An Internal Analysis of MBI

A Major Qualifying Project

Submitted to

Massachusetts Biomedical Initiatives

And to the Faculty of

Worcester Polytechnic Institute

April, 23, 2008

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Abstract

An internal analysis of Massachusetts Biomedical Initiatives (MBI) was conducted to improve their business practices. To measure success internally as well as in the field we held interviews to get feedback on MBI's strengths and weaknesses. We also produced an analysis based on the past four years of budgeted financial data. In addition we benchmarked MBI within the incubator industry. We also compared MBI's website with their competitors. A list of recommendations was bestowed upon MBI to assist in maintaining their standing as one of the leading life science incubators in Massachusetts.

Acknowledgements

Our group would like to thank the following people for helping us with the completion of our project.

Prof. McRae C Banks – For taking over our project in C – term and giving us the guidance the rest of the way so that we could complete our project.

Prof. Fabienne Miller – For being there the entire way and always lending us a helping hand whenever we needed it. For continuously checking our drafts of the project and for providing great amounts of help on our financial analysis.

Prof. Chickery Kasouf – For helping us start our project and getting our group off the ground. For offering guidance during the first half of our project.

Kevin O' Sullivan – For having weekly meeting with us and showing us how MBI operates. For giving us any kind of information that we needed. For always giving us words of encouragement and making us feel like we were accomplishing something.

Chris LeBlanc – For giving us extensive help with MBI numbers. For creating many data sheets so that our group was able to conduct our financial analysis. For always be willing to quickly answer any question and giving our group constant support.

Judy Cocaine – For helping us with explanations of the functionality of the website and retrieving the strategic plan metrics.

Thanks to anyone else that offered their support and help in the completion of this project we couldn't have done it without you.

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Chapter 1 – Introduction

1.1 – Problem Statement

"Massachusetts Biomedical Initiatives (MBI) is an independent, tax-exempt corporation created to support the growth and expansion of biotechnology and medical device companies throughout the region, enhancing the status of Massachusetts as a world leader in the medical industry."(MBI, 2007) By creating the right environment for the biomedical industry to expand and grow, MBI has become a national model for leveraging public sector funds with private sector investments to fuel economic development. The goal of MBI is to aid in the development of the biomedical industry in Central Massachusetts. Currently, MBI is the chief incubator center within central Massachusetts. MBI can accomplish their goal by promoting the commercialization of our region's academic and science research to develop new biotechnology, medical device, and pharmaceutical companies. MBI allows companies that wouldn't have enough venture capital to get their company operating, to rent out MBI's labs and utilities. They also encourage entrepreneurship by giving people the ability and work space to start their own research on a product, that otherwise would be too expensive to acquire.

For our major qualifying project (MQP) we did an internal analysis of MBI. Using the *NBIA State of the Incubation Industry 2006* we compared MBI to national averages in their field.

We interviewed MBI employees along with a number of MBI's startup companies to obtain feedback on the strengths and weaknesses of MBI. A Financial analysis pertaining to MBI's recent performance was conducted. The analysis allowed us to see if MBI reached their goals in the last strategic plan, and allowed us to see if any new goals should be added. We also addressed non-financial factors such as jobs created. We also measured the previous strategic plan based on metrics that MBI was recording to make sure that they were following it.

In order for us to accomplish our goals, we first needed to understand how MBI operates. Our group carefully observed and analyzed all available data including annual fiscal reports. We then benchmarked MBI compared to other technology incubation companies, on the national level. Using the financial analysis, interviews, and benchmarks we came up with a SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis. We then focused our attention on the company's website because it is MBI's first line of marketing on the internet. In order for our internal analysis to be successful, we had to make sure that we understood MBI as a whole so that we could make optimal recommendations. The aim of our recommendations was to ensure MBI's future financial viability.

After completing our project we presented our findings to the MBI's CEO, Kevin O'Sullivan. We presented him with a comprehensive report on the state of their organization based on our findings. Using our project as a guideline Kevin O'Sullivan will be able to take the benchmarks we find and bring it to an annual incubator conference so that he is able to benchmark MBI against other life science incubators. Our projects original goal of creating a

strategic audit could not be realized, but we were able to provide MBI with a formal way of documenting their strategic plan progress.

1.2 - History of MBI

MBRI (Massachusetts Biotechnology Research Institute) was founded in 1984 as a private, tax exempt venture to revitalize the central Massachusetts economy through stimulating the development of new commercial products. MBRI's mission was to accelerate the commercialization of academically based technology into commercial products and to assist in regional economic development through the creation of new companies leading, in turn, to creation of new employment opportunities. (MBI, 2007)

In 1999, MBRI was facing a rapidly evolving industry and thus changed its name to Massachusetts Biomedical Initiatives. The name change was a symbol of MBI's new approach to the market. It was no longer focused only in biotechnology but also focused on every aspect of biomedical industry as well.

To date, MBI and its former venture capital creation, Commonwealth BioVentures Inc. (CBI), have invested over $8 million of public funding and over $50 million of private investment in new technology driven companies, have developed two major new incubator centers and have helped to create over 50 companies. Companies receiving support from the MBI/CBI alliance employ over 2,000 people, 1,500 located in central Massachusetts. These companies

now have over $50 million a year in payroll and they have raised $600 million of additional financing which has fueled the economic growth of the region. (MBI, 2007)

MBI biggest strength has been leveraging public sector funds with private sector investments to fuel economic development. Collectively, these public and private funds have made it possible for MBI to establish fully functioning incubator centers in Worcester, which create unique Life Sciences Commercialization Centers.

In the following chapters we will explain the process by which we conducted our internal analysis. In Chapter 2 we will introduce the background information needed to understand our project. In Chapter 3 we will show the methodology used to create the internal analysis. In Chapter 4 we will show the results of our work for MBI. Finally, in Chapter 5 we will draw conclusions and list recommendations that will allow MBI to maintain their position as a market leader in Central Massachusetts.

Chapter 2 - Background

The goal of this project was to conduct an internal analysis which outlines the marketing, benchmarking and financial strategies for the organization Massachusetts Biomedical Initiatives (MBI). MBI is an organization that is in the business of developing and managing biotechnology incubators. In the following chapter we will provide an outline of five main topics that we will focus on. The first topic will be the incubator industry as a whole. We will take a look at how the industry developed and how MBI fits into it. After that, we will explain the different financial documents that we received from MBI and how they can be used for benchmarking and analysis. After that, we will take a look at MBI's current marketing strategy and explain the fundamentals of marketing. Next, the process of creating a SWOT analysis will be discussed. Finally, we will tie it all together with an explanation of what an internal analysis entails and how one is created using the other forms of analysis throughout our project.

2.1.1 - Incubator Industry

Incubators are facilities that help economies grow because they provide help for small start-up companies who normally couldn't afford facilities of their own. This creates more jobs and more commerce for the economy. The following section will explain more background on incubators and the effect they have on the economy and an overview of Massachusetts

Biomedical Initiatives (MBI). The first section will take a broad look at the incubator industry as a whole. The second section looks at MBI and how they operate as a business. Researching these topics allowed us a better insight into the incubator industry, and how MBI conducts its day to day operations.

2.1.2 - Incubators

Incubators are facilities where small start-up companies go to research and commercialize their ideas. Entrepreneurs who financially can't afford to own their own facility to continue their research can find a local incubator and, for a fee, continue their research without the financial burden of buying their own facility. "Incubator facilities nurture companies, of which some would, after leaving the incubator, create direct and indirect employment, with incomes and assets that in turn contribute to economic growth. Often the start-up entrepreneurs' task is to create jobs for themselves and conserve their limited funds; only after they graduate and leave the incubator may some grow exponentially, creating employment, incomes and taxes." (Lalkaka, p. 167, 2002)

The first business incubator was created in 1959 in Batavia, New York. Incubators, however, did not catch on until the 1970s. Many believe that after the big plant closings in the northeast a new economic growth plan was needed. The new plan was incubators and by the late 1980s 12 new facilities were in operation. In 1985, the National Business Incubation

Association (NBIA) was founded to oversee and provide information on business incubators to interested individuals.

In the beginning Incubators focused primarily on industrial and technical areas. In more recent years, incubators have spread into other industries. Currently, incubator facilities provide space for fields varying from food services, to software development, to arts and crafts. A study done by the NBIA shows that 37% of incubators are classified as technology incubators. Another 17% would be broken into the “services”, “manufacturing”, and “other” classes. (Klein, 2003)

Incubators usually provide common materials and equipment in their field. The tenants usually have to provide more specialized things, such as chemicals, lab equipment, and know-how used for their own research. The goal of the facility is to keep tenants and assist them in both the growth process and in becoming profitable companies.

Incubators help the economy by producing companies which in turn will create more jobs. Regions in which incubator facilities are located have companies in need of start up assistance coming from all over to work within the facilites. There have been many studies done to prove that incubators help boost the local economy. One study was done on Wisconsin incubator clients. The study stated, “Among current tenants studied, approximately 80 percent were profitable and on average 80 percent are still in operation, and approximately 12.4 percent have been involved in acquisition or merger.” (Gilbert, 12, 2005)

2.2 - Massachusetts Biomedical Initiatives (MBI)

Massachusetts Biomedical Initiatives is a private, non-profit organization dedicated to creating jobs through promoting the growth of start-up biomedical companies. MBI allows startup companies to come in and do their research in their facilities to find out if their research is profitable. MBI provides office space, work space, and equipment. In return, the tenant or company pays MBI rent, and MBI owns a 1% equity share of the company. MBI works along side with the state and its local community to keep Massachusetts ahead in the biotechnology industry.

MBI provides the following three key services for its tenants. First, there are existing services which include health, safety, business permits, fully equipped wet labs, and shared facilities and equipment. Shared facilities and equipment include a cold room, hazardous waste storage, a purified water system, autoclave, glass wash, a centrifuge, -80° freezer and flammable refrigerator.

Next, there are administrative services which include staff members that handle standard business operations. This allows the entrepreneur to be free to concentrate on research and development, and to implement the company's business and scientific plans.

Finally, one of the major things MBI provides is experience**.** MBI provides mentoring and consulting for start-up companies. This helps the companies stay focused on their goals and offers excellent, expert advice, as MBI has dealt with many other start-ups in the same industry.

(www.massbiomed.org, 2007)

These services allow tenants to get started on their research quickly. By not having to worry about permits and regulations a company can usually begin research immediately. MBI sets a competitive price based on what the current market will bear and the equipment found in the lab that is up for rent. The cost of rent and personnel are the only major costs that a tenant must worry about. MBI provides biotech equipment such as hoods, gas and electric, as well as the know-how to grow a venture. Many things are shared between the tenants, such as copy machines, restrooms and common rooms. This helps MBI reduce the costs of its utilities and facilities. When compared to the prices of other incubator facilities MBI is competitive.

MBI's normal policy is to have a one year lease with a start-up company and to renew their lease at MBI's discretion. This adds flexibility and reduces risks for MBI if a tenant isn't working out. Gross yearly rental fees include lab space, office space, shared equipment, health and safety permits, and utilities. MBI helps entrepreneurs by helping them decide if their product is a good idea or not by using its experience in the industry. MBI's aim is to yield companies that eventually move out, get their own facilities and begin to thrive.

Massachusetts Biomedical Initiatives currently has three incubator facilities in Worcester, MA. MBI used to have a facility in Boston, MA on Winthrop St., but it was closed down in April 2007 because the hospital that MBI was partnered with was shut down and therefore Winthrop St. lost its funding. The three current facilities are Biotech Park., Barber

Ave., and Gateway Park. Biotech Park is the largest facility that MBI currently has and stands at 9,280 sq ft. It just recently began operating and has not accumulated a full years worth of financial information. Barber Ave. has been under MBIs control for many years now, and is currently 8,000 sq ft. Gateway Park, is the facility that MBI has recently taken occupancy in as a replacement for Winthrop St. It was built in partnership with Worcester Polytechnic Institute (WPI). WPI is the landlord of the Gateway building and therefore covers the costs of the physical building and the landscape. Management costs and CAM charges are passed along to MBI. Gateway currently stands at 7,500 sq ft, but currently not all of Gateway is built and can be used for rent. MBI pays for the utilities of Gateway based on the percentages of occupancy they take up. The landlord's then charge Gateway that percentage of the utilities cost. All facilities are generally equipped with similar labs unless special requests are made. All current locations are in Worcester, and can easily be reached via the Interstate 290. Overall MBI has about 24,000 Sq Ft of space. (Cocaine, 2008)

The following section will explain the breakdown of the actual expenses and revenues of the different buildings of MBI, as well as the organization as a whole.

2.3 - Financial Documents and Benchmarking

There are a number of financial documents that are vital for keeping track of financial records and providing figures in the benchmarking process, trend analysis, and financial

document comparison. Financial documents that would allow us to take a closer look into MBI's operations consisted of the income statement, the budget, and the balance sheet. Each document offers unique information.

