Comprehensive Evaluation
Of Maine's R&D Incentive Programs

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DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT AND THE STEERING COMMITTEE

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Report prepared by

Investment Consulting Associates (ICA)
1005 Boylston St #243
Newton Highlands, Massachusetts, 02461
United States

H.J.E. Wenckebachweg 210
1096 AS Amsterdam,
The Netherlands

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Introduction

The public sector can directly influence private sector investment and location decisions through the use of incentives, credits, and other programs aimed to enhance a community's business competitiveness. No incentive can, however, completely change the nature of a community's strengths and weaknesses. Indeed, incentives often work best when augmenting a community's already known advantages and mitigating any shortcomings, to the extent possible.

To this end, the State of Maine has developed a suite of policy and investment tools aimed at attracting investment and meeting the State's overall economic development goals. These tools vary in their importance in achieving these goals due to changing economic conditions and specific requirements of businesses. Goals, requirements and targets change over time, and the toolset must be evaluated and updated accordingly.

Many communities, however, disregard the costs and effectiveness of different economic development programs, ignoring the importance of a thorough evaluation. They may not even consider the possibility to adjust, modify or alter certain programs or incentives.

The State of Maine is establishing a best practice example by requesting a comprehensive R&D Biennial Progress Report, as well as an Evaluation of Investments in Economic Development, due in 2014. If approved, subsequent evaluation reports will be due in 2016 and 2018. Also due in 2018 is a Comprehensive Evaluation of Investments in Research and Development report covering six years. These reports will be instrumental in assisting the State maintain effective programs.

Methodology

The present report has been constructed to meet the Maine Legislature's requirement to examine the effectiveness of research and development programs on a biennial basis (along with the state's economic development programs). This has been accomplished through performing the following analyses and actions:

- Reviews of the previous studies performed for the State of Maine on the use and effectiveness of its programs;
- Interviews with public sector entities and their partners responsible for the administration of the State's various programs;
- Interviews with a sample of private sector companies and other entities who have received benefits and assistance from the State;
- Benchmarking the State of Maine's natural competitiveness against several of its peer states, both in terms of innovation and entrepreneurship and of the programs available;
- Data collection through a rigorous survey collecting information of program usage, knowledge creation, increased hiring, salary rates, capital investment, and return-on-investment to the

State. (Recipient lists provided by program administrators where those lists were not considered confidential.);
- Cost-benefit analysis of survey data by program (for all State programs where more than 15 responses were received for that program or for those serving an essential role in Maine's economy); and
- Examination of annual reports (for those programs that generate annual reports and provided those reports to the consultant team).

Note that the survey indicated above has created a means for direct reporting on behalf of the private sector companies and other entities, which have benefitted from use of the State's research and development investment programs. Though the requirement to report is indicated in each of the State's current programs, a comprehensive means for reporting had not previously existed. While not within the scope of the current project, the data the survey provided was not available through other means and was critical to the success of the cost-benefit analysis.

Findings

While the remainder of this report provides detailed findings for the entire suite of tools available to the state, the project team found broadly that:

- While identified in earlier reports, the need remains across all Maine incentive programs for:
  - Better outreach;
  - Centralized and coordinated information on incentive programs;
  - Centralized and coordinated reporting requirements and forms;
- The University of Maine Law School, Maine Revenue Services, Maine Technology Institute, and Maine's Department of Economic and Community Development all provide R&D promoting incentive programs. While each department or agency has its own specific objectives, there should be a shared vision and common message communicated to companies.
- There is a perception among public sector and private sector interviewees that the State's suite of economic development incentive and credit programs (including those specifically targeted to Research & Development) should be streamlined, made more flexible, and work in conjunction with overall tax reform;
- A refined reporting process and set of metrics is required to assess the importance and outcomes of community development practices, even though the requirement for public sector reporting is included in each incentive and credit program
  - This has partially been addressed through the survey tool developed by the project team
- Several incentive program demand estimated investment projections (i.e. total new jobs, retained jobs, investment capital, patents, or number of new commercial product) as part of the application process. Together with the business case and other performance indicators, they determine the eligibility of companies of actually receiving a disbursement or soft loan. These projections are an important source for future cost benefit assessment and should be consistently consolidated and re-validated for all programs.

A full scale cost benefit assessment (CBA) has been conducted for four carefully selected incentive programs, of which the Development Loan program, administered by MTI, is directly related to encouraging and promoting R&D activities[1]. The CBA model assumes two scenarios in which the direct tax revenues for the State of Maine are evaluated and benchmarked.

1. Scenario 1: The incentive program is provided and all certified companies (or projects) are aggregated into one sample for analysis;
2. Scenario 2: The incentive program is not provided but the same aggregated sample is used to allow for a consistent comparison between both scenarios;

Since 2010, the total number of awarded loan projects decreased from 17 in 2010 to 6 in 2012. During the most recent fiscal year, MTI Technology Boards reviewed 29 Development Loan applications from Maine businesses. Twelve applications were funded for a total of $3.6 million and matched by over $4.9 million. Companies that had received earlier Development Loans made payments back to MTI totaling $1,434,614 this year, the highest repayment amount to date and an indication of commercialization success.

The companies that qualify for the development are relatively small. On average these companies employ 20 full time equivalents (FTE) and their annual sales turnover totals $4.7 million.

Survey results show that the average additional jobs per certified company ranges between 2.7 and 5.4 FTE as a direct result of the Development Loan program. These figures were utilized in the CBA assessment as a proxy for the loss in jobs in case of the scenario in which the development loans were not provided.

There are different terms and conditions of the loans between established or publicly traded companies and start-up or early stage companies. Analyzing previous annual reports show that 38% of the applicants belong to the first group, while 62% of the applicants are in start-up or early stage.

This ratio was used to calculate an effective interest rate of 3.1%, compared to an interest rate of 6% for a commercial loan. The difference between both interest rates and the costs to administer the program are considered the direct costs of this program. On the other hand, the soft loan arrangement makes it possible for certified companies to lower their finance costs, to commercialize their products, and to grow in headcount and sales revenues.

In the scenario of not providing the development loans, the finance cost of these companies would more than double, and the companies were not able to grow with the additional new hires as anticipated. As a result of this, the total amount of disposable income is lower, and there is less spending on local goods and services. Additionally, the higher finance costs results in lower taxable income and subsequently the overall profitability.

[1] The other three economic development programs are the Business Equipment Tax Reimbursement (BETR), Maine's Pine Tree Development Zone Program and two related loan programs by FAME. The results can be found in the Economic Development Evaluation Report.

These related effects eventually cause for lower corporate income tax revenues, lower personnel income tax revenues, lower sales tax revenues, lower dividends tax revenues and finally lower payroll tax revenues.

The conclusion is that the Cost Benefit Assessment presents a consistently high rate of return for the development loan program by MTI; Measured over a period of three years (FY10 – FY12) the CBA shows that on every 1 dollar spent on the Development Loan program, the output is 1.124 dollar, a return of 12.4%.

Recommendations

As with the review of the State's economic development programs, the analysis suggests a series of small and large improvements to Maine's Research and Development programs that would enhance both effectiveness and transparency. The most critical of these recommended changes are:

- **Develop Central Storage for Report Documentation:** To evaluate the investment programs going forward, the evaluating party must obtain as many recipient lists and annual reports from as many programs as possible. Legislative changes should be made to allow the analyst team designated by the State of Maine to have full access to program data as needed.
- **Adjustments to Program Confidentiality:** Legislative changes should be made to provide for full access to and evaluation of program data as needed, whether performed by a State agency or by a contracted third party under a confidentiality agreement. If program data is made more directly available, the evaluation team can ask a much smaller subset of survey questions to companies and research entities, and obtain more accurate and detailed information for analysis.
- **Central Website and/or Guiding Organization:** The State should construct a website that allows the user to input general company characteristics, search by category and find the programs for which the company or research entity is eligible. Once those programs are identified, the site should directly link to the program websites and provide full contact information for that group. In addition, an individual fluent with the program should be available by phone to walk applicants through this process or to do it for them should they request that level of service.

With regards to the design of the programs themselves, the State of Maine should:

- Form an Incentive Working Group (which will address both Economic Development and Research & Development programs) consisting of members of various government institutions, research entities, and corporate representatives whose mission is to advise the state on investment policy modifications and the concerns of corporate investors in the program application process.
- Consider revising Maine's primary R&D programs with the following enhancements featured in competitive states:
    - Include donations to State research organizations as qualified R&D expenses;
    - Align programs to target industry sectors for State (MTI);
    - Allow excess credits to be sold back to the State for a portion of their value; and

  - Link directly to primary industry attraction program – Pine Tree Development Zone.
- Continue to seek ways to fill the funding gap between early stage research and full commercialization for small companies. This may take the form of adjustments to the FAME program, for example;
- While coaching should be provided to companies in developing their business and financing plans, care should be taken to also evaluate the business viability of both the product/service/technology and of the prospective entrepreneur and business team;
- Some business cases from applicants contained over-optimistic projections of results. Lack of realism in ex-ante investment projections must result in a formal warning. In case of two formal warnings, there must be a legal provision to revoke the incentive certification;
- Develop a clear, transparent, and coherent common framework within each program to facilitate coordination and harmonization where possible – both with other research programs and within the broader economic development framework;
- Design the research investment programs to conform to good practice principles of simplicity, clarity, certainty, and a minimum of subjective evaluation;
- Change the application and administration processes to be as simple and as concise as possible – avoid bureaucratic overload whilst maintaining sufficient rigor in the process (do not develop incentive frameworks that cannot be monitored);
- Provide a clear mechanism and expectation for transparency, reporting, evaluation and monitoring;
- Develop means for evaluative each award annually, with an analysis of the cost of the fiscal incentive relative to the benefits arising from the investment (such as knowledge creation, capital investment, employment, sales, jobs, etc.);
- Write reporting requirements in a clear, coherent and transparent manner and link to the incentives being awarded and the conditionality criteria.

Follow On Actions

The current report does not represent the final word on the effectiveness of the State of Maine's efforts to promote research & development, supporting a sound and sustainable economic environment. Now that a robust survey and evaluation process has been put in place, it is possible to better examine how well the current suite of programs matches the needs of the State's targeted industry clusters over time. Moreover, it is now possible to perform a more in-depth benchmarking for the State through "reverse site selection" to identify specific changes that might improve the performance of the State's programs and of competitiveness overall.

These and other analyses and recommendations will be included in the next series of reports, due to be delivered in May 2014.

We also recommend that the evaluation of R&D programs be explicitly combined with other economic development programs. The programs together support an innovative, sustainable Maine economy. They are mutually reinforcing, and many companies and entities use programs from both toolboxes in a

complimentary fashion. To review separately creates the risk of not properly evaluating the effectiveness of the two sets of programs when used in combination.

Introduction

History of the Science and Technology Plan

The Maine Innovation Economy Advisory Board (MIEAB) was established in 2007 by Title 5, section 12004-I, subsection 6-G to coordinate the State's research and development activities and to foster collaboration among its higher education and nonprofit research institutions and members of the business community. MIEAB replaced the Maine Science and Technology Advisory Committee (MSTAC), which had been established by Executive Order in 2003 and generated the 2005 Science and Technology Plan. The original Science and Technology Plan were produced in 2001 by the Science and Technology Foundation.

Starting in 2010, the advisory board was tasked with developing a Science and Technology Plan beginning in 2010 and then every five years thereafter. MIEAB also was tasked with submitting yearly Science and Technology Plan updates. It should be noted that these reports have not been completed to this point.

Moving Forward – A New Plan for Evaluation of State Investment and Incentives

The Investment Consulting Associates team (Team) was retained by the Maine Department of Economic and Community Development (DECD) to generate a new series of action plan reports to examine the State's investments in both economic development and in research & development. One series of reports is focused specifically on Research and Development (R&D) in the State of Maine and the other more generally on Economic Development in the State. Biennial progress reports are due in 2014, 2016, and 2018 and will be based on the format of the 2010 Science and Technology with some modifications and additions. Major changes include:

- Moving definitions, abbreviations, and other general support sections to the appendices;
- Separating R&D analysis and recommendations into a separate report from Economic Development analysis and recommendations (required by the RFP); and
- Providing more significant, refined, and implementable action items.

The body of the current report contains summaries, findings and action items, while the appendices contain the full research behind the concepts presented. This revised format was approved by the steering committee and is intended to bring focus to:

- What is working and what does not work;
- What changes need to be made or what actions need to be performed;
- Who will perform future activities; and
- When these activities should be completed.

Vision

The State of Maine made an affirmative decision in the mid-1990's to become an active participant in research and development. Stemming for the recognition that the State was facing global competition, a strategy was developed to grow through innovation rather than reacting to corporate location and expansion decisions as they were made. The State then developed a suite of programs that would allow the direct investment in research and development with the goal of retaining the resulting companies in Maine as they grew.

