennett 1). A particular strategy for Gateway Cities may include “industrial clusters that already drive, or are emerging within, the urban economy” (Harrison, Bennett 1).

Each Gateway City’s particular social, physical, and economic history is an important branding resource. Gateway Cities were home to many technologies and
manufacturing processes that helped stimulate the state’s and nation’s economies. “The Gateway Cities represent an industrial heritage that helped to make Massachusetts prosperous, but they also symbolize a legacy of opportunity-the chance that, through hard work and some luck, the America Dream is accessible” (Ansin, Robert 29).

Almost all Gateway Cities have public or private institutions of higher learning in or surrounding their cities which further helps businesses succeed. Community Colleges are great assets because they work directly with large employers to offer specific training needs. For example, “the win-win-win partnership forged between Springfield Technical Community College and the City of Springfield and the pre-eminent telecommunication companies of the world (Ansin, Robert 2). Also, promoting the Connecticut River Valley’s knowledge corridor is a great concept for marketing the region to businesses. This knowledge corridor, home to some of the best schools and the most talented students in the country, contains 26 colleges and universities with approximately 110,000 students (Ansin, Robert 20). This knowledge corridor has the Gateway Cities of Holyoke and Springfield at its center. “Students graduate and leave [this area] because there are no jobs. And yet I’ve talked to technology companies that love western Massachusetts because employees here tend to be more loyal-people like the atmosphere, the quality of life, the access to major cities and ski areas ” (Ansin, Robert 20).

Even with these pluses, Gateway Cities can be particularly difficult areas for business incubators to retain businesses as they grow out of this initial space. Gateway Cities vacated by large manufacturers over the last forty years fall prey to stereotypes associated with deindustrialization (Ansin, Robert 12). They are often viewed as spaces that contain deteriorating housing, decaying infrastructure, and badly prepared workers.
As a result, a regional approach to improving the city’s business climate may be more important to the long-term success of Gateway City’s business incubators.

Gateway Cities also may have a bad reputation which, in turn, spirals into decreased private sector investment and a loss of confidence in the community, despite business incubator success. For example, many Gateway Cities are perceived as being unsafe and having high crime when, in reality, this isn’t always the case (Forrant, Robert 207-208). However, many areas of these cities are dotted with vacant, boarded-up mill buildings, which further deter investment and give these places a feeling of abandonment (Forrant, Robert 207-208).

Failed public policy and inadequate financial planning are sometimes attributes of economies in Gateway Cities. A lower tax base tends to damper post-industrial cities because of the tendency to have high vacancy rates, increased costs of government services, and generally less business and property tax flow (Forrant, Robert 207-209 and Ansin, Robert 21). Many Gateway Cities lack public and private investment, which further dampens business networks and connections in the city (Ansin, Robert 21).

Because of less public and private investment, a lower tax base, and older infrastructure facilities, the infrastructure in Gateway Cities is sometimes old and needs updating (Ansin, Robert 12, 21). My experience with many Gateway Cities is that they have narrow and confusing roads and highway systems, which lead to bad connectivity and result in bad traffic. Other infrastructure such as buildings, roads, bridges, and sidewalks also tend to need updating in post-industrial cities (Ansin, Robert 12, 21). I think that some Gateway Cities have established bus, rail, and train or other public
transportation systems whereas other cities lack these resources. Sewer and water line updates as well as telephone and cable are also needed to attract new growth (as shown later in this study). Some cities also lack wifi and high-speed internet technology, which is very important for business attraction (as shown later in this study).

**Conclusion**

With all these assets and challenges of Gateway Cities, what drives these particular start-up companies to locate in a Gateway Incubator? Why do these businesses decide to stay and what are the forces to make them leave a Gateway City or a Gateway Region? Additionally, what are new opportunities for the business incubator, the Gateway City, or the Gateway Region?

This chapter leads into the methods section of my study, which determines why select businesses choose to locate in a business incubator in a Gateway Cites.
CHAPTER 4
METHODOLOGY

As mentioned above, small businesses weigh many variables when it comes to deciding business location. The regional and local assets, policies, and costs may be contributing factors to why businesses choose to locate in a Gateway City; however, business location may be based on weighing complicated attributes by the management of the business. As the main part of this study, this was analyzed by administering a survey and interviews to the business incubator. However, an overview of the local and regional assets of these business incubators and a summary of each Gateway City Business Incubator’s functions and economic impact was completed in the subsequent chapters of this study. Recommendations for the individual business incubators and for local, regional, and state policy as well as areas of future research are provided in the concluding chapter.

The first part of this study (Chapter 5) includes a socioeconomic analysis of four Massachusetts Gateway Cities and their three respective Gateway Regions: 1) Hampshire County and the City of Springfield 2) Middlesex County and the City of Lowell, and 3) Bristol County and the Cities of Fall River and New Bedford. It provides background information on each region (i.e. county) and city, including population and growth patterns, education attainment, median income, and poverty and unemployment rates. Counties were selected as the unit of regional analysis because it was the easiest boundary to use within the state and it the most consistent data available over time. Metropolitan Statistical Areas and New England County Metropolitan Areas (NECMA) are a good proxy to measure regions of business activity; however, their boundaries
change over time and spread into other states which make it difficult to determine regional growth rates within the state. Additionally, a regional industry study was completed to determine the region’s largest industries by employment, number of establishments, growth, wages earned, and most specialized industries (by location quotient). This section of the study utilizes publically available data collected from secondary sources, such as the US Census Bureau, the Bureau of Economic Analysis, and the Bureau of Labor Statistics.

For the industry analysis portion of this study, the following sectors were analyzed as targeted Gateway Incubator industries for this Gateway Incubator Model: Professional, scientific, and technical services (NAICS Code 54) and Manufacturing (NAICS Code 31-33). I selected these sectors because they are the largest sectors for knowledge job creation and growth, have the greatest amount of university-incubator collaborations, and are industries typically recruited as tenants in business incubators. These sectors are studied more closely by looking at 4-and-6-digit NAICS industries within these sector focuses. Specific industries were selected as potential targeted areas of state and regional economic development policy based on the comparative advantages of the state as a whole and each city/region with a Gateway Incubator.

The second part of this study (Chapter 6) includes case-studies of a business incubator in each of the selected Gateway Cities. These include the 1) Springfield Business Incubator (SBI) in Springfield, the 2) Massachusetts Medical Device Development Center (M2D2) in Lowell, the 3) Advanced Technology and Manufacturing Center (ATMC) in Fall River, and the 4) Quest Center in New Bedford. The purpose of these case studies is to determine the types of programs and services offered by each of
the incubators, and how they compliment the strengths and weaknesses of the regional economy as identified in the previous section. Because these incubators are partially subsidized by tax revenues, most of the data on their programs and services is publicly available from existing secondary sources, such as their websites and annual reports.

The third part of the study (Chapter 7) included conducting an interview with business incubator directors and administering an online survey to businesses affiliated with the business incubator. To understand the more qualitative and nuanced aspects and challenges facing incubators in Gateway Cities, I began by conducting in-person interviews with the director of each of the three case study business incubators. The directors were first contacted via telephone and asked if they would be willing to participate in an in-person interview of roughly one-hour in length. The recruitment script contains details about the study’s purpose and outcome, time to complete interview, contact names and information, voluntary conditions to participate in the interview, benefits, a statement of low-impact and low-risk, and confidentiality. In person interviews were conducted in private at the business incubator facility in April 2010 at a time and location that was convenient and comfortable for the interviewee.

Before completing the interview, an informed consent form, including a signature line and date, was provided to the director. The informed consent includes an overview, purpose, and outcome of the study, benefits, voluntary conditions to participate in the study, and a statement of low-impact and low-risk. Interview questions were open-ended and generally included questions regarding the assets of the incubator as well as future areas of opportunity for the incubator.
The third part to this study also included a web-based and voluntary survey of businesses that are current tenants of the four business incubator facilities. The purpose of this survey was to identify the types of opportunities and challenges facing small businesses in Gateway Cities, how the programs and services of the incubator supplement or substitute for regional assets, and what additional services might be needed to help future success of incubating tenants. Generally, the types of questions asked included: 1) Why businesses decided to locate in a business incubator in a Gateway City. 2) Some advantages and challenges to doing business in a Gateway City. 3) The business climate of the Gateway City 4) Additional services and facilities that businesses within the incubator would like to utilize in the future and 5) The factors companies find most important when deciding on a place to locate their business. It is worth emphasizing that the purpose of the survey is not to evaluate each specific incubator per se, but rather to understand, more generally, how incubators are and can be used as an economic development strategy within the Gateway City context.

As a matter of courtesy, I first obtained permission from each of the business incubator managers to survey their tenants under the strict provision that the incubator managers will not be allowed to see individual responses of tenants. However, both incubator managers and survey respondents will be provided with a copy of the final report of aggregated results, upon request. The contact information for businesses in the incubator is available through public sources.

Managers of businesses that were currently or formerly located within the incubator facility were sent a recruitment email that included some background on the study, a confidentiality statement, voluntary conditions to participate in the study, and a
link to access the web-based survey (via survey monkey). This email also clearly specified the potential benefits of the study to each respondent, a statement of low-impact and low-risk nature of the study, a statement which says that consent is implied if you decided to participate in the study, and that the individual results of the study will be strictly confidential and in no way will be shared with the management of the incubator or other officials.

A link was provided in the email to a survey in survey monkey. Paper copies were offered, if specifically requested by the participant. The web survey had a private password and all data was saved on a password-protected computer. Per the confidentiality statement, all responses were and will be kept strictly confidential and will not be shared with the managers of the incubator, other companies, non-profits, governmental entities, or be sold or used for marketing purposes. Individual responses will not be shared with the management of the incubator and the results will be pooled over multiple incubators so that the identity of individual businesses or people can’t be revealed from the results. Identifying information, such as respondent and company names, were only collected to confirm completion of the survey and will not be used in the analysis.

The conclusion (Chapter 8) discusses overall policy recommendations for the state, region, and locality as well as suggestions for the business incubator.

**Assumptions and Limitations**

There are a number of assumptions, limitations, and delimitations with this study. First of all, assumptions were made based on the responses of participants of the survey and interviews with select government and incubator-affiliated officials. The participants
represent a limited sample and not a complete representation of all businesses or people associated with the incubator. Also, it should be noted that contact information collected from public sources and companies responding to the survey generally were more established companies that had a positive relationship with the business incubator. This may skew some of the results in favor of the “successful” business spin-off’s opinions and may leave out many of the businesses that “failed to hatch”.

It should also be noted that this study is not measuring a business incubator’s success because it is difficult to compare indicators between incubators in different locations as well as different types of businesses. For example, comparing technology incubators to general business incubators is difficult because they both have very different revenues, needs, and location characteristics which make it difficult to measure and compare successes (or failures). Regional factors, politics, policies, and government investment between different Gateway Cities may make it difficult to compare Cities and incubators on an even platform so a detailed analysis of each regions and city’s political framework was not conducted as part of this study. A cost/benefit analysis or economic impact analysis is not going to be conducted as part of this study because it is hard to track down and measure government funds pumped into the business incubator. Lastly, many business incubators exaggerate success and hide failures as to attract new incubating businesses as well as state and federal funds, which further makes measurements difficult and burdensome.

Based on the time, length, and purposes of this study, there are existing limitations related to the smaller sample size of the survey, interviews, and case studies. The survey was administered to all current tenants and former tenants with readily
available and public information. It should be noted that some companies which were unsuccessful and dropped out of the incubator, lacked press or public attention, or were no longer in touch with the business incubator’s management may not have been sought out to participate in the survey because of the lack of available information. There is a limitation on the scope of work that includes focusing on strategies for leveraging assets of selected Gateway Cities to encourage successful business incubators. This includes a limited socioeconomic and industry analysis of selected Gateway Cities. All regulations, individual company profiles, and a complete industry, workforce, or market analysis were not explored as part of this study. Lastly, a definition of a business incubator in a Gateway City, called a “Gateway Incubator” model was provided for clarity and delimiting of the subject material in Chapter 2.

The following chapters provide a socioeconomic, demographic, and industry analysis of the state and its state’s Gateway Cities and Regions.
CHAPTER 5
SOCIOECONOMIC, DEMOGRAPHIC, AND INDUSTRY STUDY IN GATEWAY REGIONS

As discussed in previous chapters, the socioeconomic characteristics of a region are important for shaping the business climate of the Gateway Incubator. The population and growth patterns, education attainment, median income, poverty and unemployment rates, and industries in the region demonstrate its unique assets from other regions. Therefore, a combined socioeconomic and industry study for each Gateway City and Gateway Region was conducted to determine the region’s largest industries by employment, number of establishments, growth, wages earned, and most specialized industries. A map of the Gateway Cities and Regions as part of this study is provided below.

Figure 5.1 – Gateway Cities and Regions in Massachusetts
Table 5.1 2008 Demographics

<table>
<thead>
<tr>
<th></th>
<th>Nation</th>
<th>State</th>
<th>MSA</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>United States</td>
<td>Massachusetts</td>
<td>Boston</td>
<td>Hampden</td>
</tr>
<tr>
<td>Population</td>
<td>304,059,724</td>
<td>6,543,595</td>
<td>4,522,858</td>
<td>469,204</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$52,029</td>
<td>$65,401</td>
<td>$71,361</td>
<td>$48,583</td>
</tr>
<tr>
<td>Median Age</td>
<td>36.9</td>
<td>38.7</td>
<td>38.6</td>
<td>37.9</td>
</tr>
<tr>
<td>Residents Living Below Poverty</td>
<td>13%</td>
<td>10%</td>
<td>9%</td>
<td>15%</td>
</tr>
</tbody>
</table>

US Census Bureau, American Factfinder, American Community Survey, 2008.  

