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Website and Marketing Enhancement for MBI

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An Interactive Qualifying Project

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Abstract

Massachusetts Biomedical Initiatives (MBI) is a biotechnology incubator in Worcester, Massachusetts. In order to enhance recruitment of viable entrepreneurs, a study was conducted to determine the most effective ways to market their services. There were three parts to this study. First, an inspection and critique of MBI's facilities and services was conducted in order to determine the quality if the facilities and services offered to the tenant companies and the primary selling points which would be most effective in persuading a viable potential entrepreneur to investigate MBI were determined. Second, company data was reviewed and manipulated to facilitate analysis and presentation to the MBI Board of Trustees. Third, a thorough critique was performed on the company website and changes made which took advantage of the latest technology available.

Executive Summary

Massachusetts Biomedical Initiatives (MBI) is a biotechnology incubator in Worcester, Massachusetts. In order to enhance its recruitment of viable entrepreneurs, a study was conducted to determine the most effective ways to market its services. There were three parts to this study. First, an inspection and critique of MBI's facilities and services was conducted in order to determine the quality if the facilities and services offered to the tenant companies and the primary selling points which would be most effective in persuading a viable potential entrepreneur to investigate MBI were determined. Second, company data were reviewed and manipulated to facilitate analysis and presentation to the MBI Board of Trustees. Third, a thorough critique was performed on the company website and changes made which took advantage of the latest technology available.

The first question was answered in two ways: inspection and interviews. The inspection part was a simple process and involved only making sure that all of the services and equipment marketed are in fact implemented. It was found that all shared equipment listed on the company website wad kept in acceptable running order. The interviews provided the most of the important information.

Eight of the ten tenant company owners at MBI were interviewed. The interviews were semi-structured. The entrepreneurs were asked to relate their path to MBI, their opinions of MBI, and if there what was most important to them in choosing an incubator. More specific questions were asked as needed in order to get specific information (e.g., their opinions of the quality of the shared equipment. During the interviews, three

separate sets of notes were taken by the interviewees, which were later compared and combined into a master note set.

This process yielded a set of four primary selling points which the entrepreneurs considered to be the best facets of MBI: location, cost, health and safety permits, and lease policies. The location of MBI was important to all the tenant companies because of the lack of stringent biomedical regulations in Worcester (as opposed to Boston), its proximity to universities, colleges, the Worcester Biotech Park, and the Cambridge biomedical community, and its proximity near several major highways (290, 495, and 90). The low cost of MBI compared to other incubators was determined to be important because it allowed for more resources to be concentrated on their research and less on rent and utilities. The health and safety permits supplied by MBI were important because it freed up time and money which would otherwise be spent acquiring their own permits, and because a company does not need to be concerned with the storage and disposal of hazardous waste. Finally, MBI's policy of requiring leases for only one year was a benefit because it imposed a smaller financial risk to the tenant founders and guarantees that a company can move out as soon as it is mature.

The second part of this IQP was to review compiled company data on tenants, previous tenant success, and budget numbers and to arrange it into presentable formats for easier understanding by the MBI Board of Trustees. The tenant and previous tenant data was compiled and input into easily-understandable spreadsheets including data on time spent at MBI, number of employees, etc. MBI archives were used to get this information and phone calls and interviews used as needed.

The compilation of MBI's budget data was difficult because MBI had recently employed two different accountants who used slightly different methods. Working closely with the current MBI accountant, Linda Freedman, the expenses of MBI for 2003-2005 (projected) were determined. Graphs were generated to facilitate presentation to the MBI Board of Trustees.

The third part of the project was to perform a thorough critique of the company website and to make changes to streamline use, make it more user-friendly, promote the selling points previously determined, and to include a virtual tour. Using a list of criteria obtained through background research on effective website design, a critique was performed and it was determined that the website would be more effective with changes to the navigation. Using the program Dreamweaver, the website was altered to improve the navigation, thus making it easier for a visitor to find the information required. The content of the website was also altered to ensure that the information most likely to persuade a potential entrepreneur to use MBI as an incubator was prominent.

A virtual tour was also produced and added to the website. This was a 2 minute 11 second digital video with a narrative voice over. The video displays important parts of MBI such as the labs, offices, shared equipment, and the board room. The narrative corresponds to the video and lists all of the benefits of being a member of MBI, including the primary selling points determined through the interviews. A link to the virtual tour was placed prominently on the home page to encourage use.

Overall, it was concluded that MBI will be more effective in marketing itself with the revamped website including important selling points and with the virtual tour. The

services performed with the tenant success evaluation and the budget review should give the MBI Board of Trustees a better sense of how the organization is performing.

This project meets the requirements of the IQP because it relates science and technology to social issues. The primary goal of MBI is to promote the field of biotechnology in the Central Massachusetts region and thus encourage economic growth. The goal of this project was to enhance the marketing strategy and perform other useful services to MBI. Thus, the successful completion of this project should, in time, have a positive effect on the economy of the Central Massachusetts region. Additionally, the work performed for MBI involved both technical and social knowledge. For example, the improvements made to the website required technical software knowledge to complete as well as knowledge of human psychology to determine what changes would be most effective. Through this combination of social and technical aspects, this project was a successful IQP.

Acknowledgements

The successful completion of this Interactive Qualifying Project was made possible by the invaluable help of many contributors. Special thanks go out to our sponsor, MBI CEO Kevin O'Sullivan, who provided the opportunity to help the community and made every effort to help us. We would also like to thank the Manager of Administrative Services Judy Cocaine for working closely with us throughout the course of the project, as well as all of the tenants of MBI who humored our presence and donated their valuable time for our interviews. Additional thanks go out to James Schementi for his wealth of HTML and website knowledge and to Professor Seth Tuler for his writing guidance. Finally, we would like to give thanks to our advisors Professor Chickery Kasouf and Professor Mustapha Fofana who provided invaluable help while guiding this project from conception to completion.

1 Introduction

Many economists believe that the world is entering a phase known as the "new economy:" the economic climate is changing such that it is easier for small business start-ups to compete with large established corporations (Burns, 1999). Spurred by a technological revolution in the 1970's which made possible new fields such as biotechnology, this trend indicates that start-ups are collectively making ever greater contributions to the economic vitality of the United States (Bustamante and Bowra, 2002). While large, blue-chip companies still control a large portion of the economy, a disproportionately large number of technological innovations come from start-ups with revolutionary ideas. In addition they employ a large sector of the population.

Despite the fact that the economic impact of new entrepreneurs has been increasing for over three decades, a disturbing statistic is that three out of every four business start-ups fail within the first year (Burns, 1999). Tornatzky (1996) claims that there are a few specific factors which cause the downfall of technology-based start-ups: management, human resource issues, and product development and marketing issues. To help address these failure factors a support industry has been developing which can help a business with these issues: the business incubator. The traditional incubator addresses two of the three failure factors by supplying work space, equipment, and basic services. However, higher quality incubators available also provide further support in the product development and marketing areas.

One such incubator is Massachusetts Biomedical Initiatives (MBI), a non-profit organization based in Worcester, MA, which specializes in biotechnology companies. Located outside of the "Route128 Corridor," a section of Massachusetts which has been

aggressively promoting itself as a leader in technology fields (Miller, 2000), MBI provides lab space, office space, general services, as well as business support in the form of management and product development advice. As any competitive organization must do, MBI seeks to optimize both its effectiveness as an incubator and its marketing to potential entrepreneurs. Due to the natural cost-restraints on a non-profit enterprise, MBI requires analysis and recommendations that do not require significant investments or the hiring of any new personnel (Massachusetts Biomedical Initiatives, 2004).

The primary goal of MBI is to advance the field of biotechnology in the region. In order to best accomplish this, they wish to support as many viable start-up companies as possible at any given time. In addition to requiring a steady flow of tenants, they wish to advance those start-ups which have the greatest chance of success post incubation. This means that they wish to optimize both the number of entrepreneurs investigating MBI as a possible incubation site, and at the same time increase the viability of this crop of entrepreneurs.

In order to better promote the biotechnology field in the region, MBI wishes to enhance its recruitment of viable entrepreneurs. MBI and Worcester Polytechnic Institute (WPI) have a relationship which provided an Interactive Qualifying Project (IQP) group, from last year, 2004, to work closely with MBI to help them benchmark MBI's progress and economic impact. This project was the next step in a more expansive analysis of MBI. This goal was achieved by several different strategies. The first was to perform an inspection and critique of MBI's facilities and services in order to determine which facets can be used for advertising purposes. A second strategy was to determine the most effective way to reach out to the most viable potential tenants. A third way in

which MBI was assisted was to perform a critique of the company website and implement changes which take advantage of research we will perform as well as the latest technology available. This included the production of a 'virtual tour,' a short video of various MBI facilities with an informative narrative describing MBI in detail. Finally, MBI's Strategic Plan progress was for this year and assessed the progress arranged into a presentable format for the 2005 Board of Trustees meeting.

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2 Background

This chapter serves to provide the background necessary for us to formulate our research. In order to understand a general context for a biomedical incubator, we first discuss the Life Sciences and more specifically biotechnology and biomedical engineering. We then discuss incubators in general and provide a description of Massachusetts Biotechnology Initiatives. The next topics covered relate to entrepreneurship and the effect that incubators have on biotechnology start-ups, the idea being that the more we know about entrepreneurship in this specific field, the better we can help MBI to recruit them. Next, we discuss marketing and Strategic Marketing Plans in general in order to best understand MBI's needs. Finally, we explore web site design in order to give us the necessary knowledge to perform a professional critique of MBI's website.

2.1 Life Science

Life science is a general term used to describe various disciplines of sciences that deal with living organisms and life processes. Life sciences include biology, medicine, ecology, anthropology, chemistry, genetics, philosophy and sociology. Life sciences focus on organisms, biological processes and relationships between each and its environment. Through various experiments, where technology has been applied to the life sciences, today’s scientists hold a current understanding of each science’s processes due to evidence from experimental developments (Magner, 2002). The utilization of technology with sciences creates the concept of high-technology. High-technology, or simply high-tech, is the usage of the most advanced or developed methods. Two fields

that extensively harness high-technology to life sciences are biomedical engineering and biotechnology.

2.1.1 Biomedical Engineering

Biomedical Engineering is the use of engineering theories which are applied to the fields of biology and medicine, creating a combination between the two different fields. Engineering principles have been related to various nervous systems, specifically to action potentials and axons, which was then applied to control systems of the human body, such as in muscle control. Another example is the concept of electrocardiography. Through the engineering of specified parts ,such as leads used in electrocardiography, and with the mathematical sciences it has given the production of a way to measure the heart and its function to foresee its normality or abnormality and dysfunction (Schwan, 1969).

Not only has biomedical engineering been applied to help learn about how biological systems mechanically behave but also to create prosthetic biological replacements, such as heart valves, and also to create machinery, such as for dialysis or for the use of minimally invasive surgery (Black, 1972). These above examples are just a few of the developments that have been achieved by this field.

As the knowledge and technology in biological and engineering sciences expands so does the field of biomedical engineering; it is an ever developing process where it's methods are being developed and innovated, making the field high-tech.

2.1.2 Biotechnology

Biotechnology is the application of principles of engineering and technology to the life sciences. It is broken down into sub-areas which included genomics, bioinformatics, transformation, molecular breeding, diagnostics and vaccine technology (Bustamante, 2002). It is the combination of biology and technology, but more on an organismal and genetic level as opposed to the engineering of specified parts in biomedical engineering. Biotechnology is not all about manipulation, trying to change processes or organisms that should not be altered, but to apply technological tools as best possible to make advances in biological sciences. Biotechnology and biomedical engineering mesh well together, but are not by any means completely the same. For example, it is possible that a donated heart or an artificial liver can be implanted by means of nonliving parts and genetically engineered tissues (Andrade, 1994).

As for the economics of the biotechnology industry, science and technology need money to perform high-technological research. In order to gain the funding, the research must be worthwhile. The funding is easier to gain, if the research involves innovation, which also makes the need for financial backing more attractive (Andrade, 1994).

Biotechnology is a field that is shifting and developing based on the knowledge of life sciences and new technologies that are being developed, to create a high-tech field. This technology brings about the topic of innovation and commercialization. The ever changing technology of the field spurs new innovations. Then commercialization helps to expand these new innovations which then also create more new ideas. The importance is that these ideas are then fostered in small businesses, and perhaps even an incubator.

2.2 Incubators

When considering the term 'incubator,' the picture that comes to mind is a warm, safe place which exists to help the growth of something young and helpless. In the business world, this image still applies, but in a different sense. Investor Words defines the term as "A company or facility designed to foster entrepreneurship and help startup companies, usually technology-related, to grow through the use of shared resources, management expertise, and intellectual capitol" (investorwords.com). This section will serve to provide a background for the concept of the business incubator.

The concept of the incubator dates back to the early 19th century, when businessman Stephen Salisbury opened his Industrial Park in Worcester, MA. Here, Salisbury supplied small companies with land, facilities, and energy in return for a fixed fee. This allowed entrepreneurs to focus their resources on their business without having to spend time taking care of trivial tasks. The effect of this was dramatic: throughout much of the century, Worcester was a world leader in several heavy industries, such as wire and cable extruding and industrial machine tool production. Many of Worcester's largest companies began as small start-ups in Salisbury's incubator (Southwick, 1998).

2.2.1 Modern Incubators

Today's incubators work on the same concept, although the technique has greatly improved. For example, many organizations such as MBI are non-profits, their purpose being simply to help advance the field. These incubators charge only minimum fees, allowing start-ups to spend resources on more important tasks. (Walker, 2003)

In technology fields, incubators provide services in two key areas: providing adequate facilities and performing mundane tasks. For facilities, incubators supply laboratories, offices, dark rooms, cold-storage rooms, electricity, phone and internet access, faxes, copiers, and other facilities specific to the nature of the start-up. The service of performing mundane tasks includes the paying of bills (e.g., electricity, heat,), janitorial services, lab equipment cleaning, and trash removal (Massachusetts Biomedical Initiatives, 2004).

In addition to providing these tangible services, the most effective modern incubators offer another service which is arguably more important: knowledge (Tornatzky, 1996). There are two forms of knowledge that incubators can provide: field-specific knowledge and business management knowledge. The first of these, field-specific knowledge, consists of industry knowledge of whatever field the incubator caters to. In the interest of advancing the field, incubators will often coordinate cooperation between start-ups in order to create a general knowledge pool. In other words, if one tenant encounters a problem which they do not have the technical knowledge or experience to solve, the tenant can request help from other companies within the incubator. The second form of knowledge, business management, consists of knowledge crucial to the success of the business after leaving the incubator. Incubators employ professionals who provide advice in the form of business plan formulation, accounting practices, and connections in the field (Tornatzky, 1996).

2.2.2 Massachusetts Biomedical Initiatives (MBI)

Massachusetts Biomedical Initiatives (MBI) is a private, non-profit company that acts as an incubator to start-up companies. In 1985, MBI joined with Commonwealth BioVentures Inc. to form a private/public partnership, which has together invested $58 million and created 50 plus companies. MBI strives to create jobs in Central Massachusetts and to stimulate and support economic development by creating an increase in successful biomedical and biotech industries in the area (Massachusetts Biomedical Initiatives, 2004). The increases will then help to advance the biomedical and biotech industry.

Their mission is carried out by the use of two Worcester based facilities. There is one larger center on Winthrop Street (Headquarters) and one smaller center on Barber Avenue. Both provide wet and dry labs, shared lab and office equipment, conference rooms, health and safety licenses, maintenance and training, and office support (i.e., mail services, computer and phone hookups). The Winthrop Street location also includes the new Bioinformatics Center. Not only does MBI provide physical resources but also the means of business support.

2.3 Entrepreneurship

Beginning in the 1980's, the United States has been experiencing the largest boom in entrepreneurship in history (Burns, 1999). This is due primarily to advances in technology and the creation of small niche markets. Many economists believe that the changing economic climate is making it easier for small, adaptable companies to compete with very large firms (Bjerk and Hultman, 2002).