Incentives, special economic zones, and direct investment are among the most visible tools available to spur new companies, expansions, or other forms of domestic and foreign direct investment. These tools combine with a state or community's innate characteristics to enhance the overall competitiveness of the business climate. A successful competitive business climate positively contributes to a state's domestic economic development goals through job creation, capital investment, knowledge and R&D creation, with spill-over effects on quality-of-life as a whole.

The effectiveness of such programs can be viewed from several points of opinion. The academic view normally claims that incentives have little or no effect on investment decisions and their location. A more industry-based perspective, however, usually claims that site selection and investment decisions are all about incentives. Between those two extremes is a more mixed and balanced view that claims that incentives do matter, but within a larger context of factors like competitiveness of business environment, industry, business activities, investment motives, availability of labor and resources, access-to-market, etc.

Direct investment in research and development provides the State with an opportunity to engage with innovators and entrepreneurs to develop their ideas, and then provide them with the guidance and backing to commercialize these ideas over time.

As with other forms of incentives and partnership with the private sector, these programs seek to:

- Overcome a competitive weakness such as high costs or weak business climate (so-called site-equalization outlays);
- Promote investment in deprived areas by offering incentives;
- Attract particular industries by offering specific incentives;
- Correct for market failures in the provision of capital and risk-taking of companies; and
- Change the image of a location to convey a more pro-business and marketable message.

With regards to research and development assistance, it is also hoped that direct investment in innovation will continue to enhance the State's stature in selected technologies and industries. This stature will further create opportunities for companies associated with these technologies and require industries to locate nearby in order to participate in these new value chains.

A Note on Transparency

Considerable public and corporate attention has been focused on tax credits, grants and other incentives, their effectiveness, and, more generally, on the general use of public funds to encourage

private business. This includes the funding of research and development initiatives. As a result, governments around the world over are trying to determine and then demonstrate the true effectiveness of these programs. They want to know what works, what does not, and how to measure the return on the investment. This information provides critical guidance at a time when governments are increasingly mindful of budgets and want to maximize results to their communities and their electorate.

At the same time, companies and the general public alike are seeking clarity into how public investment programs are awarded and the mutual responsibilities that such programs require from both the granting community and the receiving company. Such transparency allows frank discussion on business needs and how the public sector can help bring in attractive companies. It can also help to build an understanding of the expectations made of companies as they invest in a community.

The current study Team has worked with many governments to comprehensively evaluate the economic development incentive programs used to attract and retain companies. Each project has been a robust review of costs, benefits, program goals, and outcomes. Important as well are proper institutional alignment, clear eligibility criteria development and monitoring and evaluation mechanisms that are workable. Additionally, the Team has produced a transparency index that uses a global incentives deal database to rank US states on the level of disclosure and the availability of information on how awards are granted.

Lessons learned from both areas are included throughout this and follow-on reports. This will also result in suggested best practices for the State and for its communities on how construct and evaluate incentive programs that work effectively.

Analysis and Findings

Findings from Previous Studies

The Team reviewed a significant number of reports and documents previously prepared for the State in an effort to understand incentive history in the State of Maine. One concern echoed by multiple entities is that the present report should be different and suggest new strategies for enhancing economic development within the State of Maine. While this report does suggest new action items, many items were are also echoed in previous reports. In many case the suggestions from the previous reports have not been addressed in the interim and are still outstanding. Many are still relevant, and the team has included additional specific implementable action items to address these ongoing concerns as well.

The suggestion of merging the Science and Technology required Economic Development report with the Research and Development report is a recurring theme. The team fully supports this suggestion and recommends carrying this through for the 2016 reports. Progress in the R&D field can and should still be analyzed by a slightly different metric than general Economic Development programs. However, placing the R&D section in the same report will not change the analysis method.

Some of the most frequently discussed concerns from previous reports are:

- Merge the Economic Development evaluation with the ongoing R&D evaluation effort
- Address the difficulty of navigating Maine's incentive programs
    - Reduce confusion among current and potential business customers
- Develop better company reporting mechanism
- Address reporting requirements - Survey response rate of 30% must be significantly improved
- Develop a business support portal that can be accessed online and via phone
- Improve marketing and outreach programs to promote existing programs and initiatives
- Work with assisted companies to better quantify program impacts
- Increase per capita income by increasing the skills of Maine workers
- Explore methods to increase willingness of local angels to invest in high tech
- Increase Maine's total R&D/innovation through
    - Incentivizing the academic world
    - Continue offering incentives that support R&D/innovation company creation
    - Creating an attractive environment in Maine that will encourage existing R&D companies to move to Maine
    - Encouraging knowledge transfer from university settings to companies so products can be commercialized
    - Aligning K-20 education with R&D/innovation goals
    - Considering creation of a statewide patent fund that invests in protecting innovative ideas developed within the State of Maine
    - Benchmarking Maine against other smaller states (small in population) with more robust R&D programs and modify incentive programs based on the findings

Interviews

The Team conducted 53 interviews across 35 different companies and organizations representing various stakeholders, policy makers, research institutions, and companies within the State of Maine. Interviews were conducted to record first-hand experience with Maine's research and development programs as well as to gain insight into what appears to work, and to collect perceptions on areas for improvement. The lists of interviewees separated into two categories: those in the public realm who administered the programs, and those in the private realm representing companies in the market. Many of the companies on the interview list were also recipients of aid of some kind from the State. Please see Appendix E – InterviewsAppendix E – Interviews for the complete write-up and list of those interviewed for this report.

General Observations on Programs:

- While identified in earlier reports, the need remains across all Maine incentive programs for:
    - Better outreach;
    - Centralized and coordinated information on incentive programs;
    - Centralized and coordinated reporting requirements and forms;
- The University of Maine Law School, Maine Revenue Services, Maine Technology Institute, and Maine's Department of Economic and Community Development all provide R&D promoting

incentive programs. While each department or agency has its own specific objectives, there should be a shared vision and common message communicated to companies.

- There is a perception among public sector and private sector interviewees that the State's suite of economic development incentive and credit programs (including those specifically targeted to Research & Development) should be streamlined, made more flexible, and work in conjunction with overall tax reform.

General Observations of Research and Development:

- Competition for new, innovative companies is not necessarily with another state. Instead, the challenges involve having a business case that receive financing
- With regards to specific sciences and industries, the forest industry has changed and is investing in R&D, and this has resulted in new products and technologies such as those established at Old Town Fuel and Fiber and their work on cellulosic ethanol
- Likewise, Jackson Labs and University of Maine R&D department have a history of working together on a variety of technologies, including working with smaller potential suppliers to produce these going forward

Financing

- Bank financing does not typically understand the needs of small companies or their R&D projects. By contrast, Angel networks are more effective, but are becoming less active
- Other companies suggested that Maine is good at early stage venture capital assistance but less effective at finding financing as companies grow slightly larger and are ready to commercialize their ideas
- Coaching is needed to navigate and help companies get the most out of Maine's many incentive programs. Interviewees noted that it is hard for companies to figure out what they are eligible for and hard to measure return on investment
- Several interviewees suggested that FAME could fulfill this role by more aggressively backing early-stage companies. At the moment, there is a perception that FAME its portfolio in a more conservative manner
- Additionally, it was felt that FAME loans are only available if the company could already qualify for commercial financing. As a result, there were questions about the true role of FAME

Universities and Workforce

- Maine needs more training and reeducation sources. Current perception is that Boston is the center of regional engineering and technology and that local people just do troubleshooting
- The University of Maine system has worked to facilitate students to company facilities and work on projects. The college can't commercialize directly based on laws, but perhaps should continue its work to more directly partner with early stage companies
- The University of Maine is also viewed as producing quality engineering students. Several interviewed companies were begun by University of Maine engineering program alumni and have specifically continued to hire from the program

Direct Investment

- Interviewees have different perspectives of the role of MTI. Some noted highly positive experiences and suggested that they have seen companies move across into Maine to take advantage of MTI programs
- Others had concerns – or at least questions – about how to judge MTI's success. For example for one project it was noted that if commercialization had been the measure for the grant it would have been failure. However the effort made other projects successful
- There are concerns regarding the companies selected for investment, particularly in the business acumen of the management team. There seems to be a waste of precious capital spent on paying entrepreneurs to write their own business plan. One interviewee suggested that if an inventor or innovator or entrepreneur can't write their own business plan they should be automatically ineligible

Further interview details can be found in Appendix E – Interviews.

Investment Program Overview

Direct investments in Research and Development are traditionally designed to spur the creation of new, commercially-viable ideas and products, to enhance the formation of new industry clusters, or to facilitate the growth of innovating companies. In order to understand the match between requirements and solutions, the first necessary step is to better understand how well the State of Maine fares against its competition. This will assist the Team to ascertain if the research and development tools available to the State are effective.

Maine R&D Investment Programs Review

The Team reviewed 60 incentive programs offered through various branches of the State of Maine as part of this report. Of those 60 programs, 17 are designed to support research and development. Please see Appendix D – Programs Identified for Evaluation or the chart in the Survey Findings section below for a full list of programs reviewed.

Survey Findings

The Team invited just under 1,500 companies to take the survey, fulfilling the company's reporting requirement as outlined by the legislature. The Team worked closely with MTI during the survey design process. In the end, two surveys were released. One was released to MTI companies (MTI handled distribution of this survey) and a separate survey was released to the other program recipients through DECD. The primary difference between the two surveys involved questions regarding patents, commercialization, and other R&D-specific questions that concerned MTI that was not critical for this report.

Please find the full DECD and MTI survey in Appendix G – Survey.

Table 1 below shows all incentive programs reviewed, the status of documents available by program, the response rate, and the method of program evaluation. R&D programs are highlighted yellow.

Table 1 Overview with reviewed incentive programs

Responses	Annual Reporting Text	Program	Evaluation Method
15 or more	Yes	Business Equipment Tax Reimbursement	IRR – Annual Report Review (where reports are provided) – Individual Survey Response Assessment - Additional Interviews if needed
15 or more	Yes	Pine Tree Development Zones including Employment Tax Increment Financing (ETIF) and Sales Tax Exemption	
15 or more	Yes	Commercial Loan Insurance and Economic Recovery Loan Program	
15 or more	No	Development Loans (MTI)	
5 to 14	No	Agricultural Development Grant Program	Comprehensive Annual Report Review (where reports are provided) – Individual Survey Response Assessment
5 to 14	Yes	Community Development Block Grant (CDBG)	
5 to 14	Yes	Maine Farms for the Future Grants	
5 to 14	No	Maine Procurement Technical Assistance Center (PTAC)	
5 to 14	No	Sales Tax Exemptions (Fuel and Electricity for Manufacturing)	
5 to 14	Yes	Seed Grant Program (MTI)	
1 to 4	Yes	Agricultural Marketing Loan Fund	Comprehensive Annual Report Review and Aggregated Survey Assessment
1 to 4	No	Business Ombudsman	
1 to 4	Yes	Cluster Initiative Program (MTI)	
1 to 4	No	Commercial Facilities Development Program	
1 to 4	No	Commercial Loan Insurance Program	
1 to 4	Yes	Credit for Rehabilitation of Historic Properties	
1 to 4	No	Downtown Revitalization Grant Program	
1 to 4	No	Economic Development Program	
1 to 4	No	Economic Recovery Loan Program	
1 to 4	Yes	Jobs and Investment Tax Credit	
1 to 4	Yes	Maine International Trade Center	
1 to 4	Yes	Maine Manufacturing Extension Partnership (MEP)	
1 to 4	Inactive – None	Maine Micro-Enterprise Initiative Fund	
1 to 4	Yes	Maine Quality Centers	
1 to 4	Yes	Maine Seed Capital Investment Tax Credit	
1 to 4	Yes	Maine Technology Asset Fund (MTI)	
1 to 4	No	Maine Technology Centers	
1 to 4	No	Municipal Tax Increment Financing	
1 to 4	Inactive – None	North Star Alliance Cluster Award Matching Fund (MTI)	
1 to 4	Yes	Phase 0 and Phase II SBIR Application awards plus TAP support (MTI)	
1 to 4	No	Sales Tax Exemptions (Commercial Agriculture, Commercial Fishing, and Commercial Wood Harvesting Machinery and Equipment)	

Responses	Annual Reporting Text	Program	Evaluation Method
1 to 4	Yes	Sales Tax Exemptions (Machinery and Equipment for Research)	
1 to 4	Yes	Small Business Development Centers (SBDC)	
1 to 4	No	Speculative Industrial Buildings Program	
1 to 4	No	TechStart Program (MTI)	
0	No	Brunswick Naval Air Station Job Tax Increment Financing	High level annual review for those where annual reports can be obtained. No review possible where annual reports cannot be obtained. Those will simply be listed as incentive program critical faults.
0	No	Business Equipment Tax Exemption	
0	No	Certified Media Production Tax Credit	
0	No	Communities for Maine's Future	
0	Inactive – None	Community Enterprise Grant Program	
0	No	Equity Capital Fund (MTI)	
0	Yes	High-Technology Investment Tax Credit	
0	No	Linked Investment Program for Agriculture	
0	Yes	Linked Investment Program for Commercial Enterprises	
0	Yes	Loring Development Authority	
0	Yes	Maine Biomedical Research Fund (MTI)	
0	Yes	Maine Economic Development Venture Capital Revolving Investment Program (VCRIP)	
0	No	Maine Made - Maine Products Marketing Program	
0	Yes	Maine New Markets Capital Investment Program	
0	No	Maine Patent Program	
0	No	Maine Tourism Marketing Promotion Fund	
0	Yes	Marine Research Fund (MTI)	
0	No	Midcoast Regional Development Authority	
0	Yes	Potato Marketing Improvement Fund	
0	Yes	Regional Economic Development Revolving Loan Program	
0	Yes	Research Expense Tax Credit	
0	Yes	Sales Tax Exemptions (Products Used in Agricultural and Aquaculture Production, and Bait)	
0	Yes	Shipbuilding Facility Credit	
0	Yes	Super Credit for Substantially Increased Research and Development	

Annual Report Review Findings

The team reviewed the annual report for the Target Technology Incubator program. (Additional annual report reviews can be found in the 2014 Economic Development report.) It should be noted that there are additional programs for which annual reports are or should be available and included in this analysis.