The income statement is a document that allows one to easily access financial information concerning revenues, expenses, and profit. The income statement also yields the net profit, the monetary amount that an organization is either gaining or losing. MBI's income statement reveals information regarding the financial status of each one of MBI's different locations. Many different ratios could be taken from the income statement and used for comparison between different years. (Libby, 2004)

The budget is a document used for management resource planning in an organization. Effective management of resources is vital for maximum efficiency within the organization. The budget can be used as a diagnostic tool when determining causes for variations between actual and budgeted figures. The main goal in creating a budget is to utilize all resources that the organization possesses in the most efficient manner based on forecasts for the next fiscal year. Past income statements are often used in the process of creating a budget because they are useful in providing forecasts. (Libby, 2004) MBI prepares organizational budgets once every year. Along with an overall budget, MBI prepares budgets for each of its locations and for the entire organization. In their budgets they record expected rental revenue based on current contracts with tenants. Budgeted rental income is projected twice a year on Dec 31st of and again in May. Adjustments are made based on the leases that these occupants receive. (LeBlanc, 2008)

MBI's expenses each have their own method of calculating costs. Wages are the monetary sums paid to the three full time employees and two part time employees of MBI. All of the wages were put under the Winthrop St. facility, which used to be MBI's headquarters. After Winthrop St. closed down the headquarters was moved to Gateway Park, which now receives all of the wage expenses. Wage expenses were kept separate from the total expenses because only one building has them. Insurance is a set cost that is spread out among all three buildings that must be paid each year. Rent is the amount MBI must pay its landlord for the buildings that they are currently using and is set each year during a meeting between MBI and its landlords. Operating expenses are costs sent to MBI from the landlord that include share of utilities, maintenance fees on the buildings, and common area usages. Utilities are the costs of the electricity and gas that MBI uses per year. Maintenance/repairs costs are the costs of the buying and maintaining of new equipment for the many labs within MBI. Professional service costs are the cost of lawyers to go over contracts for MBI. Office operations are the costs of new equipment and materials, so the shared offices of the different companies' can function normally. There are usually one or two office areas in each building that all tenants must share. Health and safety costs are the costs to make sure all the safety equipment is up to date, and everything is within all the different governmental standards (aka fire codes, etc.). The marketing cost is the cost of creating signs and billboards for MBI and putting different advertisements online, in journals, or at WPI. The budgets are made for each building and for all of MBI. Adjustments are made to the budgets usually twice a year once on Dec 31st when it is originally created based on occupancy, and again in July when the government decides how much of a state grant that MBI will receive. (LeBlanc, 2008)

The final document that could be used to conduct a financial analysis of MBI is the balance sheet. The balance sheet yields the relationship that an organization currently has between assets and liabilities. The organization's equity is equal to the sum of its assets less liabilities. Beyond this information, the balance sheet offers data to calculate a number of ratios for assets, liquidity, and other important operational ratios. (Libby, 2004)

Using the different financial statements a trend analysis can be done. The trend analysis will show us, in graph form, the direction that different metrics that we are using to measure MBIs performance are heading. We can then make recommendations based on increases and decreases in these numbers and projected future values. (Libby, 2004)

Using budgets and actual numbers we can compute the budget variances between what was budgeted for and what the actual numbers were. Budget variance gives you an idea of how well MBI forecasts, and makes sure that they are doing proper planning for the future for all of their facilities. MBI's financial statements can be used to extract important financial information pertaining to the organization. The information extracted can be used to compare MBI to national incubator industry averages.

Benchmarking is a management tool used to evaluate various aspects of one's business against a competitor, or what is believed to be the best practice. Benchmarking is a continuous process that should be done periodically, so that a company is always running at peak performance. A major strength of benchmarking is to stop the practice of paradigm blindness. Paradigm blindness is when one thinks the way they do it is the best, because it is the way that it always has been done. Benchmarking refers to the search for the best practice that leads to

the best results. All benchmarking requires a specific methodology and implementation to allow for proper benchmarking practices to take effect. (Trimble, 2003)

When benchmarking, a series of steps should be followed to ensure the best results. First, an area that needs to be analyzed must be identified. We mainly focused on financial and operational benchmarks. Next, research has to be done to find out the information of another company or a national average to compare with one's own company. After that, a comparison will be made between the company's numbers and that of the competitor or national average. With this comparison a company should have an idea where it stands and what needs to be improved upon.

We mainly used the NBIA State of the Industry books from 2006 and 2002 to compare MBI to the national averages. We used the MBI budgets from 2008, 2007, and 2006 as our basis for the benchmarking. The furthest breakdown of the NBIA books was that of a technology incubator. MBI is a life science technology incubator, so some of their numbers are skewed when compared to just a technology incubator. Technology incubators refer to all incubators that have to do with developing new innovations in any technology, for instance there are incubators for chemical engineering, electrical engineering, life sciences, and many more. Different incubators take different equipment to run experiments and have different financial costs. For instance, it is a lot cheaper to get the equipment to measure and run electrical tests than it is to conduct bio-medical experiments. The technology incubator is the closest incubator type that was available to compare MBI with. MBI is one of the leading life science incubators, while the NBIA books take the averages of all members of NBIA. The average is made up of

incubators that are running efficiently, but also those that are not doing very well. (NBIA.com, 2007) It is important for us to have an idea of where MBI sits compared to the rest of the technology incubator industry so we can gauge their performance.

Benchmarking MBI is a key component of developing a successful internal analysis. Analyzing and interpreting the numbers can give us a clearer picture of where MBI stands when compared to other national and local incubators. A way to get better benchmarks for one's company is to have a clear understanding of marketing. The following section will discuss the fundamentals of marketing and how they pertain to our project.

2.4- Marketing

One of the necessities for creating a successful business plan requires implementation of a successful marketing strategy. A successful marketing strategy requires a mixture of four different key concepts. When a successful marketing strategy is made then a proper marketing plan can be formed. The four concepts that make up a marketing plan are product, price, place, promotion. These four concepts are widely recognized as the part of the marketing mix. The concept of the marketing mix was reportedly introduced by Neil Borden in his presidential address to the AMA in 1953. He got his idea from James Culliton, who described the business executive as somebody who combines different ingredients. The term "marketing mix" therefore referred to the mixture of elements useful in pursuing a certain market response. (Hunt, 1976)

His 4P formula was made of four classes, Product, Price, Place, and Promotion, Promotion itself being split into advertising, personal selling, publicity (in the sense of free advertising), and sales promotion. The 4P system has become the most cited and the most often used classification system for the marketing mix, both in the marketing literature and in marketing practice. Hence, the 4P system may well be called the traditional classification of the marketing mix. (Waterschoot, 1992)

These four elements of the marketing plan are rather easy to understand, but improving and integrating them in to MBI's marketing strategy might be a rather challenging task. To understand and improve each of these concepts the team conducted intensive research on every aspect of MBI's marketing plan.

One of the 4P's, the product, is widely recognized as the services/items a company offers. For MBI, the product is the lab-space available for rent and the qualitative services they provide such as, administrative services. A good product is not only the cost effective one, but more importantly it is the one that meets and surpasses all the expectations of the customers. MBI must make sure to always have the best equipment and utilities possible. If MBI wants to attract desirable business to their facilities, they must have quality lab equipment, service, and employees.

Price is the amount of money charged for a good or service. Currently, MBI receives revenues by charging rent and they also own a 1% equity stake within the tenant company. This equity leads to later revenues, if the company is ever sold or goes public. MBI takes the money it earns from the 1% share and places that money into a capital account to buy new equipment,

keep a safety fund, or to make physical improvements to the labs of MBI. The prices must be competitive with other providers pricing methods. (O'Sullivan, 2008) Finding the most suitable pricing strategy for MBI will require additional market research on the incubator industry and possible pricing methods.

Upon analyzing potential pricing methods we were faced with a variety of options. While the pricing objectives provide general directions for action, Oxenfeldt defines pricing methods as the explicit steps or procedures by which firms arrive at when making pricing decisions. "A comprehensive review of the literature of pricing of services identified twelve pricing methods falling into three large categories namely cost based, competition based and demand based." (Oxenfeldt, 1974) These methods are:

(1) Cost-based methods: Cost-plus method – a profit margin is added on the service's average cost. Target return pricing – the price is determined at the point that yields the firm's target rate of return on investment. Break-even analysis – the price is determined at the point where total revenues are equal to total costs. Contribution analysis – a deviation from the breakeven analysis, in this method only the direct costs of a product or service are taken into consideration. Marginal pricing – the price is set below total and variable costs so as to cover only marginal costs

(2) Competition-based methods: Pricing similar to competitors or according to the market's average prices, options are; pricing above competitors, pricing below competitors, and/or pricing according to the dominant price in the market– the leader's price that is adopted by the rest of the companies in the market.

(3) Demand-based pricing: Perceived value pricing – the price is based on the customer's perception of value. Value pricing –a fairly low price is set for a high quality service. Pricing according to the customers' needs – the price is set so as to satisfy customers' needs.

Break-even pricing is a simple, yet a very effective way to set up rent prices based on the total costs of a facility. On the other hand competition-based pricing will assist us on deciding the final price for the rent based on what the market can bear. It is important to find a price that doesn't turn away new businesses, but allows the company to generate enough revenues so that it can sustain a steady growth rate, and earn a profit for new additions, and help other companies grow. Another source of revenue for MBI is the state grant and equity royalties. These grants and royalties help MBI cover their capital costs each year, because the state grants and royalties provide great aid to MBI, it enables MBI to use break-even pricing to keep supporting the small life science companies. Many of the tenants that join MBI receive money from venture capitalists. Without help from these venture capitalists they would not be able to afford the rent of MBI. Without all the outside help from other investors MBI would not be able to exist.

Place in the marketing mix refers to the channels used to reach the costumers. It is important to locate your company in an area which provides easy access to costumers. For MBI, there are three different labs located in Worcester.. There was also one facility located in Boston, MA, but that was closed down in 2007. Massachusetts is currently one of the biggest markets in the life sciences industry. MBI is located next to WPI, a technical institute that

regularly produces life science graduates that with potential to rent from MBI. MBI is currently located in a prime location to grow and expand.

Promotion is the way in which a company advertises to its potential customers. For MBI, the cheapest and arguably the most effective way of promotion is their website as it is the most cost efficient way to reach the potential tenants. The web-site includes detailed information about the organization and their clients. User-friendliness and a non-intimidating user interface are important assets of the MBI website. MBI's promotion strategy is not only based on their website, MBI also takes part in many trade shows and academic forums. They are great venues in trying to find people with the technology and ability to start up life science companies. Promoting to the right people at trade shows can lead to new company ventures and better connections in the biomedical industry. Another common venue of promotion is putting ads into magazines or trade journals. MBI advertises in life science journals to promote to people that have already showed an interests in the life science. Reaching an organizations target market is one of the biggest challenges in promotion.

In the end the 4Ps must work together in a single strategic plan to satisfy the customer's needs and allow the MBI to make a reasonable profit. Marketing mix elements are often viewed as controllable variables because they can be changed. They also describe the result of the management's efforts to creatively combine marketing activities. (Zineldin, 2007)

With proper benchmarking and analyzing of financial statements and having a clear understanding of how the marketing system of MBI works, one may start to create a proper SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis.

2.6.1 - SWOT Analysis

In today's world business is always changing and it is important to make sure that your own company is running at peak performance and not struggling to survive. Advancement in technology, competition, deregulation, increases in consumer demands and many other factors can cause a lot of pressure for a company. (Panagiotou, p.8-10, 2003) Consequently, "organizations do not exist in a vacuum but rather they exist, co-exist, compete and cooperate in a multi-dimensional and interrelated environment characterized by ambiguity and complexity." (Panagiotou, p. 8-10, 2003**)** Understanding this environment is crucial to creating strategy, decision making and strategic planning.

As a result, there is a variety of strategic planning tools that enable managers to formulate competitive strategies in accordance with the requirements of their business environments. One of these tools; strengths, weaknesses, opportunities and threats (SWOT) analysis, is used more than any other management technique in the process of decision making.

SWOT analysis is originated from the efforts at Harvard Business School to analyze case studies. In the early 1950s, two Harvard business policy professors, George Albert Smith Jr and C Roland Christensen, started to investigate organizational strategies in relation to their environment. "In the late 1950s, another HBS business policy professor, Kenneth Andrews, expanded on this thinking by stating that all organizations must have clearly defined objectives and keep up with them."(Panagiotou, p.8-10, 2003)

SWOT analysis deals with the analysis of an organization's internal and external environment with the aim of identifying internal strengths in order to take advantage of its external opportunities and avoid external (and possible internal) threats, while addressing its weaknesses.

There is no doubt that SWOT analysis will be valuable tool for completing our project. SWOT analysis will assist us in auditing and creating a business strategy for MBI as SWOT analysis encourages decision makers to consider important aspects of their organization's environment and helps them organize their thoughts. The idea that managers should be thinking about their organization's SWOT-based variables is very important in the process of decision making.

2.6.2 - Strengths and Weaknesses of SWOT

SWOT was designed to include information on customers, markets, and competitors gathered by external research methods. But more often than not, SWOT is an exercise that is internally driven. (Taking on Strategic Planning, 2008) Based on the manager's perception of customers, markets, and competitors, SWOT often uses historical and internal information—not real, external data. It is subjective, and sometimes creates an inaccurate picture of what is going on in the market. (Taking On Strategic Planning, 2008)

Once we have done a proper financial analysis, benchmarked MBI against the national averages of other technology incubators, looked at their marketing strategy, and performed a SWOT analysis, we may begin to look at that strategic plan. Using the information that the other sections provided we can come up with clear recommendations and created an internal analysis for MBI.

2.7.1 - Strategic Audit

One of the main objectives for our project was to perform a strategic audit for MBI. A strategic audit is the process of updating a company's strategic plan. A strategic plan is a document that expresses in writing an organization's primary objective and provides detailed instructions on how to attain that objective. The strategic audit involves the careful scrutiny and examination of an organization's strategic plan. According to Renee Dye from Mckinsey Quarterly, a strategic audit is an "annual planning process" that "results in a budget, which establishes the resource allocation map for the coming 12 to 18 months; sets financial and operating targets, often used to determine compensation metrics and to provide guidance for financial markets; and aligns the management team on its strategic priorities." (Dye, p. 40-49, 2007) For the strategic audit to be a success, we needed to understand the current strategic plan and make goals that could be attainable and change MBI for the better. The strategic plan consists of five different sections (MBI Strategic Audit, 2006).

- Mission Statement - defines the basic operations of the company, explains the benefits that clients will enjoy, and lists the moral values that they will draw on in conducting their business

- Historical Perspective– Provides information about the history of biotechnology in Central Massachusetts as well as the history of MBI

- The Strategy for Accomplishing the Mission - explains how MBI could ensure client success, how they could find new tenants, and how they could maintain or advance their financial viability

- Identify Appropriate Measures of Success and Regularly Track Progress - examples of measurable metrics are given, benchmarks are set, and suggested areas to track are proposed

- Scope of Services - states an objective for MBI, provides tactics used to work towards the objective, assigns a responsible party, indicates a priority level of high, intermediate, or low, and shows the current status of each task

The strategic plan will give MBI a list of goals and the steps necessary to complete these goals. It will also lay out metrics by which to measure these goals. With the strategic audit in hand MBI will have an idea of where they want to take their company and how they should get there.

Chapter 3 - Methodology

In this chapter we will explain some of the ways in which we will create the internal analysis. We will follow a series of steps in order to accomplish our main goal, which is the creation of the internal analysis. First, we will look at some of the methods used to perform a cost analysis. We will begin to explain MBI's costs including, equipment costs, operating costs, and real estate costs. We will evaluate each of these costs and discuss how they are represented on the financial statements. Then the group will analyze MBI's financial statements to determine some areas of strengths and weaknesses for MBI. The group will evaluate MBI's marketing strategies and website usage. We will look at how MBI prices its space and services. We will then explain the interviews conducted with MBI's past and existing clients as well as MBI employees. These interviews will helps us to analyze and better understand MBI from different points of view. They will give us a better sense of the strengths and weakness of MBI. Using the benchmarks, financial analysis, and interviews we will show the process of creating a SWOT analysis. Finally the group will make comments on updates it will make of the existing strategic plan and how it will go about improving upon it. The first step in our financial analysis will be to understand the different costs that go into the financial documents. That will be discussed in the next section.