State Socioeconomic Profile

Overall, Massachusetts is a great place to start a business and live. The state boasts a high household income of $65,401, which is about $13,000 higher than the national median income (US Census Bureau, American Factfinder, American Community Survey, 2008). High incomes generally reflect a workforce that is well-educated or highly-skilled. Education attainment in the state is also higher than average, with 22% of the workforce having a bachelor’s degree or higher and 16% holding a graduate degree or higher (US Census Bureau, American Factfinder, American Community Survey, 2008). The state’s poverty rate at 10% is lower than the nation and the most recent unemployment rates show that Massachusetts is not as worse off in the economic downturn as other states and regions (US Census Bureau, American Factfinder,
Figure 5.2 - Median Household Income Benchmarked to US Median Income

Although Massachusetts is doing better than the aggregate national economy, most of the state’s success is skewed because of the economic engine of the Boston Metropolitan Area. As stated in the Gateway Cities Initiative, other parts of the state, including the four Gateway Cities of Springfield, Lowell, Fall River, and New Bedford are further lagging behind in economic indicators (such as median household income) compared to Boston, the State, and even those counties that these Gateway Cities reside in. Additionally, it should be noted that the data from the Gateway City Region of Middlesex County is skewed compared to the Lowell City area because most of the region is located in the Boston Metropolitan Area. This may give the impression that
Lowell’s region is better-off than it actually is.

### Table 5.2 Population Growth, 1970 to 2000

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>205,052,174</td>
<td>227,224,681</td>
<td>248,709,873</td>
<td>281,421,906</td>
<td>37.24%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>5,689,170</td>
<td>5,737,037</td>
<td>6,016,425</td>
<td>6,349,097</td>
<td>11.60%</td>
</tr>
<tr>
<td>Hampden</td>
<td>459,050</td>
<td>443,018</td>
<td>456,310</td>
<td>456,228</td>
<td>-0.61%</td>
</tr>
<tr>
<td>Middlesex</td>
<td>1,398,397</td>
<td>1,367,034</td>
<td>1,398,468</td>
<td>1,465,396</td>
<td>4.79%</td>
</tr>
<tr>
<td>Bristol</td>
<td>444,301</td>
<td>474,641</td>
<td>506,325</td>
<td>534,678</td>
<td>20.34%</td>
</tr>
</tbody>
</table>


Overall, the population of the Gateway Counties has grown since 1970.

However, the Gateway Counties’ population grew at a slower rate than the nation and the state. Although Hampden County appears to have negative population growth historically, it should be noted there was a large decline in 1980 followed by additional growth in 1990 until current.

### Figure 5.3 -Population Growth Trends in US, State, and Regions, 2000-2009

Additionally, recent population trends in Gateway Counties generally follow the same trend as the state since 2000. The Gateway Counties experienced less growth than
the nation starting in about 2000 until about 2006, when growth rates steadily started to increase greater than the nation’s. This shows a consistent influx of population growth in Gateway Counties and the State of Massachusetts as a whole.

**Figure 5.4 - Percent Change in Gateway Cities and Counties Population, 2002-2008**

![Bar chart showing percent change in Gateway Counties and Cities population, 2002-2008.]

Although the Gateway Counties in the state consistently grew in population between 2002 and 2008, most of the Gateway Cities declined. Springfield appeared to gain population although it should be noted that Springfield successfully challenged their population in 2008, increasing prior population counts by including the cities group quarter’s counts (such as universities, nursing homes, and jails) (US Census Bureau, Population Estimates Program, 2008). New Bedford declined the most by nearly 2,800 people followed by Fall River (1,594), and Lowell (1,357) (US Census Bureau, American Factfinder, Population Estimates, 2008). Between 2000 and 2008, all four Gateway Cities generally experienced similar cyclic population trends. All the Gateway Cities except Lowell had improving growth rates prior to 2002. In 2005, all four Gateway Cities generally began to increase in population growth rates. Overall, the trend in the
last few years shows that the population in Gateway Cities and Counties is rising, and shows promise to market the region as a gateway for small businesses and growth.

**Figure 5.5 - Population Growth Trends in Gateway Cities, 2000-2008**


### State Industry Profile

Between 2001 and 2008, the total number of jobs increased by 3.8% in Massachusetts (Regional Economic Information System, Bureau of Economic Analysis, 2001-2008). The sectors with the largest job growth included real estate rental and leasing; arts, entertainment, and recreation; and health care systems and social assistance. Manufacturing and information technology and services had the largest share of job loss. However, the targeted Gateway Incubator sector of professional, scientific, and technical services continues to be strong with over 10% growth between 2001 and 2008 (Regional Economic Information System, Bureau of Economic Analysis, 2001-2008).
As part of this study, potential strategies for the “Gateway City Business Incubator” include focusing on the sectors of manufacturing and professional, scientific, and technical services in Massachusetts. These are the sectors that business incubators typically target as their tenants. Additionally, these sectors have advantages in many Gateway Cities because of their manufacturing past and present as well as their associations with local universities and community colleges. These sectors were more closely analyzed by using the US Census Bureau’s County Business Patterns’ data to determine the top private industry sectors for potential state-wide incubator focus. The largest industries in the state (by 4-digit NAICS) in 2007 by total number of employment
include: printing and related support activities; machine shops and threaded product
manufacturing; legal services; and management, scientific, and technology consult
services (US Census Bureau, County Business Patterns, 2007). The industries with the
largest number of full-time employees are in electronic instrument manufacturing, other
manufacturing, and computer systems design and related services (US Census Bureau,
County Business Patterns, 2007). The largest share of sectors in the state’s annual
payroll are in pharmaceutical and medicine manufacturing; electronic instrument
manufacturing; and scientific research and development services (US Census Bureau,
County Business Patterns, 2007). The summary table of top industries is provided in
Appendix B.

Some of the larger, more-specialized industries in the state (by 6-digit NAICS) by
share\(^2\) include: search, detection, and navigation instruments; all other plastics product
manufacturing; surgical and medical instrument manufacturing; custom computer
programming services; engineering services; and R & D in the physical, engineering, &
life sciences (US Census Bureau, American Community Survey, County Business
Patterns, 2007)\(^3\). A complete list of recommended industries for the state’s Gateway City
Business Incubator model is provided in Appendix B. A more focused regional
recruitment strategy for the Gateway City Business Incubator model is described in each
region’s socioeconomic and industry study, as described below.

\(^2\) By total number of establishments, total number of full-time employees, and total
annual payroll

\(^3\) It should be noted that County Business Patterns data does not include
government or military employees. County Business Patterns data generally gives a
smaller estimation than other sources, such as the Bureau of Labor Statistics Quarterly
Census of Employment and Wages (QCEW) or the Bureau of Economic Analysis’s
Regional Employment Information Systems (REIS). However, the level of detail
provided by County Business Patterns was important for this analysis.
Hampden County and the City of Springfield

Regional and Local Socioeconomic Profile

The city of Springfield is located in the middle of Hampden County in western Massachusetts and had a population of 155,521 people in 2008 (US Census Bureau, Annual Population Estimates, 2008). Springfield is the third largest city in Massachusetts whereas Hampden County is one of the smallest counties in Massachusetts with a population of 469,204 in 2008 (US Census Bureau, Annual Population Estimates, 2008). Springfield is also part of the Springfield Metropolitan Area, which encompasses both western Massachusetts and northwestern Connecticut. Springfield is located in the “Knowledge Corridor” which spans along Route 91 and the Connecticut River Valley from Hartford to Greenfield. Springfield has an Amtrak that connects the city to New York City through New Haven, Connecticut and may have future connections with Greenfield, Worcester, and even Boston (The Economic Development Council of Western Massachusetts, 2008).
Despite Springfield’s general population decline since 2000, the population has started to increase slightly in 2007 (US Census Bureau, Annual Population Estimates, 2008). This is mostly due to redistribution of the population counts due to group quarter\(^4\) inclusion based on challenges for the estimate’s population counts\(^5\). Also, the regional population in Hampden County has been growing steadily since 1980 (US Census Bureau, Annual Population Estimates, 2008). This shows that there is a lot of growth opportunity for the city and region as a whole to support small business start-ups.

\(^4\) “Group Quarters” are a “place where people live or stay, in a group living arrangement that is owned or managed by an entity or organization providing housing and/or services for the residents” (American Community Survey/Puerto Rico Community Survey Group Quarters Definitions, 2008).

\(^5\) “A state or local government can request information from the Census Bureau about how to challenge its population estimate and the components used to derive the population estimate for its jurisdiction for the most recent year” (US Census Bureau, Challenge Program and Results, 2008).
The demographics of the Hampden County region and City of Springfield area are diverse. The city of Springfield has a high proportion of people of Black/African-American and Hispanic/Latino decent, much larger than the region, state, and nation. This is also seen in the regional statistics, which show a higher proportion of people of Hispanic/Latino decent living in the region compared to the state and nation. However, the primary race in Hampden County (and the City of Springfield) is people who consider themselves white. These statistics show a lot of opportunity for minority populations to start a business in service-related industries in and around the City of Springfield.

The median age of the city’s inhabitants is about 32 years old, compared to the state’s median age of 38 years old, which shows a demographically larger cohort of a younger population (US Census Bureau, American Factfinder, 2008). This is a good reason to market business incubators in this region to a young, talented workforce with a state-supported university or community college.
Hampden County’s median household income is $48,583, which is $29,000 less than the United State’s household income and $17,000 less than the state’s income (US Census Bureau, American Factfinder, 2008). Springfield’s household income is even less than the county’s at about $37,000 (US Census Bureau, American Factfinder, 2008). The lower household salaries can be an advantage for new start-up companies or companies looking to move to the area because their business costs are lower in Gateway Cities than in the region, state, and nation.

**Figure 5.9 - Hampden County Total Education Attainment, 2008**

In Hampden County, eight percent of the population has a graduate or professional degree and 23 percent have a bachelor’s degree or higher (US Census Bureau, American Factfinder, 2008). This is less than the state and slightly less than the county averages, but is still a strong indicator for an educated and talented workforce.
Fifteen percent of inhabitants in the region live in poverty compared to twenty-seven percent in the city (US Census Bureau, American Factfinder, 2008). The rate of unemployment in February 2009 is at 14.5% in the city, 12% in the region, and 10% in the state (Bureau of Labor Statistics, LAUS, Feb 2010). This shows an additional opportunity to increase education attainment and skills training in the city and region, which in turn can help spur hiring local employees, decrease the poverty and unemployment rate, and create a more prosperous and balanced economy.

**Regional Industry Analysis**

Between 2001 and 2008, the total number of jobs in Hampden County increased by 0.43%, which is significantly less than the total job growth in the state (Regional Economic Information System, Bureau of Economic Analysis, 2001-2008). In 2008, the largest sectors in the region were health care and social assistance, government, and retail trade. The sectors with the largest job growth included real estate rental and leasing; education, arts, and entertainment; and recreation management, farm employment, and manufacturing had the largest share of job loss. The Gateway City Business Incubator-focused sectors of professional, scientific, and technical services grew by nearly 13% in Hampden County, which is growing at a faster rate than the state. It should also be noted that the sectors of educational services; arts, entertainment, and recreation; and health care and social assistance are other areas of opportunity for the region and can help improve regional economic characteristics as stated above.
The Gateway City Business Incubator strategy as a whole focuses on the sectors of manufacturing and professional, scientific, and technical services in the region. These sectors were closely analyzed by utilizing the US Census Bureau’s County Business Patterns’ data to determine the top private industry sectors for a potential state-wide incubator focus. The largest industries in the region (by 4 and 6-digit NAICS) in 2007 by the total number of establishments in manufacturing are: machine shops, commercial lithographic printing, and all other plastics product manufacturing (US Census Bureau, County Business Patterns, 2007). The largest industries by the total number of establishments in services are offices of lawyers, certified public accountants, and tax preparation services (US Census Bureau, County Business Patterns, 2007). These service industries are typical of every regional economy and generally have similar trends in other state’s regions (Regional Economic Information System, Bureau of Economic ...

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6 By total number of establishments, total number of full-time employees, and total annual payroll.
Analysis, 2001-2008 and US Census Bureau, County Business Patterns, 2007). The industries with the largest number of full-time employees in the manufacturing and services sectors include machine shops; game, toy, and children's vehicle manufacturing; and all other plastics product manufacturing as well as offices of lawyers, engineering services, and veterinary services (US Census Bureau, County Business Patterns, 2007)\(^7\). These detailed tables are provided in Appendix B.

Additionally, the Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) was analyzed (by using the 4-digit NAICS code) to determine economic and growth factors for the above selected industries that had a regional comparative advantage. This analysis determined that many of these industries selected for the Regional Gateway Incubator strategy were decreasing between 2002 and 2008 by the number of employees, number of establishments, and average annual wages. As shown above, although these industries still have a large share of establishments and jobs in the regional economy, they are considered underperforming. These underperforming industries are doll, toy, and game manufacturing (NAICS 33993), printing (NAICS 3231), and plastics product manufacturing (NAICS 3261). However, the industries of coating, engraving, and heat treating metals (NAICS 3328) and medical equipment and supplies (NAICS 3391) show strong economic indicators overall for continued growth such as a general increase in employment, total wages, and real wages. This analysis is provided in Appendix B.

\(^7\) It should be noted that County Business Patterns data does not include government or military employees. County Business Patterns data generally gives a smaller estimation than other sources, such as the Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) or the Bureau of Economic Analysis’s Regional Employment Information Systems (REIS). However, the level of detail provided by County Business Patterns was an important part of this analysis.
Location quotients were calculated through the Bureau of Labor Statistics’ QCEW website to determine the most regionally specialized industries. Location quotients determine industry concentration in a county compared to the nation as a whole, creating a regional comparative advantage for specific industries. Therefore, a higher location quotient determines a higher concentration of an industry in a region compared to the nation. According to the Bureau of Labor Statistics, a location quotient is the “ratio of analysis-industry employment in the analysis area to base-industry employment in the analysis area divided by the ratio of analysis-industry employment in the base area to base-industry employment in the base area” (Bureau of Labor Statistics, QCEW, Location Quotient Calculator, 2008).

In Hampden County, some of the most specialized Gateway Incubator industries (by 4 or 6 digit NAICS depending upon information disclosure) include surgical and medical instrument manufacturing 3.71 (NAICS 339112), machine shops and threaded product manufacturing 3.54 (NAICS 3327), plastics product manufacturing 0.55 (NAICS 3261), medical equipment and supplies manufacturing 1.64 (NAICS 3391), and commercial lithographic printing 1.46 (NAICS 323110) (Bureau of Labor Statistics, QCEW, Location Quotient Calculator, 2008).