However, these reports were received late and therefore have not been effectively examined or included in this report.

Where annual reports were available, the review process looked at the following indicators:

- Trends by year if the data is available:
  - Number of jobs created
  - Number of jobs retained
  - Value and/or cost of program
  - Average benefit received by company
- Note the following data by program:
  - Is the program traceable?
    - Is there a website you can find with a Google search?
    - Does it include annual reports in a location that you can readily find?
    - Does it include application process and forms online?
  - Note if the program has any specific sector targets
  - Note eligibility requirements
  - Note if the program claims any purge activities for non-compliant companies
  - Note benefits and caps on benefits

The team reviewed the Target Technology Incubator program using this process. Please find a more detailed review of the programs in Appendix F – Annual Report Review.

Table 2 Review of the Target Technology Incubator program

Evaluation Criteria	Target Technology Incubator
Number of Jobs Created 2012	5
Number of Jobs Retained 2012	--
Value of Program 2012	$1,000,000
Value Cost of Program 2012	--
Average Benefit Received by Company 2012	--
Is the Program Traceable?	Yes
Is There a Website you Can Find With a Google Search?	Yes
Does it Include Annual Reports in a Location That You Can Readily Find?	No
Does it Include Application Process and Forms Online?	No
What are the Target Sectors of the Program?	R&D/Innovation
Are the Benefits of the Program Clearly Stated?	Yes
Are the Eligibility Requirements Posted Online and Clear?	Yes
Does the Program Claim to Purge Non-Compliant Companies?	--
Are There any Caps on Benefits?	--

Cost Benefit Analysis

Most of the US States make use of a comprehensive set of fiscal and financial incentives to attract investment. Increasingly, legislation is forcing state governments to conduct periodic cost benefit

assessments (CBAs) in order to evaluate the effectiveness of their programs and governments are including their investments in Research and Development in the process. Program effectiveness is, in essence, the outcome of a formula that incorporates the extent to which programs are being utilized, what benefits are welcomed and at what financial costs.

For smaller programs (as defined by a lower level of public funding), the most common way to evaluate costs and benefits is to assess the additional number of jobs created or retained as well as the amount of attracted capital investment. The cost of the program equals the taxes foregone or the annual amount of public aid that was awarded in the form of a grant, exemption or subsidy. This static approach is appropriate when there is little additional documentation or data availability on the specific program, except for these parameters. In addition, from a resource perspective, a straightforward and static CBA approach is justified for less imperative programs, especially when different programs must be evaluated simultaneously.

If the program is more substantial in terms of public funds or involves a larger group of certified companies, it is desirable to measure the direct and indirect costs and benefits by means of an Rate of Return (RoR) simulation technique. An RoR simulation technique measures the interrelated economic and financial impacts of the aggregated group of firms benefitting from that program.

Consider for instance MTI's Development Loan Program. This program is designed to specifically provide access to financing at favorable conditions to a group of companies that normally finds difficulties in securing loans. With these soft loans, these companies are able to pursue their R&D programs and actually realize company growth by commercializing new or modified products. This growth comes with additional employment opportunities and higher sales volumes. MTI's latest evaluation report states that 4 out of 5 MTI companies show consistent growth.

At an aggregated firm level, lower finance costs as a result of the program results in a higher aggregated profitability. Additional profits are re-invested or partly paid in the form of dividends to Maine's residing shareholders. The additional employees as well as the shareholders ultimately spend more of their net disposable income on local products and services, creating more local demand (i.e., indirect or multiplier benefit). The additional personal income taxes and additional dividends taxes as a result of more jobs or higher dividends, as well as the additional corporate income taxes and sales taxes though increased local sales are direct benefits for the State of Maine show how all these economic developments interrelate. This type of financial modeling incorporates the dynamic economic welfare effects over time (e.g., in this model a 3-year period) and uses a more holistic approach towards the economic development indicators.

Similarly, and from a cost perspective, it is necessary to assess what would have happened to Maine's economy if the specific incentive program was not provided at all. Economists refer to the term "counterfactual arguments". In other words, what would have been the direct and indirect financial consequences when, for instance, the number of retained jobs had to be deducted from the total headcount as a result of abandoning this program? How would this loss in employment impacted the total labor costs, total sales revenues, and profitability, resulting in lower personal income taxes, sales

taxes and corporate income taxes? Does this loss in tax revenues compensate for not having to spend public means to finance this incentive program?

Results of the Cost Benefit Analysis

There are different techniques to evaluate the costs and benefits of incentive programs. In this study, the IRR approach (in some cases also referred to as the Economic Rate of Return or ERR) was chosen because it allows for a straightforward and consistent comparison of the positive (or negative) multiplier effects for Maine's economy over a longer period of time. More explicit to this case, this analysis shows the financial feasibility by calculating the amount of dollars the State of Maine can expect in the form of additional tax returns for each invested dollar that was spent on the program over a period of three years. The financial amounts in previous years have been discounted at a rate of 5% to present the current values.

The financial effects of not spending public funds have also been incorporated. Negative effects incur when companies are not able to retain their jobs as a result of not providing or abandoning the program. Pro rata, the aggregated total sales output, total taxable income, and total amount of spendable income will be lower. Our analysis calculates the direct financial tax returns in the situation in which companies enjoy an incentive benefit versus a situation in which the same incentive program was not offered.

Survey and Annual Report

Various sources have been used to execute the CBA analysis. The two most important primary sources are the annual reports of the respective programs and the survey that was released to the companies receiving state aid. In the survey, specific questions were addressed to identify the direct and indirect benefits that can be attributed to the specific programs. In addition, the survey helped to identify important company specific indicators such as, amongst others, total sales revenues, cost to sales, salary costs, headcount, ownership structure. The averages per company were then multiplied with the actual number of companies certified for a specific program to get an understanding of the aggregated totals.

Secondary sources such as the Maine Revenue Services were consulted to validate important tax rates, such as the corporate income tax rates, personal income tax rates, sales and use taxes as well as payroll and dividends tax rates. At federal level, the Internal Revenue Service (IRS) provided the corporate and personal income tax rates. Labor cost statistics for different job functions in the State of Maine were sourced from the Bureau of Labor Statistics (BLS). Finally, business literature and trusted media sources from Bloomberg and others were consulted to verify commercial loan rates and other underlying financial ratios.

Presentation of results

The direct benefits and costs (in the form of reduced tax revenues) for the State of Maine are differentiated into the following direct tax revenues (Property Taxes were also included for the BETR program):

- Corporate income tax;
- Personal income tax;

- Dividends tax;
- Sales tax; and
- Payroll tax.

A positive IRR implies a viable investment recommendation, however, strictly from a financial point of view. If the IRR is negative, certain incentive programs might still be of critically important to the economy of Maine, albeit from a socio-economic or community welfare perspective. Important indirect benefits in the form of additional capital investment, increased exports, higher demand for local goods and services have been calculated in the CBA analysis and can be found in Appendix H – Cost Modeling. This appendix also provides further details with regards to the specific methodologies, sources, assumptions and cash flow calculations.

Development Loans by Maine Technology Institute (MTI)

Development Loans of up to $500,000 are offered three times a year to fund later stage R&D activities leading to commercialization of new products such as prototype development, testing and manufacturing pilot projects. Loan repayment is triggered by commercialization of the technology. All projects must fall under one of Maine's seven technology sectors and require matching investments of 1:1. Loan repayment is triggered by commercialization of the technology. MTI is administering this soft-loan program and during the period 2010 – 2012 the institute approved 32 business projects and provided close to 9.3 Million in conditional loans.

Table 3 The results of the IRR study for the Development Loan Program

Benefits for State of Maine	With Incentive	Without Incentive
Corporate income tax for the State of Maine	$3,633,222	$3,047,827
Sales Tax revenues	$3,396,252	$2,828,575
Personal income taxes for the State of Maine	$2,316,188	$1,454,919
Residents dividends tax	$556,902	$548,961
Payroll taxes employer State of Maine	$1,146,562	$720,215
Direct Tax Revenues	$11,049,126	$8,600,497
Cost of DL and grant program	$848,603	
Cost of administrating the program	$532,708	
Direct Revenues after incentive costs	$9,667,814	$8,600,497
IRR Incentive Program: Direct Benefits	12.4%	

Over a period of three years and with an IRR of 12.4%, the CBA model for the development loan program by MTI shows a solid financial outcome. Because the conditional soft loans need to be repaid within 7 years from commercialization, only the difference between the commercial interest rate (i.e. 6%) and the effective MTI interest rate (i.e. 3.1%) results in a direct loss of revenues. The cost of the associated Business Accelerated Grant, a non-repayable grant for successful MTI-funded companies to bring their new products or services to market has been added. Finally, the cost for administrating the program complements the overall costs.

The average size of MTI funded companies consists of 20 employees in 2012 and based on the MTI survey results, this number increased from 16.8 employees in 2011. Furthermore, the survey illustrates that these companies are growing relatively fast with on average an additional workforce of 5.35 employees per MTI funded company. In total, the 32 companies that successfully applied for the development loans employed 521 employees and realized a total of $13.3 million in annual sales. The average development loan per company is $281,000 in 2012, a little lower compared to 287,000 in 2011 and 296,000 in 2010. All other (indirect) financial benefits can be found in Appendix H – Cost Modeling.

State Benchmark Assessment

Goals of Maine's Research and Development Programs

The State of Maine established its current R&D program in 2007. It seeks to encourage companies to create jobs and innovation throughout the State. As part of its wider program of economic development assistance, the R&D program focuses on technical advancement within existing and operating companies. The individual programs are the following:

- The Research Expense Tax Credit;
- The Research and Development Super Credit; and

- The High-Technology Investment Tax Credit.

These are all based on the Federal Credit for Increasing Research Activities of the Internal Revenue Code Section 41; qualifying for the Federal program is a pre-requisite. All are credits against State taxes.

Sales tax exemptions and loans for R&D activity are not examined here. Neither are venture capital programs. Sale tax exemption programs and loans are similar between states and are rarely differentiating incentives. Venture capital programs tend to nurture new ideas and businesses from within a state and not an attraction mechanism since young companies are rarely mobile and often have little financial substance.

Research Expense Tax Credit

This is a tax credit for qualified research expenses, including in-house and contracts, seeking to uncover technological information that can be used in developing new businesses or improving existing ones. Key components include:

- Based on excess of three-year base period;
- Credit limited to 5% of excess of qualified research plus 7.5% of basic research payment under IRC § 41(e)(1)(A);
- Limited to 100% of the first $25,000 in tax liability, plus 75% in excess of $25,000; and
- Carry-forward period is up to 15 years.

The Research and Development Super Credit

This credit is in addition to the Research Expense Tax Credit for larger increases over the base year period. Key components include:

- Applies to qualified research that exceeds 150% of the three-year base period;
- Credit is limited to 50% of the tax otherwise due after all other credits are taken;
- The credit cannot reduce the tax liability below amount due on the previous year after credits taken; and
- No carry-back, but can be carried forward up to five years.

High-Technology Investment Tax Credit

This credit is based on the adjusted basis of eligible high-tech equipment purchased or leased by the business engaged primarily in high year activities.

- The credit cannot reduce the tax liability below amount due on the previous year after credits taken; and
- No carry-back, but can be carried forward up to five years.

The State also has full or partial sales tax exemption for machinery and equipment related to manufacturing, R&D, custom computer programming, fuel and electricity and biotechnology.