3.1.1 - Cost Analysis

Cost analysis is a vital part of our project to complete the benchmarking and financial analysis. We analyzed MBI's internal costs which are divided into three different categories: real estate costs, operating costs, and equipment costs. Using the financial documents provided to us by MBI, we compared costs in different categories among MBI's four locations. An analysis of MBI's costs at each level may reveal areas of inefficiency. With these areas analyzed MBI will be able to focus more of their attention on trying to reduce costs in the specified areas.

Using the proper financial documents we intend to analyze the costs of real estate, operating, and equipment. Real estate costs are those that deal with the purchases and payments towards land and building space. Operating costs are the utility costs of a company; the water, heat, insurance, maintenance, and electricity. They are also the personnel costs to keep the company running. Equipment costs are the costs associated with purchasing, leasing, and renting lab equipment. All costs must be looked at while trying to make a proper cost analysis. We took these numbers and using the NBIA green book compare MBI with the national average.

3.1.2 - Real Estate Costs

The costs that go along with the buildings and the space used by the company are its real estate costs. Many factors must be taken into consideration when looking at these types of costs. Among these factors are the relative sizes and locations of the companies. The size of

both companies in comparison is important, because costs generally increase as the size of the establishment increases. For example, to compare operating cost figures of two firms of different sizes, it's possible to figure out the cost per occupant or cost per square foot (sq ft), and compare those figures. Costs vary from region to region, so it is usually inappropriate to make a straight comparison between two firms located in different regions. For example, location becomes a factor when determining real estate costs because the cost of living is different for each area. Real estate costs for MBI were split amongst the three different locations within Worcester, MA. The main costs of real estate were the rental fees, insurance, and property maintenance. We compared the real estate costs with that of the national average to see how MBI stands. We calculated the costs by square foot so our comparisons would be more meaningful and size would not be a factor.

3.1.3 - Operating Costs

Operating costs are the costs that come from the everyday operations of a business, which associate with the general maintenance of the offices, the costs of utilities, and the cost of personnel. These costs include the price of water, gas, electricity, heat, insurance, taxes, labor and custodial services. These are the costs which are rather easy to reduce. Cutting down utility costs can lead to huge savings for a company. A simple example of this at MBI, which they already do, would be the sensors that automatically turn the lights off when someone leaves the room. This reduces the costs of electricity per month.

Personnel costs are the expenditures paid to employees based on wages and benefits. MBI currently employs only five staff members, with only three of them full time, so wages make up a small percentage of their total costs. The people currently on their staff full-time are Kevin O'Sullivan, MBI manager, Judy Cocaine, MBI personnel assistant, and Jim Duffy, MBI facilities manager. The two part-time employees are Chris LeBlanc, MBI's accountant, and Michele Crawford, health and safety coordinator. There were no significant changes made to the personnel costs because of the small number of people that MBI employs.

3.1.4 - Equipment Costs

Equipment costs are the costs of all of the machinery and lab equipment used in the MBI facilities. Having the most up-to-date and well maintained equipment is important because the quality of the equipment offered to tenants will directly affect the quality of research and accuracy of results achieved by tenants. It is important however to make sure that the equipment is used properly in order to reduce maintenance costs. Cutting edge technology will attract potential tenants and lead to development within their facilities.

Each of these costs can be seen on different MBI financial statements and can be used as metrics for benchmarking, which is covered in the following section.

3.2 - Financial Statement Analysis and Benchmarking

The examination of MBI's Financial Statements was a vital part of the project. It provided the necessary information for a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis, the benchmarking, trend analysis, and budget variances. The SWOT analysis

was the blue print for the strategic plan. Benchmarking allowed us to see how MBI was doing against the national averages of other technology incubators. The trend analysis showed us the direction in which certain costs of MBI were headed. The budgeted variances showed us how well MBI forecasts for the future and if they are living up to their budgets. Without a careful and insightful evaluation of MBI's financial data we would not have been able to effectively make recommendations.

The first step in the financial statement analysis consisted of comparing MBI to National Business Incubation Association (NBIA) averages to do proper benchmarking. We were able to take metrics from the MBI financial documents like revenues and expenses and compare them with that of the NBIA 2006 and 2002 green books. We then showed the percent variance between the NBIA green book and the budgets between the years 2006-2008. NBIA numbers cannot be used as exact comparisons with MBI, because they are numbers comprised of the entire technology incubator industry, not just life sciences. This skewed how the numbers would compare with MBI because life sciences usually take more money to upkeep then other technology incubators. Next, comparisons were made among each of MBI's locations. The comparisons allowed MBI employees to identify differences in revenues and expenses per square foot for each location. The conclusions from this comparison were used to point out and explain differences among the locations and identify the most plausible areas to make improvements.

After comparing MBI to NBIA averages and making comparisons among each of MBI's four locations the group examined MBI's sources of revenue. This allowed us to see how MBI

gets money to pay for its costs. MBI's budgets from the years 2006-2008 were used. Each source of revenue was divided into different categories and expressed as a percentage of the total revenue. We also broke down the revenue into revenue per square foot to make comparison between buildings easier and more meaningful. Categories consisted of rental income, state grant revenue, interest income, and investment income. The 1% equity that MBI receives from all companies that are a product of MBI, and have become independent was also being taken into consideration, but it does not appear on the budgets. Breaking down these figures into percentages resulted in a better understanding of MBI's major sources of income. It was much easier to see which areas of the business were generating the most revenue. The break down acted as an aid in prioritizing the tasks that MBI carries out.

Subsequently, an analysis of expenses was conducted. The group examined each expense using budgets from the 2006-2008 years. The major expenses that were looked at were utility costs, personnel costs, maintenance costs, and rental costs. We broke these costs down into percentages of each building and also square foot costs. This way the numbers were easier to work with and more trend analysis could be generated. Also, the square foot costs gave us a better basis for our comparisons.

After we had a breakdown of the expenses and revenues we did trend analysis on any budgeted expenses and revenues that we had three years or more of valid information. MBI moved out of one of its main buildings and into two new ones in 2007. Currently, they do not have full year worth of data for Gateway or Biotech Park, so limited analysis could be done on these facilities. Barber Ave is the only building that has a complete set of information from

2005-2008 filled out, while Winthrop Street has only the years 2005-2007 in most expense and revenue categories completed. The only trend analysis that could be completed with full sets of data between both buildings was that of rental income, rental costs, and utilities.

One thing that MBI wanted to look at was the difference between the budgets created for the construction of Gateway Park, compared to the actual numbers of Gateway Park in operation. This will be very useful for Gateway Park. We were able to take a look at the budget that an old MQP team made and compared it with the numbers that have actually occurred for MBI. We can then compute the variance and it will show us how well the MQP team budgeted and how well Gateway Park is operating. Gateway Park has not been in service for a full year so an exact measure could not be taken, but rough numbers were able to be compared. To get the numbers of Gateway Park, Chris LeBlanc took the actual numbers from 2007 and divided it by 8, because Gateway Park has had 8 months of service. She then took that number and multiplied it by twelve to simulate a full years worth of cost. We looked at the variance between square foot costs and actual dollar value, and showed the percent difference. The budget was created by a WPI MQP group in 2006, and the actual numbers are from 2007. For the other facilities we were given the budgeted numbers from 2005-2007. We also received the actual percentage of total costs from those same years. We were able to do a comparison of budgeted percentages to actual percentages to see how well the budgets were being forecasted when compared to actual.

By the process of benchmarking we were able to make a chart that showed the national averages of the metrics we were going to benchmark from 2006 and 2002. We were then able

to compare those with the numbers we received from MBI and its financial statements. We will use the benchmarking of gross square footage as an example.

The first step in gross square footage was to find out what MBI's current size was. Using the NBIA State of the Incubator Industry book the national averages for gross square footage for a technology incubator was found. That was then compared with the numbers that were found for MBI. We discovered that MBI had less square footage available then the average incubator.

In the end we intended to benchmark fifteen different categories and compare them with the national averages as stated in the NBIA books from 2006 and 2002.

The following is a list of categories that MBI will be benchmarked against: (NBIA, 2006, 2002)

- Gross Square Footage – Total square feet that an incubator has to use within its facilities.
- Revenues – The amount of money gained by rent, state funding, and other investment into the incubator.
- Expenses – The amount of money it costs to operate.
- Occupancy – The average percentage of labs filled with tenants to labs available for rent done annually.
- Full time staff – The amount of full time workers currently working within an incubator.

- Payroll Expenses Percentage – The percentage that payroll makes up of the total expenses.

- Rental Revenue Percentage – The percentages that rent makes up of the total revenues.

- Current Client Companies – The number of companies currently renting out from an incubator.

- Months before Company Graduation – The amount of time it takes from when a company becomes a tenant of an incubator, and moves out on its own to start up its own facility.

- Full Time Jobs Currently in Employment – The amount of jobs created by the incubator that are currently located within the incubator.

- Operational Gain – Amount of money gained or lost from operation. It is calculated by subtracting expenses from revenues.

Another aspect of the benchmarking was to see the square footage cost of different expenses of MBI. To do this the cost of a certain expenses of MBI was taken, for example insurance, and then divided by the entire square footage of all of MBI. This allowed Kevin O'Sullivan and Chris LeBlanc to see where too much money was going into certain expenses and where improvements had to be made. We did face some limitations when it came to what could be analyzed. We were only given budgets for the 2006-2008 years for Barber Ave, Biotech Park, and Winthrop St. The actual numbers that were received from MBI, were in percent form

not actual monetary value. We were able to back into actual money using these percents. These numbers were the closest thing to actual numbers that we could get, which therefore limited the amount of analyses we could conduct. Also, many numbers were missing from the financial statements. Winthrop Street was closing down in 2007 and therefore only had four months worth of information. Gateway Park and Biotech Park had both been in operation for less than a year so they don't have a complete list of information available for any years before 2007. The only building in operation that has a complete set of information that proper analysis can be done for was Barber Ave. This puts much limitation on both the numbers that we used and the conclusions that we were able to make.

In order to have better financials and benchmarks for MBI we must have a clear understand of their marketing strategy. The following section will cover MBI's marketing strategy.

3.4.1 - Marketing Methodology

One of the key ingredients of a successful business plan is the marketing plan. In order to develop an effective marketing plan there are various aspects that must be addressed. A marketing issue is finding the right price for the rent. We wanted to make sure that the services and labs that MBI offers was of top quality. To improve the quality of the product, our group interviewed existing and past tenants of MBI. We wanted to find out their needs and expectations from MBI. Also, we wanted to see if there are any machines or equipment that are in high demand and that MBI might be in need of.

3.4.2 - Pricing

An aspect of our project is to review and evaluate the current pricing method for MBI, so that they profit and attract customers at the same time. Evaluation of the pricing methods requires an analysis of MBI's current pricing method. Choosing the right pricing method has proved challenging too many managers. (O'Sullivan, 2008)

MBI's current method for pricing is very similar to break-even analysis, it is done by calculating the total costs of each running incubator individually and then dividing it out (by size) against each lab and office area within that space, the costs include the common areas such as conference room, kitchen, shared equipment rooms, bathrooms, hallways, etc. within the gross monthly cost they charge, additional costs include utilities, taxes, wages, health and safety permits, cleaning and maintenance, etc. as well. The final sum of all expected revenues are then compared to the total expected costs of the upcoming year. This is done to adjust the rent prices to match the extra costs, if any are present. All capital costs are ignored as they are covered by the state grants.

As a private non-profit organization MBI does not mark up the price because they want to keep the industry both competitive and affordable for start-up life science companies. MBI also compares its prices to other incubators before deciding on the final number to figure out what the market can bear. MBI also aims to have a positive impact on the central Massachusetts economy by staying a non-profit organization. Since MBI is a non-profit organization they only wish to generate enough revenue to cover their expenses. (O'Sullivan,

2008) It may be argued that using break-even is not the most suitable method for setting up real-estate prices, but as MBI's mission is not to make profit, but to provide support to the small biomedical firms in the area, break-even pricing appears to be an effective method.

3.4.3 - Break-Even Pricing

Breakeven pricing shares the same principles as the breakeven analysis. Break-even analysis is used to determine how many products must be sold before the company starts realizing a profit. In other words it used to find the break-even point, the point where the total costs are equal to total revenues. Breakeven pricing does not directly take into account market demand when determining price, however it does indicate the minimum level of demand that is necessary for a product make a profit. In other words, at the break-even point, operating income is by definition zero. (Horngren, 2005)

Formulas for finding the break-even point: (MBI MQP, 2006)

(Selling price X Quantity of sq ft occupied) - (Variable costs per unit X Quantity of sq ft occupied)- Fixed costs

= Operating Income

Formula using Contribution margin of each unit sold: (MBI MQP, 2006)

(Contribution margin per unit X Quantity of sq ft occupied) – Fixed costs = Operating Income

MBI current pricing system has worked well for them over the years. A breakdown of the rent costs associated with each lab, actual expenses of each lab, or all of MBI could not be obtained, so we were not be able to do a break even analysis. To bring this project further, a group may be able to do one and give the optimal pricing strategy to MBI. To get customers to come and be tenants of MBI they must promote to the right people. Promotion will be discussed in the next section.

3.4.4 – Promotion

Another task of this project was to increase the visibility of MBI's website. A great way we found to do this way to sign up for Google Ads. With Google Ads, links to the MBI website will show up on user's screens when they search keywords that correspond to MBI. This can also be set up by location so that people that live within 25 miles of MBI will have a higher chance of being linked to MBIs website. Google Ads works on a pay per click basis. This way if no one uses Google Ads to get to the MBI website, MBI doesn't have to pay anything. Many different payment plans can be set up so that not too much money has to go to Google for this extra marketing. For instance you can either pay 10 cents per click on the Google Ad, or set a maximum you want per day to be spent. Alternatively, you can allow Google ads to have no maximum, which brings down the cost per click, but you may end up spending more per day for the extra advertisement. We feel that since incubators are not something commonly searched for online that a maximum per day would be the best method. This way it allows people that are seriously searching for incubators the greater chance of seeing the MBI website. This is a

great way to increase the visibility of MBIs website on the web and to attract customers that are definitely in need of incubation programs. (Google Ads, 2008)

3.5 - Website

A website can be an inexpensive way to reach a great number of people at a very low-cost to the producer. Websites vary tremendously in quality, however, because anyone possessing even rudimentary knowledge of design can create a webpage. Consequently, a highly informational website may be ignored because of poor visual appeal and lack of user-friendliness. Therefore, commenting on the "look and feel" of the site is as valuable as reviewing its content.