Middlesex County and the City of Lowell

Regional and Local Socioeconomic Profile

The city of Lowell had a population of 103,175 people in 2008 and is located in the middle of Middlesex County in northeastern Massachusetts (US Census Bureau, Annual Population Estimates, 2008). Lowell is the fifth largest city in the state by
population and Middlesex County is one of the largest counties in Massachusetts with a population of 1,487,636 in 2008 (US Census Bureau, Annual Population Estimates, 2008). Lowell is located in the Boston Metropolitan Area, which encompasses both Massachusetts and southern New Hampshire. The City of Lowell is located off route 495 and route three via the Lowell Connector and also is located along the Boston commuter line.

**Figure 5.11 - Population Growth, 2000-2009**

Although Lowell’s population declined between 2000 and 2006, the population started to rebound and grow considerably after 2006. The regional population in Middlesex County also showed a similar growth pattern to Lowell and started to grow in 2005. The past growth spurt shows that there is a lot of future growth opportunity for the city and region to support small business start-ups.
The demographics of Lowell are more diverse than the Middlesex region. Lowell has a high population of Asians, which is much greater than the region, state, and country. Lowell also has a relatively high Black/African American population and Hispanic/Latino population, which is close to the share of the nation. Middlesex County also has a high percentage of Asians, but a lower share of Black/African American and Hispanic/Latino population compared to the state and nation. The largest race in Middlesex County is white. Overall, this shows a lot of opportunity for minority populations to start a business in a variety of industries.

The median age of the city inhabitants is about 35 years old, compared to the state’s median age of 38 years old, which shows a large younger population (US Census Bureau, American Factfinder, 2008). This is a good reason to market business incubators to a young, talented workforce in a region with a state-supported university or community college such as UMass Lowell.
Middlesex County’s median household income is $78,202, which is $26,173 greater than the US household income and $12,801 greater than the state’s income (US Census Bureau, American Factfinder, 2008). Lowell’s household income is slightly less than the nation at about $53,250 (US Census Bureau, American Factfinder, 2008). The higher salaries are skewed compared to the other regions in the state because Middlesex County is in the Boston Metropolitan Area. Eight percent of inhabitants in the region live in poverty compared to sixteen percent in the city (US Census Bureau, American Factfinder, 2008). The rate of unemployment in February 2009 was 8% in the region, 12% in the city, and 10% in the state (Bureau of Labor Statistics, LAUS, Feb 2010). This shows an opportunity for the outer region of Middlesex County, Lowell included, to continue to grow by increasing their talented workforce and salaries by attracting business start-ups, thereby decreasing unemployment and poverty rates.

Figure 5.13 - Middlesex County Total Education Attainment, 2008

In Middlesex County, 24 percent of the population has a graduate or professional degree and 49 percent have a bachelor’s degree or higher (US Census Bureau, American
Factfinder, 2008). This is greater than the state and national averages and is a strong indicator for an educated and talented workforce. Additionally, this creates opportunities for other workers in the county to move to and work in Lowell.

**Regional Industry Analysis**

Between 2001 and 2008, the total number of jobs increased by about 2.2% in Middlesex County, which is growing at a slightly slower rate than the state (Regional Economic Information System, Bureau of Economic Analysis, 2001-2008). In 2008, the largest sectors in the region were professional, scientific, and technical services; health care and social assistance, and government. The sectors with the largest job growth were real estate rental and leasing; forestry and fishing; mining; and arts, entertainment, and recreation. Manufacturing, information, and farm employment had the largest percent job loss. The Gateway City Business Incubator sector of professional, scientific, and technical services grew by nearly 10%, which is slightly less than the growth of this sector in the state.
The largest industry in the region (by 4 and 6-digit NAICS) in 2007 by the total number of establishments in manufacturing includes commercial lithographic printing (US Census Bureau, County Business Patterns, 2007). The largest number of full-time employees in manufacturing is in pharmaceutical preparation manufacturing and all other plastics product manufacturing. Pharmaceutical preparation manufacturing had the largest share of the total annual payroll in this sector.

The largest industries by the total number of establishments in the professional, scientific, and technical services (besides the typical regional service industries) include custom computer programming services. The largest number of full-time employees in this sector is R & D in the physical, engineering, & life sciences; engineering services; custom computer programming services; and computer systems design services.
Additionally, these industries have some of the largest shares of total annual payroll in this sector. These detailed tables are provided in Appendix B.

Additionally, the Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) was analyzed (by using the top industries by 4-digit and 6-digit NAICS code) to determine different economic and growth factors for the above selected industries. This analysis determined that most of these industries were increasing between 2002 and 2008 by the number of employees, number of establishments, and average non-adjusted wages (Source: Bureau of Labor Statistics, QCEW, Annual Averages, 2002-2008). The industries showing the strongest growth overall and therefore are the most promising in this region for a Gateway Incubator are scientific research and development services/R & D in the physical, engineering, & life sciences, pharmaceutical and medicine manufacturing/pharmaceutical preparation manufacturing (NAICS 3254/325412), plastics product manufacturing/all other plastics product manufacturing (NAICS 3261/326199), and computer systems design and related services/custom computer programming services (NAICS 5415 /541511) (Bureau of Labor Statistics, QCEW, Annual Averages, 2002-2008).

Some of these industries selected for the Regional Gateway Incubator were decreasing between 2002 and 2008 by the number of employees, number of establishments, and average wages (Bureau of Labor Statistics, QCEW, Annual Averages, 2002-2008). These underperforming industries include: printing/commercial lithographic printing (NAICS 3231/323110) and computer systems design services (NAICS 541512). However, it should be noted that these industries still contain a large
proportion of the region’s employment. This complete analysis is provided in Appendix B.

Location quotients were calculated through the Bureau of Labor Statistics’ QCEW website to determine industry concentration in a county compared to the nation as a whole. In Middlesex County, some of the highest location quotients for Gateway Incubator industries (by 4 or 6 digit NAICS depending upon information disclosure) included the following: scientific research and development services 7.08 and 7.21 (NAICS 5417 and 54171), custom computer programming services 3.86 (NAICS 541511), computer systems design services 3.2 (NAICS 541512), pharmaceutical preparation manufacturing 3.1 (NAICS 325412), engineering services 2.03 (NAICS 541330), surgical and medical instrument manufacturing 1.92 (NAICS 339112), plastics product manufacturing 1.86 (NAICS 3261), other communication and energy wire manufacturing 1.32 (NAICS 335929), medical equipment and supplies manufacturing 1.31 (NAICS 3391), machine shops and threaded product manufacturing 1.06 (NAICS 3327), and commercial lithographic printing 1.04 (NAICS 323110) (Bureau of Labor Statistics, QCEW, Location Quotient Calculator, 2008).

**Bristol County and the Cities of Fall River and New Bedford**

**Regional and Local Socioeconomic Profile**

The city of Fall River and New Bedford have a population of 90,782 and 91,055 people in 2009, making them the eighth and seventh largest cities in the state by population, respectively (US Census Bureau, Annual Population Estimates, 2008). Both cities are located in Bristol County in southeastern Massachusetts. Bristol County is one

Fall River and New Bedford are part of the Providence Metropolitan Area, which encompass both Rhode Island and Massachusetts. The region markets itself as SouthCoast, which encompasses the south coast of Massachusetts but also extends to Cape Cod and Rhode Island. The city of Fall River is located off route 195 and 24 and New Bedford is located off route 195 and 140. Both cities have future plans to connect to the Boston commuter rail, which will expand their regions into the Boston market and will have additional growth impacts on the city and the region (South Coast Rail Line, 2010).
Figure 5.15 - Population Growth, 2000-2009

Despite Fall River’s and New Bedford’s general population decline since 2002, both cities’ populations have started to increase slightly since 2008. Also, the regional population in Bristol County has been growing since 2000. This shows that there is a lot of growth opportunity for the city and region economically to support small business start-ups.
The demographics of the region and its cities are generally less diverse than the state and the nation. Fall River’s and the county’s dominant race is of white decent, which outpaces the share in the state and the nation. In Fall River, there is also a small population of Asians that is close to the share in the state and the nation. However, the City of New Bedford is more diverse than its neighbors. The City of New Bedford has a high Hispanic and Latino population as well as some other race alone, which is higher than the region, state, and nation. This shows some opportunity for minority populations to start a business in a variety of industries, especially in the New Bedford area.

The median age of both cities’ inhabitants is about 37 years old, compared to the state’s median age of 38 years old, which shows a slightly younger population in these Gateway Cities (US Census Bureau, American Factfinder, 2008). This is a good reason
to market business incubators to a young, talented workforce in a region with a state-supported university or community college, such as UMass Dartmouth.

**Figure 5.17 -Bristol County Total Education Attainment, 2008**

Bristol County’s median household income is $57,000, which is about $5,000 greater than the US household income and $8,400 greater than the state’s income (US Census Bureau, American Factfinder, 2008). Fall River’s and New Bedford’s household incomes are significantly less than the nation and the state at $35,161 and $38,350, respectively (US Census Bureau, American Factfinder, 2008). Twelve percent of inhabitants in the region live in poverty compared to 20 and 23 percent in the cities (US Census Bureau, American Factfinder, 2008). The rate of unemployment in February 2009 was at 13.5% in the region, 18% in the city, and 10% in the state (Bureau of Labor Statistics, LAUS, Feb 2010). This shows an opportunity in these cities and regions to accommodate exterior growth by attracting new businesses, thereby decreasing
unemployment, raising the median household income, and improving the economy as a whole.

In Bristol County, seven percent of the population has a graduate or professional degree and 24 percent have a bachelor’s degree or higher (US Census Bureau, American Factfinder, 2008). This is slightly less than the nation and significantly less than the entire state. Additionally, this creates opportunities to focus on additional education attainment and training in this region, which can improve the economy and the business climate.

**Regional Industry Analysis**

Between 2001 and 2008, the total number of jobs increased by about 3.1% in Bristol County which grew at a slightly slower rate than the state (Regional Economic Information System, Bureau of Economic Analysis, 2001-2008). In 2008, the largest sectors in the region were retail trade, health care and social assistance, and manufacturing (Regional Economic Information System, Bureau of Economic Analysis, 2001-2008). The sectors with the largest job growth were real estate rental and leasing; management, and educational services. Manufacturing, mining, and farm employment had the largest percent job loss. The Gateway Incubator focused sector of professional, scientific, and technical services grew by nearly 11% (Regional Economic Information System, Bureau of Economic Analysis, 2001-2008).
As indicated earlier in this chapter, the sectors of manufacturing and professional, scientific, and technical services in the region were more closely analyzed by utilizing the US Census Bureau’s County Business Patterns’ data to determine the top private industry sectors for potential state and regional Gateway Incubator. The largest industries in the region (by 4 and 6-digit NAICS) in 2007 by the total number of establishments in manufacturing include machine shops (US Census Bureau, County Business Patterns, 2007). The largest industries in manufacturing by employment are other communication and energy wire manufacturing and fresh and frozen seafood processing which are also the two largest industries on the annual payroll in this sector (US Census Bureau, County Business Patterns, 2007). Other than the typical regional services industries such as lawyers, accountants, and tax preparers, the largest industries of focus (by establishments, employment, and annual payroll) include R & D in the physical, engineering, & life
sciences and custom computer programming services (US Census Bureau, County Business Patterns, 2007). These detailed tables are provided in Appendix B.

Additionally, the Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) was analyzed (by using the top industries by 4-digit and 6-digit NAICS code) to determine economic and growth factors for the above selected industries. This analysis determined that many of these industries selected for the Gateway City Business Incubator model were increasing between 2002 and 2008 by the number of employees, number of establishments, and average wages (unadjusted) (Bureau of Labor Statistics, QCEW, Annual Averages, 2002-2008). Computer systems design and related services/custom computer programming services (NAICS 5415/541511) showed all-around large growth between 2002 to 2008 and scientific research and development services also had consistent economic indicators (NAICS 5417 used; data for NAICS 541710 was mostly disclosed) (Bureau of Labor Statistics, QCEW, Annual Averages, 2002-2008). Although not a good direct fit for many business incubators, seafood product preparation and packaging is also an all-around large growth industry (NAICS 3117 was used because there was not enough consistent data for NAICS 311712) (Bureau of Labor Statistics, QCEW, Annual Averages, 2002-2008).

One of the underperforming industries between 2002 and 2008 was machine shops (NAICS 3327/332710) (Bureau of Labor Statistics, QCEW, and Annual Averages, 2002-2008). Machine shops’ overall total employment and total number of establishments decreased in this time period, although wages remained strong. However, it should be noted that this industry still contains a good proportion of the region’s employment. This complete industry analysis is provided in Appendix B.
Location quotients were calculated through the Bureau of Labor Statistics’ QCEW website to determine industry concentration in a county compared to the nation as a whole. In Bristol County, some of the highest location quotients for Gateway Incubator industries (by 4 or 6 digit NAICS depending upon information disclosure) include: jewelry, except costume, manufacturing 24.21 (NAICS 339911); seafood product preparation and packaging 22.32 (NAICS 3117); surgical and medical instrument manufacturing 7.07 (NAICS 339112), commercial lithographic printing 1.13 (NAICS 323110), scientific research and development services 1.02 (NAICS 5417), plastics product manufacturing 0.65 (NAICS 3261), and machine shops and threaded product mfg. 0.95 (NAICS 3327) (Bureau of Labor Statistics, QCEW, Location Quotient Calculator, 2008).

Conclusion

Overall, the state has historically shown stable population and solid economic growth. The state has a high median income, college and graduate school education attainment, and low poverty rate compared to the country. It has shown a 4% increase in the total number of jobs between 2001 and 2008. These indicators demonstrate that the state is strong economically and can help foster new business growth, retention, and recruitment.

Since 2001, the state’s manufacturing sector steadily lost jobs but still retained a large portion of the state’s jobs in 2008. However, the sector of professional, scientific, and technical services showed a 10 percent growth since 2001. This shows an opportunity for the state to support the sectors of manufacturing and professional, scientific, and technical services to implement a statewide Gateway City Incubator.
policy. It also provides an opportunity to focus on select industries with a state or regional comparative advantage. Areas recommended for state Gateway City incubator focus are: search, detection, and navigation instruments; all other plastics product manufacturing; surgical and medical instrument manufacturing; custom computer programming services; engineering services; and R & D in the physical, engineering, & life sciences. Regional and local areas of recommended business incubator focus are provided in the following paragraphs.