Maine Technology Institute

In 1999 the state established the Maine Technology Institute (MTI) to encourage the growth of technology companies that create high-quality jobs. Funded by the Department Economic and Community Development (DECD), MTI is a private, non-profit organization and offers assistance in the form of early-stage capital, loans and grants, as well as commercialization assistance. The center, based in Brunswick, focuses its effort on seven technology sectors leveraging off strengths in knowledge and skill sets within the State:

1. Biotechnology – genetics, genomics, diagnostic products
2. Composites and Advanced Materials –boat building, industrial and renewable energy
3. Environment Technologies – services and engineering
4. Forest Products & Agriculture – variations on tradition product lines, biofuels, bioplastics, specialty and locally-produced foods and beverages
5. Information Technology – geospatial technologies, new media, bioinformatics and application to other clusters
6. Marine Technology and Aquaculture – sustaining and preserving fisheries
7. Precision Manufacturing – metal products and electronics, network development, training and certification in aviation manufacturing, and bio manufacturing

The MTI also administers the State's bond fund, Maine Asset Technology Fund.

Though the focus of the center is on new technology and the companies that are being created to develop them, the State

Competitive State Programs

The State of Maine borders and/or is in close proximity to the States of New Hampshire and Connecticut and the Commonwealth of Massachusetts. These are considered main competitors for attracting companies and jobs, since expanding companies often take a regional approach to their location searches. To this mix, the consultant team has added the State of Iowa, which has been selected due to its leadership and success in evaluating incentive programs. Iowa also has an agricultural industry and must compete against larger, more centrally-located state neighbors. It also has been seeking to diversify its economy and attract and develop innovation.

These competitors have similar programs to those of Maine's, but with certain distinctive features.

Massachusetts

Massachusetts is well-known as a developer of innovation with the Massachusetts Institute of Technology (MIT) and its university system including Harvard, the University of Massachusetts and Boston College. It is home to 12 *Fortune 500* companies including Raytheon, Boston Scientific and Biogen.

The Commonwealth offers its Research and Development Tax Credit. A key distinction is that it offers a 10% credit for any research expense incurred and a 15% credit for any research payments related to donations to research organizations. This is a feature which Maine does not offer.

The Commonwealth also offers a tax credit for the purchase and lease of tangible property including technical equipment and personal property constructed.

Connecticut

Connecticut is a leader in development in the Northeast of the US. Home 16 *Fortune 500* corporations including General Electric and United Technologies, the State is known as a manufacturing base and for renewable energy technology that has leveraged the technologies and skill sets developed. The State also boasts a number of top universities including the Ivy League Yale and the University of Connecticut.

Connecticut has several programs that are focused on R&D. The Corporation Business Tax Credit for Research and Development Expenses offers tax credits for R&D expenses paid or incurred and is ratably increased from one percent ($50 million or less) to six percent (exceeding $200 million). The limit is 20% of R&D expenditures exceeding R&D expenditures over the prior taxable year and no more than one-third of the credit amount can be taken in that income year. A key difference is that credits can be sold back to the State of 65% of its value allowing a cash option for companies with revenues of $70million or less.

The State also has its Credit for Increasing Research and Experimental Expenditures, whereby grants to institutions of higher learning for R&D research and advancement, can be credited again state taxes. It is based on overage from preceding three years.

New Hampshire

The State of New Hampshire is one of the smallest states and least populous in the union. It is home to Dartmouth College and the University of New Hampshire. No *Fortune 500* companies are headquartered in the State.

Its program, Research and Development Credit, focuses on qualified manufacturing activity for wages paid in the state. The credit is 10% of qualified R&D expenditure or $50,000. The state has recently doubled its allocation for the program to $2 million.

Iowa

The State of Iowa is a Midwestern State with a larger geographic size to Maine, with nearly three times the population. It too must compete against larger states surrounding it. Known as an agricultural state, it has diversified its economy significantly into advanced manufacturing, financial services, information technology, biotechnology, and green energy production. The University of Iowa and Iowa State University are its major educational institutions. Iowa has two *Fortune 500* companies headquartered in the State.

Iowa has a single program, Research Activities Credit (RAC). It is for research activities within the State and includes wages paid, tangible property, manufacturing process improvement, as well as designing and testing manufacturing processes. The program allows 6.5% of qualified annual research expenses, with a fixed base average of five years. The program is also refundable once tax liabilities are met.

Supplemental RACs are available through Iowa's Enterprise Zone and High Quality Jobs programs. The amount of the credit's increase is dependent upon the gross revenue of the company.

Recommendations and Implementation

Maine's economic development investment tools – including those specific to Research & Development - were developed over time, and were responses to a variety of business and public sector needs. The present analysis has begun the process of evaluating current effectiveness and a providing a path forward to more efficient and impactful programs.

While the reader should also examine the recommendations put forth in the 2014 Economic Development report, the State should also consider the following specifically as regards Research & Development.

Sustainable productivity growth in countries and states is closely linked to increases in public and private R&D spending and R&D is seen as a crucial investment for the long-run growth of companies. Governing bodies must organize monthly business meetings to continue the dialogue with R&D intensive companies and to monitor their needs and requirements.

Maine's departments and agencies offering R&D incentive programs should work together to share their evaluation methods and work together to consistently improve and harmonize their evaluation techniques.

One specific item that must be harmonized across all departments relates to the definition of R&D and qualified R&D expenditures. It creates confusion among investors if certain business activities are qualifies as R&D under Program A but refused under Program B.

Differentiate R&D programs for companies in different stages of development. In particular, it is important that the State continue to seek ways to fill the funding gap between early stage research and full commercialization for small companies. This may take the form of adjustments to the FAME program, for example. Additionally, early start-ups have a more urgent need for access to finance and practical support in the form of lab-space, while maturing companies might seek for support in IP protection, patent programs and R&D tax credits.

R&D investment is risky and only a few R&D projects are likely to end-up as marketable new products or processes. Risks must be balanced in terms of rewards, and when evaluating and re-designing R&D programs, governing bodies might want to include key performance indicators to determine the magnitude of the incentive amount. For example, while coaching should be provided to companies in developing their business and financing plans, care should be taken to also evaluate the business viability of both the product/service/technology and of the prospective entrepreneur and business team. Also, if a company exceeds their initial targets (No. of new products, patents, headcount, or other indicator) than this company might get awarded with an additional bonus on top of their base incentive. This bonus (i.e. additional cost) must be equal or less than the anticipated additional tax revenues.

The above recommendations provide a number of action items that can be implemented over time and provide a better incentive screening, data collection process as well as institutional collaboration between various government departments of the State of Maine.

Appendix A – Advisory and Stakeholder Member List

Table 4 Advisory Committee and associates affiliation

Advisory Committee	Affiliation
George Gervais	Maine Department of Economic & Community Development
Brian Whitney	Maine Department of Economic & Community Development
Peter DelGreco	Maine and Company
Bob Martin	MTI
Senator Emily Cain	Maine Legislature
Senator Andre Cushing	Maine Legislature
Jake Ward	University of Maine
LuAnn Ballesteros	Jackson Labs
Steve Levesque	Midcoast Regional Redevelopment Authority

Table 5 Stakeholder Representatives and associates affiliation

Stakeholder Representative	Affiliation
Cynthia Izon	Business Answers Programs
Miriam White	Center for Law and innovation, UMaine Law School
Darryl Sterling	Central Maine Growth Council
Jason Brown	Maine Department of Economic & Community Development
Deborah Johnson	Maine Department of Economic & Community Development
Ronald McKinnon	Maine Department of Economic & Community Development
Carolann Ouellette	Maine Department of Economic & Community Development
Laura Santini-Smith	Maine Department of Economic & Community Development
Karen Warhola	Maine Department of Economic & Community Development
Brian Whitney	Maine Department of Economic & Community Development
Janine Bisaillon-Cary	Maine Department of Economic & Community Development/MITC
Jackson Caldwell	Department of Agriculture
Beth Bordowitz	FAME
Jim McGowan	Maine Community College System
Michael Allen	Maine Revenue Service
Bob Corey	Maine Rural Development Program
Muriel Mosier	MEP
Bob Martin	MTI
Melody Weeks	PTAC
Mark Delisle	SBDC
Patricia Ballesteros	
Mike Aube	Eastern Maine Development Corporation

Stakeholder Representative	Affiliation
Jake Ward	University of Maine

Appendix B – Definitions

Table 6 List with expressions and definitions

Item	Definition
Angel Investors	Individuals who back emerging entrepreneurial ventures, sometimes as a bridge to venture capital. Funding levels typically range from $50,000 to $2 million. Usually successful, sophisticated business people but the term can apply to all individual investors in a company regardless of business experience.
Applied research	Original investigations undertaken in order to acquire new knowledge but are directed primarily towards a specific, practical aim or commercial objective.
Basic Research	Experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying phenomena and observable facts, without any particular application or use in view.
Commercialization	Sequence of actions necessary to achieve market entry and general market competitiveness of new innovative technologies, processes, and products.
Entrepreneurship	The art or science of innovation and risk-taking for profit in business; the quality of being an entrepreneur
EPSCoR	Experimental Program to Stimulate Competitive Research is a federal program to assist those states that have historically received lesser amounts of federal R&D spending and have demonstrated a commitment to develop their research bases and to improve the quality of science and engineering research conducted at their universities and colleges. Maine has been a member of EPSCoR since 1980
Industry Cluster	Groups of competing, collaborating and interdependent businesses working in a common industry and concentrated in a geographic region. Clusters draw on shared infrastructure and a pool of skilled workers and represent the specialization and comparative advantage of the region.
Innovation	A new way of doing something. It may refer to incremental and emergent or radical and revolutionary changes in thinking, products, processes, or organizations. A distinction is typically made between invention, an idea made manifest, and innovation, ideas applied successfully.
Invention	The creation of a new technology, item, or process, as opposed to its application in widespread use.
License	A legal agreement where an owner of a technology allows another organization to use or develop that technology in return for consideration.
NAICS	North American Industry Classification System
Open Innovation	A paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology.
Targeted Technologies	Established in statute - 5 MRSA Chapter 407 - biotechnology, aquaculture and marine technology, composite materials technology, environmental technology, advanced technologies for forestry and agriculture, information technology and precision manufacturing technology.
Technology Transfer	The transfer of the commercialization rights for a technology from the originator to another organization, typically private. Also involves the legal protection of intellectual property.

Appendix C – List of Abbreviations

Table 7 List with abbreviations

Acronym	Definition
ADM	Aerospace, Defense and Marine
CBA	Cost-Benefit Analysis
CEO	Chief Executive Officer
DC	District of Columbia
EDO	Economic Development Organization
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HQ	Headquarters
ICA	Investment Consulting Associates
ICT	Information and Communication Technology
IPA	Investment Promotion Agency
IT	Information Technology
IRR	Internal Rate of Return
ITT	Information Technology and Telecom
MNE	Multinational Enterprise
NAFTA	North American Free Trade Association
NPV	Net Present Value
R&D	Research and Development
RDD	Research, Design and Development
US	United States
RoR	Rate of Return
USD	United States Dollar
VAT	Value Added Tax

Table 8 List with acronyms of lead agencies and departments

Lead Agency Acronym	Full Program Name
DECD	Maine Department of Economic and Community Development
MTI	Maine Technology Institute
DOL	Department of Labor
FAME	Finance Authority of Maine
MRDA or RDA	Maine Rural Development Authority
MITC	Maine International Trade Center
MCED	Maine Center for Entrepreneurial Development
REDC	Regional Economic Development Corp
MPP	Maine Patent Program
MRS	Maine Revenue Services

Table 9 List with program acronyms

Program Acronym	Full Program Name
CDBG	Community Development Block Grant program
LDA	Loring Development Authority program
MTC	Maine Technology Centers
SBIR	Small Business Innovation Research
STTR	Small Business Technology Transfer
SBA	Small Business Administration loan program
ETIF	Employment Tax Increment Financing
PTDZ	Pine Tree Development Zone
BETR	Business Equipment Tax Reimbursement
JITC	Jobs and Investment Tax Credit
VCRIP	Maine Economic Development Venture Capital Revolving Investment Program
MEP	Maine Manufacturing Extension Program
SBDC	Small Business Development Centers
MPTAC or PTAC	Maine Procurement Technical Assistance Center
AMLF	Agricultural Marketing Loan Fund
PMIF	Potato Marketing Improvement Fund

Appendix D – Programs Identified for Evaluation

Please see CD on back cover of this report for file "Maine Economic Development Programs for Evaluation.xls" for details by program. The following is a list of R&D programs covered in our evaluation efforts.