Here are some metrics we have used to evaluate the website of MBI. (www.massbiomed.org, 2007) We used these metrics so we had an idea on how to evaluate a website properly, and to know what we should look for.

Some things to look for when evaluating a website are, does the site load quickly? A site that is slow to load gets abandoned quickly by semi-interested viewers and others who may become impatient when trying to access the site or transition from page to page within the site. (Norfolk, 2004) If images are loaded, are they interlaced, that is, loaded in many passes so that the image appears from blurry to crisp in many stages. Interlacing takes a little bit longer to load, but the user does not realize it because she or he watches the image improve in

resolution over time which is better than just waiting for the images to load from blank. Do all the navigation tools and the most important parts of the webpage fit within the browser window immediately upon opening (without scrolling)? Informational sites should be designed for a screen resolution of 640 ´ 480 or 800 ´ 600.There are many computer users who still use a 15-inch VGA monitor, which is a 640 ´ 480 display, users will appreciate not having to scroll to find the right navigation button. (Norfolk, 2004) Is the navigation tools (e.g., navigation buttons or bars) one of the first things user sees on the page? These are highly important for a page to be successful as easily accessed navigation tools increase the user-friendliness of a website. It is important to keep navigation tools remain accessible even when the user scrolls down for more information. Rather than having to scroll up and down to find them (which can be distracting). Is the overall design of the site clear and simple or cluttered and confusing? Is the text readable? Is there good contrast between background colors or images and text colors? Is the point size of text appropriate? Does the site use a consistent color/background scheme? This creates a sense of uniformity and continuity. The possibility of using different designs/color schemes for each page is appealing to the novice but is distracting to the user. Does the page contain animation? (It is easy to overdo animation. One can tell an amateur by the overuse of animation, and the user will feel its jarring effect). Does it contain mouse-overs? A mouse-over is a link or button that changes color or shape depending on whether the mouse is over it and whether it has been activated. Does the website contain image maps? Image maps are parts of an image activated when the mouse goes over them. Mouse-overs and image maps are sophisticated ways to create links which also makes the website more appealing to the user.(Norfolk, 2004) What are some of the major or most interesting links? What is this site's

target audience? Does the site meet the needs of that audience (e.g., in language, content)? It is also important to promote the website as much as possible so that as many internet users as possible are able to find the MBI website. To make the website an effective marketing tool we wanted to make it more visible on the web. To do this we looked into Google advertising, so if anyone does an incubator search MBI's website would be one of the links on the page. This will lead to a better flow of traffic into the MBI website.

3.6 - Interviewing

A large part of our team's research came from interviewing clients. The team conducted a series of interviews of existing clients, former clients, and members of MBI's staff and members of MBI's Board of trustees. These interviews were conducted to get a sense of what many different people involved with MBI feel are the strengths and weakness of MBI. This helped us get a subjective analysis of MBI to go along with. Furthermore the data gathered from the interviews should help the team update the strategic plan. Some questions that relate to the plan that will be answered are, "What are some goals that you have for MBI's growth?," "How has MBI grown since you have been with the company?," and "How did MBI help your company in its growing process?" This will allow MBI to see where it has grown, see where it needs improvement and also make slight changes to its goals in order to achieve more success in the future.

The interviews were conducted one on one. The interviewer used a recording device so that nothing the interviewee said was lost, and the interviews could be listened to at later

times. We chose to do interviews because it is the easiest way to have most of our questions answered quickly, and on the spot by the people we were interviewing. Interviews also gave our project more of a personal touch because we were going right to the people that make the choices in the company, and trying to find out what their ideas and goals were for MBI.

The Interviews of MBI staff gave our team inside knowledge, such as marketing and pricing strategies. We used this information to compare and contrast past year information. People on MBI's Staff we interviewed included, Judy Cocaine, (a veteran employee) Chris LeBlanc (the company accountant), and Kevin O'Sullivan (MBI CEO). This gave the team and MBI an accurate measure as to where MBI stands relative to its ultimate goals because information from the interviews gave the group a firsthand account from inside the organization. Also the team went about interviewing members of MBI's board of trustees. These members include Dennis Berkey (President of Worcester Polytechnic institute), Dr. Abraham Haddad (MBI Chairman), Dr. Gail Raddcliffe, and National Association of Business incubators contact Randy Morris. (Interview questions for MBI's staff and Board of trustee members can be found in appendix A.2)

The team interviewed existing, and former clients of MBI to gather information on some of MBI's strengths and weaknesses. The criteria we looked at included how MBI functions as a business mentor, partner and facilitator. We also discussed how MBI provides incubator facilities as a catalyst to lower barriers to success for emerging companies, how good MBI is at providing personal and institutional connections to existing resources, and finally how MBI facilitates expansion and/or relocation when its appropriate. This information gave MBI a status

report as to how they are doing in achieving these goals. Also, the team interviewed some clients that have used MBI's facilities. The companies we interviewed included Glyco Solutions, Avatar Pharmacuticals and Blue Sky Biotech Inc. (Interview Questions for existing and former companies can be found in Appendix A.3)

In conclusion, the team conducted these interviews in person and through phone interviews so data collection and time will be used wisely.

3.7 - Updating the Strategic Plan

Originally the main goal of our project was to update the current strategic plan for MBI. Sections of the Strategic Plan include: Mission Statement, Historical Perspective, and Strategy for Accomplishing the Mission. Changes made to the Historical Perspective section were simply an update of the company's recent history. No changes were made to the mission statement because that is for the BOD to decide. The Strategy for Accomplishing the Mission however, was dependant on the results of all of our analysis and what recommendations we came up with. In the section were specific goals for achieving the objectives identified in the Mission Statement. The goals were quantified by metrics and set an exact date for making specified improvements. In order to work towards these goals, the Strategy for Accomplishing the Mission included tasks to carry out and assigned responsible parties for each task. Before changing the strategy for accomplishing the mission, however we first had to take a look at the implementation and results of the strategic plan over the last few years.

For our strategic audit we had to analyze the effectiveness of the current strategic plan. The current goals of MBI were to be examined to decide which ones should be changed and which ones should be kept. To check the status of the current strategic plan and confirm that the plan was being carried out, the group reviewed the metrics that were to be measured within the strategic plan.

The Metrics listed in the Strategic Plan are:

- Client Revenue Dollars – amount of revenues tenants generate.
- MBI Yield Rate of Successful Companies – Amount of successful companies that graduate from MBI
- Gross Dollar per Square Foot Provided by MBI (each facility) – Amount of money that is generated by MBI per sq ft
- Percent Decrease in Time Lab is Unoccupied – Amount of time that empty rentable space stays empty
- Percent Increase in Number of Occupants – The change in the occupancy of rentable space within MBI
- Percent Increase in Grant Dollars – Amount changed in how much the government gives support to MBI
- Number of Phone Inquiries – Amount of phone calls looking to rent MBI space
- Number of Email Inquiries – Amount of emails looking to rent MBI space
- Number of Website Hits – Amount of people that visit the MBI website
- Number of Life Science Jobs Created – Amount of full time jobs created by companies that are within MBI facilities
- Square Feet of Space Provided – Amount of space that MBI has that is rentable
- Number of Companies Moved Out and into Independence per year – Amount of companies that graduate MBI per year

- Cost Benefit Analysis of Expenses – How much MBI is spending on its expenses and can their fund be spent more efficiently
- Results from Tenant Company Interviews – What is the general feeling of MBI and are their tenants happy

After the analysis was finished, we went back and checked where we thought improvements on current goals could be made based on metric trends. This would allow us to have a clear understanding of how well MBI was using the strategic plan and how it could be improved.

Chapter 4 – Results

In the following chapter we will discuss the results of all of our analysis. The different types of analysis done with the financial statements given to us will be discussed like trend analysis and budget variances. The results of the comparison between MBI and national incubator averages we will be shown. We will also show the square foot values or the different income and expenses of each building over the last three years. We also will look at a few trends of different costs and revenues from Winthrop St. and Barber Ave. The actual percentage total cost will be compared with the budgeted percentage of total cost as well. Next, we will compare the budget that the old MBI MQP team made for Gateway and compare that with the actual numbers from Gateway to calculate the variance. After, we will take a look at MBI's website and compare it amongst their competitors. We will show a way to increase the websites internet visibility. The limitations to our research will also be talked about. Following that, we will show the results of our SWOT analysis. Finally, we will explain why a strategic audit was not able to be completed.

4.1.1 – Benchmarking and Financial Statements

For our analysis we were given MBI budgets from 2006-2008. The following are copies of those budgets.

Table 4.1.1 – MBI 2006-2008 Budgets

MBI Budgets		2008	2007	2006
Revenue				
	Rental Income	$723,995	$654,227	$716,361
	State Grant Revenue	$525,000	$675,000	$425,000
	Interest Income	$3,000	$3,000	
	Equity Royalties	$102,000	$191,917	
		$1,353,995	$1,524,144	$1,141,361
Expenses				
	Wages, Taxes & Benefits	$303,845	$284,042	$364,720
	Insurance	$42,802	$33,711	$36,000
	Rent(s)	$366,889	$265,166	$249,127
	Operating Expenses	$258,488	$270,715	$89,964
	Utilities	$51,521	$170,628	$173,400
	Maintenance/Repairs	$133,337	$50,319	$163,524
	Professional Services	$25,860	$62,965	$15,000
	Office Operations	$24,120	$40,460	$81,000
	Health & Safety	$40,800	$1,200	$0
	Marketing/Fundraising	$48,000	$48,000	$48,000
		$1,295,662	$1,227,206	$1,220,735
	Operational Gain	$58,333	$296,938	-$79,374

*All budgets break down into two areas admin and operational costs and revenues.
*Admin Costs = Wages, Insurance, Professional Services, Office Operations, Health & Safety, Marketing/Fundraising
*Admin Revenues = State Grant, Interest Income, Equity Royalties
*Gateway was only open for 8 months in 2007.
*Winthrop St. was only open for four months in 2007 and then closed in April.
*2006 Budget was done differently than all others. Operating expenses just include telephone usage and interest

With these budgets we were able to calculate the percentage of revenue each expense takes up. The following tables are those calculations for each budget.

Table 4.1.2 – MBI 2006-2008 Percent of Total Revenue

		2008	2007	2006
Revenue				
	Rental Income	53.47%	42.92%	62.76%
	State Grant Revenue	38.77%	44.29%	37.24%
	Interest Income	0.22%	0.20%	
	Equity Royalties	7.53%	12.59%	
		100.00%	100.00%	100.00%
Expenses				
	Wages, Taxes & Benefits	22.44%	18.64%	31.95%
	Insurance	3.16%	2.21%	3.15%
	Rent(s)	27.10%	17.43%	21.83%
	Operating Expenses	19.09%	17.76%	7.88%
	Utilities	3.81%	11.20%	15.19%
	Maintenance/Repairs	9.85%	3.30%	14.33%
	Professional Services	1.91%	4.13%	1.31%
	Office Operations	1.78%	2.65%	7.10%
	Health & Safety	3.01%	0.08%	0.00%
	Marketing/Fundraising	3.55%	3.15%	4.21%
		95.69%	80.55%	106.95%

From these tables we can see that in 2008 and 2006 expenses were very close or barely exceeding 100% of the revenues. In 2007, only 80% of the expenses were covered by revenues. This was due to MBI being in a transition period of switching out of the Winthrop building, and

moving into Gateway Park. Another observation that could be made was that wages and rent were consistently the highest expenses, followed closely by operating costs. Neither of these are costs that could be changed very much because MBI already only operates with three full-time employees, and MBI must pay rent to their landlords and can't negotiate a small cost very easily. The operating costs would be able to be lowered if there were ways found to decrease the amount of maintenance machines needed, like offering training to the tenants of MBI that actually use the machines. Other than 2007, MBI seems to be a stable company and one that is able to function well for a non-profit company.

4.1.2 Benchmarking

MBI was benchmarked on 11 different metrics. We used the MBI 2006 – 2008 budgets as our basis for the comparison and compared them with the 2006 and 2002 NBIA green books. We were not able to receive anything else but budgets and actual percentages of total expenses from MBI, because they are a private firm and did not wish to divulge their actual numbers. All of our analysis on facilities is based off of budgets from the years of 2005-2008. Also the NBIA numbers that were given to us are for all technology incubators, not just life sciences. This weakens the effectiveness of the benchmarking made with these numbers. Overall MBI is as good or better in most categories. MBI runs very efficiently when compared to the rest of the technology incubator industry as you will see in the following comparisons.

The following is a table of NBIA benchmarks.

Table 4.1.3 - NBIA Benchmarks

Metric	NBIA 2006*		NBIA 2002*
1. Gross Square Footage	36631		40422
2. Revenues***	$1,000,000		$562,139
3. Expenses	$873,962		$567,081
4. Occupancy	76%		75%
5. Full-Time Equivalent	5	**	5
6. Payroll Expenses	36%		31%
7. Rent Revenue	59%		41%
8. Current Client Companies	14		21
9. Months before Company Graduation	34		31
10. Full-time Jobs Currently in Employment	97		86
11. Operational Gain	$126,038		-$4,942

*Based on technology incubators

**Based on NBIA Life Science Incubator Conference

The following is a list of MBI metrics and their variance when compared to the NBIA 2006 green book.

MBI Metrics used and the MBI averages according to their 2007 and 2008 budgets:

Table 4.1.4 – MBI Benchmarks

MBI Benchmarks Metric	AVG Budgets (2006-2008)	% Var NBIA 2006	MBI Budget 2008	% Var NBIA 2006	MBI Budget 2007	% Var NBIA 2006
1. Gross Square Footage	26,535	-27.56%	24,803	-32.29%	24,803	-32.29%
2. Revenues***	$1,339,834	33.98%	$1,353,995	35.40%	$1,524,144	52.41%
3. Expenses	$1,247,869	42.78%	$1,295,663	48.25%	$1,227,205	40.42%
4. Occupancy	75%	-1.32%			75%	-1.32%
5. Full-Time Equivalent	3.8	-24.00%	3.8	-24.00%	3.8	-24.00%
6. Payroll Expenses	25%	-29.63%	23%	-36.11%	23%	-36.11%
7. Rent Revenue	53%	-10.17%	53%	-10.17%	43%	-27.12%
8. Current Client Companies	18	28.57%			18	28.57%
9. Company Graduation Months	27	-20.59%	27	-20.59%	27	-20.59%
10. Employed Full-Time Jobs	78	-19.59%			78	-19.59%
11. Operational Gain	$91,966	-27.03%	$58,332	-53.72%	$296,939	135.59%

***Revenues include state grant

The gross square footage shows the size of MBI. The more square feet that MBI has, the more companies MBI can take in as tenants. Looking at metric 1 (gross square footage) on table 4.1.4 you can see that MBI currently sits below the national average by about 33%, yet they are able to generate more revenue than the national average as shown on item number 2 on any table.