The population growth in Gateway Counties grew slightly slower than the state and the Gateway cities have declined in population historically. However, it should be noted that most Gateway Cities have started to increase in population since 2007. This shows promise for the future growth of Gateway Cities.

Between 2001 and 2008, the total number of jobs in Hampden County increased slightly. However, the Gateway City Business Incubator-focused sector of professional, scientific, and technical services is growing at a faster rate than the state. This shows promise for the region’s business climate. It also shows areas of opportunity for the Springfield Business Incubator to focus on the following industries: machine shops/threaded product manufacturing; game, toy, and children's vehicle manufacturing; plastics product manufacturing/all other plastics product manufacturing; offices of lawyers; engineering services; veterinary services; coating, engraving, and heat treating metals; medical equipment and supplies/surgical and medical instrument manufacturing, and commercial lithographic printing.

Between 2001 and 2008, the total number of jobs increased in Middlesex County and professional, scientific, and technical services was the sector with the largest growth.
This indicates that the region has a strong and growing business climate. The recommended areas of opportunity for Middlesex County and the M2D2 include the following industries: scientific research and development services/R & D in the physical, engineering, & life sciences; pharmaceutical and medicine manufacturing/pharmaceutical preparation manufacturing; plastics product manufacturing/all other plastics product manufacturing; computer systems design and related services/custom computer programming services/ computer systems design services; surgical and medical instrument manufacturing; other communication and energy wire manufacturing; medical equipment and supplies manufacturing; machine shops and threaded product manufacturing; and commercial lithographic printing.

Since 2001, the total number of jobs increased in Bristol County. In 2008, the third largest sector in the region was manufacturing and the Gateway Incubator focused sector of professional, scientific, and technical services grew by nearly 11%. This shows that the region has a strong business climate. The recommended areas of opportunity for Bristol County and the ATMC/Quest Center include the following industries: Computer systems design and related services/custom computer programming services; scientific research and development services; seafood product preparation and packaging; jewelry manufacturing; seafood product preparation and packaging; surgical and medical instrument manufacturing; commercial lithographic printing; scientific research and development services; plastics product manufacturing; and machine shops and threaded product manufacturing.
CHAPTER 6

BUSINESS INCUBATOR CASE-STUDIES IN GATEWAY CITIES

I selected four business incubators in four separate Gateway Cities as case-studies. The general characteristics of the four business incubators are summarized in below in Table 6.1.

Table 6.1 - General Characteristics of Business Incubator Facilities

<table>
<thead>
<tr>
<th>Business Incubator Name</th>
<th>SBI</th>
<th>M2D2</th>
<th>ATMC</th>
<th>Quest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Scibeili Enterprise Center</td>
<td>Wannalancit Mills and IPI Building</td>
<td>South Coast Research and Technology Park</td>
<td>New Bedford Economic Development Council</td>
</tr>
<tr>
<td>Address</td>
<td>1 Federal Street Bldg 101</td>
<td>Office-600 Suffolk Street Lab-333 Aiken Street</td>
<td>151 Martine Street</td>
<td>1213 Purchase Street</td>
</tr>
<tr>
<td>City</td>
<td>Springfield</td>
<td>Lowell</td>
<td>Fall River</td>
<td>New Bedford</td>
</tr>
<tr>
<td>Affiliated University</td>
<td>STCC</td>
<td>UMass-Lowell</td>
<td>UMass-Dartmouth</td>
<td>UMass-Dartmouth</td>
</tr>
<tr>
<td>Focus</td>
<td>Service-Oriented</td>
<td>Medical Devices</td>
<td>Technology and Manufacturing</td>
<td>Marine Science and Technology</td>
</tr>
</tbody>
</table>

This chapter provides an overview of each business incubator’s history, facilities, services, tenant companies, university linkages, economic impacts, and other ways the incubator contributes to the regional economy.
The Springfield Business Incubator (SBI) is located in the city of Springfield in western Massachusetts. The SBI is part of the Scibelli Enterprise Center (SEC), a support organization for small business, which is located within a building in the Springfield Technology Park (STP) through a partnership with Springfield Technical Community College (STCC). The SBI was founded to support regional economic advancement and growth through accommodating service-oriented businesses (Springfield Business Incubator). The Springfield Technology Park (STP) is located on 5.3 acres of land in Springfield’s central business district (STCC Technology Park). The STP houses at least twelve technology and light-manufacturing companies, a cafeteria, and many support organizations and small business resources (STCC Technology Park).
The STP also provides rental space to many companies that graduate from the SBI and are looking for additional space to expand their business.

Springfield Technical Community College (STCC) is located to the west of the Springfield Technology Park. The community college was founded in 1964 and targets its learning opportunities to disadvantaged populations such as adult learners, minority populations, veterans, international students, single parents, disabled students, senior citizens, and employees in need of retraining for changing workforce skills (Springfield Technical Community College Academic Programs). STCC provides hand-on training and classes to apply towards associates or a certificate degrees as well as company-specific training during the day or at night (Springfield Technical Community College Academic Programs). Some of STCCs more popular courses are related to information technology and computer training, nursing and medical, media, teaching, business, and engineering and other technical classes (Springfield Technical Community College Academic Programs).

Springfield Technical Community College has many working partnerships with SBI. STCC provides collaborative resources and training to the SBI by providing computers and computer training (Fillo, Heather. Personal Interview. March 11, 2010).
STCC also provides partially subsidized lease space and salaries to employees at the SBI such as the business incubator director, administrative assistant, and receptionist (Fillo, Heather. Personal Interview. March 11, 2010). Tenants at the SEC also have access to academic resources at Springfield Technical Community College (Springfield Business Incubator). Resources include faculty advisors, student interns, and graduates as prospective employees (Springfield Business Incubator).

**Figure 6.3 - Entrance to the SBI**

<table>
<thead>
<tr>
<th>Table 6.2 - Building &amp; Development History</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SBI</strong></td>
</tr>
<tr>
<td>Building Age: 1892</td>
</tr>
<tr>
<td>Rehabilitated</td>
</tr>
<tr>
<td>Building Type</td>
</tr>
<tr>
<td>Building Rehabilitation (approx.): 1998-1999</td>
</tr>
<tr>
<td>Cost of Rehabilitation: $4.8 million</td>
</tr>
<tr>
<td>Building Gross Area: 39,000 ft²</td>
</tr>
</tbody>
</table>

Data collected by interviews with incubator directors on current and past incubating businesses
All data is approximate

**History and Start-up of the Incubator**

In 1999, the business incubator began operation in what was then called the “Springfield Enterprise Center” (Springfield Business Incubator). In 2005, the business incubator was renamed as the Andrew Scibelli Enterprise Center after the founder and president of STCC (Springfield Business Incubator). The business incubator was established as an economic development strategy to encourage business creation and retention for the Springfield area (Springfield Business Incubator).
Most of the $4.8 million dollars in SEC start-up costs and rehabilitation came from the state and federal government (Fillo, Heather. Personal Interview. March 11, 2010). These costs included about $3.8 million from the STCC Capital Campaign, which incorporated a combination of state and community college funds (Fillo, Heather. Personal Interview. March 11, 2010). It also included a $990,000 Economic Development Association (EDA) federal grant specifically to aid starting-up business incubators in economically distressed areas (Fillo, Heather. Personal Interview. March 11, 2010). These costs were very important to jump-start the initial costs of the business incubator facility.

Table 6.3 - General Costs and Characteristics of Business Incubator Facility

<table>
<thead>
<tr>
<th></th>
<th>SBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of Operation</td>
<td>1999</td>
</tr>
<tr>
<td>Rentable Area</td>
<td>400 to 2500 ft²</td>
</tr>
<tr>
<td>Costs ($/month)</td>
<td>$500 +</td>
</tr>
<tr>
<td>Number of Businesses Located in Facility</td>
<td>4</td>
</tr>
<tr>
<td>Number of Businesses Graduated</td>
<td>21</td>
</tr>
</tbody>
</table>

Data collected by interviews with incubator directors on current and past incubating businesses
All data is approximate

As indicated above, the salaries of incubator personnel and some of the building’s lease are covered by STCC. The average cost for tenants to rent space in the incubator is generally between $12 and $15 per square feet, but is somewhat negotiable (Fillo, Heather. Personal Interview. March 11, 2010). This cost includes rent and all utilities except phone and internet. Most services such as photocopying and administrative assistance are included in this lump-sum rent price.
**Current and Former Tenants**

There are currently four business incubator tenants located in the facility: Digital Imaging Firm/DIF Design, Fiscal Training Solutions, PrintNow.com, and Tickets for Groups (Springfield Business Incubator). These tenants are located on the first and second floor of the facility. There are a few additional businesses that are located within the facility but are not part of the incubator. These businesses include: the MassGreen Institute and Rebuilding Together Springfield (Springfield Business Incubator).

**Business Incubator Facilities**

As part of the rent-package, SBI tenants have excellent shared facilities such as technology, utilities, and other facilities. The facility prides itself on its top-notch tech utilities include audiovisual equipment, a teleconferencing room, and T-3 connectivity. Free parking and 24-hour security are also important features at the SBI (Springfield Business Incubator).
Other facilities in the SEC and used by the business incubator include the following:

- Receptionist Area
- Fax, Mailbox, and Copy Room
- Kitchen and Vending Machines
- Casual Space
- Conference Room
- Computer Labs
- Conference Room
- Deliso Teleconference Center (need to pay to use)

**Business Incubator Services**

Multiple people say that the biggest assets of the SBI include the services of the advisory board and access to development centers within the incubator (Fillo, Heather. Personal Interview. March 11, 2010). There are over thirty-one members of the advisory board from a variety of backgrounds (Springfield Business Incubator Support Organizations). The advisory board is especially helpful for new businesses because they serve as mentors and are available to assist businesses in a variety of areas (Springfield Business Incubator). These mentors can be tailored to serve the particular needs of the business (lawyer, accounting, marketing, etc) at no cost to the incubating business.
(Springfield Business Incubator). As part of the arrangement with the business incubator, mentors meet quarterly for a meeting with their mentees (Fillo, Heather. Personal Interview. March 11, 2010).

There are many additional business development centers within the Scibelli Center where incubating tenants or businesses from the community can access free or discounted services. The Massachusetts Small Business Development Center (MSBDC) provides “free and confidential business counseling” to businesses in the incubator facility as well as Franklin, Hampshire, and Hamden county (Massachusetts Small Business Development Center). The MSBDC is a partnership program with the U.S. Small Business Administration (US SBA) and the Massachusetts Department of Business Development through the Isenberg School of Management at the University of Massachusetts (Massachusetts Small Business Development Center). MSBDC provides the following services conducted by an experienced staff and supplemented by experienced university faculty, students, and professionals: business plan development, preventive feasibility, conventional and non-conventional financing, cash flow analysis, and organizational and personnel consulting and marketing (Massachusetts Small Business Development Center). The US SBA also provides consulting to businesses as well as low interest rate loans and grants (US Small Business Administration).

There are additional smaller business service centers in the business incubator. For example, SCORE, NACCE, NEBA BCC, and Career TEAM, all provide business counseling to different types of people and their needs (Springfield Business Incubator). The STCCs Entrepreneur Institute provides academic and credit offerings in many aspects of entrepreneurship education (Springfield Business Incubator Support
Organizations). The Center for Business Technology provides customized training solutions for small businesses such as computer or healthcare training programs (Springfield Business Incubator Support Organizations). Unfortunately, many of these services are not free to incubator tenants or to the public (Fillo, Heather. Personal Interview. March 11, 2010).

All separate business services centers are:

- Entrepreneur Institute
- Information and Community Technologies Center
- The NEBA Business Consulting Center for Entrepreneurs with Disabilities
- SBI
- SBA
- Center for Business and Technology
- SCORE-Counselors to America's Small Business
- MSBDC
- National Association for Community College Entrepreneurship (NACCE)
**Future Areas of Focus**

A future area of focus for the SBI, STCC, and city of Springfield is in green industries. STCC received a three-year $1.87 million contract to coordinate energy efficiency workforce training programs in the state’s community college system (Fillo, Heather. Personal Interview. March 11, 2010 and Springfield Business Incubator). This project is supported by the Massachusetts Center’s Energy Efficiency and Building Science Skills Initiative under the Massachusetts Office of Energy and Environmental Affairs. An organization run through this Massachusetts Center for Energy Efficiency, called the MassGreen Institute, has recently moved next to the SBI. The MassGreen Institute provides training on energy efficiency auditing (MassGreen Initiative, Springfield Community College). Moving into the future, the SBI was hoping to continue to target additional companies focused on green industries such as environmental education, clean technology, and other companies focused on environmental sustainability.

**Economic Indicators**

Out of the four companies located in the business incubator in March 2010, there were approximately 20 full and part-time jobs reported (Fillo, Heather. Personal Interview. March 11, 2010 and Springfield Business Incubator). In March 2009, there were eight businesses located in the incubator (Springfield Business Incubator). The number is reported to be lower in 2010 because many companies just graduated and moved into bigger office space (Fillo, Heather. Personal Interview. March 11, 2010 and Springfield Business Incubator). In 2009, the incubator reported to have a good year and spun off 250 jobs in the region including subcontractors (Springfield Business Incubator).
The largest number of businesses in the facility was in 2007 when there were eleven businesses in the facility (Fillo, Heather. Personal Interview. March 11, 2010 and Springfield Business Incubator).

The average time businesses spent in the SBI was reported to be between 3-5 years (Fillo, Heather. Personal Interview. March 11, 2010 and Springfield Business Incubator). The business incubator doesn’t require that tenants leave the facility after a certain amount of time or after meeting certain financial criteria. Rather, graduation from the incubator is based on individual businesses goals set with the management team and their financial goals.