- Department of Economic and Community Development
  - Cluster Initiative Program (MTI)
  - Development Loans (MTI)
  - Seed Grant Program (MTI)
  - Equity Capital Fund (MTI)
  - TechStart Program (MTI)
  - Phase 0 and Phase II SBIR Application awards plus TAP support (MTI)
  - North Star Alliance Cluster Award Matching Fund (MTI) - INACTIVE
  - Maine Technology Asset Fund (MTI)
  - Marine Research Fund (MTI)
  - Maine Biomedical Research Fund (MTI)
- Maine Revenue Service (MRS)
  - High-Technology Investment Tax Credit
  - Sales Tax Exemptions (Machinery and Equipment for Research)
  - Super Credit for Substantially Increased Research and Development
  - Research Expense Tax Credit
- Finance Authority of Maine (FAME)
  - Maine Economic Development Venture Capital Revolving Investment Program (VCRIP)
- Center for Law and Innovation - University of Maine Law School
  - Maine Patent Program

Table 10 Detailed R&D Program Descriptions

PROGRAM	Type of Program	Description	Purpose	Funding Source	Type of Assistance	TOTAL FUNDING 2012	TOTAL FUNDING 2013	Target Recipients
Cluster Initiative Program (MTI)	Research and Development	MTI's Cluster Initiative Program makes competitive awards up to $50,000 for feasibility and planning on a rolling basis and up to $500,000 semi-annually for collaborative initiatives that boost the strength and scale of Maine's high-potential technology intensive clusters.	Stimulate the growth of technology businesses and infrastructure in Maine	Appropriation from State General Fund	Grants	$2,171,706	$118,000 (estimated)	Collaborative projects led by non- or for-profit groups
Development Loans (MTI)	Research and Development	Up to $500,000 per project to support research and development of new products and services that lead to market, including prototype development and testing, patent applications, small scale manufacturing and scale up for manufacturing with limited production. Awarded three times per year. Match required. All projects must fall under one of Maine's seven technology clusters.	Support development of new technology products and services for commercialization in seven targeted technology sectors	State General Fund	Awards that require payback to MTI when technology is commercially successful.	$1,521,036	$2,902,968 (estimated)	Maine Businesses
Seed Grant Program (MTI)	Research and Development	MTI Seed Grants of up to $25,000 are offered three times a year to support early-stage research and development activities for new products and services that lead to the market. Funded activities may include activities such as proof of concept work, prototype development, field trials, prototype testing, pilot studies, or technology transfer activities.	Support early product development, commercialization, and business planning	State General Fund	Grants	$938,953	$631,196	Maine Businesses
Equity Capital Fund (MTI)	Research and Development	Investments in MTI-funded companies. Available with companies who have successfully commercialized their venture and who were previous recipients of MTI Development Loans or SBIR/STTR funding.	Help bridge the gap for companies seeking to raise equity capital needed to bring new products and services to market - intended to help ventures secure additional private equity capital	State General Fund	Co-investments with individual and/or institutional investors.	$264,973	$125,000 (estimated)	Maine businesses
Maine Technology Centers	Research and Development	Each of Maine's seven targeted technology sectors has its own incubation center. The incubation centers provide critical early-stage technical, business, administrative and financial resources and training for participating firms.	Permit early-stage development of technology-based businesses while minimizing or eliminating debilitating overhead expense	State General Fund	Technical Assistance	$178,838	$178,838	Businesses in one of Maine's seven targeted industries
TechStart Program (MTI)	Research and Development	This is offered to individuals and companies across Maine looking to develop their new ideas and products. Grants are awarded up to twelve times each year, for up to $5,000 per project. Funds must not be readily available from another service provider. Grants may support specific activities such as business plan development, intellectual	Support early product development, commercialization, and business planning	Appropriation from State General Fund	Grants	$107,714	$171,000 (estimated)	Maine Businesses

PROGRAM	Type of Program	Description	Purpose	Funding Source	Type of Assistance	TOTAL FUNDING 2012	TOTAL FUNDING 2013	Target Recipients
		property filings, market analysis, or planning and preparation activities related to Federal SBIR/STTR Phase I grants or Federal Broad Agency Announcement for technology development. Projects must have defined outcomes and endpoints for the specifically funded scope of work not to exceed six months. Requires a 1:1 cash or approved in-kind match.						
Phase 0 and Phase II SBIR Application awards plus TAP support (MTI)	Research and Development	Up to $5,000 to support competitive federal Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) proposal submissions from Maine applicants. Match required. Proposals accepted and reviewed on a rolling basis.	Help prepare proposals for SBIR/STTR awards	State General Fund	Grants	$97,593	$127,500 (estimated)	Maine businesses
North Star Alliance Cluster Award Matching Fund (MTI) - INACTIVE	Research and Development	This Fund is available to eligible companies and non-profit organizations in Maine's boatbuilding, composite materials and related marine trade industries that win MTI seed grants, development awards and cluster enhancement awards. Resources can be used for a co-investment of up to 75% of an eligible MTI awardees' seed grant, development award, or cluster enhancement award. Program is closed.	Further the development and commercialization of new technologies in these industries (boatbuilding, composite materials, marine trade industries), thus boosting the competitiveness and growth of Maine companies in these sectors and creating quality jobs for Maine people	Federal WIRED Grant	Grants	$0	$0	Businesses in select industries on coastal Maine
Maine Technology Asset Fund (MTI)	Research and Development	The Maine Technology Asset Fund was a competitive award program funded by Maine State bond proceeds. The awards must be used to fund capital and related expenditures supporting research, development and commercialization projects that will lead to significant economic benefits for Maine. The program is no longer accepting applications.	Fund capital and related expenditures to support research, development and commercialization projects that will lead to significant economic benefits to Maine	State Bond Funds	Awards. Some may require repayment.	N/A	N/A	Maine private and public universities, non-profit organizations and private organizations and in seven targeted state technology sectors
Marine Research Fund (MTI)	Research and Development	Awards from $25,000 up to $500,000 to conduct high-quality, scientifically rigorous marine research programs that will have positive economic impact on the state of Maine. Private Maine companies may collaborate with these institutions as partners in proposed projects. Fund is now closed as all funds have been awarded. MTI awarded approximately $6 million of state bond funds since 2002.	Support research and development in Maine	State Bond Funds	Grants	$0	$0	Non-profits, laboratories, and academic organizations conducting marine research; private businesses in partnership

PROGRAM	Type of Program	Description	Purpose	Funding Source	Type of Assistance	TOTAL FUNDING 2012	TOTAL FUNDING 2013	Target Recipients
Maine Biomedical Research Fund (MTI)	Research and Development	Grants available to eligible Maine institutions that conduct competitive, scientific biomedical research related to the biology, causes, diagnosis, treatment, control and prevention of physical and mental diseases or impairments afflicting humans. Program is closed.	Promote economic development and job growth and support non-profit laboratories in Maine that perform peer reviewed biomedical research	State General and Bond Funds	Grants	$0	$0	Non-profits, laboratories, and academic organizations conducting marine research; private businesses in partnership
Sales Tax Exemptions (Machinery and Equipment for Research)	Research and Design	Sales of machinery and equipment used by the purchaser directly and exclusively in research and development are eligible for a sales tax exemption including the application of technologies such as recombinant DNA techniques, biochemistry, molecular and cellular biology, immunology, genetics and genetic engineering, biological cell fusion techniques and new bioprocesses using living organisms or parts of organisms to produce or modify products, improve plants or animals, develop microorganisms for specific uses, identify targets for small-molecule pharmaceutical development, transform biological systems and useful processes and products or to develop microorganisms for specific uses.	Support research and development in biotechnology applications	State General Fund	Sales Tax Exemption	$250,000 - $999,999	$250,000 - $999,999	R&D and Biotechnology Companies
Super Credit for Substantially Increased Research and Development	Research and Development	The credit is available for taxpayers who qualify for the research expense tax credit and is based on qualified research payments exceeding 150% of the average for the three taxable years immediately preceding June 12, 1987. The credit is limited to 50% of the tax otherwise due after all other credits. Further, the credit cannot reduce tax liability below the amount due the previous year after credits. The credit cannot be carried back, but can be carried forward for up to five years.	Provide incentive for businesses to substantially increase investment in research and development in Maine	State General Fund	Income Tax Credit	Not Available	Not Available	Qualified Maine businesses making research investments in Maine
High-Technology Investment Tax Credit	Research and Development	The credit is based on the adjusted basis of eligible equipment. Limitations: the credit is limited to high-tech equipment purchased (or leased) by businesses engaged primarily in high-tech activities. The credit cannot reduce tax to an amount below the previous year's tax after credits. The credit cannot be carried back, but can be carried forward for up to five years.	Provide an incentive for businesses to invest in equipment that is used in high-technology business activity	State General Fund	Income Tax Credit	Not Available	Not Available	Manufacturers of computer equipment, accessories, and components and providers of internet service and advanced telecommunications

PROGRAM	Type of Program	Description	Purpose	Funding Source	Type of Assistance	TOTAL FUNDING 2012	TOTAL FUNDING 2013	Target Recipients
Research Expense Tax Credit	Research and Development	The credit is based on a percentage of the federal credit for increasing research activities. The credit is equal to 5% of the excess qualified research expenses over the previous three-year average plus 7.5% of the basic research payments under IRC § 41(e)(1)(A). For corporate taxpayers, the credit is further limited to 100% of the first $25,000 in tax liability plus 75% of the tax liability in excess of $25,000. For taxpayers other than corporations, the credit is limited to the taxpayer's liability. The credit cannot be carried back, but can be carried forward for up to 15 years.	Encourage Maine businesses to invest in research and development in Maine	State General Fund	Income Tax Credit	Not Available	Not Available	Qualified Maine businesses making research investments in Maine
Maine Economic Development Venture Capital Revolving Investment Program (VCRIP)	Research and Development	Designed to allow the State to invest as an equal partner with others in eligible private venture capital funds to support emerging and early-growth businesses in Maine. It is intended to utilize professional fund managers to increase the probability of successful investments in recipient companies. It is available only to established venture capital funds with a strategy for the creation and retention of jobs in Maine through: investments in Maine high-growth businesses; a marketing and technical assistance plan; appropriate monitoring of its investment; a technical assistance program to assist the businesses in which it invests; a process for complying with proposed measurement and goals.	Provide venture capital to businesses needing assistance to create or retain jobs	FAME Economic Revolving Loan	Venture Capital	$500,000 (Disbursed)	Not available	Established venture capital funds with a strategy for the creation and retention of jobs in Maine
Maine Patent Program	Research and Design	Helping Maine inventors and small businesses understand how to identify and protect their intellectual property. A resource for information and education on the patent process and other means of intellectual property protection. Inform what needs to be done to obtain and maintain legal rights in ideas, if possible, and to provide assistance with the patent process to those who qualify. Maine Patent Fund is established as a revolving, non-lapsing fund.	Support the commercialization and manufacturing of innovations in the State by providing education and assistance with the patent process of the United States Patent and Trademark Office to companies, inventors and entrepreneurs in the State	State Funds	Technical Assistance	$0	$0	Maine inventors and small businesses

Appendix E – Interviews

Public Sector Interviewees

The Team interviewed 22 individuals from 13 organizations to compile the interview notes from the public sector. These individuals and organizations will likely be revisited during future years of analysis as well as new individuals.

Table 11 List with Public Sector Interviewees

Individual	Organization
Cynthia Izon	Business Answers Programs
Darryl Sterling	Central Maine Growth Council
Jason Brown	Maine Department of Economic & Community Development
Deborah Johnson	Maine Department of Economic & Community Development
Ronald McKinnon	Maine Department of Economic & Community Development
Carolann Ouellette	Maine Department of Economic & Community Development
Laura Santini-Smith	Maine Department of Economic & Community Development
Karen Warhola	Maine Department of Economic & Community Development
Brian Whitney	Maine Department of Economic & Community Development
George Gervais	Maine Department of Economic & Community Development
Janine Bisaillon-Cary	Maine International Trade Center
Beth Bordowitz	Finance Authority of Maine (FAME)
Jim McGowan	Maine Community College System
Michael Allen	Maine Revenue Service
Bob Corey	Maine Rural Development Program
Muriel Mosher	MEP
Larry Robinson	MEP
Bob Martin	Maine Technology Institute (MTI)
Scott Burnett	Maine Technology Institute (MTI)
Melody Weeks	Maine Procurement Technical Assistance Center (PTAC)
Mark Delisle	Small Business Development Centers (SBDC)
Mike Aube	Eastern Maine Development Corporation

Private Sector Interviewees

The Team interviewed 31 individuals from 22 companies to compile the interview notes from the private sector. These individuals and companies will likely be revisited during future years of analysis as well as additional individuals. Companies or organizations involved in R&D efforts are highlighted below in yellow. TexTech is the only company the Team interviewed that is involved with R&D activities but does not work with R&D institutions or incentives. He felt there were too many strings attached and that the company could be successful without the assistance from the government.