The revenue of a company shows how much capital a company has earned, and can use to improve themselves. Since MBI is a non-profit organization revenues earned beyond the cost

of expenses get invested back into MBI. Generally any operational gains that are made are used for either creating new labs or buying new equipment for companies currently within MBI. Currently, MBI earns 50% more revenues then the national average, as seen in table 4.1.4.

The expenses of a company show the amount of organizational resources exhausted each year. Currently, MBI spends around 50% more than the average technology incubator. MBI is continuously trying to improve and that is evident by the fact that 10% of their expenses are costs that come from upgrading equipment. MBI places the new equipment that it buys under maintenance expenses, which was projected to accumulate to $133,337 based on the 2008 budget. MBI receives a state grant, like most other incubators to help with expenses. In 2007, it counted for 55% of MBI expenses, which amounted to $675,000. The grant usually accounts for any profit made by the organization since it is at breakeven after considering rental revenue and expenses. This type of funding is dependent on the current state of the economy as well as MBI's portfolio that is submitted to the state each year. Also, because the state's fiscal year is run different than most other companies MBI does not find out how much they will be receiving until June 30 of every year. (LeBlanc, 2008) Without the help from the government MBI would be out of business, but because of MBI's positive effect on local economy MBI expects this grant to come in every year. (O'Sullivan, 2008)

MBI's occupancy rate, its ratio of occupied rent space to total rent space, was at 75% as of Dec 31, 2007. The NBIA average occupancy rate as seen on table 4.1.3. is also 75% However if the newest MBI facility, has room to improve its occupancy rate which is at 68%.

MBI's Employee count is 3.8 full-time-equivalent employees (FTE) as seen in table 4.1.4. There is Kevin O'Sullivan who is head of managing the everyday happening of MBI. There is also Judy Cocaine who is in charge of the clients of MBI and Jim Duffy who the facilities manager of MBI. There is also Chris LeBlanc, the MBI accountant who counts as a .6 to the FTE, because she works 3 days a week, and Michele Crawford, who is the health and safety regulator at MBI, she works one day a week and there for counts as a .2 to the FTE. According to the NBIA life science incubation conference that average incubator holds five full time employees, as shown in the table 4.1.3.

Payroll expenses show how much money has to be used in paying the employees of MBI. Currently MBI stands well below the average because of the amount of fewer employees they employ, as seen in table 4.1.4. This frees up their revenues to be spent in other aspects of their company like newer and better equipment.

Rental revenue shows how much money MBI is receiving from its tenants. The easiest way for an incubator to get revenues is by filling up its labs with tenants. It is important for significant percentages of MBIs expenses to be taken care of with rental revenues, because the government will not pay for all of the expenses. Currently, MBI stands right with the average when compared to renal revenue of the other technology incubators. This can be seen on table 4.1.4.

Current number of clients shows how many actual companies reside within MBI. The greater the number of clients in MBI, the more tenant graduations should take place and more rental revenue should be made. However, there are also a number of variable costs that are

associated with additional tenants. The goal of MBI is to break even in terms of tenant revenues and costs. This way any state grants received are purely profit. MBI currently has 4 more clients then the average technology incubator according to the NBIA 2007 book. This is shown on table 4.1.4. MBI is able to do this while being 33% less sq ft in size less than the national average. MBI is attracting more customers than the average incubator which bodes well in receiving government funding.

The average number of months before a company graduation is good metric to measure the quality of MBI service. The quicker a company can develop an idea into a product shows the level of service that MBI offers. The quality of the firms that MBI chooses to accept, or the quality of the ideas that MBI tenants are producing shows the strength of MBI's choosing method. All contribute to a quicker graduation rate than most other incubators. MBI is known for getting companies the equipment that they need so that they can do the proper research. They also help with the business aspects of a company and making sure that they can function on their own once they do graduate. Currently, the average MBI company graduates six months earlier than that of other technology incubators, as seen in table 4.1.4, this number may be slightly skewed because MBI is a life science incubator, and the NBIA average encompasses all technology incubators.

The amount of full time jobs currently in placement at MBI shows the quality of the companies within MBI and the effect they have on the local economy. Currently, MBI has around 15 fewer jobs within its client company's then that of the average incubator. You can see this on table 4.1.4. This may because of the shorter graduation time, or the fact that they

are a life science incubator so less people would be working at each company than that of other companies found within technology incubators.

The operational gain is how much money MBI makes by operating every year. In the end that money is put back into the incubator for improvements because MBI is a non-profit organization. MBI has averaged about $91,000 per year from operational gains from 2006-2008, based on the budgets from 2006-2008. Looking at table 4.1.4 you can see the amount of operational gains earned in that year was 135% higher than the NBIA average. Operational gains are the amount of money earned from daily operation and was calculated but subtracting the expenses from the revenues. The money earned is either put into MBI improvements or put into an emergency funds account. Generally, these operational gains go back to the incubator for new equipment or labs. (O'Sullivan, 2008) MBI currently averages greater operational gain then the average NBIA technology incubator.

Overall when benchmarking MBI to the NBIA technology averages, it is evident that MBI either is better then or beats most of the numbers set by the NBIA technology averages. To bring this analysis further a better breakdown could be done by NBIA or another party to collect the averages for life science incubators instead of technology incubators. That will give MBI a clearer picture of how they are doing when compared with the rest of their competition.

4.1.3 - Trend Analysis

After proper analyzing of MBI financial documents were complete we were able to do a trend analysis. There were many limitations in our trend analysis. We only had three years worth of information for three different metrics, which were rent expense, rent revenue, and utilities expense between Barber Ave. and Winthrop St. Also, we only had two buildings that were in operation for more than three years, which was Winthrop St. and Barber Ave. Both Biotech Park and Gateway Park are both recent addition to MBI and have not been in operation for a full year so we could not to a trend analysis with those numbers.

The following tables are of square foot costs for the different buildings:

Table 4.1.5 – Winthrop St Sq Ft Costs

Sq. Ft.	Winthrop Street		
22000	**2007***	**2006**	**2005**
	Sq Ft	**Sq Ft**	**Sq Ft**
Income	**Cost**	**Cost**	**Cost**
Rental	2.03	23.07	28.49
State Grant			
Interest			
Other			
Expenses			
Personnel		8.59	
Insurance	0.74	0.75	1.28
Rent	1.92	4.31	4.59
Operating	1.50	2.73	4.05
Utilities	1.74	4.61	7.69
Maintenance & Repairs	1.54	1.39	3.98
Professional Fees	3.71	3.63	2.19
Office	1.27	0.76	
Health & Safety	1.54	0.21	0.83
Marketing, Travel	0.39	0.39	1.76

* Moved out of Winthrop St Location, only four months of data, 2006 expenses based off budgeted values
Note: Winthrop Street was designated Headquarters and therefore absorbs all personnel related expenses.

Table 4.1.6 – Barber Ave Sq Ft Costs

Sq. Ft.		Barber Ave	
8000	**2007**	**2006**	**2005**
	Sq Ft	**Sq Ft**	**Sq Ft**
Income	**Cost**	**Cost**	**Cost**
Rental	28.17	24.94	21.80
State Grant			
Interest			
Other			
Expenses			
Personnel		1.08	0.82
Insurance	1.00	1.06	0.94
Rent	10.68	10.68	9.93
Operating		0.00	
Utilities	4.22	4.22	3.72
Maintenance & Repairs	3.88	4.78	5.07
Professional Fees	0.39	0.00	
Office	0.22	0.95	0.11
Health & Safety	0.15	0.06	0.17
Marketing, Travel	0.00	0.04	

Table 4.1.7 – Gateway Park Sq Ft Costs

Sq. Ft.	Gateway Park
7500	**2007***
Income	**Sq Ft Cost**
Rental	15.75
State Grant	
Interest	
Other	
Expenses	
Personnel	
Insurance	0.71
Rent	9.47
Operating	11.47
Utilities	
Maintenance & Repairs	2.28
Professional Fees	0.23
Office	0.35
Health & Safety	0.54
Marketing, Travel	

*Gateway only in operation for 8 months

Because only one year of data was available a trend analysis was not possible.

Table 4.1.8 – Biotech Park Sq Ft Costs

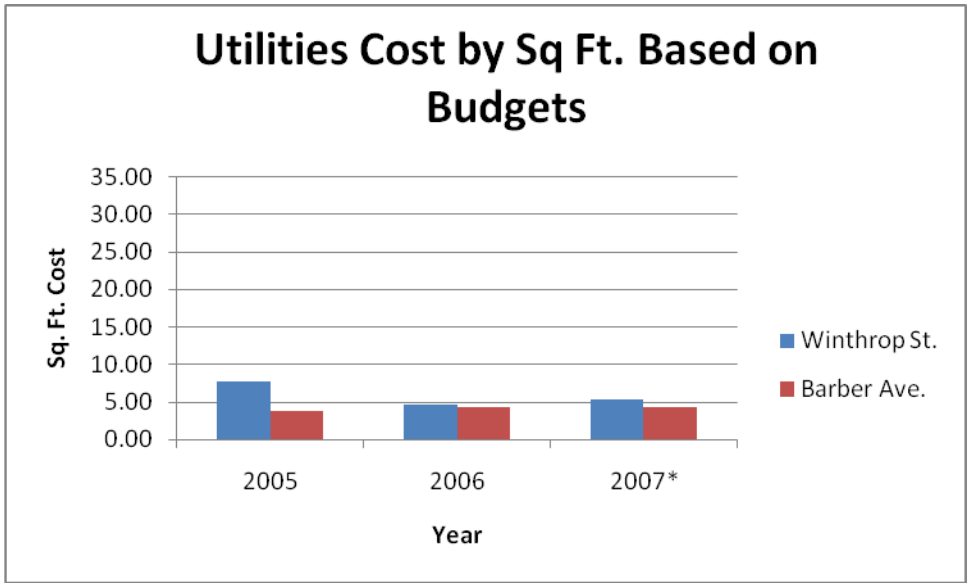
Sq. Ft.	Biotech Park
9280	**2007**
Income	**Sq Ft Cost**
Rental	32.93
State Grant	
Interest	
Other	
Expenses	
Personnel	
Insurance	0.54
Rent	15.01
Operating	10.85
Utilities	
Maintenance & Repairs	1.06
Professional Fees	0.28
Office	0.43
Health & Safety	0.00
Marketing, Travel	

Because only one year's worth of data was available for Biotech Park, a trend analysis was not possible.

The following are graphs of the different trends between Winthrop St. and Barber Ave:

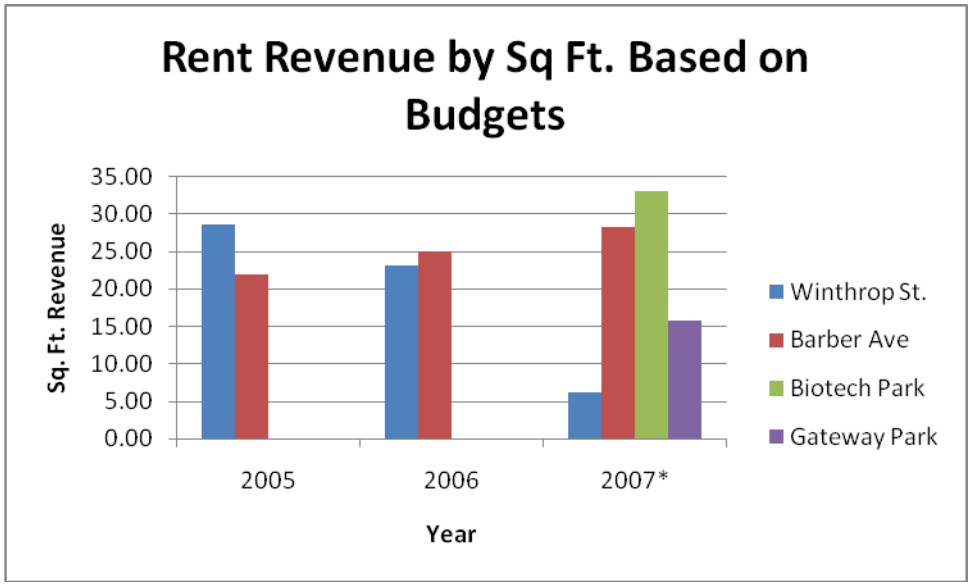
This is a graph of the trends of the utilities cost by sq ft. for both buildings over a span of three years going from 2005-2007. The utilities costs are made up of the cost of electricity and gas. These numbers were taken from the above tables. The Winthrop St. numbers for 2007 were multiplied by three because they only had four months of service in the 2007 budget and we wanted to simulate a full year. The Winthrop St. facility's trend analysis of expenses revealed huge decreases in gas and electric costs from 2006 to 2007. This can be expected as companies began to move out of the facility at this time and occupancy decreased. Because of this we can tell that gas and electric expenses are both variable and they depend on the occupancy in a facility.

Graph 4.1.1 – Utilities Cost



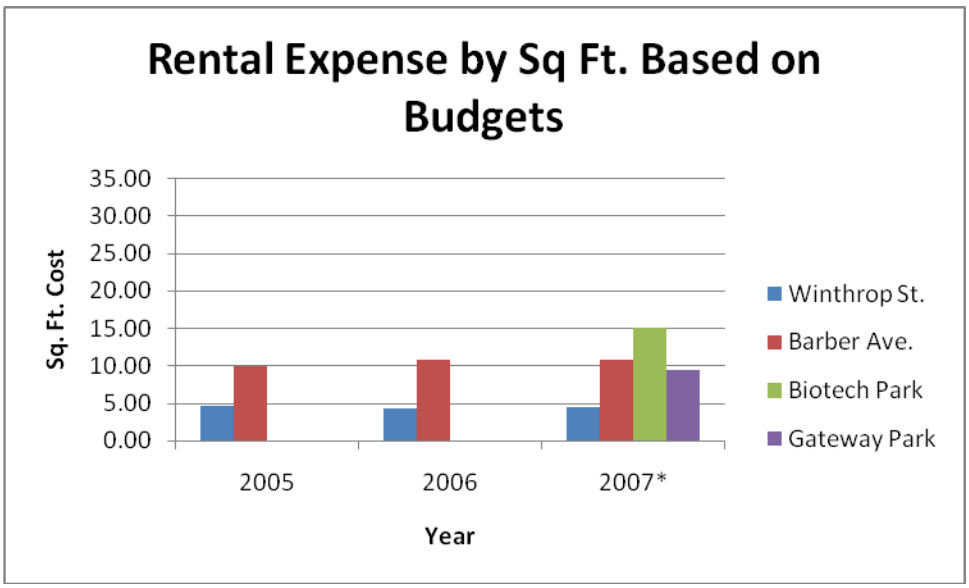
This is a graph of all available facility budgeted rental revenues 2005-2007.