The graduation rate for businesses in the SBI was around 60 to 70 percent since inception (Fillo, Heather. Personal Interview. March 11, 2010 and Springfield Business Incubator). Many businesses reportedly graduated and relocated their companies within the “Knowledge Corridor” (an area that encompasses Hartford and Springfield along the Connecticut River), however, a few tenants dropped out related to individual circumstances (Fillo, Heather. Personal Interview. March 11, 2010 and Springfield Business Incubator). The manager of the incubator confirmed that businesses dropping out of the incubator were not typically related to business, financial, and other economic reasons, but that most businesses seem to be getting by financially in the SBI.

| Current Number of Jobs (full and part-time) | 20 |
| Average Time Spent in Incubator (years) | 3-5 |
| Graduation Rate | 60-70% |
| Business Retention in Massachusetts | 70% |
| Business Retention in Region | 90% |

Table 6.4 - Economic Characteristics of the SBI (March 2010)

Data collected by interviews with incubator directors on current and past incubating businesses
All data is approximate
despite the recession (Fillo, Heather. Personal Interview. March 11, 2010 and Springfield Business Incubator).

Massachusetts Medical Device Development Center (M2D2), University of Massachusetts at Lowell, Lowell, Massachusetts

Figure 6.8 - Massachusetts Medical Device Development Center, Lowell
Table 6.5 - History of Building Development

The Massachusetts Medical Device Development Center (M2D2) is located on the first floor of the Wannalacit Mill and the first floor of the Institute for Plastics Innovation (IRI building) next to the UMass Lowell Campus in downtown Lowell. Although the M2D2 is more often affiliated with UMass Lowell, it also has partnerships with UMass Worcester’s Medical School. The overall goal of this incubator facility is to bring new products and jobs into the community and bolster needed and growing services (Tello, Steven. Personal Interview. March 18, 2010 and Massachusetts Medical Device Development Center).

While the M2D2 welcomes a variety of companies, they generally target new companies that meet the requirements as a medical device company. Other targeted businesses include biotechnology, plastics, and life science businesses from UMass Lowell, the outside market, and other universities (Massachusetts Medical Device Development Center).

<table>
<thead>
<tr>
<th>M2D2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of Building</td>
<td>~1850</td>
</tr>
<tr>
<td>Building Type</td>
<td>Rehabilitated Mill</td>
</tr>
<tr>
<td>Former Site Use</td>
<td>industrial, textiles</td>
</tr>
<tr>
<td>Year of Rehabilitation (approx.)</td>
<td>1992</td>
</tr>
<tr>
<td>Cost of Appraisal</td>
<td>$34.5 million</td>
</tr>
<tr>
<td>Building Area</td>
<td>30,000 ft²</td>
</tr>
<tr>
<td>Incubator Gross Area (ft²)</td>
<td>Now 3,500 ft²/Future 8,000 ft²</td>
</tr>
</tbody>
</table>

Data collected by interviews with incubator directors on current and past incubating businesses. All data is approximate.
Many of these incubating companies have partnerships with UMass Lowell and some university faculty have offices within the building. The M2D2 office facility is located next to the main entrance of the Wannalancit Mill. The entire Wannalancit Mill building has an approximate footprint of 30,000 ft² and was constructed in about 1850 (Tello, Steven. Personal Interview. March 18, 2010). The Wannalancit Mill is supported by property-management company Farley White and also houses other university affiliates such as the Center for Family, Work and Community; the Center for Industrial Competitiveness; Atmospheric Research; the Submillimeter Wave Technology Lab; the PeopleSoft project team; the Office of Institutional Research; the Office of Commercial Venture Development, and other private Commercial Ventures (Farley White Development Company). The entire building supports a technology friendly-atmosphere and amenities such as fiber optics telecommunications, cable for smaller businesses, a cafe, and on-site fitness center (Farley White Development Company).

**Figure 6.10 – IRI Building and M2D2 Laboratory Facility**

A wet laboratory and a small area of office spaces for the M2D2 are located in the IRI building (pictured above). The IRI building provides opportunities for start-up companies in plastic-related industries to keep up with the latest knowledge and
technology trends. UMass Lowell has a world-renowned Plastics Engineering program and the center looks to improve partnerships between the university and private companies in plastic-related industries (UMass Lowell IRI building and Tello, Steven. Personal Interview. March 18, 2010).

Over the years, the university has adapted to Lowell’s past industrial heritage and emerging educational and technological needs. The University of Lowell was formed by merging Lowell State (a teacher’s school) and Lowell Tech (a technical and management school) in 1975 until it became part of the larger UMass system in 1991 (About UMass Lowell). It administers bachelors, masters, and doctoral degrees in the arts and sciences, engineering, education, and health and the environment (About UMass Lowell). A total of approximately 8,000 undergraduate, 3,000 graduate, and 2,500 continuing studies students were enrolled at UMass Lowell in the fall of 2009 (About UMass Lowell).

Prior to 2008, the University of Massachusetts in Lowell formed a separate business incubator (than the M2D2) to foster a variety of business start-ups with students. Before 1999, this incubator was called the UMass Business Incubator. During this time the business incubator helped almost a dozen companies get started with $80 million in investment from mostly venture capital funding (UMass Lowell Business Incubator). Up until 2006, the incubator worked with 20 companies and graduated 13 of them, including Lowell-based Konarka Technologies, which reportedly had remarkable job growth and great benefits to the local and regional economy (UMass Lowell Business Incubator and Forrant, Robert. Personal Interview. December 7, 2009). The incubator reportedly dissolved for many reasons, primarily because the facility supported a variety of
businesses instead of targeting specific industries. A second reason for its demise, was that the director, who had a strong leadership role in the facility, left the incubator and in pursuit of other job opportunities (Forrant, Robert. Personal Interview. December 7, 2009).

**History of the Business Incubator**

The idea behind the M2D2 started in 2006 when UMass Lowell Professors Stephen McCarthy and Steven Tello joined together in a mission to support outreach and funding sources for potential new medical device ventures (Tello, Steven. Personal Interview. March 18, 2010). McCarthy was experienced with prototype and product development and Tello was knowledgeable with business plans and start-ups. They joined together with Professor Sheila Noone of the UMass Medical Center in Worcester who specializes in medical assessment and clinical pathway assistance (flier, interview). They began to pitch their ideas to the John Adams Innovation Institute and venture capitalists in 2006 to gain support and financing to start their medical device incubator
(Massachusetts Medical Device Development Center, and Tello, Steven. Personal Interview. March 18, 2010).

Table 6.6 - Business Incubator General Characteristics

<table>
<thead>
<tr>
<th></th>
<th>ATMC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start of Operation</strong></td>
<td>2001</td>
</tr>
<tr>
<td><strong>Size of Rentable Area</strong></td>
<td>~500 ft² or greater</td>
</tr>
<tr>
<td><strong>Costs ($/month)</strong></td>
<td>$200 +</td>
</tr>
<tr>
<td><strong>Number of Businesses Located in Facility</strong></td>
<td>8</td>
</tr>
<tr>
<td><strong>Total Number of Businesses Graduated</strong></td>
<td>17</td>
</tr>
<tr>
<td><strong>Total Number of Businesses Affiliated with Facility</strong></td>
<td>80</td>
</tr>
</tbody>
</table>

Data collected by interviews with incubator directors on current and past incubating businesses and handouts. All data is approximate.

Start-up and venture funds for the M2D2 came from the state’s John Adams Innovation Institute (John Adams Innovation Institute, and Tello, Steven. Personal Interview. March 18, 2010). The John Adams Innovation Institute is a quasi-government organization that supports the mission to enhance innovation to “strengthen and grow institutions and industries that comprise the Commonwealth’s knowledge economy” (John Adams Innovation Institute). The John Adams Institute gave the M2D2 $500,000 of funding for the first 2 years (Tello, Steven. Personal Interview. March 18, 2010). This funding was for outreach to medical device companies as well as initial funding for these companies to develop their ideas with working prototypes (Tello, Steven. Personal Interview. March 18, 2010). A portion of funding was for the initial start-up of the facility including new wet lab space in Wannalancit as part of the new $4 million
renovation (Tello, Steven. Personal Interview. March 18, 2010). Some additional funds are available through the Life Science Fund such as the Life Science Accelerator Fund, which provide capital to early stage life sciences companies (Massachusetts Life Science Center accessed April 10, 2010 and Tello, Steven. Personal Interview. March 18, 2010). According to the business incubator’s manager, the incubator is becoming more self-sustaining financially since this funding is only guaranteed through December 2010 (Massachusetts Life Science Center and Tello, Steven. Personal Interview. March 18, 2010). The M2D2 staff’s salary is subsidized by the university.

The rent for office space and laboratory space in the M2D2 is relatively standard and includes most services. In the basic office rental model, it costs $300 per business for office space and $500 per business for community wet lab space in IRI Building (Tello, Steven. Personal Interview. March 18, 2010). All M2D2’s services are free and involve specialty services to the medical device industries. Typical services include marketing and business plans, prototype development and design guidance, and patenting and licensing (Tello, Steven. Personal Interview. March 18, 2010). The M2D2 also has a contract with UMass Lowell to use specialized equipment.

**Current and Former Tenants**

There are currently four tenant companies located or moving into the facility. These tenants include: Aura Medsystem, Safe-T-Suture, VasoTech, and Vista Scientific (Tello, Steven. Personal Interview. March 18, 2010). The M2D2 incubator is more of a “virtual incubator” model, with the strength of the incubator relying on its services, funding, and university resources (Tello, Steven. Personal Interview. March 18, 2010 and Massachusetts Medical Device Development Center). Therefore, although the
incubator is relatively new, it has over 42 ventures that it has helped succeed along the way (Tello, Steven. Personal Interview. March 18, 2010 and Massachusetts Medical Device Development Center).

**Business Incubator Facilities**

There are many great facilities in the M2D2 incubator. Prototyping labs and wet labs, as well as office space, are located in the IRI facility. UMass Lowell has a world renowned engineering and plastics labs that are used for prototype development, prototype assistance considering costs, schedule and quality, a duplication machine, and design feedback (Massachusetts Medical Device Development Center). Besides small enclosed office space and open office space, the facility also features the following in the Wannalancit Mills:

- Kitchen
- Large conference room (contains a 46” Aquos LCD screen as well as full pull down screen, computer and web access and a
projector

- Small conference rooms (contains a 46-inch Aquos LCD screen, as well as computer and web access and a projector)
- Plotter and printing

**Business Incubator Services**

Access to funding and support networks is a large part of the M2D2. All a company needs to do is pitch its idea to the incubator and, if accepted into the program, it can use M2D2’s many services to get their venture into business (Tello, Steven. Personal Interview. March 18, 2010 and Massachusetts Medical Device Development Center).

The M2D2’s Advisory Board provides a variety of free services with mentors having a background in business, medical, engineering. Faculty and students provide business development guidance and assistance with marketing plans, business plans, and business analysis. The M2D2 provides assistance with STTR and SBIR applications as well with the Food and Drug Administration (FDA) regulatory process. M2D2 also provides connections to Massachusetts Venture Capitalist and Angel Network. For a fee for non-business or laboratory incubating customers, the M2D2 also can help with prototyping including plastic molding, computer and software design, engineering, and clinical trials (Tello, Steven. Personal Interview. March 18, 2010 and Massachusetts Medical Device Development Center).

The M2D2 also has an extensive network of out-of-house services. The M2D2 connects ventures with UMass Lowell to assist them with prototype development, prototype assistance considering costs, schedule and quality, and design feedback related to engineering and plastics (Massachusetts Medical Device Development Center). The
UMass Medical School/Center assists prospective ventures with medical assessments, facilities partnership with clinical investigators, medical expertise, and access to patient population for clinical trials (Massachusetts Medical Device Development Center). Once a prototype is produced, M2D2 provides connections within the medical device community.

**Figure 6.15 – M2D2 Prototype Marketing**

For example, they provide a network of private sector design, fabrication, and testing firms as well as an interface with MassMEDIC IGNITE program, a program designed to help early Medical Device Companies in Massachusetts succeed (Massachusetts Medical Device Development Center). There is also a great network of private sector design, fabrication, and testing firms through the M2D2 that are available through conferences, venture capital events, and other networking events (Massachusetts Medical Device Development Center).

Additional capital funds supported by M2D2 affiliates are the UMass Science and Technology Fund, Abby Barrow Group-President’s Office, the Mass Technology Transfer (MTTC) who supported multiple rounds of funding, as well as a state business plan competition called “Mass Challenge” where some of the best business plans are
eligible to win money for their company (Tello, Steven. Personal Interview. March 18, 2010).

**Figure 6.16 – Cubical and Office Space in Wannalancit**

A very distinguishable service of the M2D2 is the Fastlane loan system available in collaboration with the John Adams Innovation Institute (Massachusetts Medical Device Development Center and Tello, Steven. Personal Interview. March 18, 2010). Twice a year, companies affiliated with the M2D2 are selected to compete in an approval process for a Fastlane loan up to $75,000 (Massachusetts Medical Device Development Center and Tello, Steven. Personal Interview. March 18, 2010). In order to qualify, the entrepreneur must raise matching funds. All funds must be used at M2D2 facilities on the Lowell or Worcester campuses. If the awardee is able to successfully commercialize the supported technology, the inventor reimburses M2D2 for the Fastlane loan amount. In addition, within 60 days of achieving $500,000 in sales of the supported technology, the awardee pays a success fee to M2D2 in an amount equal to the Fastlane loan (Massachusetts Medical Device Development Center and Tello, Steven. Personal Interview. March 18, 2010). If the awardee is not able to commercialize the product, then nothing is owed to M2D2.

Although these types of loans are becoming more common in today’s technology incubators, there are still some disadvantages. The main problem is that it is very
difficult for most of the companies that come to the M2D2, which are completely new to these projects, to come out with a working prototype after 18 months and to come up with this large amount of matching funds (Tello, Steven. Personal Interview. March 18, 2010). When potential ventures come to the M2D2, many have very early stage and poorly developed ideas and many take a while to work out the kinks (Tello, Steven. Personal Interview. March 18, 2010). Therefore, average funds awarded ended up being closer to $50,000 and the 18 month grant was extended to 2 years (Tello, Steven. Personal Interview. March 18, 2010). Also, since many companies had a hard time raising the match, the amount ended up being closer to the inventor raising 1/3 of the money and the rest being 2/3 Fastlane loans (Tello, Steven. Personal Interview. March 18, 2010). However, in some cases, UMass Medical may be able to match or help fund some of the shortfall funds for inventors (Tello, Steven. Personal Interview. March 18, 2010).