Table 12 List with Private Sector Interviewees

Individual	Company
Jon McDevitt	Athenahealth
David Tassoni	Athenahealth
Mark McAuliffe	Apothecary by Design
Peter Moore	Corporate Finance Associates
Don Cynewski	Ducktrap River of Maine
Bryan Kirkey	Ecoshel, Inc.
Carl Spang	Falcon Performance Footwear
Charles Morrison	Androscoggin County Chamber of Commerce
Christopher Hall	Greater Portland Regional Chamber
Peter Thompson	Kennebec Valley Chamber
Steven Wallace	Southern Midcoast Maine Chamber
Kimberly Lindlof	MidMaine Chamber of Commerce
LuAnn Ballesteros	The Jackson Laboratory
Jean Maginnis	Maine Center for Creativity
Michael Bourque	Maine Employers' Mutual Insurance Company (MEMIC)
Dick Arnold	Old Town Fuel & Fiber
Billee Morrison	Old Town Fuel & Fiber
Ben Ward	Old Town Fuel & Fiber
Cheryle Levesque	Old Town Fuel & Fiber
Steve Schley	Pingree Associates Inc
Jim Therriault	Sprague Energy
James Nelligan	Sprague Energy
Ciaran Lynch	TexTech
Dean Smith	Orono Spectral Solutions
Luke Doucette	Orono Spectral Solutions
Mike Aube	Eastern Main e Development Corporation
Ian Kopp	Kenway Corporation
Kenneth Priest	Kenway Corporation
Jake Ward	University of Maine
Hemant Pendse	University of Maine
Mark McAuliffe	

Interview Findings

The Consultant Team learned a great deal of institutional knowledge about the organizations who administer the incentive programs as well as companies that operate in the State of Maine. This information has been very helpful and provides a firm base as we progress through this project. The

comments below include only those that do not view the program as useful from their or company-specific perspective.

The Team conducted 53 interviews across 35 different companies and organizations representing various stakeholders, policy makers, research institutions, and companies within the State of Maine. Interviews were conducted to record first-hand experience with Maine's research and development programs as well as to gain insight into what appears to work, and to collect perceptions on areas for improvement. The lists of interviewees separated into two categories: those in the public realm who administered the programs, and those in the private realm representing companies in the market. Many of the companies on the interview list were also recipients of aid of some kind from the State.

General Observations on Programs:

- While identified in earlier reports, the need remains across all Maine incentive programs for:
  - Better outreach;
  - Centralized and coordinated information on incentive programs;
  - Centralized and coordinated reporting requirements and forms;
- The University of Maine Law School, Maine Revenue Services, Maine Technology Institute, and Maine's Department of Economic and Community Development all provide R&D promoting incentive programs. While each department or agency has its own specific objectives, there should be a shared vision and common message communicated to companies.
- There is a perception among public sector and private sector interviewees that the State's suite of economic development incentive and credit programs (including those specifically targeted to Research & Development) should be streamlined, made more flexible, and work in conjunction with overall tax reform.

General Observations of Research and Development:

- Competition for new, innovative companies is not necessarily with another state. Instead, the challenges involve having a business case that receive financing
- With regards to specific sciences and industries, the forest industry has changed and is investing in R&D, and this has resulted in new products and technologies such as those established at Old Town Fuel and Fiber and their work on cellulosic ethanol
- Likewise, Jackson Labs and University of Maine R&D department have a history of working together on a variety of technologies, including working with smaller potential suppliers to produce these going forward

Financing

- Bank financing does not typically understand the needs of small companies or their R&D projects. By contrast, Angel networks are more effective, but are becoming less active
- Other companies suggested that Maine is good at early stage venture capital assistance but less effective at finding financing as companies grow slightly larger and are ready to commercialize their ideas

- Coaching is needed to navigate and help companies get the most out of Maine's many incentive programs. Interviewees noted that it is hard for companies to figure out what they are eligible for and hard to measure return on investment
- Several interviewees suggested that FAME could fulfill this role by more aggressively backing early-stage companies. At the moment, there is a perception that FAME its portfolio in a more conservative manner
- Additionally, it was felt that FAME loans are only available if the company could already qualify for commercial financing. As a result, there were questions about the true role of FAME

Universities and Workforce

- Maine needs more training and reeducation sources. Current perception is that Boston is the center of regional engineering and technology and that local people just do troubleshooting
- The University of Maine system has worked to facilitate students to company facilities and work on projects. The college can't commercialize directly based on laws, but perhaps should continue its work to more directly partner with early stage companies
- The University of Maine is also viewed as producing quality engineering students. Several interviewed companies were begun by University of Maine engineering program alumni and have specifically continued to hire from the program

Direct Investment

- Interviewees have different perspectives of the role of MTI. Some noted highly positive experiences and suggested that they have seen companies move across into Maine to take advantage of MTI programs
- Others had concerns – or at least questions – about how to judge MTI's success. For example for one project it was noted that if commercialization had been the measure for the grant it would have been failure. However the effort made other projects successful
- There are concerns regarding the companies selected for investment, particularly in the business acumen of the management team. There seems to be a waste of precious capital spent on paying entrepreneurs to write their own business plan. One interviewee suggested that if an inventor or innovator or entrepreneur can't write their own business plan they should be automatically ineligible

Appendix F – Annual Report Review

The team reviewed the annual reports for four Maine incentive programs. Some annual reports were provided in a timely manner at the first request while others have remained more elusive. In some cases, the reports were never provided even after multiple requests or provided within two weeks of the due date of this report. The team only reviewed one R&D annual report and that was for the Target Technology Incubator. Please see the Economic Development 2014 report for the reviews of the Loring Development Fund, Maine Tourism Marketing Promotion Fund, and Maine Manufacturing Extension Program.

Target Technology Incubator

The University of Maine at Orono (UMaine) was awarded a contract to manage a Maine Technology Center for the period of July 1, 2011, through June 30, 2012. This Center, the Target Technology Incubator (Target Incubator) has been a long-term collaborative effort between the Bangor Target Area Development Corporation (Target Development) and the University. The Target Technology Incubator provides scalable, innovation based companies with access to the resources they need to grow and attain long-term success within an environment that fosters businesses development, commercialization and successful management practices. The Target Technology Incubator is located in a building owned by Target Development in the Target Technology Center in Orono, Maine. The facility provides a superior environment for business development and commercialization activities.

Target clients have performed reasonably well during this period. The companies in the incubator employ twenty-seven people including one UMaine student employee. In aggregate, Target Incubator Companies attained in the current year:

- 5 new jobs
- $1.0M new capital

On the website, annual reports, performance metrics are available nor any as well as eligibility criteria. Although, a section highlights the focus of the program and at which type of companies it is aimed. A general performance statement is provided on the website: “87% of all firms that have graduated from their incubators are still in business”. There is no online application process but a clear “contact us” section. Most of the existing tenants at the Incubator Center are listed on the website. There is no online application form. The benefits and cost to incubators are clearly registered online.

Appendix G - Survey

Provided below are the preliminary results included in the interim report provided to the Steering Committee on December 23, 2013. The survey results for the summary tables below were collected on December 18, 2013, for inclusion in the interim report.

The tables below include data from the DECD survey tool, MTI survey tool, and results submitted outside the survey up through December 18, 2013. In discussions with MTI and the DECD offices, the Team decided to officially close the survey on December 18th to begin analysis for the final report. The DECD survey was open for XX weeks and companies who did not complete the survey received at least three separate contact requests urging them to complete the survey within that time frame. However, the analyst team made the decision to leave the survey open past December 18th to allow as many responses as possible. While these responses are not included in the tables below or the Cost Benefit Model, they will allow for more data to be trended over time and included in the next set of biennial reports due in 2016.

Table 13 Survey responsiveness results

Survey version	Total sample size	Complete Reponses	Partial Responses	Total Responses	Response Rate
DECD Survey	935 Email[1] 320 Mail[2]	311	72	383	31% Overall[4] 35% Email 25% Mail
MTI Survey	99 Email[3]	31	19	50	51%%

[1] Note the emailed data above in some cases may represent multiple contact requests to more than one individual in the same company. The estimated number of companies contacted without the repeat contact attempts is 900.

[2] These direct mail requests represent companies that participate in the BETR program, receive more than $10,000 in benefits, and had not otherwise been included in the email invitations through the DECD or MTI recipient lists

[3] The MTI invitation list included 29 companies that were also included on DECD invitation lists. These individuals were NOT sent a duplicate invitation to the DECD survey, as the surveys are similar in nature (with the MTI survey including a few additional MTI specific questions). We estimate that the overall DECD response rate is 32% and the email response rate is 37%, assuming half the shared companies responded.

[4] Approximate percent return via email and mail estimated based on current answers through email invitations as contrasted to those through weblink.

Table 14 shows distribution of program usage according to the survey results on December 18, 2013. Programs with no responses are not included in the chart below.

Table 14 Survey results by program

Program Name	Type of Program	Count	Total Average $ Amount
Agricultural Development Grant Program	EcDev	8	85,000
Agricultural Marketing Loan Fund	EcDev	4	272,500
Business Equipment Tax Reimbursement	EcDev	70	14,742,500
Business Ombudsman	EcDev	1	375,000
Cluster Initiative Program	R&D	1	35,000
Commercial Facilities Development Program	EcDev	1	5,000
Commercial Loan Insurance Program	EcDev	2	1,787,500
Community Development Block Grant (CDBG)	EcDev	8	3,750,000
Credit for Rehabilitation of Historic Properties	EcDev	2	392,500
Development Loans	R&D	5	1,850,000
Downtown Revitalization Grant Program	EcDev	2	80,000
Economic Development Program	EcDev	2	750,000
Economic Recovery Loan Program	EcDev	1	
Employment Tax Increment Financing (ETIF)	EcDev	18	2,885,000
Jobs and Investment Tax Credit	EcDev	1	
Maine Farms for the Future Grants	EcDev	5	70,000
Maine International Trade Center	EcDev	1	
Maine Manufacturing Extension Partnership	EcDev	4	20,000
Maine Micro-Enterprise Initiative Fund	EcDev	1	
Maine Procurement Technical Assistance Center	EcDev	6	100,000
Maine New Markets Capital Investment Program	EcDev	1	
Maine Quality Centers	EcDev	1	
Maine Seed Capital Investment Tax Credit	EcDev	3	942,500
Maine Technology Asset Fund	R&D	1	1,750,000
Maine Technology Centers	R&D	3	387,500
Municipal Tax Increment Financing	EcDev	5	3,675,000
North Star Alliance Cluster Award Matching Fund	R&D	1	Inactive
Phase 0 and Phase II SBIR Application awards plus TAP support	R&D	2	380,000
Pine Tree Development Zones	EcDev	46	8,852,000
Sales Tax Exemptions (Commercial Agriculture, Commercial Fishing, and Commercial Wood Harvesting Machinery and Equipment)	EcDev	3	15,000
Sales Tax Exemptions (Fuel and Electricity for Manufacturing)	EcDev	5	940,000
Sales Tax Exemptions (Machinery and Equipment for Research)	R&D	2	180,000
Sales Tax Exemptions (Manufacturing Machinery, Equipment and Tangible Personal Property)	EcDev	15	1,417,500
Seed Grant Program	R&D	10	560,000
Small Business Development Centers	EcDev	4	190,000

Program Name	Type of Program	Count	Total Average $ Amount
Speculative Industrial Buildings Program	EcDev	1	375,000
TechStart Program	R&D	3	27,500

While still providing usable data, the rate of response to the survey request was lower than expected. Efforts from the Analyst Team, DECD offices, and MTI to encourage companies to respond to the survey raised the response level somewhat, but reporting was still much less than universal.

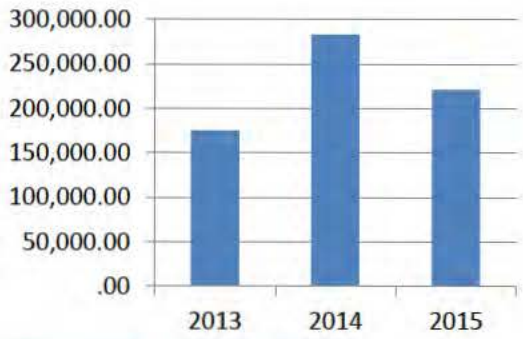
In future, the low response rate could be addressed through changes to the legislative law requiring companies to report annually through the DECD reporting tool or face some form of penalty or sanction. Currently the legislative description of requirements for incentive programs does not directly outline negative consequences for failure to report. This suggested change would provide DECD and the Team the data needed to conduct further analysis with greater accuracy. Such legislative changes will also provide a means to address confidentiality issues currently encountered in reviewing the incentive and investment programs with program administrators and the Maine Revenue Service. Please see section XX for a full discussion on suggested changes to investment and incentive program requirements to address these concerns.

Survey Data

What is Your Forecasted Revenue Growth as a Percentage for the Next Three (3) Years? (For Example, "10%" is Entered as "10".)