Graph 4.1.2 – Rent Revenue



Below is a graph of the rental cost for each building that MBI must pay over the years of 2005-2007. It is over the span of three years. The final year for Winthrop St. is only based off of four months and had to be multiplied by three to get a number to represent an entire year. In 2007, Winthrp St. recieved very little from rental revenues because they were trying to move as many companies as they could over to Gateway Park as they shut down Winthrop St.

Graph 4.1.3 – Rental Expense



Looking at graph 4.1.1 the most notable point is how much more MBI paid per sq ft for utilities. Barber Ave costed half as much as Winthrop St. In the trend it seems that Barber Ave is growing more expensive in its utilitty cost, but that is only for one year that the trend is increasing. MBI should look for ways to cut costs at Barber Ave, so that the trend will start decreasing.

Looking at graph 4.1.2 it is clear that Barber Ave had more success than Winthrop St. in terms of rental revenue. Winthrop St. started with a higher rental revnue per sq ft., but in the next year Barber Ave kept increasing its revenues while Winthrop St. dropped sharply. Barber Ave. currently has a increasing trend which is bodes well for MBI.

According to graph 4.1.3, MBI is paying much higher rent per sq ft for Barber Ave. then for Winthrop St. Winthrop Street was helped by having such a large size in comparison to

Barber Ave. It is over 14,000 sq. ft. larger then Barber Ave. MBI was paying twice as much for Winthrop St. then it does for Barber Ave. While Barber Ave is a higher per sq ft. cost for rent, it is virtually doing better then Wintrhop St. in the other catagories, so overall it is believed that Barber Ave. is a more wise investment.

Overall when looking at the trends you can make a strong argument that shutting down Winthrop St. was a good thing for MBI. Winthrop St. was costing MBI large sums of money because of its size, costs of its utiltites, and the lowered rental revenues it was generating. Barber Ave seems to be headed in the right direction and is an important building for MBI to further develop in trying to get the organization running as efficiently as possible.

4.1.4 – Gateway Park Budget to Actual Comparison

One of our tasks with our project was to compare the budget that the 2006 MQP group came up with Gateway Park and compare that with the actual numbers that have occurred since Gateway Park has been in operation. The following is a table of that information:

Table 4.1.9 – Gateway Park Budget vs Actual

Gateway Operating Expense Analysis
2006 MQP Budget vs 2007 Actual Costs

Rentable Sq Ft = 7500

	BENCHMARK**		2007 ACTUAL Cost/Sq Ft		VARIANCE		
	Cost/Sq Ft	Total		Total	Cost/Sq Ft	Total	% Var
Operating Costs	12.03	90,216	13.42	100,676	1.39	10,460	11.59%
Rent	0.87	6,542	1.06	7,976	0.19	1,434	21.91%
Insurance**	1.09	8,178	1.30	9,770	0.21	1,592	19.47%
Administrative**	6.01	45,108	6.09	45,684	0.08	576	1.28%
Utilities**	1.31	9,813	2.28	17,105	0.97	7,292	74.31%
Maintenance	21.31	159,857	24.16	181,210	2.85	21,353	13.36%
Subtotal							
CAM Charges							
Administrative	1.95	14,660					
Maintenance	2.32	17,367					
Utilities	2.96	22,178					
RE Tax	2.51	18,795					
Subtotal Cam*	9.71	73,000	9.13	68,628	-0.58	-4,372	-5.99%
Parking	1.88	14,134	1.68	12,600	-0.20	-1,534	-10.85%
Cam Subtotal	11.59	87,134	10.80	81,228	-0.79	-5,906	-6.78%
Total Costs	32.90	246,990	34.97	262,438	2.06	15,448	6.25%

*The actual costs for the 8 months of occupancy had to be annualized in order to provide data for analysis.
Actual Utility reconciliation has not been provided to MBI as of 02/28/08
Subtotal CAM Charges as MBI has not rec'd a breakdown of actual
**Benchmarks are from previous 2006 MQP

To complete the Gateway budget versus actual comparison, MBI projections for Gateway's first year of operations were compared with actual results from the facilities initial fiscal year. As you can see from the table, Gateway Park's overall costs totaled 6.25% more then what the original budget. That 6.25% was worth an extra $15,448 that MBI had to spend on the operation of Gateway Park. This was an increase of $2.83 per square foot over original estimates.

Although it was not the highest percentage of variance, the largest variation at Gateway Park was between budgeted and actual rent cost. Rent ended up costing over ten-thousand dollars more than it was expected to. This may be because the landlord at Gateway had to adjust MBI's rent based on higher than anticipated utility costs.

The highest percentage variance of any cost was that of maintenance. MBI's maintenance costs were 74% higher than they were budgeted at. This was equal to a $7,292 increase over what MBI was expecting to pay for maintenance. This was large part due to the fact that many new tenants were not using the machines in their labs properly and under MBI's current equipment policy they are responsible for the repair or replacement of the machinery that MBI owns. They had to bear that cost of repairs even though these machines were continuously being mishandled by tenants. (LeBlanc, 2008) Other costs that were fairly off were insurance and administrative costs. They were both off by around 20%, or a combined $3026. The insurance must be paid each year and the administrative costs are cost put on to them from their landlord that also must be paid. (LeBlanc, 2008) If the insurance and admin costs had

already been paid in full before our analysis, and then we went and annualized the numbers it would have created an unneeded increase in the amount of money needed for our analysis.

MBI was able to save money in the common area maintenance (CAM) charges thanks in large part to the lower fee for parking. Overall they had almost an 11% savings from parking when compared to what was budgeted for. They were able to save about 6.78% over the MQP budget for all of their CAM charges. The MQP team from 2006 did a relatively good job at creating the budget with their limited resources and just predictions for a building that wasn't in operation yet. They were only off by 6.25% from the bottom line, which should be commended.

4.2.1 - MBI Website Review

In order to compare the MBI website to its competitors we used four major metrics; visuals, user-friendliness, content and structure. For each website we criticized each metric on a scale of 0 to 10 in order to measure the overall quality. (Norfolk, 2007)

Table 4.2.1 – Website Comparison

Company	Address	Visuals	UF	Content	Structure	**Total**
MBI	www.massbiomed.com	**8.5**	**8**	**8**	**10**	**34.5**
Tufts	www.tufts.edu/vet/about/sciencepark.html	6.5	7	4	6	23.5
Cummings Prop.	www.cummings.com	5.5	6	9	8	28.5
Science Park	www.cambridge-science-park.com	8	8.5	9.5	10	36

UF = User-Friendliness

*Tufts Grafton Science Park is still at development stages.

Based on table 4.2.1, MBI has a user friendly and good looking homepage. It looks professional and is very likely to grab the attention of a possible costumer. It scored at least in 8 in all of our different metrics that we have made in rating websites. The structure of the website is kept simple and plain. The website is fast and error free. The images in the MBI website are mostly low-res this eliminates the need for interlaced images. The homepage of the MBI website fits perfectly to a regular screen, eliminating the need for scrolling.

Navigation tools in the homepage are easy to spot, however they do not remain accessible when the page is scrolled down. The text in the website is has the right color but the font size is too small. It gets tiring to read the texts after a while. The background colors are simple and look professional, there are no animations. There is one mouse over which activates on the big banner at the homepage; however it is not connected to a link.

Almost all of the links in the website are of the costumers of MBI, this is very useful for potential customers who are interested in working with MBI as they would like to acquire information about the existing costumers of MBI before starting to work with them.

4.2.2 – Website Suggestions

Suggestions for the website include having a search engine for the website database. This would be helpful for visitors to find employees, clients, etc. Increasing the font size for some of the texts will improve the user friendliness of the website. Getting a sponsored link on Google for MBI will also make it easier for potential clients to find it. In addition the banner at the homepage has a mouse-over but it is not connected to a link. It is possible to get lost when surfing the website, it would be useful to make it more obvious to the user which section he/she is looking at.

4.2.3 – Website Promotion

A goal of this project was to find a way to make MBIs website more visible on the internet. A venue that we have chosen to take is that of Google Ad words. The plan that we see most fit for MBI would be that of limiting the amount of hits by Google Ads to twenty per day. This would put a limit of $2 a day that would be spent on Google Ads. This would increase the marketing costs of MBI by $700 yearly. We think this increase is well worth it because it will make people that are searching for incubators to have a greater chance of finding MBIs

website. Google Ads is able to specifically advertise to people located in certain areas, so you know that people that come to your website through Google Ads are people that generally are close by and would be more interested in using MBI as an incubator. We feel that MBI should try spending a small amount on Google Ads at first to see if it works for them. If it does then later they can increase how many hits they are allowed per day through Google Ads. Google Ads would be a great help in increasing the visibility of MBI website.

4.3 - SWOT Analysis for MBI

Strengths

When performing a SWOT analysis the first step is to look at the strengths of the organization. MBI's strengths included its relationship with WPI and its location.

Not all life science incubators are able to benefit from a University partnership especially one as prestigious as WPI. The quality of WPI's biomedical engineering program will have a direct effect on the quality of work done in the future by its students. Because so many of WPI's students are involved with MBI, the incubator is likely to yield some very successful companies which will in turn have a positive effect on MBI's reputation. WPI's President Berkey states, "I believe if MBI makes an effort to link with universities it would greatly help them expand and be able to thrive in markets outside of Central Mass." (Berkey, 2008)

Another one of MBI's strengths is their location within the central mass biomedical industry cluster which shows much potential for growth. The location in central mass has lower property rent than in the Boston area. This is strength because MBI can pass these savings on to their tenants therefore being more affordable. "MBI average graduation rate was 27 months in the year 2007" (Cocaine, 2008). This is 6 months better than the national average of 33 months. (NBIA, 2007) This shows companies that MBI is completely dedicated to helping its tenants move quickly through the incubator and thrive on their own. "MBI operates with 3 full time employees and 2 part time employees" (Duffy, 2008). This is two less people on salary than the national average and MBI is still running efficiently. MBI is able to save money and only keep on as many employees as needed.

Weaknesses

Next task when performing a SWOT analysis is looking at the weaknesses of the company. When examining MBI's strategic plan initiatives we found that a number of metrics that were to be tracked were not. Although it cannot be known whether MBI's competitors have had success implementing their strategic plans, we considered this to be a weakness because the team went with the notion that competitors have closely followed their strategic plans and felt MBI should hold itself to higher standards.

Additionally, MBI has already tried expanding into the Boston area twice. Although there are a number of successful life science incubators in the region, both of MBI's attempts

have resulted in closure. Because of this, MBI's reputation in Boston may not be as respectable as its reputation in central mass. This could have a negative effect on future projects within the Boston area cluster.

Opportunities

Next the team explored available opportunities for MBI. We found that the political and legal environment within Massachusetts currently seeks expansion of life sciences. MBI can capitalize on the state of the biomedical industry by continuing to seek government funding and investing in growth opportunities

Threats

Threats to MBI's financial viability include decreased funding for institutions of health due to political or economic reasons and the overcrowding of the biomedical incubation industry.

Loss of government grants would affect MBI greatly because they would stand to lose a good amount of its financial resource. CEO Kevin O'Sullivan states, "Some years we could get 500,000 dollars in grant and then the following year that number could be cut in half." (O'Sullivan, 2008) This is a threat because it hinders your ability to plan for the future not knowing how much you are going to get and it also makes MBI unstable if the grants are not as

much as they were planning on getting. The state grant counted for 55% of MBIs expenses during the last fiscal year and if MBI was ever to lose that they would not be able to function normally. (O'Sullivan, 2008)

Because the biomedical industry is rapidly expanding in Massachusetts with Governor Deval Patrick's 1 billion dollar initiative we feel the market may attract new entrants. If another company were to compete with MBI in the biomedical incubation industry business would be greatly impacted and it may be difficult for MBI to maintain adequate occupancy rates.

4.4 – Updating the Strategic Plan

It is often the case that new plans are being made before the initial plan has a chance to be properly implemented and assessed. In her article *How to Improve Strategic Planning,* Renee Dye claims that "Managers need to focus on executing the last plan's major initiatives, many of which can take 18 to 36 months to implement fully."(Dye, p. 40-49, 2007) This happened to be the case with MBI's strategic plan. In performing the strategic audit, the group found that strategic plan metrics were not commonly tracked and recorded. In fact we found that MBI had on record, only two of the areas to track suggested by its strategic plan. They were, number of life science jobs created, and square feet of space provided. The effectiveness of strategic plan could not properly be assessed because MBI lacked the ability to measure improvements in key

areas. Once MBI begins to track this information tasks may be evaluated in the form of a cost benefit analysis.

4.5 – Problems Faced and Constraints

Upon doing analysis on financial figures from MBI we were faced with problems due to lack of information provided to us. We were only given budgets as a means to do our financial analysis. Many of the numbers that went into our analysis weren't the actual numbers that occurred. This greatly limited some of our analysis and could make some of the conclusion we have made not totally true. Also, due to insufficient amount of information we were not able to complete our pricing section. (Finding the appropriate price for monthly rent)

Another problem was found in our benchmarking. The NBIA green book further breakdown of incubator type was that of technology incubators. This encompasses a lot of different types of incubators including electrical engineering, nano technology, chemical engineering, and many others. The comparisons made between MBI and the NBIA were not totally valid because of how the NBIA were skewed and not just for a life science incubator.

Another problem that we were faced with was the fact that Gateway and Biotech Park had only been operating for less than a year and there for did not have enough information to good analysis with. Also Winthrop St. had just been shut down and was missing a lot of information in certain fields. Barber Ave. was the only building that had all of the proper information to do a proper analysis with.