The idea of raising funds is to obtain more venture capitalist funding (Tello, Steven. Personal Interview. March 18, 2010). Many venture capitalists view medical device companies in this early stage as not enough of a return and too much risk (Tello, Steven. Personal Interview. March 18, 2010). Some venture capitalists that do invest in these early inventions/start-ups pick a select niche and understand the products and the fact that it might take a while to get a working prototype and to start seeing returns (Tello, Steven. Personal Interview. March 18, 2010). Many venture capitalists reportedly would rather invest in a medical device company after they have a solid prototype and product (Tello, Steven. Personal Interview. March 18, 2010).
Future Opportunities of the Incubator

Figure 6.17 and Figure 6.18 - Renderings of New Laboratory in the Wannalancit Mills

The M2D2 has been successful so far and is looking to renovate additional space on the second floor of the Wannalancit Mills. This space is to accommodate a large demand of ventures seeking laboratory and prototype space (Tello, Steven. Personal Interview. March 18, 2010). As shown above, they will include individual closed offices, open offices, and prototype and wet laboratory space (Tello, Steven. Personal Interview. March 18, 2010). Renovations are looking to be completed in 2011 and can hold up to 12 companies (Tello, Steven. Personal Interview. March 18, 2010).

Economic Indicators

Table 6.7 - Economic Characteristics of the M2D2 (March 2010)

<table>
<thead>
<tr>
<th></th>
<th>M2D2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Number of Jobs (full and part-time)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Average Time Spent in Incubator (years)</td>
<td>1.3</td>
</tr>
<tr>
<td>Graduation Rate</td>
<td>60%</td>
</tr>
<tr>
<td>Business Retention in Massachusetts</td>
<td>90%</td>
</tr>
</tbody>
</table>

Data collected by interviews with incubator directors on current and past incubating businesses
All data is approximate
The current total number of jobs from companies located in the incubator facility is unknown. However, about sixty companies total have been part of the M2D2 services (Massachusetts Medical Device Development Center and Tello, Steven. Personal Interview. March 18, 2010). The M2D2 facility is anticipated to grow in the future and support additional venture start-ups and job creation.

The requirement for graduation was originally 15 months (about 1.3 years)(Tello, Steven. Personal Interview. March 18, 2010). At this point, the ventures are supposed to have a working model and be generating capital to pay back the M2D2 and the John Adams Institute. However, because of the issues stated above, it has taken longer for these ventures to get a working prototype and to start generating capital. Therefore, many have stayed in the incubator for around 18 months or longer (Tello, Steven. Personal Interview. March 18, 2010). This number is still in-process because the facility started-up in 2008.

There are nine graduates of the business incubator (Tello, Steven. Personal Interview. March 18, 2010). The graduation rate is estimated to be around 60% because five to six companies didn’t graduate (Massachusetts Medical Device Development Center and Tello, Steven. Personal Interview. March 18, 2010). This is the result of many ventures doing one project together and then moving on to a different venture or project when the funding dissolved. Almost all of graduates reportedly stay in Massachusetts (Massachusetts Medical Device Development Center and Tello, Steven. Personal Interview. March 18, 2010). The Boston Metropolitan Area as well as the Lowell and Worcester areas are the reported general region of business activity.
The Advanced Technology and Manufacturing Center (ATMC) of the University of Massachusetts, Dartmouth is located in the South Coast Research and Technology Park in Fall River. It is easily accessed and viewed off Routes 195 and 24 and is located in the eastern area of Fall River.

Although the general areas of focus for the incubator are in technology and manufacturing, the more specific areas include alternative and renewable energy, marine technology, medical devices, and biotechnology (Advanced Technology and Manufacturing Center, UMass Dartmouth). The goal of the ATMC is to provide advanced technology and manufacturing solutions, promote industry and university
partnerships, and meet current and future business needs (Advanced Technology and Manufacturing Center, UMass Dartmouth).

**ATMC and University Partnerships**

The ATMC is affiliated with the University of Massachusetts at Dartmouth. UMass Dartmouth revolved from its predecessor technical institutions, Bradford Durfee College of Technology, the New Bedford Institute of Technology, the Southeastern Massachusetts Technological Institute, and the Southeastern Massachusetts University until it was established as part of the UMass University System in 1991 (UMass Dartmouth History). The most popular programs at UMass Dartmouth historically and currently include biology and marine sciences, engineering, the arts, and business and marketing (UMass Dartmouth History).

In addition to the ATMC, the university’s research facilities feature the School for Marine Science and Technology and the Star Art School Campus in New Bedford as well as the Center for Marketing Research in Fairhaven (UMass Dartmouth History).

Recently, the region has been branded as “the innovation triangle” to better market the area of Dartmouth, Fall River, and New Bedford as a whole to technology related ventures (UMass Dartmouth Community Impact).

The start-up goals of the ATMC began by supporting regional economic development initiatives including job creation and retention through the region’s state
university system (UMass Dartmouth Community Impact). UMass Dartmouth pays the
salaries of about 15 employees of the incubator, such as the incubator management, lab
managers, and other staff and supervisors (Mackenzie, Keith. Personal Interview. March
19, 2010). UMass Dartmouth also contributes to the incubator facility by providing
internships for undergraduate and graduate students at UMass Dartmouth and other area
colleges and technical schools. Most companies that locate in the ATMC have an
agreement with the incubator and UMass to hire local students, many of which stay with
the company upon finishing their studies.

A separate incubator facility, called the Advanced Technology Center (ATC),
began operation in 1998 and was located on the UMass Dartmouth campus (Mackenzie,
Keith. Personal Interview. March 19, 2010). This was an incubator
facility that was created to serve as
a gateway between industry and the
university (Mackenzie, Keith. Personal Interview. March 19,
2010). This incubator facility was
believed to fail because it didn’t
have a focus and tried to tailor to all

<table>
<thead>
<tr>
<th>Table 6.8 - Building &amp; Development History</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATMC</td>
</tr>
<tr>
<td>Building Age</td>
</tr>
<tr>
<td>Building Type</td>
</tr>
<tr>
<td>Former Site Use</td>
</tr>
<tr>
<td>Rehabilitation Year</td>
</tr>
<tr>
<td>Entire Facility Cost</td>
</tr>
<tr>
<td>Building Area</td>
</tr>
</tbody>
</table>

Data collected by interviews with incubator directors on
current and past incubating businesses and handouts
All data is approximate

History and Start-up of the Site and Facility

The ATMC is located in a state-of-the-art building that was built on the former
American Thread Company property that burnt down in 1987 (Advanced Technology
and Manufacturing Center, UMass Dartmouth). The American Thread Company was a major landmark in Fall River and a major contributor to its regional economy. Although it took almost 14 years to prepare the site, the ATMC building was completed in 2001 (Advanced Technology and Manufacturing Center, UMass Dartmouth).

History of ATMC and Partnerships

The ATMC was built and developed by the Massachusetts Development Agency, otherwise known as MassDevelopment, and it is leased and operated by UMass Dartmouth. Many of the costs were appropriated through the Massachusetts Biolife Science Center and MassDevelopment with a $1 billion-dollar fund from the state (Advanced Technology and Manufacturing Center, UMass Dartmouth and Mackenzie, Keith. Personal Interview. March 19, 2010). $14 million of this fund was allocated to the ATMC for construction (Advanced Technology and Manufacturing Center, UMass Dartmouth and Mackenzie, Keith. Personal Interview. March 19, 2010). UMass Dartmouth plans to purchase the building in the future.

Other funding sources from the state include an appropriation of about $1.5 million (Advanced Technology and Manufacturing Center, UMass Dartmouth and Mackenzie, Keith. Personal Interview. March 19, 2010). This generally carries the salaries of employees plus the costs for the conference, research and partnering for work order contracts, and other costs (Advanced Technology and Manufacturing Center, UMass Dartmouth and Mackenzie, Keith. Personal Interview. March 19, 2010). The
support of UMass Dartmouth’s Chancellor and MassDevelopment were paramount in these collaborations.

**Costs and Rent for Tenants**

The cost to rent office and laboratory space in the ATMC depends on many different factors. The costs start at $200 per business per month which pays for a cubicle license and all utilities except phone and services (Advanced Technology and Manufacturing Center, UMass Dartmouth and Mackenzie, Keith. Personal Interview. March 19, 2010).

The rent amount depends on many factors such as the number of interns hired, equipment needed, and size of space needed (Mackenzie, Keith. Personal Interview. March 19, 2010). For example, companies looking to lease a small space, hire additional interns, and offer different types of laboratory equipment for incubator tenant use may be charged less per month than a company that doesn’t need or can’t offer these things. The fee for services is about 1/3 the cost of the outside market and covers the service’s cost.
but with no to very little profit (Mackenzie, Keith. Personal Interview. March 19, 2010). Additionally, there is some inter-project funding used to supplement incubator rent, such as a company’s allocation from a grant for rent and services (Mackenzie, Keith. Personal Interview. March 19, 2010).

**Current and Former Tenants**

There are currently eight tenant companies located in the ATMC facility. These tenants include: Archimedes One, B Tech, Black Brook Design, Hy-SyEnce, NuOrtho Surgical, OceanServer Technology, ORPC, and Phosphorex (Mackenzie, Keith. Personal Interview. March 19, 2010). The ATMC has many graduates that it helped succeed along the way. Additionally, two recent graduates of the ATMC incubator are located in the ATMC facility (Mackenzie, Keith. Personal Interview. March 19, 2010).

**Business Incubator Facilities**

The ATMC’s facility is well-known for constructing different types of laboratories to help spur business development in manufacturing and technology. The types of laboratories include the following:

- Acoustics
- Computer Systems
- Electronics
- Environmental Chemistry
- Materials
The size-adjustable and technology-capable conference rooms are also one of the trademarks of the ATMC. The conference rooms allow parties of 25 to 100 people by removing a sliding wall and a large Video Conference room also holds up to 200 people (Advanced Technology and Manufacturing Center, UMass Dartmouth).

The following are a list of current facilities and services at the ATMC:

- Video Conference Center
- 5 break-out conference rooms
• Administrative and technical assistance
• Open space foyer, patio, free parking, and high speed internet throughout
• Conference phones and audio-video equipment
• Technical person onsite to assist with technical assistance

**Business Incubator Services**

The ATMC is well-known for holding conferences in its facility. The conference rooms typically hold technical training programs, technical symposiums, and business and strategy meetings. These rooms are used for many ATMC business-related and community events such as clean energy conferences and industry technology transfers.

The New England Marine Renewable Energy Center (MREC) has locations in the ATMC and the Quest Center and is looking to build upon an emerging renewable energy cluster in southeast Massachusetts and in the State (New England Marine Renewable Energy Center). The center is focused on the development of ocean based renewable energy such as wave, tidal, current and ocean wind (New England Marine Renewable Energy Center). MREC’s goal is also to develop a “network of technology developers and energy users who will collectively define the needs of this nascent industry and work to bring together the required technology, capital, infrastructure, human resources to implement ocean renewable energy in the most sustainable manner for the region” (New England Marine Renewable Energy Center).
There are excellent workforce and internship opportunities for students at the ATMC with the guidance of UMass Dartmouth’s staff. All companies that are part of the incubator are required to hire part-time student interns (Mackenzie, Keith. Personal Interview. March 19, 2010). Most interns are from UMass Dartmouth although some attend the vocational high school and Bristol Community College (Mackenzie, Keith. Personal Interview. March 19, 2010). Most interns at the ATMC are undergrads and get paid for their work. However, some graduate students also work at the ATMC and receive a tuition and fee waiver similar to other research universities (Mackenzie, Keith. Personal Interview. March 19, 2010). These incentives may be provided to prospective and current graduate students in order to attract the best and brightest students to UMass Dartmouth, ATMC companies, and the region. Many of these interns are hired by ATMC companies upon graduation.

Another important service of the ATMC is to help its tenants with technology transfer, obtaining funding, and connecting with venture capitalists (VC). Linking ATMC tenants with more private funding sources, such as venture capital, is an area where the ATMC is looking to expand upon in the future (Mackenzie, Keith. Personal Interview. March 19, 2010). According to an interview with Keith Mackenzie, a VC needs to understand the market of the industries within the ATMC. Companies within the ATMC are looking for a VC that is an appropriate fit by supporting the right company and the right idea while also having
patience with the time and amount needed for these companies to reap the rewards of their rate-of-return (Mackenzie, Keith. Personal Interview. March 19, 2010).

Future Opportunities of the Incubator

Focused areas of potential business recruitment include coastal systems technology and micro-fluid prototyping and commercialization (Mackenzie, Keith. Personal Interview. March 19, 2010). The ATMC originally had more wet labs but took some out because they weren’t all needed by the tenants. Recently, some space has changed slightly (big boxed room) and many will adapt in the future to meet the needs of coastal or renewable system technology (Mackenzie, Keith. Personal Interview. March 19, 2010).

To complement the MREC, many other facilities and assets are in the works to be established in the region’s future. For example, the National Offshore Renewable Energy Innovation Zone (NOREIZ) is a prospective ocean’s design site off Martha’s Vineyard and Nantucket (National Offshore Renewable Energy Innovation Zone (NOREIZ)). Additionally, $15 million will be released to UMD for the construction of a bio-manufacturing scale up facility to be built in Fall River (Advanced Technology and Manufacturing Center, UMass Dartmouth).

Economic Indicators

There are currently eight businesses in the incubator, all of which are technology-based companies, and about 45 people are currently employed at the ATMC (Advanced Technology and Manufacturing Center, UMass Dartmouth and Mackenzie, Keith. Personal Interview. March 19, 2010). In 2008, the ATMC had one of its most successful
years and had 17 tenants total in the facility (Advanced Technology and Manufacturing Center, UMass Dartmouth and Mackenzie, Keith. Personal Interview. March 19, 2010). However, greater than 80 companies total have been part of the ATMC’s services which have helped bolster 100 direct jobs (Advanced Technology and Manufacturing Center, UMass Dartmouth and Mackenzie, Keith. Personal Interview. March 19, 2010). The ATMC facility is anticipated to grow in the future and support additional venture start-ups and job creation.