Table 15 Forecasted Revenue Growth

Answer Options	Response Average	Response Total	Response Count
2013	174,713.84	32,694,590	213
2014	282,956.86	47,054,478	213
2015	220,987.46	44,388,711	213
		Answered Question	**213**
		Skipped Question	**263**



Please Identify the Total Number of Products Your Company has Developed, has Commercialized, or Currently Has in Development Based on Funding From MTI? (Enter "0" in the Response Field if no Products Were Developed or Commercialized Based on MTI Funding, and if You Have no Products in Development at This Time Supported by MTI Funding.)[2]

Table 16 Overview of the total number of products developed, commercialized or in development

Answer Options	0	1	2	3	4	5	6	7	8	9	10	>10	Response Count
Total number of products developed	7	10	7	3	2	0	1	0	0	0	0	0	30
Total number of products commercialized	15	9	3	2	1	0	0	0	0	0	0	0	30
Total number of products in development	11	13	5	0	0	0	0	0	0	1	0	0	30
												Answered Question	**30**
												Skipped Question	**36**

Table 17 Overview of the additional jobs

Answer Options	0	1 - 10	11 - 25	26 - 50	51 - 100	101 - 250	251 - 500	Response Count
2010	93	39	7	1	0	1	0	141
2011	85	42	5	2	0	1	0	135
2012	74	53	6	3	0	1	0	137

Table 18 Overview of the additional Total Number of Retained Jobs

Answer Options	0	1 - 10	11 – 25	26 - 50	51 – 100	101 - 250	251 – 500	Response Count
2010	73	42	10	5	2	4	3	139
2011	66	45	10	5	1	4	3	134
2012	69	46	9	5	2	5	3	139

[2] This question was ONLY included in the MTI survey

Table 19 Overview of the additional Payroll Taxes

Answer Options	< 50.000	50.000 – 100.000	100.000 – 250.000	250.000 - 500.000	0.5 - 1 million	1 - 2 million	2 - 5 million	5 - 10 million	10 - 25 million	25 - 50 million	Response Count
2010	123	8	2	2	0	1	0	0	0	0	136
2011	109	11	6	2	0	0	0	0	0	0	128
2012	111	13	6	3	0	0	0	0	0	0	133

Table 20 Overview of the additional Capital Investments

Answer Options	< 50.000	50.000 - 100.000	100.000 - 250.000	250.000 - 500.000	0.5 - 1 million	1 - 2 million	2 - 5 million	5 - 10 million	10 - 25 million	25 - 50 million	Response Count
2010	97	10	7	11	5	3	1	4	1	0	139
2011	88	8	8	10	8	2	3	1	1	0	129
2012	82	11	11	10	6	8	5	2	0	0	135

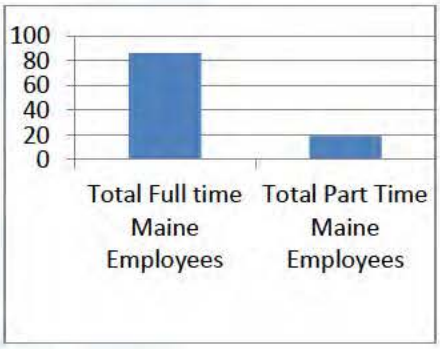
Table 21 Overview of the Additional Exports

Answer Options	< 50.000	50.000 - 100.000	100.000 - 250.000	250.000 - 500.000	0.5 - 1 million	1 - 2 million	2 - 5 million	5 - 10 million	10 - 25 million	25 - 50 million	Response Count
2010	128	3	3	0	1	2	0	0	1	0	138
2011	109	5	4	2	0	1	2	0	2	1	126
2012	114	2	7	3	1	1	2	0	1	0	131

Please Provide a Breakdown of the Total Number of Full Time and Part-Time Employees (i.e. 12 - 32 Hours per Week) in 2012? (Enter "0" if You Have no Employees in That Category.)

Table 22 Total and average number of full and part time employees

Answer Options	Response Average	Response Total	Response Count
Total Full time Maine Employees	85.86	9,920	181
Total Part Time Maine Employees	18.83	2,048	168
		Answered Question	**181**
		Skipped Question	**295**



How Many Patents has Your Company Applied for and how Many Have Been Issued in the Past three (3) years?

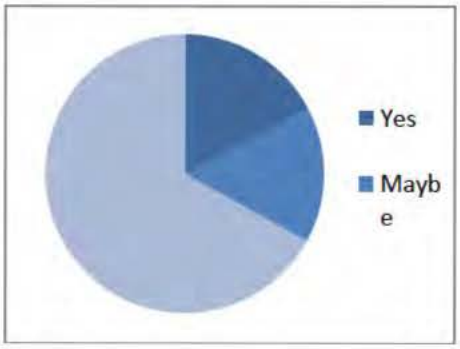
Table 23 Number of applied and issued patents 2009 - 2012

Answer Options	0	1	2	3	4	5	6	7	8	9	10	>10	Response Count
Applied For2009 - 2012	22	21	8	5	2	5	1	4	0	0	0	3	23
Issued 2009 - 2012	31	12	6	5	1	3	0	0	0	0	0	3	13
											Answered Question	**23**	
											Skipped Question	**387**	

34. Do you Anticipate Filing for New Patents in the Next Three (3) Years?

Table 24 Companies filing for new patents in the next three years

Answer Options	Response Percent	Response Count
Yes	17.2%	36
Maybe	15.8%	33
No	67.0%	140
	Answered Question	**209**
	Skipped question	**267**



On a Scale Between 1 - 10 (1 Representing "Not at all Important" and 10 Representing "Critically Important") Please Rate the Importance of Maine's Existing Funding or Incentive Assistance Programs for Your Company's Growth Plans.

Table 25 Importance of Maine's funding programs

Answer Options	1	2	3	4	5	6	7	8	9	10	Response Count
Select importance	16	10	7	7	33	8	21	26	20	35	183
										Answered Question	**183**
										Skipped Question	**293**

Word version of DECD Survey distributed through Survey Monkey

Please find a word version of the DECD survey document on the CD on the back cover of this report.

Every two years, the Maine Department of Economic and Community Development (DECD) is required to conduct a comprehensive evaluation of state investments in economic development. This evaluation includes a survey of recipients of economic development funding to help assess whether our programs are effective in stimulating economic development and sustaining the growth of innovative companies in Maine. As a past or current recipient of state economic incentive funds, providing this information is part of your responsibility under Maine law (MRSA Title 5, §13056-B). Consequently, we need your help in completing this survey.

As part of the survey, you are going to be asked to supply your primary and secondary North American Industry Classification System (NAICS) codes. To prepare you for this question, please see the attached list of NAICS codes or visit www.naics.com/search.htm to identify the codes that best fit your business.

All information is confidential, according to the contractual terms of your incentive program agreement with DECD. To complete the survey, please have at hand your Profit & Loss (P&L) statement and Balance Sheet for the last three (3) years; as well as payroll data; and staff information. We will also seek information about your future strategy and plans. This survey is best completed by your CEO or CFO. If you have any questions, please do not hesitate to contact DECD's Director of Business Development and Innovation, Brian Whitney, at Brian.Whitney@maine.gov or (207) 624-9804.

Thank you for taking the time to complete this survey. We recognize that it may be time consuming and, perhaps, inconvenient, but please know that the information you provide will help us to develop and maintain economic incentive programs that are useful and effective for Maine's job creators.

Best Regards,
George

George C. Gervais
Commissioner
Maine Department of Economic and Community Development

Identification

1. Contact details

Name:

Position:

Company:

2. We received your company's contact information through one or more of the State of Maine incentive administrators. Does your company currently receive incentives?

- ..No, I have not received incentives through any local, state, or federal organization from 2010 or later
- .No, I have not received incentives and am only registered on the PTAC mailing list
- .No, I have not received incentives, I only received fee for service work through MEP
- .Yes, I have received incentives from 2010 or later

3. Was your business founded in the State of Maine?

- .Yes
- .No

4. When did you first establish operations in Maine?

2012

5. Please select the current number of business locations your company has in Maine?

	1	2	3	4	5	>5
Number of business locations						

6. Do you anticipate the need to open facilities, other than sales offices, outside the State of Maine?

- .Yes
- .Maybe
- .No

Industry & Markets

7. From the classifications below, please select the closest industry sector that matches your business.

8. Please identify the top three (3) markets for your product(s) or service(s).

Market 1

Market 2

Market 3

9. Please indicate the size of each market identified in question 7.

Market size 1.

Market size 2.

Market size 3.

10. Please provide the six-digit North American Industry Classification System (NAICS) code for your company. For information about NAICS codes please visit www.naics.com/search.htm or refer to the attachment in the email you received about this survey.

Primary NAICS code

Secondary NAICS code (if applicable)

Board & Shareholders

11. Does your company have shareholders from outside the State of Maine?

- Yes
- No

12. Please provide a breakdown of the shareholder structure of your company by entering a percentage for each type of shareholder in the space below. (For example, "25%" is entered as "25". The total for all three types of shareholders should add up to 100%.)

Shareholders within Maine

US Shareholders outside of Maine

Non US Shareholders

Revenue & Market

13. What is the total annual sales revenue your company generated for the three (3) most recent fiscal years? (For example, "$250,000" is entered as "250000". (all amounts in USD))

2010

2011

2012

14. What is your forecasted revenue growth as a percentage for the next three (3) years? (For example, "10%" is entered as "10".)

2013	
2014	
2015	

15. What percentage of your annual revenue is based on sales:

In the State of Maine	
In the US (not including Maine)	
International sales	

16. What is the total estimated market for your company?

Estimated market size	

Patents

17. How many patents has your company applied for and how many have been issued in the past three (3) years?

	Applied	Issued
2009 - 2012		

18. Do you anticipate filing for new patents in the next three (3) years?

- .Yes
- .Maybe
- .No

Economic Development Programs

19. Are you aware of the economic development programs offered by the following agencies or organizations?

- .i. Maine Department of Economic and Community Development (Community Development Block Grant program)
- .ii. Seed Capital or other tax credit
- .iii. Other tax credits including Pinetree and DTTR
- .iv. Finance Authority of Maine (FAME) Loan Guarantees

- ☐ .v. Maine Department of Economic and Community Development(DECD) /Department of Labor (DOL)
- ☐ .vi. Small Business Administration (SBA)
- ☐ .vii. Rural Development Authority
- ☐ .viii. Maine Community College System
- ☐ .ix. Department of Defense
- ☐ .x. Maine Patent Program
- ☐ .xi. Department of Agriculture
- ☐ .xii. Maine Technology Institute
- ☐ .xiv Other

Other (please specify)

20. What sources of funding has your company utilized to date? (Enter amount in USD - can be zero)

Small Business Administration loan	
SBIR/STTR	
Angel fund	
Venture capital	
Commercial loan	
Self or Business funded	
Family and Friends	
FAME Guarantee	
Community Development Block Grant (CDBG)	
Maine Rural Development Authority (MRDA)	

21. Which of the following Maine agencies or organizations have you engaged with? (select all that apply)

	Engaged
MTI: Maine Technology Institute	○
MITC: Maine International Trade Center	○

DECD: Department of Economic & Community Development	○
MCED: Maine Center for Entrepreneurial Development	○
SBA: Small Business Administration	○
REDC: Regional Economic Development Corp	○
MEP: Maine Manufacturing Extension Program	○
MPP: Maine Patent Program	○
MPTAC: Maine Procurement Technical Assistance Center	○
None of the Above	○

Other (please specify)

Programs

22. What additional funding programs or services should Maine consider offering? (Identify up to three.)

1.
2.
3.

Other Maine Incentive Programs

23. Please identify the type and nature of the assistance, grant, loan or tax support which your company applied for?

	Name of Incentive Program	Amount in USD	Number of Years
Incentive Program 1			
Incentive Program 2			
Incentive Program 3			
Incentive Program 4			
Incentive Program 5			

24. What is the total amount of money or financial benefit your company received from all Maine incentive programs for each of the last three (3) years?

2010
2011
2012

25. What were the direct results of these incentives?

	Additional jobs	Total number of retained jobs*	Additional Payroll Taxes (in USD)	Additional Capital Investments (in USD)	Additional Exports (in USD)
2010					

2011					
2012					

* Retained jobs mean those existing jobs that otherwise would have been lost without direct benefit of the incentive program.

New Investments

26. Are you planning to invest in expanding your facilities or operations in the State of Maine in the next 12 months?

- .Definitely
- .Very likely
- .Likely
- .Unlikely
- .Unknown

27. Are you planning to make new investments in your facilities or operations in the following three (3) years?

- .Yes
- .No

Investments & Incentives

28. Please select the appropriate business activity for each type of new investment your company plans to make in the next three years. (Select all that apply.)