Despite the fact that the current economy provides many opportunities for entrepreneurs, starting a company remains an extremely difficult task as can be seen by the fact that three out of every four start-up businesses fail (Burns, 1999). Burns lists the five primary categories in which a lack of knowledge causes the majority of these failures: accounting, legal, financial, management, and marketing. One of the goals of business incubators is to increase the odds of a company being successful by providing advice and services in all of the above categories.

Burns also claims that there are seven areas in which an entrepreneur must have an established foundation in order to be successful: knowledge, direction, emotional, spiritual, financial, physical, and relationship. Arguably the most important of these foundations is the first one, knowledge. An entrepreneur must have a wide and up-to-date knowledge of his or her field, industry, business, and current events. Successfully starting and running a business is essentially a lifelong learning process. The second foundation, direction, means that to start a business one must first develop a very detailed and well thought out plan, and it is very important that this plan be closely followed whenever possible. An emotional foundation is important because ones work often reflects ones current attitude, and having a good disposition will positively effect growth and help to uplift employees. The fourth foundation, spiritual, means simply that time should be made even in the most hectic schedule for time to pause and reflect. Whether this is through prayer, meditation, or ritual is completely a matter of preference. This will help an entrepreneur to maintain a clear mind and allow for focus. A strong financial foundation both for both professional and personal aspects of life is also important. The sixth foundation is physical, and means simply that keeping ones' body in good physical

condition will improve the quality of life as well as to keep energy levels high. Finally, it is important to have a strong relationship foundation because turmoil at home will inevitably spill into the workplace and potentially cause havoc. (Burns, 1999)

A quality incubator will directly help an entrepreneur with three of these foundations: knowledge, direction, and financial. With its knowledge pool and business workshops, an incubator will increase the chances an entrepreneur has to succeed (Kalis, 2002). Additionally an incubator will help indirectly with the other important aspects, such as emotional, by removing much of the stress which generally comes with starting a business.

The effectiveness of incubators is made evident by the fact that since 1997, 87% of biotechnology start-ups which were incubated succeeded (Kalis, 2002). This dramatic difference when compared to the 25% success rate of start-ups in general underscores the positive effect of incubators. Another point of view that can be taken with this statistic is that in general only those start-ups most likely to succeed choose to be incubated and/or are selected for incubation. Either way, the value of incubators is obvious.

2.3.2 Biotechnology Entrepreneurship

Although the concept of biotechnology has existed for millennia (for example, selective breeding to improve agriculture stock), it was not until the 1970's that the technology, methods, and knowledge base reached the point where true biological manipulation could take place (Orsenigo, 1989). This was when biology began to change from science to technology. It took only a few entrepreneurs to found successful biotechnology ventures to inspire thousands of other start-ups and spur institutions and

governments to pour vast sums of money into them in an effort to exploit this new market (Orsenigo, 1989).

Biotechnology proved to be particularly conducive to entrepreneurship. This is due largely on the fact that successfully creating a product or process requires a very intimate knowledge of a relatively narrow facet of biotechnology, this being the entrepreneur's niche. Large firms, while still capable of being successful, are inefficient because of the necessity of firm leaders to direct multiple projects in which they do not necessarily have intimate expertise (Orsenigo, 1989).

Despite being fertile ground for entrepreneurship, the task of starting a biotechnology company is almost always complicated for several reasons: the need for expensive special equipment, the length of time before a viable product can be brought to market, and the entrepreneur's lack of business knowledge (National Business Incubation Association, 2004). This is where incubators become invaluable, as was previously shown with the wide gap between the success rates of incubated and non-incubated start-ups. Another interesting statistic which indicates the effectiveness is that in 1980, there were a total of 12 biotechnology incubators in the United States. However, as of 2000, there were 950 biotechnology incubators. This huge increase also testifies to the fact that incubators are considered crucial in the founding of a biotechnology start-up (Kalis 2002).

2.4 Marketing

In this section, we will cover key aspects of marketing that are most essential to our project. Marketing analysis is a key topic relevant to our project because it directly deals with one of our goals, to provide analysis of a marketing plan. At its simplest,

marketing is creating a match between a company's potentiality and the needs of a customer (Keegan & McDonald, 1997). This goal can be broken down into several concepts. First is the realization that a firm and its assets are of little value without customers. Second, because of the realization that customers are key, a new key task, to attract and keep customers, is formed. Third, the customers are drawn by promises and are kept through product or service satisfaction. Finally, the task of marketing is to create an appropriate guarantee to the customer and to insure the delivery of satisfaction (Kotler 2002). These concepts are put into reality through a strategic marketing plan.

2.4.1 Strategic Plan

The central idea behind marketing planning is a strategic marketing plan. The strategic marketing plan has four parts to it (Keegan & McDonald, 1997). The first part of a successful marketing plan is industry analysis. The business must gather information on its competitors, the general state of its industry and, most importantly, the business must come to realize its position relative to before mentioned variables. This is done through a marketing audit, which involves SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis (Evans & Berman, 2002). The second part of the strategic marketing plan is for the business to set realistic goals, based on analysis from the first part, of what it wants to achieve. Marketing goals are quantitative, with specific numbers as to what is going to be achieved, whether it is market share volumes, or revenue. The third part of the strategic marketing plan is developing a marketing strategy to achieve the goals set in the second part of marketing plan. The strategy defines the course a business will follow and guides the allotment of assets and effort, which leads us into the fourth part (Keegan & McDonald, 1997). The last part of the strategic marketing

plan is the tactical aspect. In this part, the analysis, objectives and strategy are put to use and are applied to the real world. The strategic marketing plan does not stop here, but rather continues in a cycle. In a successful business, an effective plan reassesses itself continuously (Evans & Berman, 2002).

2.4.2 Marketing Analysis

The strategic marketing plan and its execution are evaluated in a marketing audit (Keegan & McDonald, 1997). There are two types of audits, internal and external. The internal audit analyzes operational variables, which can be controlled, to a certain extent, by the company (Keegan & McDonald, 1997). In the internal audit, the financial performance of an organization is measured by comparing the return of assets and the cost of capital (Aaker, 2001). This audit also entails a qualitative analysis of key factors such as customer satisfaction, service quality, firm associations, and employee capability.

The external audit can be broken down into several parts, customer analysis, competitor analysis, market analysis, and environmental analysis (Aaker, 2001). Customer analysis is the first step of any external analysis, and is used to identify the company's customers, their inclinations, and unmet needs. Through competitor analysis, a company identifies and attempts to understand its competitors (Aaker, 2001). By analyzing a competitor's performance, image, objectives, strengths, weaknesses and strategies, a company can gage itself against the competitor. Market analysis is used to determine the attractiveness of a specific market and understand the dynamic of the market so that all business opportunities and competitor threats can be recognized and strategies tailored (Aaker, 2001). The last part of external audits is the environmental analysis. Forces outside the scope of a company's control can be analyzed to help

understand any emerging opportunities and threats (Aaker, 2001). Because of the enormous scope of this analysis, it can be narrowed down into five components, technological, governmental, cultural, economic, and demographic (Aaker, 2001). These analyses are then used to create assumptions about how realistic of goals the company can set in the future, how well the company has executed its previous strategic marketing plan, and how the company can augment its strategic marketing plan in order to better perform (Keegan & McDonald, 1997).

2.5 Website Analysis

In this section, we discuss several topics concerning website analysis. The background information included in this section will help us answer what can be done to enhance MBI's website. The topics discussed are, first, the importance of web sites to businesses and their marketing and public relations strategies. Second, we are going to discuss the importance of website analysis and how it relates to the MBI project. Thirdly, we will cover key concepts of web usability and analysis.

2.5.1 Importance of Web Sites

Web sites are one of the best ways to communicate or present information to just about anybody in this world. Although web sites are used for a wide variety of purposes, sites can be designed with a specific purpose in mind. Many businesses have adopted their web sites, into their business strategy, as effective marketing tools (Vinocur 2004). The informational value of web sites can attract many potential customers who are searching for facts about products. The power of web sites can be utilized by public relations departments (Schipul 2004). Through the use of well developed, informational

web pages, an organization can help increase its public relations by presenting a creative vision of the organization and gathering statistics on users of the website (Schipul 2004).

2.5.2 Importance of Web Site Analysis

According to Vinocur (2004), the purpose of a corporate web site is to provide information and to keep visitors coming back. In order to keep visitors coming back, a web site must constantly be updated (Sterne, 2002). The purpose of web site analysis is to see if the intended goals of the site are being met (Geest, 2001). By analyzing what is wrong with the site, improvements can be suggested and implemented so that current and future visitors will be exposed to a better source of information.

One of our goals in this project is to suggest improvements to MBI's web site. In order to accomplish this goal we must analyze the web site to find its strengths and weaknesses. The information presented in this part of the background chapter will show us how to identify strengths and weaknesses and will teach us some key concepts in web site usability. Usability is making something more user-friendly, in our case web sites.

2.5.3 Web Site Usability

Web usability is simply a collection of things to do and things to avoid when designing or improving a web site (Flanders, 2002). Nobles (2001) and Flanders (2002) both suggest that web site usability can be broken down into several categories, as shown in Table 1.

Table 1 - Usability Concepts
Navigation
Links
Site map
Aesthetics
Graphics

Layout
Sound
Search engine optimization
Content
Relevance
Presentation
Technical

Each category can be discussed about Navigation is about the necessity of making a site easily navigable. Although mostly a topic of analysis, navigation is checking links to make sure there are no dead ends, and creating a site map to help visitors navigate (Nobles, 2001). Aesthetics deals with the look of the site. Suggestions include keeping the layout simple, not using large graphics files and not using sounds on business sites (Flanders, 2002). Search engine optimization deals mostly with designing a site that can be easily indexed by a search engine. Making a site that is simple and doesn't use Flash, dynamic pages, complex image maps, and Java allows for better indexing (Nobles, 2001). The content category deals with suggestions on how to keep content presentable and relevant. Castelluccio (2004) suggests that small type text encourages draws attention and causes concentrated viewing by a scanning visitor, while Nobles states that separating different topics into different pages creates a cleaner way to view content. The technical category contains suggestions on how to implement and when not use certain technologies on a website. The use of plug-in technology is strongly discouraged because of variety of systems that can be used to view web pages (Flanders, 2002).

2.5.4 Analyzing Web Pages

Web site analysis is used to identify the strengths and weaknesses in a web site. Web site design can be achieved by measuring the objectives of a web site against its

accomplishments (Geest, 2001). There are key criteria that should be evaluated in order to gauge a web site. Evans and Berman (2002) suggest the assessment factors, shown in Table 2 as criteria for evaluating a web site.

Table 2 - Assessment Factors – Evans and Berman (2002)	
Daily website traffic	Average length of stay at the website
Number and type of system breakdowns	Ratings of customer service surveys
Clarity of site's mission	Download time
Speed of site comprehension	Informational value
Ease of navigability	Use of graphics and multimedia
Interactivity	Currency
Printability of site pages	Creativity

On the other hand, Geest (2001) takes a slightly different approach. By breaking down a web site into several different categories and subcategories, Geest (2001) is able to create a much more in-depth approach to analyzing web sites. The categories included can be found in Table 3.

Table 3 - Analysis Factors – Geest (2001)
Suitability for visitors' and organization's needs
Quality of the structure of the content and the navigation
Quality of the content
Quality of text, graphics, and multimedia
Quality of interaction
Ease of audience finding site

Suitability for visitors' and organization's needs is about how well does the content of the website relate to visitor, and how well does the content represent a company. The quality of structure and navigation deals with analyzing how well the site is structured, how easy it is to find information, and generally how easy is it to move

around on the web site. The quality of content assesses how well the content of the site fits together. This concept helps to analyze if some content is unnecessary, such as an irrelevant picture that disrupts the flow of information present through text. The quality of text, graphics, and multimedia analysis factor helps deal with how good is the writing on the site, whether or not the graphics and multimedia used are professional in appearance. Quality of interaction focuses on the dynamic between a visitor and the web site. For example, if there is a forum where all the visitors can discuss topics, then are the forums moderated, irrelevant topics deleted, and is there a presence of a user-agreement. Visitors need to be able to easily find MBI's web site and the analysis factor, ease of audience finding site, presents questions that can be used to assess this need. Because these topics relate closely to web site usability, suggestions for enhancement will be easily generated.

3 Methodology

The goal of this IQP was to help enhance MBI's recruitment of potential entrepreneurs and to analyze the progress made by MBI, in the areas of tenant success, operation costs, and marketing. In order to accomplish this, the best qualities of MBI that could be advertised were first determined. Second, that which is most likely to attract an entrepreneur to an incubator was determined. Third, an assessment of MBI's website was performed and improvements implemented including the creation of a virtual tour using researched data. Finally, the progress MBI has made in accomplishing the goals set forth by their strategic plan were evaluated.

3.1 What is the quality of MBI's facilities and services, and what are their best selling points?

The goal of this two-part question was to determine what characteristics of MBI should be further promoted to enhance start-up recruitment. It was believed that by determining a sense of the overall quality of various MBI and by determining what is most important to the current tenant companies the most effective marketing suggestions could be implemented.

3.1.1 What is the quality of MBI's facilities and services to the tenant companies?

As previously stated, one of the primary goals of this project was to provide a critique of MBI's strategic marketing plan and provide suggestions for improvement, to enhance start-up recruitment efforts. In order to make the most effective

suggestions, a study of MBI was conducted to determine the quality of MBI's facilities, equipment, and services. This study covered all of the primary aspects of MBI that could potentially be used as selling points.

- Location
- Laboratories
- Shared Equipment
- Offices
- Management
- Maintenance
- Cost effectiveness

In order to achieve a thorough understanding of the quality of these facilities and services, detailed and methodical observations were performed. This included an inventory of equipment, whether or not equipment was up to date, quality of equipment, quality of facilities, quality of services, as well as a rating of the business development services. Once this study was concluded, the ratings were analyzed to determine several factors which can be used as primary selling points for MBI.

Another important source of information came from interviews with the current tenants of MBI. There can be no doubt that those who know the most about MBI are the tenants whom run their business there. Thus, their input was invaluable. In private interviews, they were asked questions about various aspects of MBI. The question topics ranged from all aspects of MBI from janitorial services, to how helpful management is, to the quality of the business development services. Their opinions were recorded in such a way that after all the interviews were concluded, the results could be analyzed and specific 'good' and 'bad' aspects of MBI were noted. This was accomplished by taking three individual sets of notes during interviews. After the interviews, the notes were

combined and reviewed as a group and a final 'master' note set was created for that interview. For each master note, there were generally 4 categories:

- Path to MBI
- Issues with MBI
- Good aspects of MBI
- Marketing Suggestions

For each category, bulleted lists were made with comments based on the responses of the tenants interviewed. By organizing the data in this fashion, it made comparing the different interviews straightforward.

Due to time restrictions, only a small amount of interviews could be conducted. It was decided that the most useful information could be gathered from the owners of the tenant companies. Therefore, an attempt was made to schedule interviews with all of the owners at the Winthrop Street facility. Ultimately, eight entrepreneurs agreed to be interviewed.

3.1.2 What are the primary selling points of MBI?

By asking this question, the specific primary factors that have the most effect in convincing an entrepreneur to start their business using MBI as an incubator was determined. This knowledge could then be used to suggest ways to tailor MBI's marketing plan to address these factors very clearly and specifically. In other words, the goal was to ensure that if a curious potential entrepreneur is casually observing MBI, the information which is first discovered is the information most likely to inspire further interest and to inspire a more detailed investigation of MBI. By convincing more potential entrepreneurs to take a more detailed look at MBI, the number of serious, in-depth inquiries will be bolstered.

The method used to answer this question relied heavily on interviews with the entrepreneur pool available at MBI. During the same interviews in which the answers to the previous question were sought, a separate set of questions were asked geared towards achieving this goal. Because of the nature of this question, once again it was only necessary to speak with the entrepreneurs and not their employees.