Table 6.10 - Economic Characteristics of the ATMC (March 2010)

| ATMC |  
| Current Number of Jobs (full and part-time) | 40+  
| Average Time Spent in Incubator (years) | 1-3  
| Graduation Rate | 80%  
| Business Retention in Massachusetts | 70%  
| Business Retention in Region | 80%  

Data collected by interviews with incubator directors on current and past incubating businesses
All data is approximate

The ATMC stands out from other incubators because of its reported average graduating time of 12 to 36 months (Advanced Technology and Manufacturing Center, UMass Dartmouth). Generally, there is a three-year timeline to stay in the facility; however, the timeline depends on many factors such as where the company is on their business plan (Advanced Technology and Manufacturing Center, UMass Dartmouth and Mackenzie, Keith. Personal Interview. March 19, 2010).

The graduation rate is approximately 80% (Mackenzie, Keith. Personal Interview. March 19, 2010). This is primarily because some companies get funding, such as SBIR grants, and need to start a company to receive these funds (Mackenzie, Keith. Personal Interview. March 19, 2010). Once this funding dissolves, many of the
companies also dissolve and form new companies (Mackenzie, Keith. Personal Interview. March 19, 2010). Also, most companies already existed prior to moving into the ATMC.

About 70% of companies reportedly choose to stay in Massachusetts and about 80% stay in the Providence Metropolitan Area (which spans across Massachusetts and Rhode Island) upon graduating from the ATMC (Mackenzie, Keith. Personal Interview. March 19, 2010). Most tenants at the ATMC work with other companies within two-and-a-half hours of the ATMC (Mackenzie, Keith. Personal Interview. March 19, 2010). Many businesses at the ATMC also report to work with companies outside of this distance but have a different type of relationship and use email, mail services, and other electronics to communicate and send products back and forth (Mackenzie, Keith. Personal Interview. March 19, 2010). A few companies and commercializations have spun-off from UMass Dartmouth, but most originate from elsewhere (Mackenzie, Keith. Personal Interview. March 19, 2010).
The Quest Center is located on the third floor of the New Bedford Economic Development Council Building (NBEDC) in New Bedford. The Quest Center works collaboratively with the New Bedford Economic Development Council, especially by attracting businesses in the marine science, technology, and software business clusters (New Bedford Economic Development Council, Quest Center).
Quest Center and University Partnerships

As stated above in the ATMC case-study, the Quest Center has partnerships with the ATMC and UMass Dartmouth. They both work closely with the UMass Dartmouth School for Marine Science and Technology (SMAST) which is located in Clark's Cove in New Bedford. This program focuses on interdisciplinary studies and research within the Department of Estuarine and Ocean Sciences and the Department of Fisheries Oceanography, which are part of a system-wide School of Marine Science at the University of Massachusetts (Department of Estuarine and Ocean Sciences and the Department of Fisheries Oceanography). SMAST also has facilities and resources that the Quest Center can access such as: a dock with access to Buzzards Bay, a 90,000-gallon acousto-optic test tank, a seawater room, a greenhouse for aquatic photosynthetic organisms under natural light, three temperature-controlled rooms, and fifteen research laboratories (Department of Estuarine and Ocean Sciences and the Department of Fisheries Oceanography). The department’s big picture economic development goals include supporting “science and technology that contributes to the local, regional and national economy and to a better quality of life for all” (New Bedford Economic

Figure 6.29 – The Quest Center
History of the Business Incubator

The Quest Center is located in a building that was built around 1890 and was formerly used for education purposes (Sheehan, David. Personal Interview. April 22, 2010). The EDA awarded a $1.1 million grant to renovate the top floor, in partial support as a business incubator facility (Sheehan, David. Personal Interview. April 22, 2010). It is currently owned by the NBEDC, who pays for the utilities of the incubating tenants. The partnerships developed between UMass Dartmouth, NBEDC, and the current director who was asked to help recruit and work with companies and universities.

Table 6.11 - Building & Development History

<table>
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<tbody>
<tr>
<td>Building Age</td>
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<tr>
<td>Building Type</td>
<td>Rehabilitated Education Building</td>
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<tr>
<td>Former Site Use</td>
<td>Education Facility</td>
</tr>
<tr>
<td>Rehabilitation Year</td>
<td>prior to 2005</td>
</tr>
<tr>
<td>Rehabilitation Cost</td>
<td>~$1.1 million</td>
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<tr>
<td>Building Gross Area</td>
<td>12,000 ft²</td>
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</table>

Data collected by interviews with incubator directors on current and past incubating businesses
All data is approximate

Costs and Rent for Tenants

The cost to rent office space in the Quest Center depends on the size of the space. The costs start at $140 for a cubicle and go up to $1200 for a large space (Sheehan, David. Personal Interview. April 22, 2010). This includes all utilities that are paid for by the owner and additional occupants on the four floors and the NBEDC (Sheehan, David. Personal Interview. April 22, 2010). Internet is included in the rent.
Current and Former Tenants

There are currently six tenant companies located in the Quest Center. These tenants include: Brooke Ocean Technology (BOT USA), Fathom Research LLC, International Compliance Systems, Natural Currents, and CCI Energy (Sheehan, David. Personal Interview. April 22, 2010). Tenants are located on the fourth floor next to the NBEDC and the Commonwealth of MA Division of Marine Fisheries and have expanded into the second floor. Former tenants include Birns Aquamate, a marine tech and marine science company, Decota Labs, an environmental company, and Charita Card, a mail software company that provides gift cards (Sheehan, David. Personal Interview. April 22, 2010).

There is additional space for businesses in the Quest Center Building. However, because there is a limited amount of dedicated parking, the facility is no longer recruiting businesses as of the interview date (Sheehan, David. Personal Interview. April 22, 2010).

Business Incubator Services and Facilities

Some of the Quest Center’s direct services include a packaged price for companies in identifying business location, mentoring services, shared conference facilities, access to UMass resources, and business development assistance such as networking, access to finance capital and marketing resources (Sheehan, David. Personal Interview. April 22, 2010). There are other facilities that are not directly part of the Quest Center per se but are also located in the same building as tenants. These facilities include the SBDC, USBA/SCORE, Commonwealth of Massachusetts Division of Marine Fisheries, New Bedford EDC, NB Redevelopment Authority, and the
Department of Workforce Development Administration (Sheehan, David. Personal Interview. April 22, 2010).

The Quest Center shares facilities and some services with the ATMC and the SMAST.

**Table 6.12 - Business Incubator General Characteristics**

<table>
<thead>
<tr>
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<th>Quest</th>
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<tbody>
<tr>
<td>Start of Operation</td>
<td>2005</td>
</tr>
<tr>
<td>Size of Rentable Area</td>
<td>300 ft² and larger</td>
</tr>
<tr>
<td>Costs ($/month)</td>
<td>$140 to $1200</td>
</tr>
<tr>
<td>Number of Businesses Located in Facility</td>
<td>5</td>
</tr>
<tr>
<td>Total Number of Businesses Graduated</td>
<td>3</td>
</tr>
<tr>
<td>Total Number of Businesses Affiliated with Facility</td>
<td>NA</td>
</tr>
</tbody>
</table>

Data collected by interviews with incubator directors on current and past incubating businesses and handouts
All data is approximate

**Future Opportunities of the Incubator**

The business incubator is continuing to support the same industries in marine tech and software as well as recruit other related environmental companies (Sheehan, David. Personal Interview. April 22, 2010).

**Economic Indicators**

The original goal for graduation was anticipated as three years but there are currently no explicit requirements (Sheehan, David. Personal Interview. April 22, 2010). The businesses move out when they are ready to be out on their own.
The average time businesses spend in the Quest Center is about 2 ½ to 3 years (Sheehan, David. Personal Interview. April 22, 2010). Many of the current tenants have been there for one to two years and there are two others that have been there for 4 and 5 years (Sheehan, David. Personal Interview. April 22, 2010).

Three businesses graduated from the Quest Center (Sheehan, David. Personal Interview. April 22, 2010). The rest either went out of business and a few extended their office space in the facility as they grew. Additional economic indicators were not available for this analysis at press time.

**Conclusion**

All four business incubators have distinguishable differences and similarities. Some business incubators cater to its regional and local assets and others cater to the state’s strengths and policies as a whole. Nevertheless, all the business incubators support job creation and greater economic prosperity to the region and state. However, these business incubators should continue to build upon these assets by working with emerging industries, community and workforce strengths, and university and quasi-governmental partnerships.

The subsequent chapter discusses the results of the survey. This survey distributed to businesses affiliated with all four business incubators in Gateway Cities.
CHAPTER 7

RESULTS OF THE STUDY (SURVEY AND INTERVIEWS)

An online survey was administered in April 2010 to all current and former tenants and affiliates of the Gateway City Business Incubators (SBI, M2D2, ATMC, and the Quest Center). The survey was broken up into seven sections: company/respondent information, type of company, founding of company, company employment and job growth, location preferences, services and facilities, and funding and equity. The first five sections were mandatory for completion to move on to the next section and the last two sections were discretionary. A complete copy of the survey questions and responses are provided in Appendix C.

Overall, 71 businesses were surveyed. Thirteen companies completed the survey which generated a total response rate of 18.3%. A break-down of response rates by business incubator are as follows: ATMC/Quest Center (46.2%), M2D2 (30.8%), and the SBI (23.1%). A breakdown of company’s sectors completing the survey included Medical Devices (38.5%), Marine or other Science (15.4%), Media and Software (15.4%), Biotech (7.7%), Energy or Green Industry (7.7%), and Other (30.8%).

Most businesses surveyed are still located in the business incubator facility (10 businesses). However, some businesses indicated they left or were never located in the business incubator facility because the rents were too high (3 businesses) and one indicated that they met the business incubator’s goals and was ready to be out on their own.

Overall, businesses surveyed in all incubator facilities reported an estimated gain of 59 jobs between initial business operations in the incubator to April 2010.
Employment is estimated to grow at 112% in the next five to ten years, with a total estimated job growth of 114 full and part-time employees. ATMC-affiliated businesses show an especially high number of jobs and job growth. They currently reported 48 full-time employees and 40 part-time employees. The job growth is expected to be 95 full-time jobs and 48 part-time jobs in the next five to ten years. I feel this is perhaps because the ATMC requires incubating tenants to hire student interns from local universities and community colleges, many companies hire these students upon graduation, and many of these businesses are more mature than other businesses surveyed and require a greater number of employees than the other businesses.

Figure 7.1 – Job Growth in Surveyed Businesses, All Incubators (April 2010)
According to the survey, businesses think their respective Gateway City is a good place to do business. On a scale of 1 to 5 (with 1 being the worst and 5 being the best), rankings in all four cities had an average of 3.35 and a median of 3.5. The most reoccurring rankings were 3.5 and 4.0. Fall River is the most business-friendly Gateway City surveyed, followed by Lowell and New Bedford. Springfield is ranked significantly below the other cities as a place to do business, although it should be noted that the SBI and the city’s business-friendly policies are being revamped during the time of this study. A few of these policies include hiring a new business incubator director (Marla Michel), a new SBI partnership with UMass Amherst, new areas of business focus for the incubator (green businesses), and hiring a business coordinator for the City of Springfield in the office of Planning and Economic Development (UMass Amherst, STCC Announce Partnership to Grow New Businesses at Springfield Incubator; New Director Named to Lead Effort and City of Springfield, Office of Planning and Economic Development).

**Figure 7.2 - Gateway Cities as a Place to do Business**

![Bar chart showing the rankings of Gateway Cities as a place to do business](chart.png)

*How would you rank this city as a place to do business (with 1 being the worse and 5 being the best)?*
Many people thought of Springfield as a Gateway City with great revival potential. The interim director of the business incubator commented that, “The city is more up-and-coming, especially with the UMass initiatives, has a good location close to 90/91 with corridors to Boston and Hartford, and has a good business feel with more businesses coming into the area” (Fillo, Heather. Personal Interview. March 11, 2010). However, additional comments from businesses located in the incubator were a mixed-bag. Additional comments included, “[I have] No issues with city”, “the location is proximate to my customers” to “Springfield isn’t safe or improving as a City”.

Lowell is considered by many businesses to have a great business feel. The business director for the M2D2’s commented, “The city is very cooperative and flexible to work with” (Tello, Steven March 18, 2010). Other comments from businesses
affiliated with the M2D2 stated that there is “Excellent interaction, ex M2D2”, “[Lowell has a] great location, right off I495 and Rte 9 West”, to “seed stage funding is NOT available”.

Many businesses feel that New Bedford and Fall River are doing a good job leveraging their assets. As one of the directors of the ATMC stated, “The city and region have a combination of things such as a great cost of living, nice area, proximity to Providence, Roger Williams University, UMass Dartmouth, and other colleges” (Mackenzie, Keith March 19, 2010). The director of tech transfer commented, “The area is in the process of learning and we are all trying to respond to the textile industry decline” (Petrovic, Louis March 19, 2010). Other comments from businesses located in the ATMC regarding Fall River and the region include, “They have an interest in renewables which helps”, “Taxes [are] too high. [We are] moving to Florida”, “we are close to everything we need including the ocean for testing”, and “we don't have much interaction with the city, but I do feel they appreciate our being here”. Comments from the Quest Center’s director include, “New Bedford is an easy place to do business but the business climate depends on the type of businesses. It has links to many of the universities and colleges and has an active corridor for marine science in the heart of coast from eastern Connecticut to Cape Cod” (Sheehan, Dave April 22, 2010).

Businesses were also asked the level of importance on where to locate their company based on business needs; quality of life characteristics; and government, infrastructure, and policy. Overall, most businesses agreed that the same characteristics are important for businesses to succeed. Most businesses thought affordable business space and utility costs are extremely important for their business needs. Many businesses
also thought other things, such as the location’s cache, being close to related business clients and material suppliers, available workers with a high degree of skill/experience, and being close to universities conducting relevant research are important for their businesses success. A high volume of customer pass-by traffic/visibility is not seen as important for businesses success in Gateway Cities. A break-down of the top reoccurring themes from individual incubator’s Gateway Cities are as follows:

- Springfield-Available workers with skill/experience; affordable space and affordable utilities; access to investors or lenders.
- M2D2-Favorable lifestyle amenities to recruit workers, close to universities, affordable operating space.
- ATMC, Quest-Affordable operating space for my business, utility costs, the location has cache.