Also, when trying to measure up the old strategic plan we found out that MBI only kept track of about half of the things they were supposed to. This made measuring up the old strategic plan very hard because we didn't have the information needed to measure it. This made it so we were not able to conduct a proper strategic audit.

While there were many limitations and problems with our project we feel that we did get useful results for MBI and that our internal analysis will be able to carry outs its purpose of giving MBI recommendations to improve their business practices.

Chapter 5 – Recommendations

After doing all of our different analysis on MBI our MQP group has come up with a few recommendations that MBI may want to consider for its future. First, MBI should track each of the metrics listed in the organizations strategic plan. Next, MBI might want to offer formal training for some of its more expensive lab equipment. Another recommendation would be to do at the very least yearly comparisons of their budgets to actual data. MBI should also consider always keeping track of the current tenants using their labs. After that, we believe that MBI should consider advertising its website on Google Ads as a way to expend the amount of users that find their website. Finally, we believe that better numbers need to be made for benchmarking with a life science incubator. It is our belief that if these recommendations are followed MBI will overall be more prepared for future success.

It is often the case that new plans are being created before the initial plan has a chance to be properly put into practice and assessed. This seemed to be the case with MBI's initiative to track a number of specified metrics in its latest strategic plan. Currently, MBI only has kept track of four out of the fifteen metrics that they were supposed to keep track of with their strategic plan. We recommend that MBI start to keep track of all the metrics from their strategic plan so that it will be more properly followed. A great way for this to happen would be to make an excel sheet that could be updated monthly that keep the trends and amounts of the different metrics found within the strategic plan. This would allow the strategic plan to be more closely followed. In the Strategic plan there is a list of over a dozen key areas in which MBI

should keep track of progress. While performing a strategic audit of MBI the group found that MBI had not installed a system for updating and keeping track of the metrics and only had the information available to track a few of the listed metrics. This limited the amount of recommendations that our group could make on their strategic plan because we had no way of measuring or knowing if the different goals were being followed. With proper records being kept of the different metrics of the strategic plan, the plan will be more closely followed and will become a much more significant part of the company. This will give all of MBI a feeling of cohesion because everyone will be following the same goals, and taking the same path to get there.

A good way for MBI to lower its maintenance costs would be to properly train new tenants on the operation of their machines before or early on when they move into a lab. Currently, if a machine breaks then MBI is responsible to fix it. This can get costly when the tenants don't know the proper usage of a machine and they keep on breaking it. If MBI started training its tenants on the proper operations of all machines that they have to use then it should lower the chance of machines breaking and MBI having to repair them. This could greatly lowered the maintenance cost for many facilities, and allow the tenants to do more efficient research because there would be less downtime for the machines they must use to conduct their research.

Another recommendation would be to do annual comparisons of budgeted numbers vs actual numbers. This would show the strength of MBIs budgeting process. This would also show where unexpected costs came from and extra revenues might have been received. Knowing this

information can help MBI better prepare for future years, because more money can be budgeted for the unforeseen expenses that are likely to occur. A trend of total variance could also be done over the years to know if the budgeting practices currently used needed to be drastically changed. Proper budgeting could lead to better financial planning for MBIs future and overall a more efficiently run MBI.

If MBI was to check its occupancy rates more than twice a year they would have a better chance of staying at break-even. Currently, they check their rates on Dec 31 and mid-May. If they had some sort of program or excel sheet that was constantly updated so they could check how much each building had for occupancy they would better be able to plan for break-even. Also, they would have a clear idea of what labs are being used and which ones are not so they would know which type of labs to sell to different people. Currently, it is done informally just by the manager of MBI knowing who is in which building, but if proper record keeping was done and excel sheet made, you could see the effects of certain tenants leaving and knowing which labs were needed to be filled as quickly as possible. This would allow MBI to always stay around the break-even level with ease as long as they were able to find replacements for tenants that were trying to leave.

MBI should try to strengthen their relationship with WPI even further. They should greatly encourage more of their tenants to sponsor WPI projects within MBI's facilities. WPI has many students graduating with Bio-medical and Biology degrees, and if they were given early exposure to MBI while students, they would have a greater chance of becoming future tenants of MBI. With Duval Patrick coming 1 billion dollar bio-medical initiative for

Massachusetts there should be much more money in the bio-medical engineering industry and MBI should be able to take on more projects. The more MBI can do with WPI the better. MBI should take full advantage of their relationship with WPI because not every incubator has such a great partnership with a school that is as good as WPI.

Our final recommendation is more for NBIA, but MBI will be able to start the trend at an upcoming life science incubator conference. Currently, the numbers found within the NBIA green books are not the most useful numbers when trying to benchmarks ones company. The closest breakdown to the life science incubator was that of a technology incubator, but that encompasses too much that it skews the value of the numbers. There are so many types of different technology incubators out there that trying to compare life science incubators to technology incubators just does not work properly. NBIA should find a way to get better break downs of technology incubators, either by creating a new book for just technology incubators, or adding in a section into their current books for technology breakdowns. Another problem with the NBIA books is that most managers are interested in the average costs of other incubator companies so that they can compare those values with their own. For instance, one of the major costs that MBI wanted us to look into was that cost of utilities per square foot. Currently, there are no other numbers to be found anywhere in the NBIA book that you would be able to derive utilities per square foot. The closest they had to that was total expenses, which are not a far enough break down of the costs to be of much use to the incubator. Many costs by square foot could be recorded in the NBIA book like operating expenses, rental cost, utilities, maintenance, and personnel costs. If Kevin O'Sullivan were to go to the next life

science incubator and try to get numbers to compare his own with he would have more valuable information and might be able to start a new program of some sort where all life since incubators pool their information together so they can more properly benchmark themselves.

If these recommendations were to be followed we hope that it will allow MBI to become an even great incubator company than it currently is. Not all of these recommendations can be easily followed, it will take time and effort from MBI to follow them but in the end we believe it will put MBI in a position to maintain and increase its financial viability.

Bibliography

Aaker, David A. Strategic Market Management. New Caledonia: Lehy Publishing LLC, 2005

Avlonitis, George J., Indounas Kostis A. “Pricing objectives and pricing methods in the services sector.” Journal of Services Marketing(Jan. 19, 2005), pp.47–57

Barney, Jay B. Gaining and Sustaining Competitive Advantage. Upper Saddle River: Pearson Education, 2007

Berkey, Dennis. One on One interview. 2008.

"Budget." Investopedia.Com. 2007. Forbes. 12 Dec. 2007 <http://www.investopedia.com/terms/b/budget.asp>.

Cambridge Science Park. 2008. 4 Mar. 2008 <http://www.cambridge-science-park.com/home.htm>.

Carmody, Judy. Telephone interview. 2008.

Cocaine, Judy. Personel Interview. 8 Nov. 2007.

Collins, Mike. "Taking on Strategic Planning." IMPO (2008).

Cummings Properties. 2005. 4 Mar. 2008 <http://www.cummings.com/>.

Dye, Renee. How to Improve Strategic Planning. 3rd ed. McKinsey Quarterly, 2007. 40-49.

Gilbert, Shayne. “Engines of Economic Growth” The Association of Independent Universities and Colleges in Massachusetts. October 5, 2005. <http://www.masscolleges.org/Economic/pdf/summary_report.pdf>

"Google Ad Words." Google. 2008. 27 Feb. 2008 <https://adwords.google.com/select/Signup1/index.html>.

"Grafton Science Park." 2006. Cummings School of Veterinary Medicine. 4 Mar. 2008 <www.tufts.edu/vet/about/sciencepark.html>.

Haddad, Abraham. Telephone interview. 2008.

Hansen, Ward. The Dynamics of Cost-Plus Pricing. *Managerial and Decision Economics,* Vol. 13, No. 2. March 1992.

Horngren, Charler ,Datar, M Srikant, Foster George. Cost Accounting: A Managerial Emphasis. Pearson Press, 2005

Hunt, Shelby D. The Nature and Scope of Marketing. Journal of Marketing, Vol. 40, No. 3. (Jul., 1976), pp. 17-28.

Klein, Michael. “Business Incubators Grow Economy and Jobs” Wisconsin Technology Network, December 10, 2003. October 3, 2005. <http://wistechnology.com/article.php?id=426>

Knopp, Linda. 2006 State of the Business Incubation Industry. Athens, OH: NBIA Publications, 2007.

Kotler, Philip. A Generic Concept of Marketing. *Journal of Marketing*, Vol. 36, No. 2. (Apr., 1972), pp. 46-54.

Lalkaka, Rustam. "Technology business incubators to help build an innovation-based economy." Journal of Change Management, December 2002, Vol. 3, Issue 2, p167.

Libby, Robert. Financial Accounting. 4th ed. New York: McGraw-Hill/Irwin, 2004.

LeBlanc, Chris. Personal interview. 2008.

Leblanc, Chris. MBI 2008 Budget. Mass Biomedical Initiative. Worcester, MA, 2008.

Leblanc, Chris. MBI 2007 Budget. Mass Biomedical Initiative. Worcester, MA, 2007.

Leblanc, Chris. MBI 2006 Budget. Mass Biomedical Initiative. Worcester, MA, 2006.

Linder, Sally. 2002 State of the Business Incubation Industry. Athens, OH: NBIA Publications, 2001.

Massachusetts Biomedical Initiatives. 2007. 1 Oct. 2007 <http://www.massbiomed.org/>.

Mintzberg, Henry. The Rise and Fall of Strategic Planning. New York: The Free Press, 1994

Morris, Randy. Telephone interview. 2008.

"National Business Incubation Association." NBIA. 2007. 3 Oct. 2007 <NBIA.org>.

NBIA State of the Industry 2006. NBIA. 2006.

NBIA State of the Industry 2002. NBIA. 2002.

"Nielsen Net Ratings." Searchenginewatch.Com. 28 Jan. 2008 <http://searchenginewatch.com/showPage.html?page=2156451>.

Norfolk, Melissa. Tips for a Better Website. 04 October 06.

<http://www.flyingsolo.com.au/p212916843_A-better-website-Tips-for-improving-your-website.html>

O'Sullivan, Kevin. Personal interview. 2008.

Oxenfeldt, Alfred R "A Decision-Making Structure for Price Decisions." Journal of Marketing, Vol. 37, No. 1. (Jan., 1973), pp. 48-53.

Panagiotou, George. "Bringing SWOT in to Focus." Business Strategy Review 14 (2003): 8-10.

Raddcliffe, Gail. Telephone interview. 2008.

"Reading the Balance Sheet." Investopedia.Com. 2007. Forbes. 5 Dec. 2007 <http://www.investopedia.com/articles/04/031004.asp>.

Tamasy, Christine. "Rethinking Technology-Oriented Business." Growth and Change os 38 (2007): 460-473. WPI. 3 Oct. 2007.

Trimble, Dave. "Benchmarking - Uncovering Best Practices and Learning From Others." ISixSigma. 2003. Prosci. 25 Sept. 2007 <http://www.isixsigma.com/offsite.asp?A=Fr&Url=http://www.prosci.com/benchmarking.htm>.

Waterschoot, Walter van, Butle, Christophe van den. The 4P Classification of the Marketing Mix Revisited. Journal of Marketing, Vol. 56, No. 4. (Oct., 1992), pp. 83-93.

Appendix A.1

Interview Questions for MBI Staff and Board Of Trustee members

a. What is your name? /Which company do you work for? /Where did you get your education?
b. How long have you worked for MBI/ been on the board of trustees?
c. How do you think MBI has grown since you've been with the company?
d. What do you believe are some of MBI's Strengths and weaknesses?
e. How do you believe we can turn the weaknesses into strengths?
f. What do you believe should be some goals for MBI in the future?
g. You're Final Comments/suggestions for MBI?

Appendix A.2

Interview Questions For existing and former companies

a. What is your name? /Which company do you work for? /Where did you get your education?
b. What attracted you to MA for your business?
c. How did you decide to try to start your company through an incubator facility?
d. How did you find out about MBI?
e. What were your options besides working with MBI?
f. What made you choose MBI?
g. Have you ever used MBI's website if so, was it helpful?
h. How did MBI help your company?
i. Do you have any problems/suggestions for the way the utilities are used in MBI?
j. Why do you believe your company failed/succeeded? Was there anything else MBI could have done to help/prevent it?
k. Did MBI help attract any outside capital into your company?
l. Can you think of any other services that you think MBI should provide?
m. What was the most important thing MBI has done for you?
n. If you had to start all over would you work with MBI again?
o. Your final comments/suggestions for MBI

Appendix B

Expense by Property Breakdown

Table B.1 – Gateway Expenses

GATEWAY	2008* Actual Cost	Sq. Ft. Cost	% +/-	$ Change	2007 Actual Cost	Sq. Ft. Cost	% +/-	$ Change
Operating Expenses								
Utilities								
Gas	N/A							
Electric								
Water/Sewer								
Maintenance								
Cleaning	9072	**1.21**	22.83%	**$1,686.00**	7386	**0.98**		
Trash Removal								
Water Treatment								
Building	720	**0.10**			720	**0.10**		
Alarm/Security								
Other								
Repairs/Maintenance								
Shared Equipment	7650	**1.02**	1600.00%	**$7,200.00**	9000	**1.20**		
HVAC					450	**0.06**		
Electrical					450	**0.06**		
Plumbing	400	**0.05**	196.30%	**$265.00**	450	**0.06**		
Telephone	4800	**0.64**			135	**0.02**		

*Only 8 months worth of information available

Table B.2 – Winthrop Expenses

WINTHROP	**2007** **Actual Cost**	**Sq. Ft. Cost**	**% +/-**	**$ Change**	**2006** **Actual Cost**	**Sq. Ft. Cost**	**% +/-**	**$ Change**	**2005** **Actual Cost**	**Sq. Ft. Cost**
Operating Expenses										
Utilities										
Gas	22450	**1.02**	-58.55%	**-31,718.00**	54168	**2.46**	1.91%	**-1,032.00**	55200	**2.51**
Electric	38450	**1.75**	-58.31%	**-53,782.00**	92232	**4.19**	2.78%	**-2,568.00**	94800	**4.31**
Water/Sewer	0				0				0	
Maintenance										
Cleaning	0									
Trash Removal	0									
Water Treatment	0									
Building	0									
Alarm/Security	0									
Other	0									
Repairs/Maintenance										
Shared Equipment	0									
HVAC	0									
Electrical	0									
Plumbing	0									
Telephone	0									
BUDGETED IN TOTAL					*139524*				*98612*	