The portion of the interviews on this topic were less structured than the previous one; instead of going through a series of specific questions, the tenants were asked to talk about their experience and the decision making process they went through in both deciding to start a company and in choosing MBI as an incubator. Direct questions were asked along the lines of how they found MBI, what was the first thing they noticed, etc.

The analysis procedure was relatively simple. Once an interview was completed, notes were compared and summaries were developed, listing what was most important in the entrepreneurs' experience. Once all of the interviews were completed, the summaries were compared and common themes were identified to use for enhancing MBI's marketing ability.

3.2 What progress has MBI made in its goals as set forth by the Strategic Plan?

In order to answer this question, detailed information about the operations of MBI was collected. The type of data which was studied included finances, graduated tenant success figures. This data will be gathered from MBI systems manager Judy Cocaine and accountant Linda Freeman.

The goal was to take a large amount of data regarding two crucial aspects of MBI (budget and tenant data) and condense it into a simplified form. Ultimately, this information was converted into a visually appealing way which could be used for presentation at the annual Board of Trustees convention.

Another advantage to condensing this data is to allow for easy analysis by MBI management. By categorically comparing numbers for cost and tenant success, it became possible to get a clear view of the strengths and weaknesses of MBI, which saves valuable time.

3.3 What can be done to enhance MBI's website?

The Massachusetts Biomedical Initiatives website aims at being an informative site that attempts to inspire entrepreneurs to act upon their idea. We used several key assessment factors to, first, analyze the existing site, second, suggest improvements, and finally, implement changes within the time constraints of the project. In order to answer this question, we collected qualitative data that provided us with information on several key areas of the website and possible improvements. The qualitative data was grouped in the topics found in Table 4 (Geest, 2001).

Table 4 - Analysis Factors – Geest (2001)
Suitability for visitors' and organization's needs
Quality of the structure of the content and the navigation
Quality of the content
Quality of text, graphics, and multimedia
Quality of interaction
Ease of audience finding site

We gathered data about these features through viewing the web site as well as interviews with MBI tenants, professionals, and MBI personnel. These interviews were conducted at the Winthrop Street facility over a two week span, starting in the second week of the term the project was conducted. The questions included in these interviews and web assessments can be seen in Appendix B.

In our analysis of our data we saw how well the web site fulfilled each of the questions presented. Based on popularity, we identified each weakness the site has and came up with suggestions to eliminate or minimize the weaknesses. We also identified and expounded upon the strengths of the website. The suggestions we compiled were all aimed at strengthening the results of future analyses of the website. There is no set standard on web site analysis, and this was raised as an issue of validity with the presented suggestions. We addressed this issue by making our research and analysis as objective as possible.

Some of the suggestions presented were implemented to improve the website. Because of time constraints and lack of high enough level of technical knowledge, some suggested improvements were not implemented. The implementation of suggested improvements was made using various software programs. Implementations regarding the content, navigation, structure, and interaction of the site were made using Macromedia Dreamweaver. The graphics and multimedia were designed using Adobe Photoshop.

3.3.1 Virtual Tour

The creation of a virtual tour is a subsection to the enhancement of MBI's website. The completion of a virtual tour contained detailed planning. This entailed a

comprehensive outline of the needs to produce a virtual tour, forming steps to follow. Information gathered from tenant interviews helped address the key points to focus on throughout the tour. Using this information provided ideas to incorporate both into the narration and the video clips. This with the combination of the right equipment, Camtasia software, and some imagination shaped the virtual tour, which is used to improve MBI's marketing efforts through the use of their professional website.

4 Analysis

This goal of this section is to analyze and break down the data gathered. For each research question, the steps laid out in the methodology were performed and the data recorded. The following sections outline these steps.

4.1 The quality of MBI's facilities and services

As laid out in the methodology, it was desired to assess the quality of MBI's facilities and services in order to determine selling points. By far the most useful tool in determining these were through interviews with tenants. This section outlines what was discovered through the answering of this question:

4.1.1 Location

One aspect of MBI which was discovered to be a very important asset was the location of MBI. Situated just outside of downtown Worcester, MA, the location is ideal for several reasons.

The primary reason the location of MBI is ideal is that Worcester is in relative close proximity to the Boston/Cambridge area, while at the same time being significantly removed from the region. This seeming paradox is beneficial because it places start-up companies close enough to receive the benefits of the region without suffering any of the negatives.

The benefits of being near the region include being close to the broad academic base found in all of the universities and biomedical companies. Many of the entrepreneurs at MBI have roots and/or contacts in Cambridge which boasts a strong

biotechnology community. By being close, start-ups stay involved in the community and are able to utilize it for recruiting employees, finding investors, purchasing and selling products, and seeking professional help.

There are several reasons why it is desirable for tenants to be located near, but not in, the Boston/Cambridge region. The first and most important is cost. The cost of maintaining a business is significantly lower in Worcester than it is near Boston. Another reason is that Boston has strict laws restricting the use of several biological elements which certain companies may require. Worcester regulations are more lax; in addition, permits are both easier to attain and cheaper. Also, tenants and employees save money and time by not having to commute in or around the often congested Boston.

In addition, the MBI facility is Worcester is located at the crux of two major highways: I90 and I290, making it easy to get to from any part of the state. For these reasons, the location of MBI is an important aspect to advertise.

4.1.2 Cost

Arguably the second most important selling point which was determined is the price. All of the tenants interviewed agreed that money is the primary hurdle for any fledgling company. Compared to the majority of life science incubators, MBI offers its services for a very reasonable cost. In addition to the cost being low, the rate is fixed for one year, with rent payments delivered monthly.

The low cost of MBI can be attributed to several factors. Arguably the most important is location; space is simply less expensive in Worcester compared to most other incubator locations (e.g., Cambridge). As a result, rent expenses to MBI are lower and these savings are passed on to tenant companies. Another factor is that MBI is a non-

profit corporation. Because the purpose of MBI is to promote the biomedical field and not to generate profit, the money gathered from tenants is used only to keep the facility running and to pay the MBI employees. Also, the goal of MBI management is to run as efficiently as possible, and for this reason there are only two full-time employees on the payroll, with part-time workers filling auxiliary rolls such as health and safety and accounting. By operating with such a small staff, MBI is able to significantly lower operating costs while still providing the majority of services offered by other incubators.

The fact that all tenant companies are promised a fixed monthly rate for the entire year of the lease is also desirable. Companies understand exactly how much money will need to be paid for the entire year, regardless of fluctuations in prices of electricity or oil, for example. Any internal maintenance on plumbing or electrical elements will not affect this monthly rate. Additional services which they would otherwise require varying payments include plowing, trash removal, internet access, phone access, and cleaning. By having a guaranteed fixed rate, companies have more flexibility with how they devote their resources.

It was learned through interviews that a significant amount of capital is required to start a company in the biomedical field. For start-ups with corporate sponsors such as Abbott or Pfizer, this is not necessarily an issue. However, many of the tenants of MBI are sponsored primarily by themselves, with initial capital raised by means including house mortgages and other loans. For these tenants, lower incubator fees mean a greater chance of creating a product before running out of money; in other words, increasing the chance of success. Even for tenants who are well sponsored by corporate donors seek to

lower costs, as this provides them with more resources to apply in other areas. For these reasons, it was determined that the cost of MBI should be promoted.

4.1.3 Permits

A third selling point which was determined to be worthy of greater promotion is the Health and Safety permits which are provided by MBI. For many entrepreneurs in the biomedical field, it is necessary to use materials which are considered to be potentially dangerous. These can range from certain organisms such as adenoviruses to caustic chemicals. In order to use such material, permits are required from both the state and the city. Additionally, special care must be taken in storing and disposing of much of the waste produced in biomedical laboratories.

In order to receive permission to use these potentially dangerous materials, courses proctored by certified professionals must be taken and passed. Special materials, containers, and services are required as well. The cost is substantial, and most permits must be renewed annually. In addition, the process of receiving and maintaining several permits can be time-consuming. MBI alleviates the time strain on entrepreneurs by taking care of all the clerical aspects of permit acquisition, maintenance and renewal. A part-time health and safety director is available to give necessary courses to tenants at their convenience. In addition, MBI takes responsibility for storage and disposal of hazardous wastes.

Several tenants cited the permit coverage offered by MBI as a strong incentive. By sparing tenants the expensive and time consuming process, more focus and resources can be devoted to research and product development, which increases the chance of a

company being successful. Thus, the coverage of health and safety permits is another facet of MBI deserving of greater promotion.

4.1.4 Lease Policies

Another selling point determined during the interviews is the lease policy of MBI. MBI offers leases which are valid for one year, and may be extended for as long as an entrepreneur feels necessary. Many other incubators request a minimum three year lease agreement (e.g. Worcester Biotech Park), and often there is a stipulation stating a company must leave after a certain length of time. There are several reasons why MBI's policies work in the entrepreneur's favor.

First, for many potential entrepreneurs, signing a three year lease is prohibitively risky. This incurs a very large financial obligation, and if the company is unable to show signs of becoming viable and the owner chooses to terminate it, he or she must pay a lease breaking penalty. With a one year lease, there is less risk to the company owner if the company is unsuccessful. Another advantage to the one year lease is that a company is not bound to remain in the incubator any longer than necessary. Having the freedom to remove their business from an incubator under short notice was important to several tenants interviewed. On the other side of the coin, because leases may be renewed as long as a tenant feels is necessary, a company does not run the risk of being forced out of the incubator prematurely.

Another advantage of MBI's lease policy is lab size. MBI's laboratories are smaller than those of other incubators (e.g. Worcester Biotech Park) which means small start-ups (many start with only 1 employee) do not waste resources on unneeded space. MBI is also flexible in regards to office space. Tenants are able to rent one or more

offices and additional cubicle space as they feel fit. Some companies require several employees performing clerical work or computer work with bioinformatics, and they have the option of renting additional offices or cubicles as needed. Because of the short lease length, ability to renew the lease as long as necessary, lab size and availability of office space, the lease policies of MBI are another important factor to advertise.

4.1.5 Shared Equipment

One aspect which was hypothesized to be a primary selling point was the shared equipment offered by MBI. MBI offers the following equipment to be used as needed:

- Autoclave
- Glass washer
- Glassware
- Chemical Storage Rooms
- Purified DI water
- -80° Freezer
- Flammable Refrigerator
- J6 Centrifuge
- Dark Room

In order to verify that the equipment was useful, MBI tenants were asked during interviews to give their opinions.

Contrary to what was originally hypothesized, the shared equipment, while useful to some, is not crucial to the most of the tenant companies. There are several reasons for this. The primary is the fact that the companies are so different from each other and have such specific equipment needs, it is already necessary to purchase specialized equipment for their own use. A second reason is that the MBI shared equipment is not validated by GLP (General Laboratory Practices) or GMP (General Manufacturing Practices) standards. For example, the purified distilled water system is not useful for those companies which are producing and selling a product because law requires validation for

safety purposes. This problem affects the usefulness of the cold room, the -80° freezer, the centrifuge, and other pieces of equipment.

Because of this information, it was determined that the shared equipment should not merit little additional marketing attention. However, through the interviews it was learned that the tenants have adopted an unofficial practice of leasing each other equipment as needed. This allows some start-ups to make a certain amount of money to offset the price of the equipment, while allowing others to save money but not having to purchase an item which they would use only irregularly. While interesting, it is questionable as to whether or not this practice should be marketed, as it is independent of MBI and because of that it cannot be guaranteed as a service.

4.2 Strategic Plan

The results of the strategic plan analysis are in the form of graphs, for the budget analysis, and tables for tenant evaluation/success, which were prepared in a presentable form for the Board of Trustee's Presentation on March 29th, 2005. These results can be found in detail in Appendix H.

4.2.1 Budget Analysis

With data from two sources, Linda Freeman, MBI's primary accountant and another accountant, Mary King, the budget analysis could be completed. The first information received was Mary King's data sent through Kevin O'Sullivan. This data was well organized and broken down into three areas: the total budget for the Winthrop Street facility, the total budget for the Barber Avenue facility, and finally the total budget

for the two facilities combined. The breakdown of the facilities showed data for the years 2003 and 2004. The overall budget of MBI, showed the years 2003, 2004 and an estimate for 2005. Further the data was broken down into nine categories as follows:

- Rent Expenses
- Operating Expenses
- Insurance Costs
- Utility Costs
- Maintenance Costs
- Office Supplies
- Office Services
- Outside Services
- Total Expenses

Each of these categories, with the exception of the total expense, was further broken down. For example the utility costs were broken down into gas, electricity, CAM-electrical, contract maintenance – HVAC, and CAM-HVAC. The numerical values for each corresponding categories and sub-categories were shown in total cost and price per a square foot in dollars.

Despite the excellent organization of this data, it was not without flaw. The 2003 budget was not accurate, nor the 2004 budget due to the fact that the calculations were completed before the end of the year. Then with Linda Freeman's accurate data for 2003, and the finalized 2004 budget, Mary King's excel sheets were corrected. This entailed some simple calculations, due to the fact that Linda's information was in total cost, whereas Mary King's data was in total cost *and* price per a square foot. To account for this discrepancy, each cost was divided by the square footage. Thus, for the Winthrop Street facility each cost was divided by 20,000 square feet, for the Barber Avenue facility the cost was divided by 8,000 square feet, and the combined facility costs were divided by the total square footage of 28,000 square feet. Also, the category breakdowns for

utility costs and maintenance costs were reorganized. The utility costs included only gas, electricity, and CAM-electrical. The contract maintenance – HVAC and CAM-HVAC were moved to maintenance costs.

With close work with Linda Freeman, the data was then broken down into estimates for each facility including the estimated 2005 budget. The numerical values given were in total costs and therefore also had to be calculated into price per a square foot. With all this data bar graphs were created, using numerical values represented in price per a square foot. One was formed for the Winthrop Street facility, the Barber Avenue facility, and MBI as a whole, which each included the breakdown of the nine categories, with corresponding 2003, 2004 and estimated 2005 budgets.

A summary of the calculated date can be found below in Tables 5-7. It was important to MBI management that this data be accurately calculated and displayed in this form because it shows the general trend of MBI's finances. As can be seen in Table 7, the total cost per square foot has been showing a downward trend thru 2005. The 2005 budget being an estimate allows for a buffer zone. At the end of 2005 these numerical values maybe even lower and therefore represent the progress MBI made in reducing their operating expenditures. Based on this information, the Board of Trustees will be able to assess the efficiency and the effectiveness of current policies and management.

Table 5: Barber Av Budget Breakdown (in $)

	Rental Expenses	Operating Expenses	Insurance Costs	Utility Costs	Maint. Costs	Office Supplies	Office Services	Total
2003	9	2.5	1.27	5.12	1.95	0	0.33	20.18
2004	9.22	1.88	1.19	3.35	1.7	0	0.32	17.64
Est 2005	9.81	1.88	1.33	3.5	1.94	0	0.44	18.9

Table 6: Winthrop St Budget Breakdown (in $)

	Rental Expenses	Operating Expenses	Insurance Costs	Utility Costs	Maint. Cost	Office Supplies	Office Services	Outside Services	Total
2003	8.25	34.58	1.65	5.91	2.22	1.71	1	6.68	62.15
2004	8.23	15.81	1.61	9	2.1	2.2	1.19	6.93	45.65
Est 2005	8.23	17.94	1.37	7.5	1.75	0.75	1.18	6.25	44.97

Table 7: Combined Facilities Budget Breakdown (in $)

	Rental Expenses	Operating Expenses	Insurance Costs	Utility Costs	Maint. Cost	Office Supplies	Office Services	Outside Services	Total
2003	8.25	34.58	1.65	5.91	2.22	1.71	1	6.68	62.15
2004	8.23	15.81	1.61	9	2.1	2.2	1.19	6.93	45.65
Est 2005	8.23	17.94	1.37	7.5	1.75	0.75	1.18	6.25	44.97

4.2.2 Tenant Evaluation/Success

Information regarding current and past tenant companies from the year 2000-2004 was given in the form of a word document list by Judy Cocaine and Kevin O'Sullivan. This document also contained information on assisted and prospect companies. Focusing on the current and past tenant companies, tables were created, to make sense of the data. Where there were gaps in the data, information was obtained from conversations with Judy Cocaine and Kevin O'Sullivan. Such as, finding out the dates that a past tenant company was at MBI, and how many employees the graduated company currently has. Another gap was also filled in by visiting Robert Peura, president of Vivascan and Biomedical Engineering professor at WPI, at his office in Salisbury Labs, to inquire on how many employees the company had while at MBI and the current number of employees. For the current tenant companies' the information below was compiled:

- Company Name
- Number of Employees
- Number of Months Spent at MBI to Date
- Move In Date
- Current Facility Location

With this information averages were calculated for the number of employees and for the average length of stay in months. For example, the average number of current tenant company employees was 5, and the average months spent at MBI was 32. For the past tenant companies' the information below was compiled:

- Company Name
- Number of Employees While at MBI
- Current Number of Employees
- Months Spent at MBI
- Start Date
- Move Out Date
- Current Location

Again, the average number of employees while at MBI and the average length of stay were calculated as well as the average number of current employees after leaving MBI. Here the average number of employees while at MBI was 5, and the current average of employees was 24 and the average length of stay at MBI was 24 months.