In the survey’s quality of life section, the majority of businesses thought it was important to locate their company close to their existing residence or the residence of others in the management team. Businesses also stated the quality and beauty of the surrounding natural environment and being near attractive places for their business’ workers to live is important. A break-down of the top reoccurring themes from individual incubator’s Gateway Cities are as follows:

- Springfield-Close to my existing or management’s residence, near attractive places for my workers to live, quality and beauty of the natural environment.
- M2D2-Close to my existing or management’s residence, near attractive places for my workers to live, availability of affordable housing, quality and beauty of the natural environment.
• ATMC, Quest-Near attractive places for my workers to live, close to my existing residence, quality and beauty of the natural environment.

Businesses in the incubator were asked to rate government, infrastructure, and policy according to their level of importance on where to locate their company. Two main themes were apparent; businesses thought tax rates and having greater cooperation with local government is extremely important for choosing where to locate their company. Other important policies include the availability of tax incentives or site/infrastructure subsidies, being close to airports with regular commercial flights, the quality of municipal services, the potential for on-site expansion, and highway access and roadway infrastructure. A break-down of reoccurring themes from individual incubator’s Gateway Cities are as follows:

• Springfield-Availability of tax incentives or site/infrastructure subsidies, tax rates, cooperation of local government.
• M2D2-Highway access and roadway infrastructure.
• ATMC and Quest-Tax rates, availability of tax incentives or site/infrastructure subsidies, cooperation of local government.

A table of all business location responses is provided in Appendix C.

Businesses were asked the advantages or challenges to doing business in this city or to the reinvestment of Gateway Cities in general. Overall, affordability and locations near attractive places to live are the most reoccurring themes on the advantages of Gateway Cities. Many businesses also thought Gateway Cities have advantages over Boston. For example, a few businesses stated that Boston has high housing costs, terrible traffic, and poor public transit. Gateway Cities are seen as an affordable alternative
because they have affordable work space, housing, and other costs. One business owner stated that he likes working in Gateway Cities because many places have a campus-like feel with open areas in relaxed settings. Another business owner suggested that the Gateway Cities should build a partnership to add additional jobs to these areas.

The survey indicates a few major disadvantages of Gateway Cities such as a high perception of crime rates and poor infrastructure. A list of all responses is provided in Appendix C.

Businesses were also asked to rank the importance of certain services for their company to succeed. The top services desired in all Gateway City incubators are shared resources with universities and community colleges; accounting and financial services; and law, licensing, copyright, and/or patenting services. A matrix of the top services desired overall and per business incubator facility is provided below.

Figure 7.4 – How would you rank the importance of these services for your company to succeed?

<table>
<thead>
<tr>
<th>Matrix of Most Important Services</th>
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<td>1</td>
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<tr>
<td>2</td>
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<tr>
<td>3</td>
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<tr>
<td>4</td>
</tr>
<tr>
<td><strong>All Gateway Cities</strong></td>
</tr>
<tr>
<td>Shared Resources-Univ and ComColl</td>
</tr>
<tr>
<td><strong>SBI</strong></td>
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<tr>
<td>Shared Resources-Univ and ComColl</td>
</tr>
<tr>
<td><strong>M2D2</strong></td>
</tr>
<tr>
<td>Law, licensing, copyright, and/or patenting services</td>
</tr>
<tr>
<td><strong>ATMC/Quest</strong></td>
</tr>
<tr>
<td>Shared Resources-Univ and ComColl</td>
</tr>
</tbody>
</table>
The new areas of opportunity which emerged from this survey (underlined) were greater accounting and financial services for all the Gateway City business incubators, help hiring experienced professionals for the SBI, Accounting and Financial Services for the M2D2, and Management, business plan, and/or marketing services as well as Accounting and Financial Services for the ATMC/Quest Center.

Businesses were also asked to rank the importance of certain facilities for their company to succeed. It was unanimous in all four business incubators that businesses thought technology and utilities are the most important facility improvements for their company to succeed followed by laboratory or testing space. Conference rooms and shared resources (facilities and machinery) with universities, community colleges, and outside private companies are also seen as important to businesses in the incubators. A matrix is provided below on types of facilities businesses wanted to see in the business incubators.

The businesses were asked specifically to write down additional services or facilities they would like to see in the business incubator facility. The following is a list of comments from businesses surveyed.

- “A Fedex box would be nice”.
- “Would have liked to have plant amenities like compressed air, cooling water, higher power”.
- “More access to the university, financial management, tax assistance, technical management of student Interns”.
- “Onsite medical and child care”.
- “Better space rates"
Figure 7.5 - How would you rank the importance of the following facilities for your company to succeed?

<table>
<thead>
<tr>
<th>Matrix of Most Important Facilities</th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>All Gateway Cities</td>
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<tr>
<td>SBI</td>
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<tr>
<td>M2D2</td>
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<tr>
<td>ATMC/Quest</td>
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</tbody>
</table>

“FUNDING is the absolute key in this economy, especially since angels and VCs do not touch pre-revenue companies in the few years -- some would say since 9/11.”

• “Facility has all I need.”

The survey’s section on funding and equity sources of the companies in the Gateway Incubator indicated that businesses wanted greater access to, exposure to, and knowledge of capital. The businesses indicated their most important sources of funding were family, friends, and personal savings; tech grants; STTR; SBIR; and licensing revenues or royalties from patents or copyrights. Generally, the rank was based on the specific type of company responding to the survey. For example, most tech companies thought it was important to obtain tech and STTR grants to help them succeed whereas non-technical companies did not rank this of importance. A little more than half of respondents received some sort of private or public grants, loans, or other funding.
About 1/3 of the company’s surveyed worked with universities or quasi-public entities to commercialize their product. These universities and entities include UMass Lowell, UMass Medical School in Worcester, and UMass Dartmouth. One private company has equity investors or stakes in their company and one is in the process of obtaining equity investors or stakes in their company. The rest are interested in obtaining greater investors and funding sources, although it should be noted that many of these companies aren’t the right “fit” for many investors. For example, venture capitalists and angel investors tend to invest in companies within select industries with expected high returns only after they start earning revenue (Tello, Steven March 18, 2010). Also, STTR, SBIR, and other technology, science, and research grants may only be suited for technology companies and not general service companies (Tello, Steven March 18, 2010). A copy of survey results and a breakdown by business incubator facility is provided in Appendix C.
CHAPTER 8

POLICY RECOMMENDATIONS

The overall results of this study can help guide strategies for economic development policy and planning at the state, regional, and local levels. As I mentioned earlier in this study, I recommend a statewide and regional policy to support incubators in Gateway Cities and their partnerships with state universities and community colleges (called the Gateway City Incubator Model). Many other states experiencing post-industrial decline already support a strong state and regional business incubator focus and have reaped enormous benefits. For example, Michigan’s SPARK Business Accelerator program has shown success with speeding up the development of start-ups companies and can be used as a case-study for more strategic incubators in Massachusetts Gateway Cities (Innovative Cities, Best Practices in Urban Planning and Ann Arbor, Michigan’s SPARK Business Accelerator).

First of all, I recommend appropriation of additional state funding and services for the Gateway Business Incubators through partnerships with quasi-government agencies (for example, the MassTech Collaborative and MassDevelopment) and universities. This could be used for “hard costs” such as upgrades to labs, technology, and equipment or for “soft costs” such as “knowledge” services, conferences, and training. “Hard costs” for labs may be supplemented by a small fee to incubating tenants and a larger fee (but smaller than the market rate) for tenants that are not located in the incubator’s facility. “Soft costs” may allocate a small fund to conduct conferences and networking events in the Gateway City Incubator or in Gateway Cities, but for specifically targeted industries
medical devices, renewable energy, etc). Also, the state should do a better job coordinating with government entities and seeking out and publicizing funding for these services, conferences, and training.

I found that many business incubators could better utilize current resources. Generally, it seemed as though business incubator directors were either vaguely familiar or weren’t utilizing certain funding sources for business incubators or small businesses. Many of them missed out on ARRA, EDA, and NBIA funding that business incubator’s elsewhere were capitalizing on. Therefore, my second recommendation is to hire a state-wide Gateway Business Incubator Coordinator/Liaison. This person will be tasked to track success, guide incubator managers on best practices, communicate between incubator facilities, and introduce the business incubator’s director to up-and-coming federal and state policies and financing. The Gateway Business Incubator liaison can also network between different facilities for training, conferences, or other events to build human capital.

I recommend increased support and business-friendly incentives from the state government that support areas of regional or state comparative advantage and industry clusters (such as better tax rates, tax breaks, affordable healthcare, affordable housing). I also think it is important to have the local government support events, such as networking and conferences, in Gateway Cities to increase their visibility, business-friendliness, and make the assets of Gateway Cities more visible. The city can advertise as a sponsor by donating a good or service to the event and city officials can network with businesses at the event.
As concluded in the survey, businesses feel it is important to have competitive tax rates, the cooperation of local government, and the availability of tax incentives or site/infrastructure subsidies for them to locate in a Gateway City. However, many of these companies locate outside of the incubator’s city and region upon graduating from the incubator. Therefore, a competitive local tax rate and infrastructure subsidies are important for business retention, but offering more options to business graduates is important for retention (and can be a key contributing factor to get more benefit from initial business and incubator investment). This may involve greater site selection mechanisms for the office of planning and economic development such as expedited permitting, shovel-ready sites, brownfields funds, easy-to-use and readily updated databases of properties available to businesses, commercial and industrial parks near the business incubator, and hiring a business coordinator personnel to attract and retain businesses.

The results of the survey indicate there are obvious benefits to living and working in a Gateway City. Most businesses think affordable business space and utility costs are extremely important for their business needs as well as the location’s cache, being close to related business clients and material suppliers, available workers with a high degree of skill/experience, and being close to universities conducting relevant research are important for their businesses success.

Businesses thought a high quality of life was important for their recruitment and retention. The majority of businesses stated it was important to locate their company close to their existing residence or the residence of others in the management team. Businesses also stated the quality and beauty of the surrounding natural environment and
being near attractive places to live for their workers is important. Many also thought Gateway Cities offered great quality of life amenities such as affordable work space, housing, and other costs. Many businesses also think Gateway Cities have advantages over Boston. For example, a few businesses commented that Boston has high housing costs, terrible traffic, and poor public transit.

I think better marketing the assets of Gateway Cities and their business incubators through the local or regional office of economic development and planning, university or community colleges, tourism, Chamber of Commerce, and other government sources is very important. Some marketing examples may consist of university or community college marketing pamphlets to students or alumni, trade or business-affiliate magazines or organizations, career fairs, conferences, tourism and travel sources such as websites, newspapers, magazines, agencies, billboards, and even television.

I recommend that Gateway Business Incubators emphasize or improve the following services: shared resources with universities and community colleges; accounting and financial services; and law, licensing, copyright, and/or patenting services. I also suggest that Gateway Business Incubators emphasize or improve the following facilities: technology and utilities, conference rooms and shared resources (facilities and machinery) with universities, community colleges, and outside private companies.

I recommend creating additional private funding sources for business located in incubator facilities and for all small businesses in Gateway Cities. This may include funds for additional entrepreneurship or specialty training, funding and incentives, facilities, and services. Starting a pre-seed capital fund, grants and matches, or a
microloan fund as used in the Ann Arbor USA SPARK or UMass’s M2D2 are good options. It is important to match raised funds either 1:1 or 1:2 to awarded funds. This gives the incubating businesses an incentive to work hard to succeed since some of their personal money is at stake. Also, once the company commercializes its product or reaches “success” according to their business plan (and thus turns a profit), the company should pay a percent of their profit back towards the microloan fund (similar to M2D2’s Fastlane Loan Funding Program).

I would like to see Gateway Business Incubators incorporate a virtual incubator. This is becoming very popular as the internet and social networking sites take-off. A virtual incubator capitalizes on networking opportunities and may include a website or other in-person networking event as to distribute information to bridge the “knowledge gap” (Virtual Business Incubator). A good example is Wisconsin’s CAP Services Business Incubator, which provides all information for prospective new businesses on an informative and easy-to-use website (Virtual Business Incubator). The M2D2 and the ATMC/Quest Center have been successful with this by utilizing a mailing list and other networking events to members of the M2D2 medical device community, among others, who are not located in the M2D2 incubator per se.

Lastly, I recommend that business incubator’s work with other regulatory tools, such as supplementing TIF and empowerment zones with small business incubator-focused areas of investment.
CHAPTER 9

CONCLUSION

By using innovative economic development strategies to attract small business formation and growth, such as business incubators, Gateway Cities may be well on their way to more thriving economies. As illustrated in this study, Gateway Cities have many assets and areas of competitive advantage. They have the potential to support a prosperous business and living climate. With more coherent, collaborative, and innovative approaches between government, business, and the community, Gateway Cities may return as the “Gateways” of economic prosperity they once were.


Belansky, Evan. A Market Feasibility Study for a Small Business Incubator in the Pioneer Valley Region: An Examination of Hampden and Hampshire County and the City of Holyoke., 1996.


"Department of Estuarine and Ocean Sciences and the Department of Fisheries Oceanography " <http://www.smast.umassd.edu/About_SMAST/dean's_message.php>.


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Kalva, Richard A. The Small Business Incubator in Local Economic Development: Two Cases in Western Massachusetts., 1990.


"Massachusetts Medical Device Development Center."  
<http://www.uml.edu/m2d2/Entrepreneurs.html>.

"Massachusetts Renewable Energy Trust."  


"MassGreen Initiative, Springfield Community College."  


"National Business Incubator Association."  

"New Bedford Economic Development Council, Quest Center."  

"New England Marine Renewable Energy Center "  
<http://www.mrec.umassd.edu/about.php>.


"US Census Bureau, County Business Patterns." <http://factfinder.census.gov/servlet/DatasetMainPageServlet?program=EAS&_tabId=EAS2&_submenuId=datasets_5&_lang=en>.


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