**Winthrop St closed down in 2007, only partial information available for 2007.*

Table B.3 – Biotech Park Expenses

BIO PARK	**2008 Actual Cost**	**Sq. Ft. Cost**	**% +/-**	**$ Change**	**2007 Actual Cost**	**Sq. Ft. Cost**
Operating Expenses						
Utilities						
	N/A					
Electric						
Water/Sewer						
Maintenance						
Cleaning						
Trash Removal						
Water Treatment	1332	**0.14**	**122.00%**	**732.00**	600	**0.06**
Building						
Alarm/Security						
Other	600	**0.06**	**-39.63%**	**-393.80**	993.8	**0.11**
Repairs/Maintenance						
Shared Equipment	6000	**0.65**	**0.00%**	**0.00**	6000	**0.65**
HVAC						
Electrical						
Plumbing						
Telephone						

Table B.4 – Barber Ave Expenses

BARBER AVE	**2008**				**2007**				**2006**				**2005**	
Operating Expenses	**Actual Cost**	**Sq. Ft. Cost**	**% +/-**	**$ Change**	**Actual Cost**	**Sq. Ft. Cost**	**% +/-**	**$ Change**	**Actual Cost**	**Sq. Ft. Cost**	**% +/-**	**$ Change**	**Actual Cost**	**Sq. Ft. Cost**
Utilities														
Gas	1402.5	**0.18**	0.00%	**0.00**	1402.5	**0.18**	-0.04%	**-0.50**	1403	**0.18**	-1.75%	**-25.00**	1428	**0.18**
Electric	31200	**3.90**	-13.33%	**-4800.00**	36000	**4.50**	40.64%	**10,402.00**	25598	**3.20**	-3.67%	**-974.00**	26572	**3.32**
Water/Sewer	0				0				0				0	
Maintenance														
Cleaning	1300	**0.16**	-83.13%	**-6405.00**	7705	**0.96**	0.00%	**0.00**	7705	**0.96**	33.77%	**1,945.00**	5760	**0.72**
Trash Removal	960	**0.12**	0.00%	**0.00**	960	**0.12**	0.00%	**0.00**	960	**0.12**	33.33%	**240.00**	720	**0.09**
Water Treatment	1332	**0.17**	122.00%	**732.00**	600	**0.08**	0.00%	**0.00**	600	**0.08**	33.33%	**150.00**	450	**0.06**
Building	600	**0.08**	-62.96%	**-1020.00**	1620	**0.20**	0.00%	**0.00**	1620	**0.20**	34.33%	**414.00**	1206	**0.15**
Alarm/Security	2120	**0.27**	107.03%	**1096.00**	1024	**0.13**	0.00%	**0.00**	1024	**0.13**	35.45%	**268.00**	756	**0.09**
Other	250	**0.03**	250.00%	**250.00**	0	**0.00**	0.00%	**0.00**	0	**0.00**	0.00%	**0.00**	0	**0.00**
Repairs/Maintenance														
Shared Equipment	600	**0.08**	0.00%	**0.00**	600	**0.08**	0.00%	**0.00**	600	**0.08**	33.33%	**150.00**	450	**0.06**
HVAC	2865	**0.36**	-61.41%	**-4560.00**	7425	**0.93**	1.02%	**75.00**	7350	**0.92**	33.88%	**1,860.00**	5490	**0.69**
Electrical	2400	**0.30**	0.00%	**0.00**	2400	**0.30**	0.00%	**0.00**	2400	**0.30**	33.73%	**605.40**	1794.6	**0.22**
Plumbing	1800	**0.23**	0.00%	**0.00**	1800	**0.23**	0.00%	**0.00**	1800	**0.23**	1233.33%	**1,665.00**	135	**0.02**
Telephone	0	**0.00**	0.00%	**0.00**	0	**0.00**	0.00%	**0.00**	0	**0.00**	0.00%	**0.00**	0	**0.00**

Appendix C

Facilities Operational Gains

Table C.1 – Facility Operational Gains

Facility Revenue Center Projections - Year 2007

Winthrop Street (January to April 2007)		
Rental Revenue	$44,623	
Operating Expenses	$127,915	
Liberty Rent Rebate	-$57,247	
Operational Gain/Loss		-$26,045
Barber Avenue (January to December 2007)		
Rental Revenue	$172,864	
Operating Expenses	$163,559	
Operational Gain/Loss		$9,305
Biotech Park (January to December 2007)		
Rental Revenue	$291,729	
Operating Expenses	$290,531	
Operational Gain/Loss		$1,197
Gateway (April to December 2007)		
Rental Revenue	$115,178	
Operating Expenses	$186,799	
Operational Gain/Loss		-$71,621

Appendix D

Facilities Budgets

Table D.1 – Gateway Budget

Gateway	Sq Ft.	7,500	***2008***	***2007***	***2006***	***2005***
	Revenue					
		Rental Income	$ 235,409	$118,158	N/A	N/A
		State Grant Revenue	$ 350,000			
		Interest Income	$ 3,000			
		Equity Royalties	$ 102,000			
			$ 690,409	$118,158		
	Expenses					
		Wages, Taxes & Benefits	303845	$0		
		Insurance	$ 15,052	$5,625		
		Rent(s)	$ 90,216	$69,118		
		Operating Expenses*	$ 111,684	$93,465		
		Utilities		$0		
		Maintenance/Repairs*	$ 22,642	$18,591		
		Professional Services	$ -	$0		
		Office Operations	$ 24,120	$0		
		Health & Safety	$ -	$0		
		Marketing/Fundraising	$ 48,000	$0		
			$615,559	$186,799		
		Operational Gain/Loss	$ 74,850	***-$68,641***		

* Operating Expenses include utilities

* Maintenance/Repairs includes: cleaning, trash, building, alarm/security, shared equip, plumbing, hvac and telephone repairs

Table D.2 – Winthrop St Budget

Winthrop	Sq Ft.	22,000	***2008***	***2007***	***2006***	***2005***
	Revenue					
		Rental Income	N/A	$ 59,917	$ 444,050	$ 522,400
		State Grant Revenue				
		Interest Income			$ 90,000	
		Equity Royalties			$ 15,000	$ -
			$ -	$ 59,917	$ 549,050	$ 522,400
	Expenses					
		Insurance		$ 1,800		
		Rent(s)		$ (14,315)	$ 163,723	$ 101,016
		Operating Expenses		$ 22,283		
		Utilities		$ 60,900	$ 146,400	$ 150,000
		Maintenance/Repairs	$ -	$ -	$ 139,524	$ 98,612
		Professional Services	$ -	$ -	$ 15,002	$ 15,000
		Office Operations	$ -	$ -	$ 89,520	$ 93,500
		Health & Safety	$ -	$ -		
		Marketing/Fundraising	$ -	$ -	$ 48,000	$ 40,000
	Sub Total Expenses		**$0**	**$70,668**	**$602,169**	**$498,128**
		Wages, Taxes & Benefits*			$ 364,720	$ 358,848
	Total Expenses				$ 966,889	$ 856,976
		Operational Gain/Loss	***$0***	***-$10,751***	***$ (417,839)***	***$ (334,576)***

*All wage costs were put into Winthrop St. before it closed in 2007.

Table D.3 – Biotech Park Budget

Biotech Park	Sq Ft.	9,280	***2008***	***2007***	***2006***	***2005***
	Revenue					
		Rental Income	$329,510	$305,585	N/A	N/A
		State Grant Revenue				
		Interest Income				
		Equity Royalties				
			$329,510	$305,585		
	Expenses					
		Wages, Taxes & Benefits				
		Insurance	$10,773	$8,940		
		Rent(s)	$191,271	$139,275		
		Operating Expenses*	$146,804	$132,685		
		Utilities		$0		
		Maintenance/Repairs*	$7,932	$7,594		
		Professional Services	$756	$0		
		Office Operations	$8,448	$2,275		
		Health & Safety	$0	$0		
		Marketing/Fundraising	$0	$0		
			$365,984	$290,769		
		Operational Gain/Loss	***-$36,474***	***$14,816***		

*Operating Expenses including cleaning, property management and utilities

Table D.4 – Barber Ave Budget

Barber Ave	Sq Ft.	8,000	***2008***	***2007***	***2006***	***2005***
	Revenue	Rental Income	$ 159,076	$ 225,328	$ 199,488	$ 174,432
		State Grant Revenue	$ -	$ -	$ -	$ -
		Interest Income	$ -	$ -	$ -	$ -
		Equity Royalties	$ -	$ -	$ -	$ -
			$ 159,076	$ 225,328	$ 199,488	$ 174,432
	Expenses	Wages, Taxes & Benefits		$ 6,000	$ -	$ -
		Insurance	$ 9,292	$ 7,980		
		Rent(s)	$ 85,402	$ 85,402	$ 85,404	$ 78,468
		Operating Expenses	$ -	$ -	$ -	$ -
		Utilities*	$ 32,603	$ 37,403	$ 27,000	$ 28,000
		Maintenance/Repairs*	$ 14,227	$ 24,136	$ 24,000	$ 18,000
		Professional Services	$ -	$ -	$ -	$ -
		Office Operations	$ 2,160	$ 840	$ 804	$ 800
		Health & Safety	$ 1,800	$ 1,800	$ -	$ -
		Marketing/Fundraising	$ -	$ -	$ -	$ -
			$ 145,484	$ 163,561	$ 137,208	$ 125,268
		Operational Gain/Loss	***$ 13,592***	***$ 61,767***	***$ 62,280***	***$ 49,164***

* Electric and Gas

* Maintenance and Repairs includes cleaning, water treatment, waste removal, general building, security HVAC, shared equipment, electrical and plumbing

Appendix E

Facilities Operational Income and Expense Data

Table E.1 – Winthrop St.

Sq. Ft. 22,000	Winthrop Street								
	*2007**		*Per Sq Ft*	*2006*		*Per Sq Ft*	*2005*		*Per Sq Ft*
Income		Actual $			Actual $			Actual $	
Rental	4%	$44,623	**2.03**	48%	$507,551	**23.07**	54%	$626,710	**28.49**
State Grant	59%	$700,000		41%	$425,000		43%	$500,000	
Interest	0%	$3,938		0%	$3,029		0%	$2,807	
Other	36%	$429,488		11%	$113,500		3%	$32,153	
	100%	$1,178,049		100%	$1,049,080		100%	$1,161,669	
Expenses									
Personnel	50%	$312,683		31%	$188,949	**8.59**	38%	$356,883	
Insurance	3%	$16,387	**0.74**	3%	$16,498	**0.75**	3%	$28,203	**1.28**
Rent	7%	$42,257	**1.92**	16%	$94,727	**4.31**	11%	$101,010	**4.59**
Operating	5%	$32,967	**1.50**	10%	$60,096	**2.73**	9%	$89,130	**4.05**
Utilities	6%	$38,226	**1.74**	17%	$101,351	**4.61**	18%	$169,134	**7.69**
Maintenance	5%	$33,777	**1.54**	5%	$30,623	**1.39**	9%	$87,595	**3.98**
Professional Fees	13%	$81,668	**3.71**	13%	$79,786	**3.63**	5%	$48,205	**2.19**
Office	4%	$27,962	**1.27**	3%	$16,782	**0.76**	0%	$0	
Health & Safety	5%	$33,877	**1.54**	1%	$4,693	**0.21**	2%	$18,288	**0.83**
Marketing, Travel	1%	$8,545	**0.39**	1%	$8,654	**0.39**	4%	$38,784	**1.76**
	100%	$628,213		100%	$602,169		100%	$939,166	

** Moved out of Winthrop St Location, only four months of data, 2006 expenses based off budgeted values*

Note: Winthrop Street was designated Headquarters and therefore absorbs all personnel related

Table E.2 – Barber Ave.

Sq. Ft. 8000	Barber Ave								
	2007		Per	2006		Per	2005		Per
Income		Actual $	Sq Ft		Actual $	Sq Ft		Actual $	Sq Ft
Rental	100%		28.17	100%		24.94	100%		21.80
State Grant									
Interest									
Other									
	100%			100%			100%		
Expenses									
Personnel	0%			5%	$8,617	1.08	4%	$ 6,521.50	0.82
Insurance	5%	$8,019	1.00	5%	$8,498	1.06	5%	$ 7,506.75	0.94
Rent	52%	$85,402	10.68	47%	$85,402	10.68	48%	$ 79,402.38	9.93
Operating	N/A			N/A		0.00	N/A		
Utilities	21%	$33,725	4.22	18%	$33,729	4.22	18%	$ 29,782.00	3.72
Maintenance	19%	$31,066	3.88	21%	$38,255	4.78	24%	$ 40,525.95	5.07
Professional Fees	2%	$3,100	0.39	N/A		0.00	N/A		
Office	1%	$1,721	0.22	4%	$7,597	0.95	1%	$ 852.49	0.11
Health & Safety	1%	$1,184	0.15	0%	$494	0.06	1%	$ 1,360.09	0.17
Marketing, Travel	0%	$0	0.00	0%	$346	0.04	N/A		
	100%	$164,217		100%	$182,939		100%	$ 165,951.16	

Table E.3 – Gateway Park

Sq. Ft.	Gateway Park				
7500	**2007***		***Per***	**2006**	**2005**
Income		Actual $	***Sq Ft***		
Rental	100%		**15.75**		
State Grant					
Interest					
Other					
	100%	`			
Expenses					
Personnel	0%				
Insurance	3%	$5,317	**0.71**		
Rent	38%	$71,059	**9.47**		
Operating	46%	$86,019	**11.47**		
Utilities	0%				
Maintenance	9%	$17,105	**2.28**		
Professional Fees	1%	$1,701	**0.23**		
Office	1%	$2,638	**0.35**		
Health & Safety	2%	$4,075	**0.54**		
Marketing, Travel	0%				
	100%	$186,997		0%	0%

*Gateway only in operation for 8 months

Table E.4 – Biotech Park

Sq. Ft.	Biotech Park					
9280	**2007**		***Per***	**2006**	***Per***	**2005**	***Per***
Income		Actual $	***Sq Ft***		***Sq Ft***		***Sq Ft***
Rental	100%		**32.93**				
State Grant							
Interest							
Other							
	100%						
Expenses							
Personnel	0%						
Insurance	2%	$5,019	**0.54**				
Rent	53%	$139,275	**15.01**				
Operating	39%	$100,656	**10.85**				
Utilities	0%						
Maintenance	4%	$9,817	**1.06**				
Professional Fees	1%	$2,565	**0.28**				
Office	2%	$3,954	**0.43**				
Health & Safety	0%	$40	**0.00**				
Marketing, Travel	0%						
	100%	$261,326		0%		0%	