Also, in the table for past tenant companies are the current business status of the companies. If a company's name appears in bold italicized font it therefore indicates that the company is no longer in business.

In summary, to wrap up the tenant evaluation/success, was a quick table highlighting the current number of tenant companies; the number of successful graduated tenant companies; the number of failed tenant companies; and lastly the number of prospect tenant companies.

Table 8 – Tenant Success				
Totals	**Current**	**Graduated**	**Failed**	**Prospect**
	14	**12**	**4**	**21**

4.3. Website Results

The website was enhanced in several different ways in order to increase its effectiveness and appeal. Based upon the analysis factors established earlier (Table 8), the website was improved in four main areas: navigation, graphics, content, and code. By increasing the quality of these four areas, the analysis factors can be taken into account, and past analysis can be used to eliminate weaknesses in the website.

Table 9 - Analysis Factors – Geest (2001)
Suitability for visitors' and organization's needs
Quality of the structure of the content and the navigation
Quality of the content
Quality of text, graphics, and multimedia
Quality of interaction
Ease of audience finding site

4.3.1 Navigation

The navigation was changed to create a more structured, easier to surf website. The main changes to navigation were done to the left-handed navigation menu. Several items were moved from the main menu to sub-menu item position. The Headliners and the Central Massachusetts Resources items were placed in the About Us section. Advisory Teams section was modified to be part of the MBIdeas Incubator Facilities section. The Jobs section was completely removed from the website. All subtopics were removed from the Contact Us section. The Tenants section was removed from MBIdeas Incubator Facilities but kept in the main topic. The Forums and Informatics Center

sections were renamed to Networking Events and Research Resources respectively. The Headliners section was split into two and renamed new sections, Recent News and Past News.

Several sections were given additional submenus to create a better flow of navigation. The two tenant sections were expanded to include individual tenants for each respective location. The Staff section was given its own submenu that includes each staff member. A submenu for the Health & Safety section was created for easier access to important information. Also, the Research Resources section was given a submenu that increases the ease of navigation.

Two more quick links were added to the top navigation bar. Tenants and Research Resources were the new additions that not only help with getting to important parts of the site quickly but also add visual appeal. All other internal links on the website were also checked and verified to work properly.

4.3.2 Graphics

The main concern of graphics related to the website was to increase the visual emptiness of the top navigation menu. A new graphic was created for Tenant section as well as for the Research Resources sections. Also, the Innovation Centers graphic was modified to read Incubator Centers. The picture on the home page of the site was changed to give the site a fresher look. Two pictures in the Computing section of the Research Resources were altered to make the page cleaner to read.

4.3.3 Content

The content on some parts of the website was altered. On the site's homepage, links to the video tour and necessary decompression codec were inserted. Also the site's description was changed to an excerpt from the mission statement. The headliners page was spilt into two new sections, Recent News and Past News. The Recent News page includes the three most recent news stories with brief descriptions. The Past News page lists all the articles that discuss MBI or one of its tenants. Several pages under the Research Resources heading also feature modified content. The People & Partners page was organized so that partners were clearly separated into two categories, Academic partners and Commercial partners. Hyperlinks to all of the partners were also inserted. The Computing Center page saw its main change with the reduced sized graphics for Rocks Clusters and RedHat Linux, which also now feature text explained hyperlinks. New hyperlinks were also added to BioCoRE and to caBIO. The two subsections of Directions section now include links to maps of area from Mapquest.com.

4.3.4 Code

The HTML of the website was directly edited to increase the chances a search engine will better index the website. META tags were added to the homepage of the site as well as to the unique Research Resources section. These tags include site descriptions and site keywords, which search engines use to index the site. An example of such tags can be seen in Table 10

Table 10 – META Tags
<META name="description" content="MBI lowers barriers to success for emerging companies by providing cost-effective and high quality laboratory space and support services">
<META name="keywords" content="incubator, biomedical, laboratory space, laboratory equipment, central Massachusetts">

The title tags for the entire site were also checked to make sure each title accurately describes the content of each page. In the Research Resources section, address tags were added to better describe the addresses provided on the Career Opportunities and Internship Opportunities pages.

4.3.5. Virtual Tour

The addition of the virtual tour to the website added another dimension to the marketing strategy. The production of the virtual tour made use of what little equipment was available: a Canon digital camera (capable of 30 second video clips), a camera-steadying monopod, and a hand-held digital voice recorder. Using the digital camera, short videos of various important aspects of MBI were taken. In general, these clips were between three and ten seconds long. This footage was then combined using the program Camtasia, creating a movie just over two minutes long.

Once the video was laid out in Camtasia, the narration was recorded by MBI CEO Kevin O'Sullivan. The narration had been written to provide a brief yet detailed description of MBI, making sure to stress the selling points which had been pre-determined. The video was re-arranged such that the visual and audio topics correspond as often as possible.

Once completed, an AVI file of the virtual tour was produced and a link prominently placed on the MBI home page. In order to decrease file size, standard mp3 codec was used to encode the audio at a 56kbps stereo bit rate, and a propriety DivX codec was used to encode the video. The DivX codec was used because of its optimal quality to size ratio.

5 Conclusions

The purpose of this chapter is to review and summarize the results of the project and to make suggestions based on the data presented in the previous chapters.

5.1 Quality of MBI

This section will review the results of the marketing research and provide suggestions for additional improvement of MBI's marketing.

5.1.1 Selling Points Review

Based on the research performed, essentially four aspects of MBI were determined to be excellent selling points worthy of greater promotion. These selling points are:

- Location
- Cost
- Health and Safety permits
- Lease policies

In addition, there was one facet of MBI which was proven to be relatively unimportant to the majority of potential biomedical startups:

- Shared equipment

For reasons explained in the previous chapter, it was concluded to take steps to promote the list of positive selling points while allowing the advertisement of the unimportant factor to remain unchanged.

In order to promote the positive selling points, steps were taken to alter the website accordingly. In addition to streamlining the navigation and other improvements, links were added which took users directly to the information most likely to be important

to them. These links are located at the top of the home page and are represented by eye-catching graphics. Considering that before this modification the points were very poorly represented, it is believed that more serious interest in MBI will be stimulated.

In addition to these links, additions were made to the content of the website to stress the positive selling points. For example, any interested browser who opens the Facilities menu is greeted by a short, direct paragraph which includes all of the selling points:

> *MBI currently operates two Incubator Centers in the City of Worcester Massachusetts. We offer low cost laboratory space with a one year lease requirement that may be extended. Our gross yearly rental fee includes lab, office, shared equipment, health and safety permits, and utilities.*

These selling points are also stressed in the virtual tour for those who are more inclined to be receptive to visual information. As can be seen in the virtual tour narrative in Appendix E, the most important information was included. It is believed that regardless of the type of person using the website, the information which is most important to communicate will reach them quickly and easily.

5.2 Website Conclusion

The four areas of the website that we addressed were navigation, graphics, content, and markup code. These four areas cover all issues that arise when the website is analyzed with the six predetermined factors. There obvious goal of modifying the website was to create a more attractive, better suited, easy to understand, and easy to navigate site.

5.2.1 Navigation

We made the changes to the navigation in such a manner that information attractive to entrepreneurs was easily found. The top navigation menu is the best example of this. On the original site, the top navigation menu only contained two quick links; one was to Innovation Centers and the other was to Central Massachusetts Resources. Although these two quick links were kept, they did not cover the spectrum of what we came to believe entrepreneurs wanted to see. The top navigation menu also looked bland, in terms of visual appeal, with only two quick links. The two new quick links that we added, Tenants and Research Resources, completed what the entrepreneurs found most attractive about MBI, location, lab space, computer cluster, and success of tenants.

The left hand side menu was enhanced so that the site can be easily navigated and information was grouped in a logical manner. The Headliners section was moved from the main menu to the About Us section because it is more relevant to have information relating to MBI in the news under the About Us topic. The same is true for Central Massachusetts Resources, which relates to the academic, scientific, and business resources found in the area MBI is located. The Advisory Teams is now part of the MBIdeas Incubator Facilities section because it is one of many services that are provided

by MBI to the tenants. The Jobs section was completely removed from the site because MBI is not planning on hiring any new employees in the near future. This section can be added when the situation is different. The Tenants section from the MBIdeas Incubator Facilities section was removed because a duplicate section already existed in the main menu. Its location in the main menu is more relevant because MBIdeas Incubator Facilities section discusses the things MBI provides to its tenants.

The Headliners section was split into two parts and renamed to Recent News and Past News. Because of copyright issues, we were not able to provide links to the articles that feature MBI. The large amount of articles that would have appeared on a single page would have been overwhelming to most, so the section was split into two. The Recent News section features the latest three articles along with descriptions. The amount of articles MBI has been featured in is rather large and it would have been out of the time scope of our project to research and write descriptions of each one so the Past News section only mentions the articles.

The Informatics Center and Computing Resources section was renamed to Research Resources because of the interview held with Joseph Gormley, who runs the Informatics Center. He believes MBI will be providing tenants with more research resources in the near future and the Informatics Center and the Computing Resources are simply a part of those research resources. As more research resources are added, the website can be modified to include those as well. The Forums section was also renamed to Networking Events. Most somewhat computer savvy users know forums to be a place on the website where users can post remarks, questions, or opinions and others can respond to the posts. Changing the name to Networking Events better describes the

intended purpose of the section. In order to create a more fluid navigation, submenus were added to the Staff, Barber Avenue tenants, Winthrop Street tenants, Health & Safety, and Research Resources sections.

5.2.2 Graphics

Some new graphics were added to the website and some older graphics were modified slightly. New graphics had to be created for the top navigation quick link menu. A graphic, created to represent Tenants, uses a microscope to represent a research oriented appeal. The other graphic, which represents the Research Resources section, uses an image of a computer system to draw attention of those interested in that area. Both graphics use the same background as the original graphics in the top navigation quick links menu to keep the visual theme of the website consistent. A picture on the home page of the web site was changed because the old picture did not hold as much relevance to biomedical research as the new one. The old picture featured various capsulated pills, which only represents pharmaceutical research, while the new picture features a hand holding a vial half full of liquid and genetic helix in the background. Two images were sized down on the Computing Center site because the original images disrupted the flow and caused an unprofessional feel to the website. One of these images was changed from a penguin to the RedHat Linux logo because the newer image holds more relevance to the purpose of the site.

5.2.3 Content

The content of the website was modified in several different locations to improve the usability and relevance of the site. The video tour was added to the home page of the website so that it is one of the first things that will catch a visitor's eye. The tour contains a lot of information relevant to entrepreneurs interested in MBI and could stimulate one to further inquire about MBI. A link to the DivX codec was provided in case the video tour does not work on a visitor's computer. The description of MBI above the virtual tour link was changed to better reflect MBI's goal based upon interviews with tenants.

The Recent News page was created to contain recent articles that have featured MBI. Because of licensing and copyright issues, links to the actual articles were not a possibility. Instead, brief descriptions were created and added to the each article that appears on the site. Because of the large amount of articles, the news section was split into the two parts. The articles in the Past News section do not contain descriptions mostly due to the time constraints of the project and the importance of other aspects of the project. This change was propagated in an interview with MBI CEO, Kevin O'Sullivan.

The People & Partners section was organized in a logical manner. The partners were separated into two groups, Academic and Commercial, because each group provides services and information in a different manner. Hyperlinks to each organization were added to increase the networkability and usability of the website. The website now has a more professional feel to it because information is more organized and all outside sources

are linked to and can be easily accessed. The Computing Center site also saw a similar change with the addition of hyperlinks to places of interest, but more importantly the graphics on the site were made smaller to create a more professional feel. The Directions sections did not see much addition of content except for added hyperlinks to maps of area. By adding the maps, a visitor will be able to easier locate MBI.

5.2.4 Code

META tags were added to improve the sites interaction with search engines. Several key words and a description contained within the META tags are used by most search engines as an indexing tool that also benchmarks the relevance of a search conducted by users of the search engine. The MBI website now comes up as the most relevant when the search phrase “Massachusetts Biomedical” is used in a www.gooogle.com search as opposed to third relevant before the META tags were added. Title tags were also added to pages that did not contain ones with proper relevance. Title tags are used by some search engines as an alternative way of calculating relevance of a search. By creating descriptive META and title tags, the MBI website can be found more easily.

5.2.5 Virtual Tour

The completion of the virtual tour enables MBI to use it as a marketing tool. The use of narration and video clips allows the viewer to attain a visual and acoustics picture of MBI and its facilities. The manner in which the audio and video correspond also allows the viewer to be able to see and hear the pitch of the virtual tour. In other words, it was designed to be a very quick, very informative piece of media to reach out to people

who might be more receptive to audio and visual information than to textual information. Additionally, it was hoped that after about two minutes, a visitor will have learned about all of the essentials of MBI.

Another very important aspect of the video tour: that it would cost MBI nothing to create and maintain it. This was accomplished by using what equipment was available: a hand-held digital camera and a personal digital voice recorder. It was possible to use this low-quality equipment thanks to the fact that the resolution (and thus the viewing window) had to be kept small in order to keep file size down. This helps to disguise any shaking or lighting issues. The audio track was also by necessity relatively low quality in order to keep file size down.

5.3 Strategic Plan

Conclusions for the Strategic Plan analysis come from the results of the budget analysis and tenant evaluation/success. Completing these analyses is vital, because continuing and updating the operation cost and success of MBI will help MBI grow to be as effective as possible.

5.3.1 Budget Analysis

The budget analysis yielded three graphs, one for each facility and one for the overall budget of MBI. Each graph shows the budget for the years 2003, 2004 and an estimate for 2005. When looking at each graph one can conclude that MBI is lowering their cost of operation. Putting this data into bar graphs enables the viewer to be able to recognize and interpret the purpose of the data easily. The use of the price per a square foot cost was important because the viewer is more easily able to grasp the numerical

value and recognize its significance, rather than having to comprehend larger numbers. This is of high importance, because it will be used in the Presentation to the Board of Trustee's on March 29th, 2005.

5.3.2 Tenant Evaluation/Success

The tenant evaluation/success analysis produced three tables showing information on current tenant companies, past tenant companies and some overall statistics of current and past tenant companies. Organizing the information in this way allowed for the ease of recognition and interpretation on the viewers behalf. Again and like the budget analysis, this is crucial for the Presentation to the Board of Trustee's.

5.4 Suggestions for Future Research and Practices

Throughout the course of this project, various topics were realized which would benefit from further research but either did not fall in the scope of this project, or were realized too late to include. This section will cover these topics and suggest further either in a future IQP or by MBI personnel.

5.4.1 Marketing Research

As noted in Chapter 4, one interesting relationship which has developed between the various tenants of MBI is the sharing of company-owned equipment, not just the shared equipment provided by MBI. In other words, if a tenant company needs to occasionally use an expensive piece of equipment that is specialized and thus is not provided by MBI, they will often times rent out that equipment from other tenants who

have already made the investment and the purchase. Throughout the interviews, this topic was brought up several times by various company owners and is an excellent benefit. The tenants who are the owners of this equipment receive cash compensation for a machine during downtime. The tenants who rent the equipment are able to perform the necessary functions without making a large investment (often well over $10,000).

Some thought was given as to if MBI could promote the presence of these arrangements among its tenants. It was believed it could be a very effective part of the marketing strategy due to the benefits to both sides. However, because the arrangement is purely between the tenant companies and falls completely out of the scope of MBI, it should not be promoted without first discussing this with the tenants.

It is proposed that a team could schedule interviews with all tenants of MBI to discuss what (if any) equipment they possess which they are willing to rent out. An approximate cost in either money or services should be determined and noted, as well as the approximate amount of time the equipment is not being used. With the permission of the tenants, a list of specialty equipment could be generated and placed on the company website for viewing by prospective tenants.

Another facet of this project concerns the expertise and abilities of the current tenant employees. It is not uncommon for one company to solicit the services of another for jobs which they might have more expertise. Another list could be generated listing the various specialty services which a tenant would be willing to provide as well as an approximate cost.

If this project were completed successfully, a potential entrepreneur viewing the website might see the opportunity to save tens of thousands of dollars on their initial

investment. For obvious reasons, this would help to encourage starting a business at MBI.

5.4.2 Website Design

There were some changes that were not implemented because of time constraints of the project. A more visually appealing left handed navigation menu will make the website more attractive. Surfers are more apt to stay longer on a website they perceive as visually captivating. A site search feature is standard on websites and would be especially useful on MBI's site because of the wide scope of information contained within the website. The inclusion of a site map would also clear up any confusion some visitors might arise with in terms of the navigation. Also, a link to email the webmaster is standard fare on all websites. Visitors can ask questions or give feedback to the webmaster directly, and the site can be improved based upon their suggestions.

5.4.3 Strategic Plan Suggestions

This section provides suggestions for the budget analysis and tenant success/evaluation.

5.4.3.1 Budget Analysis Suggestions

With the importance of keeping and following a company budget, future projects could continue to convert the yearly budget's total costs to price per square foot costs, and therefore create a yearly analysis of MBI operating cost per a square foot, creating a tool that is easily and quickly understood. Suggestions for MBI, is to make sure data

collected by different sources, but for the same budget, must correspond in accuracy. This can be done by assessing the sub-categories in the main category breakdown of the budget. This would allow for different expenses to be placed in the correct place. Then with this in place, make sure no data collection deviates from the set guidelines. In summary this creates the ease for a concrete analysis to be completed accurately, and with no confusion. This will show MBI their progress as a company and how to grow effectively in the direction MBI chooses.

5.4.3.2 Tenant Success/Evaluation Suggestions

Tenant companies are an extremely significant part of MBI and the incubators' purpose. An evaluation of tenant company start-ups, to see how the present and past companies are performing, will show how MBI is helping each company in its success. Future projects could be to dig up old filed information on tenant companies from before the year 2000, to help MBI create a complete up to date tenant analysis. Another suggestion is to keep carrying out the tenant success/evaluation every year, and update the company graduations and new company start-ups. Again this will let MBI see their progress and indicate how to move on.

5.4.4 Virtual Tour Suggestions

As mentioned in Chapter 4, the virtual tour created during this project is an effective piece of media which accomplishes the desired goal. However, due to some initial confusion about the goals of the project, the project was rather hastily assembled. One possibility for a future project would be to update the current video using more professional methods.

It is believed that the narration is the strong point of the tour, considering it benefited from the research conducted. However, there is room for improvement with the video. A future team could research proper video production methods, as well as make arrangements to obtain better equipment. An actual digital video recorder (as opposed to a hand-held camera), a tripod, and lighting equipment could be used to accomplish this.

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Priorities:
High = I, Intermediate = II, Low = III,
Delete = D, C = Complete

Appendix A: MBI Strategic Plan

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
I. ACTIVELY FACILITATE SUCCESS	**1. Identify entrepreneurial scientists & emerging companies**	a. Target academic/science/ commercial institutions to identify scientists doing research & development with potential life science company and job development relevance to MBI. Track inquiries on a monthly basis from the following sources: (i) Phone inquiries (ii) Email inquiries (iii) Web site hits	• Document inquires and establish a spreadsheet & trend charts. • Document life science companies established both within MBI incubator as well as outside with MBI assistance. • Document number of life science jobs created	I	MBI Staff & Interns	7/1/04	6/30/05
		b. Identify regions from which biomedical companies are leaving or can be recruited to Massachusetts & Worcester	• Database established and contacts completed • Annual increase in inquiries = 5% per year	II	MBI Staff (Admin) Interns	7/1/04	6/30/05

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
		c. Institute a Web Site based Marketing Plan (i) Disseminate information about MBI through personal and professional groups, contacts, publications & MBI web page to recruit potential biomedical entrepreneurs	• Marketing plan completed and progress monitored	I	MBI Staff & Interns	7/1/04	6/30/05
I. ACTIVELY FACILITATE SUCCESS (contd)	**2. Function as Business mentor, partner & facilitator**	a. Emphasize opportunities for developing new resources & providing services to existing companies as well as help in bringing new products to market (i) All tenants in the incubator should be interviewed in accordance with the following schedule: 1. Entrance 2. Every 6-12 months 3. Exit	• Interviews completed, important feedback extracted & recorded in database. • Tenant satisfaction = 90% very good and excellent	I	MBI Staff & Interns	7/1/04	6/30/05
		b. Offer advice to entrepreneurs as to how to develop sound business & scientific plans; provide advice in ensuring proper balance of expertise in both science & business.	• Discussions completed & recorded in database	II	Referals to SBA Clark SBDC UMass WPI, etc.	7/1/04	6/30/05

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
		c. Offer workshops on identifying potential sources of funding and writing grants	• Number of Workshops designed & completed	II	Referrals with MBI Related Professional Resources	7/1/04	6/30/05
		d. Offer assistance in identification and recruitment of technical staff	• Measure number of interviews vs. number hired	I	MBI Staff & Tenant Companies	7/1/04	6/30/05
I. ACTIVELY FACILITATE SUCCESS (contd)	**3. Provide incubator facilities as a catalyst to lower barriers to success for emerging companies**	a. Provide physical resources	• Space provided (# square feet)	I	MBI Staff (Operations)	7/1/04	6/30/05
		b. Provide office support	• Office support provided vs. number of tenant contracts	III	MBI Staff (Admin)	7/1/04	6/30/05
		c. Provide necessary permits that ensure compliance with health and safety regulations	• Number of Health & Safety permits issued as a percent of occupancy • Number of Health & Safety updates/reports issued	I	MBI Staff (H&S)	7/1/04	6/30/05

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
		d. Provide referrals to appropriate regulatory agencies for development of new products	• Number of referrals vs. new products developed	I	MBI Staff (H&S)	7/1/04	6/30/05
I. ACTIVELY FACILITATE SUCCESS (contd)	**4. Provide personal and institutional connections to existing resources**	a. Educational, healthcare organizations, hospitals, industrial and commercial, other scientific entrepreneurs, governmental (especially state senators and representatives)	• Database established • Increase contacts by 5% per year	I	MBI Staff (Admin)	7/1/04	6/30/05
	5. Facilitate expansion and/or relocation when appropriate	a. Provide support and assistance for virtual companies	• Increase new companies as a percent of existing companies • Increase 5% per year	I	MBI Staff	7/1/04	6/30/05
		b. Introduce tenant companies to local Commercial Real Estate Brokers	• Recorded in database • Success rate 50%.	III	MBI Staff Referrals	7/1/04	6/30/05

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
		c. Help determine needs assessment for all companies to succeed	• Success rate 50%	I	MBI Staff (Admin)	7/1/04	6/30/05
		d. Create a list of all companies that have received direct support.	• Database established • Success rate 50%	I	MBI Staff & Interns	7/1/04	6/30/05
II. ENSURE FINANCIAL VIABILITY OF MBI	**1. Research progress in other areas of the country to ensure that MBI remains at the forefront of providing successful biomedical incubator facilities**	a. Market research	• Research completed	I	MBI Staff & Interns	7/1/04	6/30/05
		b. Create list of comparable biomedical incubators • State • University • Private	• Database established	II	MBI Staff (Admin)	7/1/04	6/30/05
		c. Develop biomedical working group to share and support innovative incubator facility ideas	• Working group established and recommendations made to the Board	I	MBI Staff (H&S) (Admin)	7/1/04	6/30/05

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
	2. Identify and secure sufficient income independent of government grants	a. Increase rentals	• Gross dollar per square foot. • Increase in percent occupancy • Decrease in percent of time a lab is unoccupied • Rental increases of 2.5% per year	I	MBI Staff (Admin)	7/1/04	6/30/05
		b. Equity in client companies	• 1% Equity established (where feasible)	I	MBI Staff & Client Companies	7/1/04	6/30/05
		c. Other Income	• % of outside income increase	I	MBI Staff (Admin)	7/1/04	6/30/05
II. ENSURE FINANCIAL VIABILITY OF MBI	**3. Pursue government grants**	a. Maintain 1 grant per year (i) EDA (ii) State Economic Development Assistance (iii) SBIR (iv) Foundations	• Grants completed	I	MBI Staff	7/1/04	6/30/05

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
	4. Maintain separation between MBI & financial performance of company clients	a. Early Intervention	• Decrease length of time labs unoccupied by 5% per year	I	MBI Staff	7/1/04	6/30/05
		b. Document through written notices	• Documentation completed	III	MBI Staff	7/1/04	6/30/05
		c. Actively pursue waiting list of companies	• Establish targets (# of companies contacted, % brought into MBI facility)	I	MBI Staff	7/1/04	6/30/05
II. ENSURE FINANCIAL VIABILITY OF MBI	**5. Control expenses**	a. Operational efficiency (i) Create cost benefit analysis (ii) Reduce spending wherever possible through active bid for services contracts	• Cost benefit analysis completed • Top three cost categories established • Establish and implement bidding process and complete contracts	I	MBI Staff	7/1/04	6/30/05

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
		b. Control of space (i) Contain Utility costs (ii) Evaluate Facility costs	• Measure utility and facility costs for 1 year and slow cost increases compared to previous year	I	MBI Staff	7/1/04	6/30/05
	6. Explore physical and financial expansion opportunities at the Winthrop & Barber facilities	a. Consigli Study (i) Architectural (ii) Build out (iii) Separation	• Study completed	I		7/1/04	6/30/05
		b. Fiscal Analysis	• Analysis completed (ii) Market Need (iii) Costs (iv) Revenue (v) Financial comparison	I		7/1/04	6/30/05

Appendix B: Web Analysis Concepts & Questions

Web Analysis Concepts and Questions	
Suitability for visitors' and organization's needs	
Site and page characteristics	Issues to consider
Suitable for visitors	•Is the site or page organized around tasks of visitors, contexts for use, communicative roles? Is it clear what the site or page offers right away? Are primary needs of visitors addressed first? Is the information presented relevant for the visitors? Applicable to their own situation? Attractive? Credible? •Are text, visuals and other elements designed with the visitors in mind? •If using the site or page requires skills (like downloading a plug-in application), is support for novices provided? Is the information interesting both for first-time visitors and returning visitors? •Have you catered to people with limited access to computers? To people with older systems? To people with visual or auditory disabilities?
Suitable for organization	•Is the site or page recognizable as belonging to the organization? Is the logo and brand image in line with other communications? Is the communicative role of the organization clear and consistent? Does the site or page convey the desired image of the organization? •Does the site or page express its intended function well?
Quality of the structure of the content and the navigation	
Site and page characteristics	Issues to consider
Structure of the information	•Do the home page and other main points of entrance give a clear impression of purpose and content of the site? •Is the most important information presented as most important, and secondary information as secondary? Is sought after information easy and fast to find? •Is it made easy for visitors to get a grasp of the structure of the information? Do you offer easy access to the information with aids like a table of content, a site map, an index, a guided tour, and links for shortcuts? •Is the information ordered in units that are meaningful for your visitors? Is the amount of information in the units well chosen and balanced? Are topics or themes grouped appropriately? Are topics and themes labeled consistently, in words that are meaningful for the audience? •Is the structure of the information signaled with visual means (layout and design grid, frames,

	colors, typography)? Is the structure of the information signaled with verbal means (headings, introductory passages, keywords, meaningful link labels)?
Navigation and links	•Does the navigation reflect the structure of the information? Is there a clear distinction between navigation support and content? •Is navigation support omnipresent and consistent, both in style and in location on screen? Are buttons or other navigation means provided to the main sections within the site? Are links provided to all units? •Is the trade-off between pull-down or pop-up elements at one hand and visibility at the other hand made well? Are navigation bars not too cluttered? Is it always clear what the effect will be of using browser buttons, like <Back>? •Are the text or visuals on the navigation tools, links and icons legible and comprehensible? Are visuals mimicked in text? Do visitors know what to expect when they will click through? Have you supported and signaled less obvious ways of navigating, such as hotspots, if they are part of your design? •Do you offer search facilities, when appropriate for your site? Is the search within the site well supported? Is it clear what terminology to use in the queries?
Quality of the content	
Site and page components	Issues to consider
Informative parts of the site and pages	•Is the content relevant for the visitors? Is it structured around visitors and their needs or interests? Does your content help them do things better, faster, easier, with more fun? •Are the different types of content (e. g. news, games, reference, etc.) clearly distinguished? Do you have a set of Frequently Asked Questions and their answers? •Is the amount of content balanced? Are different parts of the content not competing for attention? •Is the most important content stressed most? Is the most important content in the most conspicuous place? •Does the content sound interesting? Is it up-to-date and time-stamped? Is attention drawn to new or especially interesting content? •When different units within the organization have provided content, is the balance between unity and autonomy treaded well? Is the content presented in a consistent way? •If older content might be relevant for target groups, are they given access to archives? •If applicable, is printing parts of the content well supported? Can visitors download the content?

Instructive parts of the site and/ or pages	•Are the visitors treated friendly and respectfully? •Does the instructive information support different kinds of visitors, such as novices versus experienced visitors, web surfers versus people who do a directed search? •Is the instructive information ('how-to-do') clearly distinguishable from other types of content? Is it well adapted to the visitors' prior knowledge and understanding of the context of use? •Are procedures and instructions clear, intuitive, consistent, applicable? •Are procedures and instructions 'fool-proof'? Is error information available and comprehensible?
Persuasive parts of the site and/ or pages	•Does the content represent your organization and its services in an appropriate, credible, attractive way? Do the home page and other pages show clearly who you are? Does it demonstrate your identity or mission as an organization? •Is the content appealing and enticing to go further into your site? Does it relate the theme of the content with human needs or values, with economical values, or with other interests? Does it involve the visitors? Does it create commitment? •If persuasion is to be reached through argumentation, is the argumentation presented convincing? Is it convincing for opponents or people who don't care much about the topic? •Is there a good balance between your persuasive content and other advertisements and banners?
Quality of text, graphics and multimedia	
Site and page components	Issues to consider
Text	•Does the text in the site and/ or the pages have a clear tone and style? Does the style and tone represent the organization and the theme of the site or page well? Is the text appropriate for all readers? •Does the text convey all the relevant information, without being longer or more difficult than necessary? Do important things stand out? •Is the text engaging, enticing to read on, well written, imaginative? •Is the text not too long for the type of site or page it is included in? Is it comprehensible for the people it is meant for? Is jargon avoided or well-explained? •Is the style and tone of the text consistent throughout the site? Consistent with other communication means of the organization? If existing material has been re-used, is it well-adapted? •Is the text correct in every regard?
Graphics	•Do the site and the pages have a clear look and feel? Does the visual design represent the organization and the theme of the site or page well? Are the visual elements appropriate for all visitors? •Do the visual elements strike a balance between pretty and functional? Do important things stand

	out? Do the visual elements convey all the relevant content, without drawing more attention to itself or taking more space than desired? Are they comprehensible for the people they are meant for? •Is the content presented visually attractive, engaging, enticing to look at, well-designed, imaginative? •Is the visual design not overdone? Is clutter avoided? Is it well-organized? Are diagrams well-designed and displayed? •Is the visual design consistent throughout the site, or is it inconsistent for good reasons? Is it consistent with other communication means of the organization? •Is there a good balance between download time and communicative value of each of the graphics? Is text used as a back-up for people who cannot or do not want to display the visuals? •Are the graphics correct in every regard? •Are the copyrights of others secured and respected?
Other presentations modes	•Does the use of multimedia (like sound, animations, etc.) help to achieve the intended communicative purposes? Do the multi-medial elements represent the organization and the theme of the site or page well? Are they appropriate for all visitors? Do they strike a balance between pretty and functional? •Are the multimedia elements well-integrated? Do they support each other? Is the relation between the different elements on the page made clear? •Do visitors need plug-ins to play the various elements? If so, is the use of plug-ins well-supported? •Is there a good balance between download time and communicative value? Is text used as a back-up for people who cannot or do not want to display the multimedia elements? Are provisions for backwards compatibility made? •Are the copyrights of others secured and respected?
Quality of interaction and transaction	
Possible answers	Issues to consider
Interaction	•Are the interaction facilities of the site well-chosen, given the purpose of the site? •Is it clear how visitors can get in touch with an organization's representative? Is it clear what response the visitor can expect, from whom, when? •If visitors can interact with others through the site, are the rules of conduct clear? Are privacy regulations clear and are they respected? Is it clear how the organization or other visitors will and may use their contributions?
Is the web site easily found?	
Possible answers	Issues to consider
Yes, we think our target groups will find us.	•Register your site with the search engines anyhow. Add keywords and meta-tags to your pages to make

	them well retrievable for search engines. Check every now and then how your site comes up in queries with the main search engines. •Analyze server log data for the keywords your visitors use to find you. Analyze the sites they are coming from when they enter your site. Consider putting links or advertisements on sites for the same target audiences you are aiming at.
No	•Make sure that all your other communication means (brochures, advertisements, company cars, etc) carry the URL of your site. Make sure that you create the right expectations about what visitors will find on your site. •Register your site with the main search engines. Add keywords and meta-tags to your pages to make them well retrievable for search engines. Check out every now and then how your site comes up in queries. •Analyze server log data for the keywords your visitors use to find you. Analyze the sites they are coming from when they enter your site. Consider putting links or advertisements on sites for the same target audiences you are aiming at. •Encourage your visitors to return and to make a bookmark for your site. Offer to keep them informed by e-mail about updates of your site.

Appendix C: Task Chart

ORIGINAL

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Integration into MBI							
Formulate Interview Questions							
Schedule Interviews							
Facility Inspection / Inventory							
Interviews							
Write Report							
Analyze Interviews							
Strategic Plan Analysis							
Web Site Analysis							
Presentation to Board of Trustee's							

ACTUAL

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Integration into MBI							
Formulate Interview Questions							
Schedule Interviews							
Facility Inspection / Inventory							
Interviews							
Write Report							
Analyze Interviews							
Strategic Plan Analysis							
Website Analysis/Implementation							
Presentation to Board of Trustee's							

Appendix D: Interview Questions and Responses

QUESTIONS FOR START - UP FOUNDERS

PATH TO MBI

- How did you originally decide to start your own business?
- Did the existence of incubators encourage you to start your business?
- How did you first hear about MBI?
- Did you use the MBI's website to learn more about it?
- Did you investigate other incubators?
- Why did you choose MBI to start your business?
- Do you think your business would be where it is today if you hadn't decided to use an incubator?

FACILITIES

- In general, how do you rate the quality of the facilities and equipment provided by MBI?
- What specific equipment do you find the most useful to your work?
- Is the equipment kept in good running condition?
- Are there any existing upgrades to the equipment which would help your business if obtained?
- What, if any, kinds of equipment would you like to see provided which are not available?

NOTES OF INTERVIEW RESPONSES

As part of research to improve the marketing strategy of MBI, the CEO's of the tenant companies were interviewed and asked a series of questions. One of the topics

covered concerned how MBI appealed to these tenants when searching for an incubator. Although several CEO's chose MBI because of personal connections and referrals, their opinions on selling points were asked. While the results of these interviews varied, there were several facets which all agreed were important selling points:

Location

The location of MBI was mentioned by every tenant interviewed. All considered Worcester to be a superior location thanks to it being a comfortable, but not prohibitive, distance from Boston and Cambridge. Space is much less expensive and commuting is much easier, but there is a close enough proximity to Boston and Providence to conduct business there when necessary. Additionally, the presence of universities such as WPI and UMass Medical Hospital is helpful.

Cost

The relatively low cost of MBI was important to all tenants interviewed. Thanks largely to location; MBI is able to offer the same services as other incubators (in Cambridge, for example) at a significantly lower price. The fixed, non-varying rate based on number of labs and offices rented (as opposed to square foot) was important to the tenants decision.

Permits

A majority of tenants mentioned the Health and Safety permits which are paid for and maintained by MBI as an important factor in their decision. Acquiring permits can be prohibitively expensive for a start-up, therefore it is important to stress the coverage offered to all MBI tenants.

One Year Lease

Many incubators require signing leases of at least three years, which can be too big a risk for many start-ups. By allowing shorter leases, an entrepreneur who is on the fence about starting a company may feel more comfortable doing so. This was mentioned by two different tenants.

Appendix E: Virtual Tour

STORYBOARD

1.) Scenes (in Order)
    a. Logo
        i. Design Logo and Size
    b. Building from Outside
        i. Avoid Capturing Cars in Scene
    c. Reception Desk
        i. Show Gathering of People
    d. Labs
        i. Show 2 in Use
    e. Shared Equipment
        i. Fume Hood
        ii. Eye Wash and Shower
        iii. Bio Safety Cabinets
        iv. Flammable Storage Cabinets
        v. -80 Freezer
        vi. Autoclave
        vii. DI Water System
    f. Offices
        i. Show Gene-IT, Ron Ranauro's Office in Use
    g. Cubicles
        i. Show Corner Cubical on 1st Floor in Use
    h. Copy Machine
        i. Show in Use
    i. Board Room
        i. Meeting Scene
    j. Kitchen
        i. Show in Use
    k. Cafeteria
        i. Show in Use
    l. Printers

m. Cluster
    i. Pan of E-Series Bioinformatics Cluster
n. Lab
    i. Show Another Different Lab
o. Empty Lab
p. Credits
    i. Design Credits and Size

2.) Method
    a. Slow, steady panning clips
    b. Action clips
3.) Equipment Needed
    a. Digital Camera
    b. Monopod
    c. Digital Voice Recorder and Small Microphone
    d. Computer with Editing Software
4.) Editing in Camtasia Studio
    a. Cut Clips
        i. Place on Storyboard in Above Order
    b. Add Fades Between Scenes
        i. Choose Fade Time Lengths
    c. Silence Audio 1 Picked Up from Microphone on Camera
    d. Add Voice Narration as Audio 2
    e. Edit Until Narration and Video Correspond as Appropriate
5.) Production
    a. Choose file form (AVI)
    b. Resolution: 320 X 200
    c. Audio: MP3 56 kbps bit rate
    d. Video:
        i. Frame Rate: 20 frames/second
        ii. Data Rate: 22kbps
        iii. Sample Size: 24 bit
        iv. DivX MPG4

NARRATION

- Welcome to the Massachusetts Biomedical Initiatives. MBI offers support to emerging life science entrepreneurs and companies by providing cost-effective and high quality laboratory space and support services.
- At MBI, entrepreneurs in the biomedical field are provided with everything they need in order to perform their research and development. This includes wet labs

equipped with chemical fume hoods, biological safety cabinets, flammable storage cabinets, and eyewash and shower stations. We also provide access to a wide array of equipment including a -80° freezer, autoclaves, pure D.I. water system, as well as other essentials. Additionally, tenants receive full coverage health and safety permits which are administered and maintained by MBI.

- In addition to laboratory facilities and services, MBI tenant companies are also provided with furnished offices as well as additional cubical space. All tenant companies also have access to photocopiers, A/V equipment, and high-speed internet access.
- MBI offers an additional range of amenities. These include full access to the MBI board room from which to conduct meetings with clients, sponsors and potential investors. All tenants may also make full use of our kitchens, cafeteria and shower facilities. Other services provided include maintenance of shared equipment, cleaning services, electricity, and even heating. By taking responsibility for these services, MBI allows entrepreneurs to concentrate on what is important to them: their science and their success.
- As a private, non-profit corporation dedicated to promoting the life sciences, MBI is able to offer all of these services for a reasonable fixed rate. Leases signed by tenants are valid for one year, and may be extended. We welcome you to visit our centrally-located facilities just off the Massachusetts Turnpike in Worcester. Learn more about MBI, and take the first step to become a successful part in the fastest-growing industry in Massachusetts.

Appendix E: Presentation to Board of Trustees

Strategic Plan (cont)

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
I. ACTIVELY FACILITATE SUCCESS	1. **Identify entrepreneurial scientists & emerging companies**	a. Target academic/science/ commercial institutions to identify scientists doing research & development with potential life science company and job development relevance to MBI. Track inquiries on a monthly basis from the following sources: (i) Phone inquiries (ii) Email inquiries (iii) Web site hits	• Document inquires and establish a spreadsheet & trend charts • Document life science companies established both within MBI incubator as well as outside with MBI assistance. • Document number of life science jobs created	I	MBI Staff & Interns	7/1/04	6/30/05
		b. Identify regions from which biomedical companies are leaving or can be recruited to Massachusetts & Worcester	• Database established and contacts completed • Annual increase in inquiries = 5% per year	II	MBI Staff (Admin) Interns	7/1/04	6/30/05
		c. Institute a Web Site based Marketing Plan (i) Disseminate information about MBI through personal and professional groups, contacts, publications & MBI web page to recruit potential biomedical entrepreneurs	• Marketing plan completed and progress monitored	I	MBI Staff & Interns	7/1/04	6/30/05

Strategic Plan (cont)

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
I. ACTIVELY FACILITATE SUCCESS(cont)	2. **Provide incubator facilities as a catalyst to lower barriers to success for emerging companies**	a. Provide physical resources	• Space provided (# square feet)	I	MBI Staff (Operations)	7/1/04	6/30/05
		b. Provide office support	• Office support provided vs. number of tenant contracts	III	MBI Staff (Admin)	7/1/04	6/30/05
		c. Provide necessary permits that ensure compliance with health and safety regulations	• Number of Health & Safety permits issued as a percent of occupancy • Number of Health & Safety updates/reports issued	I	MBI Staff (M&E)	7/1/04	6/30/05
		d. Provide referrals to appropriate regulatory agencies for development of new products	• Number of referrals vs. new products developed	I	MBI Staff (M&E)	7/1/04	6/30/05

Strategic Plan (cont)

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
I. ACTIVELY FACILITATE SUCCESS(cont)	4. **Provide personal and institutional connections to existing resources**	a. Educational, healthcare organizations, hospitals, industrial and commercial, other scientific entrepreneurs, governmental (especially state resources and representatives)	• Database established • Increase contacts by 5% per year	I	MBI Staff (Admin)	7/1/04	6/30/05
	5. **Facilitate expansion and/or relocation when appropriate**	a. Provide support and assistance for virtual companies	• Increase new companies as a percent of existing companies • Increase 5% per year	I	MBI Staff	7/1/04	6/30/05
		b. Introduce tenant companies to local Commercial Real Estate Brokers	• Recorded in database • Success rate 30%.	III	MBI Staff Referrals	7/1/04	6/30/05
		c. Help determine needs assessment for all companies to succeed	• Success rate 30%	I	MBI Staff (Admin)	7/1/04	6/30/05
		d. Create a list of all companies that have received direct support.	• Database established • Success rate 30%	I	MBI Staff & Interns	7/1/04	6/30/05

Strategic Plan (cont)

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
II. ENSURE FINANCIAL VIABILITY OF MBI	**1. Research progress in other areas of the country to ensure that MBI remains at the forefront of providing successful biomedical incubator facilities**	a. Market research	• Research completed	I	MBI Staff & Interns	7/1/04	6/30/05
		b. Create list of comparable biomedical incubators • State • University • Private	• Database established	II	MBI Staff (Admin)	7/1/04	6/30/05
		c. Develop biomedical working group to share and support innovative incubator facility ideas	• Working group established and recommendations made to the Board	I	MBI Staff (MBD) (Admin)	7/1/04	6/30/05
	2. Identify and secure sufficient income independent of government grants	a. Increase rentals	• Gross dollar per square foot. • Increase in percent occupancy • Decrease in percent of time a lab is unoccupied • Rental increases of 2.5% per year	I	MBI Staff (Admin)	7/1/04	6/30/05
		b. Equity in client companies	• 1% Equity established (where feasible)	I	MBI Staff & Client Companies	7/1/04	6/30/05
		c. Other Income	• % of outside income increase	I	MBI Staff (Admin)	7/1/04	6/30/05

Strategic Plan (cont)

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
II. ENSURE FINANCIAL VIABILITY OF MBI (cont)	**3. Pursue government grants**	a. Maintain 1 grant per year (i) EDA (ii) State Economic Development Assistance (iii) SBIR (iv) Foundations	• Grants completed	I	MBI Staff	7/1/04	6/30/05
	4. Maintain separation between MBI & financial performance of company clients	a. Early Intervention	• Decrease length of time labs unoccupied by 3% per year	I	MBI Staff	7/1/04	6/30/05
		b. Document through written notices	• Documentation completed	III	MBI Staff	7/1/04	6/30/05
		c. Actively pursue waiting list of companies	• Establish targets (# of companies contacted, % brought into MBI facility)	I	MBI Staff	7/1/04	6/30/05

Strategic Plan (cont)

Theme	Objective	Tactics	Metrics	Priority	Owner	Start Date	Completion Date
II. ENSURE FINANCIAL VIABILITY OF MBI (CONT'D)	**5. Control expenses**	a. Operational efficiency (i) Create cost benefit analysis (ii) Reduce spending wherever possible through active bid for services contracts	• Cost benefit analysis completed • Top three cost categories established • Establish and implement bidding process and complete contracts	I	MBI Staff	7/1/04	6/30/05
		b. Control of space (i) Contain Utility costs (ii) Evaluate Facility costs	• Measure utility and facility costs for 1 year and slow cost increases compared to previous year	I	MBI Staff	7/1/04	6/30/05
	6. Explore physical and financial expansion opportunities at the Winthrop & Barber facilities	a. Concept Study (i) Architectural (ii) Build out (iii) Separation	• Study completed	I		7/1/04	6/30/05
		b. Fiscal Analysis	• Analysis completed (ii) Market Need (iii) Costs (iv) Revenue (v) Financial comparison	I		7/1/04	6/30/05

Tenant Success Overview 200-2004

- Current – 14
- Graduated – 12
- Failed – 4
- Prospects – 21

4 Year Span from 1/1/2000 to 12/31/2004

Current Tenant Companies	# of Employees	Months at MBI	Move In Date	Locations
Avatar Pharmaceuticals, Inc.	12	36	3/1/2002	Winthrop St.
Blue Sky Biotech	8	20	7/1/2003	Winthrop St.
Gene-IT	6	30	9/1/2002	Winthrop St.
GlycoSolutions, Corp.	2	39	10/1/2001	Winthrop St.
Mass Micro Laboratories, Inc.	4	20	7/1/2003	Winthrop St.
Informatics & Computing Resources Center	4	57	6/1/2000	Two Locations
Performance Indicator	7	12	3/1/2004	Winthrop St.
R.E.M. Inc.	3	5	11/1/2004	Winthrop St.
Welgen, Inc.	2	23	4/1/2003	Winthrop St.
Antigen Express, Inc.	9	105	6/1/1995	Two Locations
Hypromatrix, Inc.	3	37	2/1/2002	Two Locations
PolyGenyx	3	38	1/1/2002	Two Locations
Technical Innovation Center	1	20	5/1/2003	Barber Ave
Gene-Home, Inc.	1	1	2/1/2005	Winthrop St.
Average	**5**	**32**		

4 Year Span from 1/1/2000 to 12/31/2004

Past Tenant Companies	# of Employees	Current # of Employees	Months at MBI	Start Date	Move Out Date	Current Location
Beckman Coulter	5	N/A	24	10/1/2001	10/1/2003	New York
Bioheart, Inc.	6	0	14	11/1/2001	1/1/2003	Florida & Maryland
BioInformatics.org	2	2	13	8/1/2003	9/1/2004	Hudson, MA
Biomedical Research Models, Inc.	3	40	35	11/1/2000	10/1/2003	Springfield, MA
Informatics Center	8	8	25	1/1/2000	2/1/2002	Worcester, MA
DXA Resource Group, Inc.	3	3	27	11/1/2002	2/1/2005	Westboro, MA
Insight Neuroimaging Systems	4	4	13	5/1/2005	6/1/2002	Worcester, MA
J-Que Biologics, Inc.	3	0	17	9/1/2002	2/1/2004	N/A
New World Laboratories	7	10	23	7/1/2003	11/1/2004	Worcester, MA
Origenix Technologies	7	0	19	9/1/2000	4/1/2002	N/A
Spring Bank Technologies	2	2	10	11/1/2002	8/1/2003	Marlboro, MA
Stereochem, Inc.	1	0	26	3/1/2000	5/1/2002	N/A
Verax Biomedical	12	15	25	10/1/2001	1/1/2003	Worcester, MA
ViaCell	12	250	60	3/1/1996	3/1/2001	Wor./Cambridge, MA
Vivascan	2	4	29	2/1/1999	7/1/2001	West Boylston, MA
Average	**5**	**24**	**24**			

Budget

Overview: 2004

Expense type	Total Cost	Percentage of income
Rental	$ 741,229	66%
State	$ 350,000	31%
Misc.	$36,840	3%
Total:	**$ 1,128,069**	

graphs

Selling Points

- Location:
  - Proximity to Boston/Cambridge region:
    - Close enough to be involved in community
    - Removed enough to avoid commuting and cost disadvantages
    - Lesser restrictions and permits required in Worcester
    - Centrally located near Interstates 290, 495, 146 and 90
  - Institutions in Worcester
    - UMass Medical
    - Universities
    - Worcester Biotech Park

Selling Points (cont)

- Cost
  - Low cost compared to other incubators
  - Fixed monthly cost
  - Cost based on number of labs and offices used, not square footage
- Permits
  - Full coverage provided and maintained by MBI
  - Health and safety courses provided as needed

Selling Points (cont)

- Lease Policies
  - One-year lease shorter than standard (three years)
  - Greater flexibility for tenants
  - Less financial risk
  - Lease may be extended as long as necessary

Marketing

- Website improvements:
  - Navigation
  - Content
  - Prioritization
  - MBI Website
- Virtual Tour

Prospects

Company	Contact
Accu Sciences	Krishan Taneja
Angio Therapeutics	Mustapha Abdelouahed
Biomed Technologies	Brian Lentrichia
Bsure	Nora Szasz
Capstone Cro	Jim Martin
Catalyst Oncology	Steve DiPalma
EarthGenes Pharmaceuticals	Lance Davidow
Gene Expression Systems	Krishna Appasani
Gene 21st	Mei Xu
Gene-Home	David Ulrich
Kurt Amsler	Kurt Amsler
Kwan Guo	Kwan Guo
New England Testing Lab	Mark Bishop
Nomir Medical Technologies	Richard Burtt
Remitek	Dr. Ramachandran
Robert Praino	Robert Praino
Suvigenix	Prakash Purohit
TPC Inc.	Nazneen Aziz
Transtech Corp.	Gary Wang
Vicus Bioscience	Joe Kaufman
Ying Pharmaceuticals	John Zhang

Community Outreach Partners

- Alexandria Real Estate Equities
- American Diabetes Association
- BioVentures Investors
- Central Massachusetts Regional Competitiveness Council
- City of Worcester
- Clark University
- Colleges of Worcester Consortium
- Commonwealth of Massachusetts Executive Office of Economic Development
- Fallon Clinic
- Fallon Community Health Plan
- Fallon Foundation
- International Association for Pharmaceutical Science and Technology
- International Science & Professional Engineers Boston Area Chapter
- Malaysian Industrial Development Authority/Boston
- Massachusetts Alliance for Economic Development
- Massachusetts Biotechnology Council (MBC)
- Massachusetts Biotechnology Research Park
- Massachusetts Business Development Corporation
- Massachusetts College of Pharmacy & Health Sciences
- Massachusetts Manufacturing Assistance Program
- Massachusetts Medical Device Industry Council (MassMedic)
- Massachusetts Office of International Trade and Investment Europe
- Massachusetts Small Business Development Center
- Massachusetts Technology Transfer Center
- MassDevelopment
- National Business Incubator Association
- New England Certified Development Corporation
- SCORE
- Springfield Bio-Economic Technology Alliance (BETA)
- Springfield Regional Technology Corporation (RTC)
- St. Vincent Hospital Worcester Medical Center
- The Worcester Foundation for Biomedical Research
- Tufts University School of Veterinary Medicine
- U.S. Small Business Administration
- UMass Memorial Medical Center
- United States Department of Commerce (EDA)
- University of Massachusetts Medical School
- WCTR-TV 3 Central Massachusetts Chronicles
- Worcester Business Development Corporation
- Worcester Community Cable Access TV 13
- Worcester Regional Chamber of Commerce
- Worcester Regional Research Bureau
- WPI
- WPI Venture Forum

International Outreach Partners

- Berlin Business Development Center, Berlin, Germany
- Bizhaiko Foru Aldundia, Spain
- Calthorpe Estates, Birmingham, UK
- Cardiff University, Wales, UK
- Fusion Antibodies, Belfast, Northern Ireland
- Gaiker, Spain
- International Association of Science Parks, Spain
- International Society for Pharmaceutical Engineering, Tampa, Florida
- Japan External Trade Organization, Tokyo, Japan
- Jawaharlal Nehru University, New Delhi, India
- Malaysian Industrial Development Authority
- MDIS, Medical Devices in Scotland, Bellshill, Lanarkshire
- Ministry of Economic and Business Affairs, Copenhagen, Denmark
- Sponsored Research Development, Bloomington, Indiana
- Suffolk College, Ipswich, UK
- The Cambridge-MIT Institute, Cambridge, UK
- The Center for Integrated Photonics, Ipswich, UK
- The University of Melbourne, Parkville, Victoria, Australia
- UK Science & Technology, British Consulate General, Cambridge, MA
- UK Trade & Investment, British Consulate General, Cambridge, MA
- University of Nottingham, Nottingham, England

Appendix F: Navigation Outlines

New Navigation

Home Page
About Us
- Recent News
- Past News
- History
- Facilities and Resources
- Staff
    - President & CEO - Kevin
    - Manager of Administrative Services - Judy
    - Accountant - Linda
    - Director of Health & Safety - Michelle
    - Health & Safety Technician - Ben
    - Director of Information - Joseph
- Trustees
- Central Massachusetts Resources

Tenants
- Barber Street
    - Altshuller Institute
    - Antigen Express
    - Bioinformatics
    - DXA Resource Group
    - Hypromatrix
    - PolyGenyx
    - TIC
- Winthrop Street
    - Avatar Pharmaceuticals
    - Blue Sky Biotech
    - Gene-IT
    - GlycoSolutions
    - Mass Micro
    - REM
    - Welgen

MBIdeas Incubator Facilities
- Services
- Facilities
- Advisory Teams
- Health and Safety
    - Who We Are
    - MSDS
    - Bio Safety
    - Chemical Safety

        - Radiation Safety
    - Inquiry Forms

Research Resources

- About Us
- People & Partners
- Services & Technology
- Computing Center
- Career Opportunities
- Internship Opportunities

Networking Forums

Directions

- MBIdeas Winthrop Street
- MBIdeas Barber Avenue

Contact Us

Old Navigation

Home Page

About Us

- History
- Facilities and Resources
- Staff
- Trustees

Tenants

- Barber Street
- Winthrop Street

MBIdeas Incubator Facilities

- Services
- Facilities
- Tenants
    - Barber Avenue
    - Winthrop Street
- Health and Safety
- Inquiry Forms

Informatics Center and Computing Resources

Central Massachusetts Resources

Directions

- MBIdeas Winthrop Street
- MBIdeas Barber Avenue

Headliners

Forums

Advisory Teams

Jobs

Contact Us

- Staff
- Trustees

Appendix G: Tenant Success Tables

4 Year Span from 1/1/2000 to 12/31/2004

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J-Que Biologics, Inc.	3	0	17	9/1/2002	2/1/2004	N/A
New World Laboratories	7	10	23	7/1/2003	11/1/2004	Worcester, MA
Origenix Technologies	7	0	19	9/1/2000	4/1/2002	N/A
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ViaCell	12	250	60	3/1/1996	3/1/2001	Wor./Cambridge, MA
Vivascan	2	4	29	2/1/1999	7/1/2001	West Boylston, MA
Average	**5**	**24**	**24**			

Totals	**Current**	**Graduated**	**Failed**	**Prospect**
	14	**12**	**4**	**21**

Bold/Italics Indicates No Longer in Business

Appendix H: Budget Data and Graphs

Barber Ave Facility

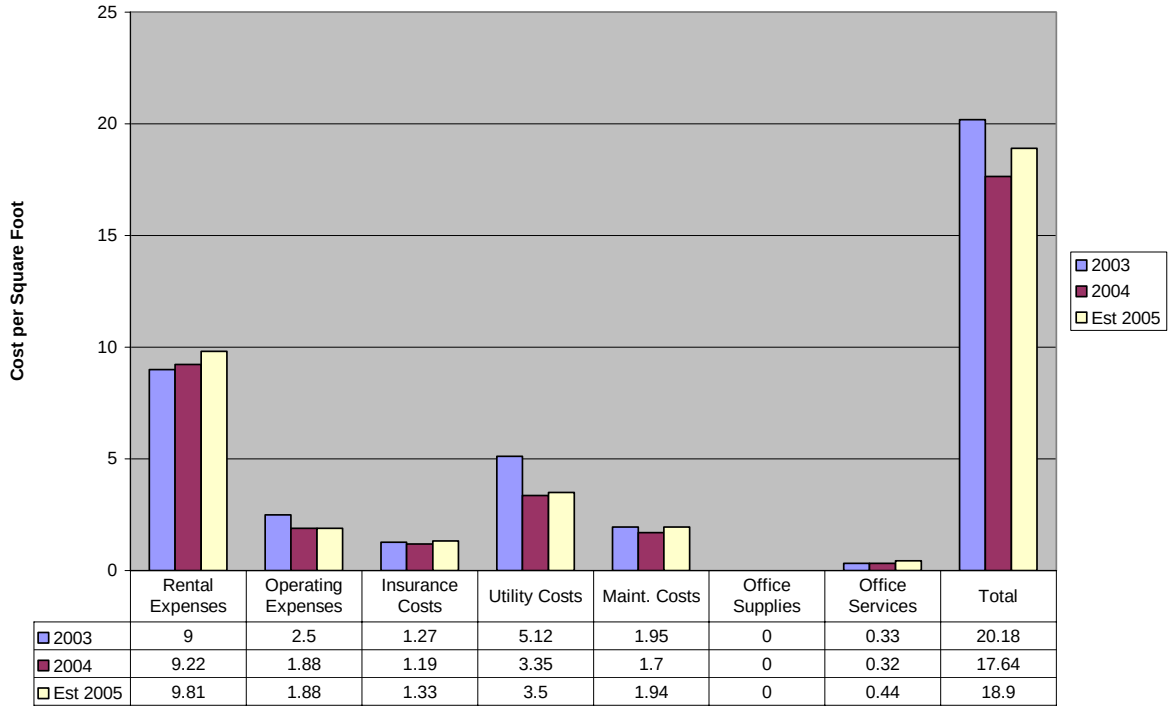
Barber Ave Costs						
Rental Expenses	Cost 2003	Per Square Ft	Cost 2004	Per Sq. Ft.	Est. Cost 2005	Est. Per Sq. Ft.
	72000	9	73,754	9.22	78468	9.81
Operating Expenses	Cost 2003	Per Square Ft	Cost 2004	Per Sq. Ft.	Est. Cost 2005	Est. Per Sq. Ft.
	20004	2.5	15,000	1.88	15000	1.88
Insurance Costs						
	Cost 2003	Per Square Ft	Cost 2004	Per Sq. Ft.	Est. Cost 2005	Est. Per Sq. Ft.
Liability	2,460	0.31	2,140	0.27		
w/c	96	0.01	84	0.01		
pkg	7,632	0.95	7,288	0.91		
total	10,188	1.27	9,512	1.19	10640	1.33
Utility Costs						
	Cost 2003	Per Square Ft	Cost 2004	Per Sq. Ft.	Est. Cost 2005	Est. Per Sq. Ft.
Gas	1,588	0.2	1,640	0.21		
Electricity	36,279	4.54	24,825	3.1		
CAM-Electrical	3,125	0.39	303	0.04		
total	40,992	5.12	26,768	3.35	28000	3.5

Maintenance Costs						
	Cost 2003	Per Square Ft	Cost 2004	Per Sq. Ft.	Est. Cost 2005	Est. Per Sq. Ft.
Cleaning	6,866	0.86	3,696	0.46		
Pest Control	0	0	0	0	0	0
Plumbing	0	0	278	0.04		
Trash Removal	571	0.07	612	0.08		
Water Treatment	0	0	1,289	0.16		
Bldg. Maintenance	923	0.11	89	0.01		
Contract Maint.-HVAC	6,815	0.85	7,572	0.95		
CAM-HVAC	401	0.05	0	0	0	0
total	15,576	1.95	13,536	1.7	15500	1.94

Office Supplies						
	Cost 2003	Per Square Ft	Cost 2004	Per Sq. Ft.	Est. Cost 2005	Est. Per Sq. Ft.
shrd equipment	0	0	0	0	0	0
Office Services						
	Cost 2003	Per Square Ft	Cost 2004	Per Sq. Ft.	Est. Cost 2005	Est. Per Sq. Ft.
alarm/security	1,946	0.24	1,774	0.22	2,500	0.31
telephone	714	0.09	750	0.09	800	0.1
signage	0	0	13	0	200	0.03
shrd equipment	0	0	0	0	0	0
total	2,660	0.33	2,537	0.32	3,500	0.44

Total Expenses	Cost 2003	Per Square Ft	Cost 2004	Per Sq. Ft.	Est. Cost 2005	Est. Per Sq. Ft.
	161,420	20.18	141,107	17.64	151,108	18.9

MBI - Barber Ave.



	Rental Expenses	Operating Expenses	Insurance Costs	Utility Costs	Maint. Costs	Office Supplies	Office Services	Total
2003	9	2.5	1.27	5.12	1.95	0	0.33	20.18
2004	9.22	1.88	1.19	3.35	1.7	0	0.32	17.64
Est 2005	9.81	1.88	1.33	3.5	1.94	0	0.44	18.9

Winthrop St Facility

Winthrop St						
Rental Expenses	Cost 2003	Per Square Ft	Cost 2004	Per Square Ft	Est Cost 2005	Est Per Square Ft
Base	101016	5.05	101,016	5.05	101,016	5.05
Operating Ex's &	65700	3.29	63,612	3.18	63612	3.18
total	166716	8.25	164,628	8.23	164,628	8.23
Operating Expen	Cost 2003	Per Square Ft.	Cost 2004	Per Square Ft	Est Cost 2005	Est Per Square Ft
MBI Personal-Sal	595517	29.78	254,321	12.72		
Incentives/Benefi	96106	4.81	61,847	3.09		
Misc Personal Ex	0	0	0	0		
total	691623	34.58	316168	15.81	358848	17.94
Insurance Costs						
	Cost 2003	Per Square Ft	Cost 2004	Per Square Ft	Est Cost 2005	Est Per Square Ft
Liability	6,036	0.3	5,424	0.27		
w/c	2,904	0.15	2,668	0.13		
pkg	18,660	0.93	18,440	0.92		
D&O	5,352	0.27	5,768	0.29		
total	32,952	1.65	32,300	1.62	27360	1.37

Utility Costs						
	Cost 2003	Per Square Ft	Cost 2004	Per Square Ft	Est Cost 2005	Est Per Square Ft
Electricity	49,740	2.46	67,533	3.38		
Steam/Chiller/Gas	65,288	3.23	87,640	4.38		
Electrical	3,189	0.16	1,216	0.06		
total	118,217	5.91	180,042	9	150000	7.5
Maintenance Costs						
	Cost 2003	Per Square Ft	Cost 2004	Per Square Ft	Est Cost 2005	Est Per Square Ft
Cleaning	16,658	0.84	13,529	0.68		
Pest Control	60	0.003	0	0		
Plumbing	0	0	110	0		
Trash Removal	1,494	0.07	1,537	0.08		
Water Treatment	3,806	0.19	2,666	0.13		
Water/Sewer	0	0	0	0		
Janitorial	0	0	0	0		
Bldg Maintenanc	255	0.01	523	0.03		
CAM-HVAC	22,200	1.1	23,653	1.18		
total	44,473	2.22	42,018	2.1	35000	1.75

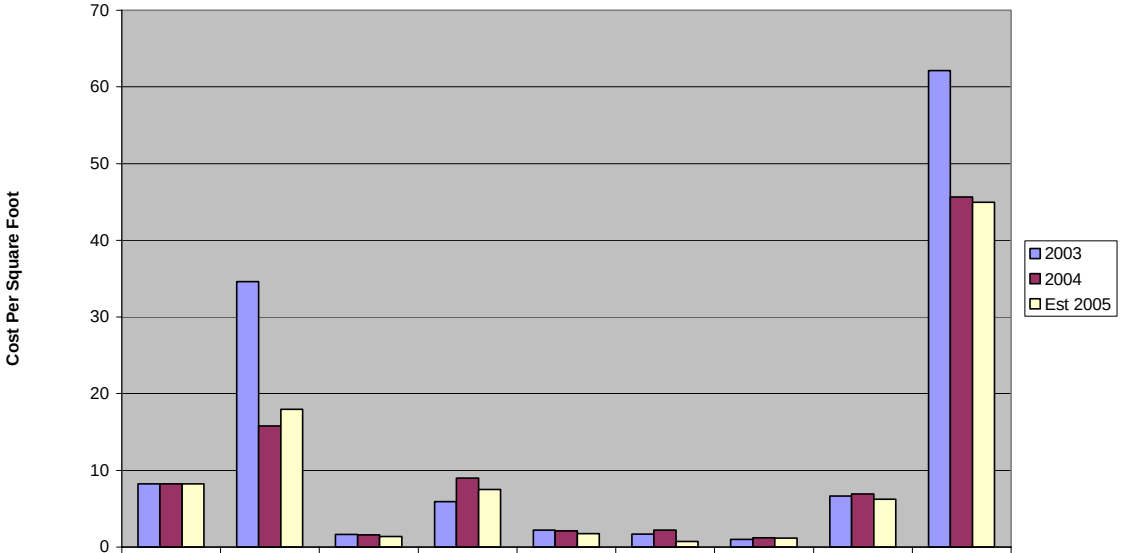
Office Supplies						
	Cost 2003	Per Square Ft	Cost 2004	Per Square Ft	Est Cost 2005	Est Per Square Ft
shrd equipment	3,543	0.18	10,308	0.52		
office supplies, e	29,690	1.49	30,570	1.53		
lab supplies	979	0.05	3,193	0.16		
total	34,212	1.71	44,071	2.2	15000	0.75

Office Services						
	Cost 2003	Per Square Ft	Cost 2004	Per Square Ft	Est Cost 2005	Est Per Square Ft
alarm/security	349	0.02	120	0.006		
CAM-telephone	2,838	0.14	660	0.03		
telephone	10,210	0.51	8,116	0.41	8500	0.43
signage	97	0.005	13	0		
Health and Safety, Permits, Licenses, etc.	6,512	0.33	14,884	0.75	15000	
total	20,006	1	23,793	1.19	23500	1.18

Outside Services						
	Cost 2003	Per Square Ft	Cost 2004	Per Square Ft	Est Cost 2005	Est Per Square Ft
Legal Expenses	19,159	0.95	4,329	0.22	5000	0.25
Audit Expenses	17,750	0.88	10,000	0.5	10000	0.5
Other Outside Ex	55,981	2.77	61,207	3.06	55000	2.75
Conferences, Meetings, Travel	8,722	0.43	11,784	0.59		
Dues	3,175	0.16	5,420	0.27		
Fundraising	30,030	1.49	30,000	1.5	40000	2
Interest/Bank Fee	37	0.002	15,859	0.79	15000	0.75
total	134,854	6.74	138,599	6.93	125000	6.25

Total Expenses	Cost 2003	Per Square Ft	Cost 2004	Per Square Ft	Est Cost 2005	Est Per Square Ft
	1,243,053	62.15	941,619	45.99	899,336	44.97

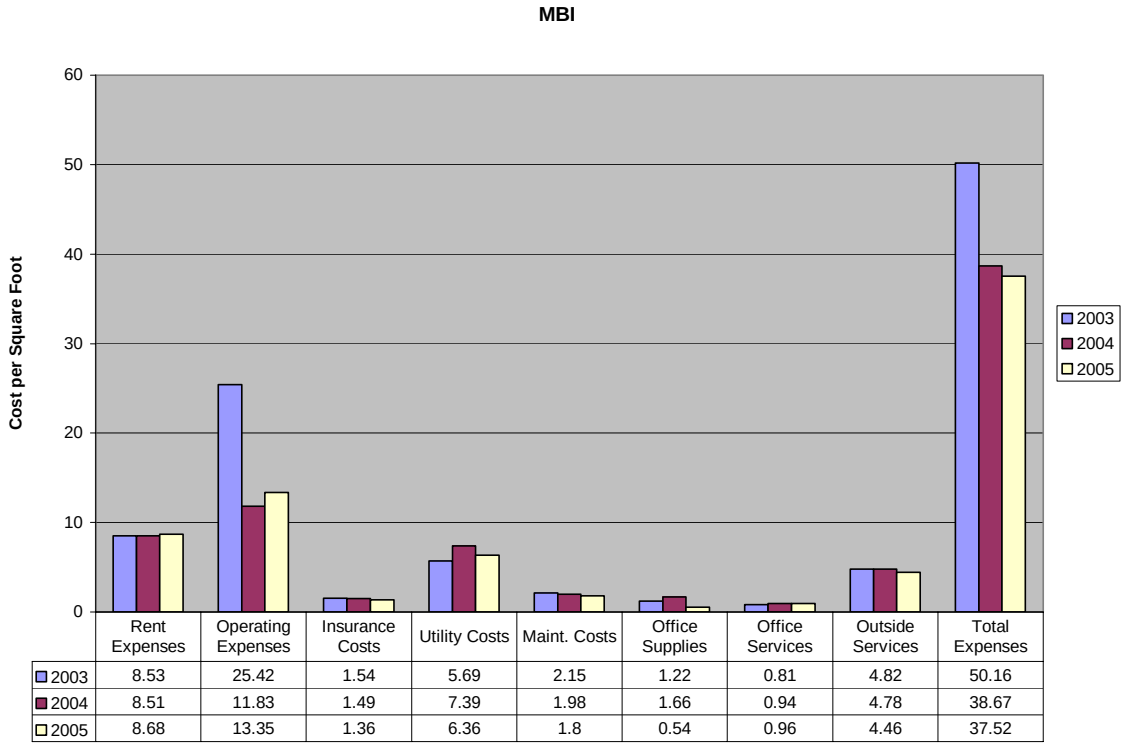
MBI - Winthrop St.



	Rental Expenses	Operating Expenses	Insurance Costs	Utility Costs	Maint. Cost	Office Supplies	Office Services	Outside Services	Total
2003	8.25	34.58	1.65	5.91	2.22	1.71	1	6.68	62.15
2004	8.23	15.81	1.61	9	2.1	2.2	1.19	6.93	45.65
Est 2005	8.23	17.94	1.37	7.5	1.75	0.75	1.18	6.25	44.97

COMBINED FACILITIES

Total Expenses	Cost 2003	Per Sq Ft	Cost 2004	Per Sq. Ft	Est Cost 2005	Per Sq Ft
Winthrop St	1,243,053	62.15	941,619	45.65	899,336	44.97
Barber Ave	161,420	20.18	141,107	17.64	151,108	18.90
total	**1,404,473**	**50.16**	**1,082,726**	**38.67**	**1,050,444**	**37.52**



	Rent Expenses	Operating Expenses	Insurance Costs	Utility Costs	Maint. Costs	Office Supplies	Office Services	Outside Services	Total Expenses
2003	8.53	25.42	1.54	5.69	2.15	1.22	0.81	4.82	50.16
2004	8.51	11.83	1.49	7.39	1.98	1.66	0.94	4.78	38.67
2005	8.68	13.35	1.36	6.36	1.8	0.54	0.96	4.46	37.52

Appendix I: Examples of Old and New Website

Examples of Old Website

Staff

MBI
MASSACHUSETTS BIOMEDICAL INITIATIVES
INNOVATION CENTERS
CENTRAL MASSACHUSETTS

Home
About Us
History
Facilities and Resources
Staff
Trustees
Tenants
MBIdeas Incubator Facilities
Informatics Center and Computing Resources
Central Mass Resources
Directions
Headliners
Forums
Advisory Teams
Jobs
Contact Us

Massachusetts Biomedical Initiatives
25 Winthrop Street
Worcester, MA 01604

Staff Directory
Select an employee to view more complete information.

- Kevin O'Sullivan
  President and CEO
- Judy Cocaine
  Manager of Administrative Services
- Linda Freeman
  Accountant/Full Charge Bookkeeper
- Michelle Pitoniak Crawford
  Director Health & Safety
- Ben Nichols
  Health & Safety and Operations Technician
- Joseph Gormley
  Acting Director of Informatics and Computing Resources

Computing Center

The cluster operating system is NPACI Rocks 3.1.0 (Matterhorn), derived from RedHat Linux Enterprise 3.

Knowledge Management Systems

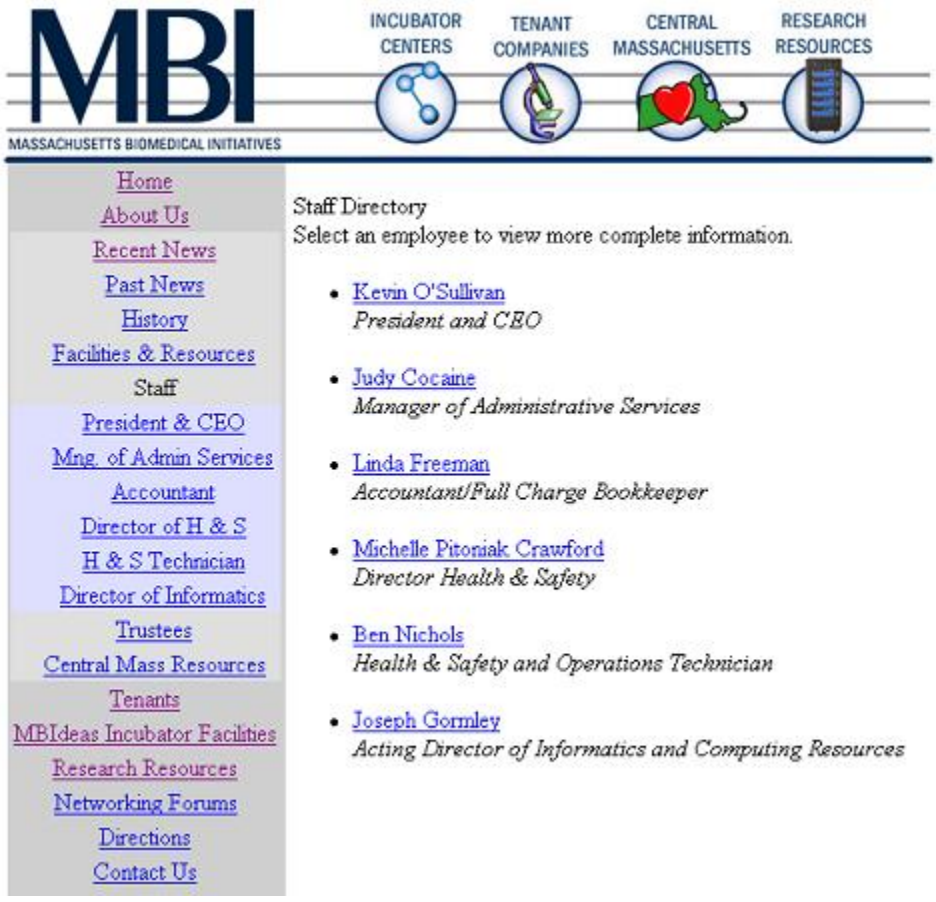
NCRR BioCoRE
NCI caBIO

Commercial Projects

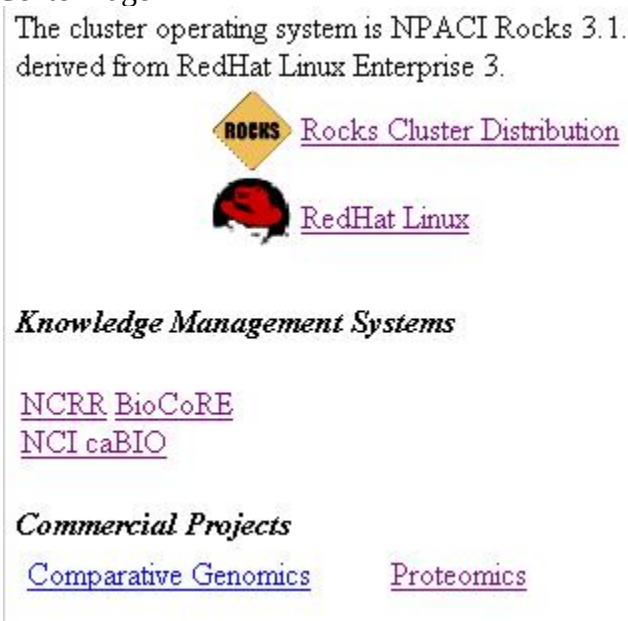
Comparative Genomics Proteomics

Examples of New Site

About Us - Staff



Computing Center Page



Appendix J: Letter from Massachusetts Secretary of Economic Development

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ECONOMIC DEVELOPMENT
ONE ASHBURTON PLACE, ROOM 2101
BOSTON, MA 02108

MITT ROMNEY
GOVERNOR

KERRY HEALEY
LIEUTENANT GOVERNOR

RANCH C. KIMBALL
SECRETARY

TELEPHONE
(617) 788-3610

FACSIMILE
(617) 788-3605

January 28, 2005

Mr. Kevin O'Sullivan
President & CEO
Massachusetts Biomedical Initiatives
25 Winthrop Street
Worcester, MA 01604

Dear Kevin,

It was great to meet you last week during my visit to MBI. I appreciate your personalized tour of the Winthrop Street facility's incubator offices, and your coordination of the excellent luncheon discussion. I especially cherish your enthusiasm.

I'm also glad that MBI is working with WPI, through computing and biotech connections, as well as internship opportunities. Please offer Joe Kahn and Zoe Lentz my wishes for long-term success.

Looking forward, the Governor and I are in the process of filing an economic stimulus bill in February that will include various measures to break down barriers and make it easier to do business in Massachusetts.

I appreciate your thoughts and welcome your continued involvement as we develop these initiatives.

Best regards,

Ranch C. Kimball
Secretary of Economic Development

Kevin -
You are a
rock star. Let's
make it happen -
Ranch