	Manufacturing	R&D Center	Laboratory	Training Center	Shared Service Center	Headquarters	Repair Center	Customer Service Center	Call Center
Existing facility	☐	☐	☐	☐	☐	☐	☐	☐	☐
New facility	☐	☐	☐	☐	☐	☐	☐	☐	☐

29. On a scale between 1 - 10 (1 representing "not at all important" and 10 representing "critically important") please rate the importance of Maine's existing funding or incentive assistance programs for your company's growth plans.

	1	2	3	4	5	6	7	8	9	10
Select importance	○	○	○	○	○	○	○	○	○	○

Performance

30. Based on your experience working with Maine Incentive Programs on a scale of 1 to 10, (1 being "very poor" and 10 being "exceptional") how would you rate the following:

	1	2	3	4	5	6	7	8	9	10
Efficiency of process	○	○	○	○	○	○	○	○	○	○
Knowledge of staff	○	○	○	○	○	○	○	○	○	○

Reporting requirements	○	○	○	○	○	○	○	○	○	○
Supporting services	○	○	○	○	○	○	○	○	○	○
Responsiveness	○	○	○	○	○	○	○	○	○	○

31. On a scale of 1 to 12 (1 being "very low" and 12 being "very high") please rate the likelihood you will recommend Maine Incentives to other companies.

	1	2	3	4	5	6	7	8	9	10
Rate likelihood	○	○	○	○	○	○	○	○	○	○

Please provide a basis for your response in the field below.

Employment & Staffing

32. Please provide the average annual growth rate in terms of staff for the past three (3) years as well as an estimate of the forecasted annual growth rate for the next three (3) years?

	2010 - 2013	2013 - 2016
Growth in total number of employees		

33. Please provide a breakdown of your staff by job function. (Enter # of employees for each category.)

Manufacturing/operations	
Technical (engineers, researchers, scientists, etc.)	
Finance	
Marketing and sales	
Administrative/executive	
Other	

34. Please provide a breakdown of the total number of full time and part-time employees (i.e. 12 - 32 hours per week) in 2012?

Total Full time Employees	
Total Part time Employees	

35. What was your company's total annual labor cost* for each of the last three (3) years?

2010	
2011	
2012	

* - Total labor cost include salaries, wages, taxes paid by employer, FICA (OASDI & Medicare), benefit costs including healthcare, paid time-off, tuition reimbursement, and all other direct costs paid by the employer.

36. Please provide the average annual salary for each job function listed below. (For example, "$65,000" should be entered as "65000".)

Manufacturing/operations	
Technical (engineers, researchers, scientists, etc.)	

Finance	
Marketing and sales	
Administrative/executive	
Other	

37. On a scale between 1 and 10 (1 being "very difficult" and 10 being "very easy"), please rate how difficult it was for you to hire qualified staff per job function to grow your business?

	1	2	3	4	5	6	7	8	9	10
Manufacturing/operations	○	◉	○	○	○	○	○	○	○	○
Technical (engineers, researchers, scientists, etc.)	○	○	○	○	○	○	○	○	○	○
Finance	○	○	○	○	○	○	○	○	○	○
Marketing and sales	○	○	○	○	○	○	○	○	○	○
Administrative/executive	○	○	○	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○	○	○	○

38. How many total additional full time employees by job function do you anticipate hiring in the next three (3) years?

Manufacturing/operations	
Technical (engineers, researchers, scientists, etc.)	
Finance	
Marketing and sales	
Administrative/executive	
Other	

Expenses & Assets

39. What are your total company expenses as a percentage of sales for the last three (3) years including total, R&D, Marketing and Manufacturing expenses? (For example, if your total expenses as a percentage of sales for 2010 was 80%, enter 80 in the box under Total Expenses for the year 2010. Note: the percentages entered for R&D, Marketing and Manufacturing will not necessarily add up to the Total Expenses percentage entered.)

	Total Expenses	R&D Expenses	Marketing Expenses	Manufacturing Expenses
2010				
2011				
2012				

40. What is the total amount of fixed assets currently carried on your balance sheet?

Capital Needs

41. Please identify the critical needs for the future success of your company.

42. On a scale between 1 - 10 (1 being "no success" and 10 being a "significant success") how do you rate your accomplishments in terms of the following elements:

	1	2	3	4	5	6	7	8	9	10
Developing products	○	○	○	○	○	○	○	○	○	○
Bringing products to market	○	○	○	○	○	○	○	○	○	○
Growing sales revenue	○	○	○	○	○	○	○	○	○	○
Manufacturing	○	○	○	○	○	○	○	○	○	○
Providing service	○	○	○	○	○	○	○	○	○	○
Building	○	○	○	○	○	○	○	○	○	○

partnerships										
Developing supplier relationships	○	○	○	○	○	○	○	○	○	○
Building staff	○	○	○	○	○	○	○	○	○	○
Raising capital	○	○	○	○	○	○	○	○	○	○
Expanding markets	○	○	○	○	○	○	○	○	○	○

43. What barriers prevent you from further growth? Please select the top three in order.

	Business concern
Business concern 1	
Business concern 2	
Business concern 3	

Other (please specify)

Profitability

44. Is your company profitable?

- Yes
- No

Profitability

45. If your company is not yet profitable, please estimate the time to reach profitability (in years).

Marketing

46. Does your company have a written marketing plan that covers the key aspects of product development, branding, promotion, service and sales support?

- Yes
- In development
- No

47. Please identify the stage your company is in at this time. (Select the one that is closest.)

- Very early stage (idea and/or concept evaluation)
- Early stage (R&D and/or alpha/beta testing)
- Mid stage (product development and release)
- Growth stage (established product line with sales growth and diversification)
- Mature stage (multiple product lines, consistently growing sales and markets)

Contact & Comments

48. In case of questions regarding this survey whom can we contact?

Name

Phone number

Email address

49. Is there anything else you would like to share with us with regards to this survey?

Thank you
Thank you very much for completing this survey. Please note that you cannot go back and modify your answers after you submit your responses at the end of the survey.

George C. Gervais
Commissioner
Maine Department of Economic and Community Development

Word version of MTI Survey distributed through Survey Monkey

Each year, The Maine Technology Institute is required to survey its clients in order to provide summary information on a number of key metrics to the Legislature. We also gather data to ensure our programs are effective in stimulating and sustaining the growth of technology-based ventures in Maine. Providing this information is part of your obligation under the terms of your grant or loan agreement with MTI. Consequently, we need your help in completing this survey.

You are going to be asked to supply your primary and secondary NAICS codes. To prepare you for this question, please see the attached list of NAICS codes or visit www.naics.com/search.htm to identify the codes that best fit your business.

All information is confidential, according to the terms of your grant or loan agreement with MTI. To complete the survey please have at hand your P&L and Balance Sheet for the last three (3) years; payroll data; and information on your IP filings. We will also ask you questions about your future strategy and plans. This survey is best completed by your CEO or CFO. If you have any questions, please do not hesitate to contact Scott Burnett, Director of Marketing & Analytics, at (207) 588-1010 (sburnett@mainetechnology.org) or me at (207) 588-1011 (bmartin@mainetechnology.org). You may also be contacted by Battelle Memorial Institute who is conducting research into our cluster and sector strategies.

Thank you for taking the time to complete this survey. We recognize that it may be inconvenient, but please know that the information you provide will help us become more effective for you and others who are engaged in creating new enterprises in Maine.

Best Regards,

Bob

Robert A. Martin
President
The Maine Technology Institute

Identification

1. Contact details

Name:

Position:

Company:

2. Was your business founded in the State of Maine?

- Yes
- No

3. When did you first establish operations in Maine?

2012

4. Please select the current number of business locations your company has in Maine?

	1	2	3	4	5	>5
Number of business locations						

5. Do you anticipate the need to open facilities, other than sales offices, outside the State of Maine?

- Yes
- Maybe
- No

Industry & Markets

6. From the classifications below, please select the closest industry sector that matches your business.

7. Please identify the top three (3) markets for your product(s) or service(s).

Market 1

Market 2

Market 3

8. Please indicate the size of each market identified in question 7. (For example, "$1,200,000,000" is entered as "1200000000". The survey will accept a maximum value of $9,999,999,999. If you need to enter a number of $10 billion or higher, please do the following: enter a "1" in the market size

field in question 8 and insert the correct number in the text response for the last question of the survey.)

Market size 1.

Market size 2.

Market size 3.

9. Please provide the six-digit North American Industry Classification System (NAICS) code for your company. For information about NAICS codes please visit www.naics.com/search.htm or refer to the attachment in the email you received about this survey.

Primary NAICS code

Secondary NAICS code (if applicable)

Revenue & Market

10. What is the total annual sales revenue your company generated for the three (3) most recent fiscal years? (For example, "$250,000" is entered as "250000". If your company has generated no sales revenue for the years listed, enter "0" in the response field for that year. (all amounts in USD))

2010

2011

2012

11. What is your forecasted revenue growth as a percentage for the next three (3) years? (For example, "10%" is entered as "10".)

2013

2014

2015

12. What percentage of your annual revenue is based on sales: (For example, for 80% enter "80". The total for all three must equal 100%.)

In the State of Maine

In the US (not including Maine)

International sales

13. What is your best estimate of the current total market size for your company?

Estimated market size

Expenses & Assets

14. What were your company's total expenses for the last three (3) years? (For example, if your company's total expenses in 2010 were $250,000, enter "250000" in the response field for 2010. If your company was not in business in any of these years, enter "0" in the response field for that year. (in US dollars))

2010	
2011	
2012	

15. What were your company's expenses as a percentage of total expenses (as entered in response to question 46) for Marketing & Sales, R&D and Manufacturing for the last three (3) years? (Note: the percentages entered for Marketing & Sales, R&D and Manufacturing may not equal 100% of the total Expenses entered in response to question 46. The total of your responses for all three categories for any given year should not be greater than 100%. If you had no expenses for any of the 3 categories for any of the years, select 0% from the drop down list for that year.)

	Marketing & Sales	R&D	Manufacturing
2010			
2011			
2012			

16. What is the total amount of fixed assets currently carried on your balance sheet?

17. What is the total percentage of fixed asset growth over the last three (3) years?

○ ○ 10% ○ 20% ○ 30% ○ 40% ○ 50% ○ 60% ○ 70% ○ 80% ○ 90% ○

Profitability

18. Is your company profitable?

○ Yes

○ No

Profitability

19. If your company is not yet profitable, please estimate the time to reach profitability (in years).

Product Status

20. Please identify the total number of products your company has developed, has commercialized, and currently has in development?

	Select Appropriate Number
Total number of products developed	
Total number of products commercialized	
Total number of products in development	

21. Please identify the total number of products your company has developed, has commercialized, or currently has in development based on funding from MTI? (Enter "0" in the response field if no products were developed or commercialized based on MTI funding, and if you have no products in development at this time supported by MTI funding.)

	Select Appropriate Number
Total number of products developed	
Total number of products commercialized	
Total number of products in development	

Product or Service Change

22. Has the focus of your product or service development changed significantly since you received MTI funding?

- Yes
- No

23. If your product or service has changed, please explain why and how.

Employment and Staffing

24. Please provide the average annual growth rate of your staff for the past three (3) years, and your forecasted annual growth rate for staff for the next three (3) years?

	2010 - 2013	2013 - 2016
Growth in total number of employees		

25. Please provide a breakdown of your staff by job function. (Enter # of employees for each category. Enter "0" if you have no employees in that category.)

Manufacturing/operations	
Technical (engineers, researchers, scientists, etc.)	
Finance	
Marketing and sales	
Administrative/executive	
Service/support	
Other	

26. Please provide a breakdown of the total number of full time and part-time employees (i.e. 12 - 32 hours per week) in 2012? (Enter "0" if you have no employees in that category.)

Total Full time Employees	
Total Part time Employees	

27. What was your company's total annual labor cost* for each of the last three (3) years?

2010	
2011	
2012	

* - Total labor costs include salaries, wages, taxes paid by employer, FICA (OASDI & Medicare), benefit costs including healthcare, paid time-off, tuition reimbursement, and all other direct costs paid by the employer.

28. Please provide the average annual salary for each job functional area listed below. (For example, "$65,000" should be entered as "65000".)

Manufacturing/operations	
Technical (engineers, researchers, scientists, etc.)	
Finance	

Marketing and sales	
Administrative/executive	
Service/support	
Other	

29. On average, how many years of experience do your key managers have?

30. On a scale between 1 and 10 (1 being "very difficult" and 10 being "very easy"), please rate how difficult it was for you to hire qualified staff per job function to grow your business?

	1	2	3	4	5	6	7	8	9	10	NA
Manufacturing/operations	○	○	○	○	○	○	○	○	○	○	○
Technical (engineers, researchers, scientists, etc.)	○	○	○	○	○	○	○	○	○	○	○
Finance	○	○	○	○	○	○	○	○	○	○	○
Marketing and sales	○	○	○	○	○	○	○	○	○	○	○
Administrative/ executive	○	○	○	○	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○	○	○	○	○

If you have specific comments about your ability to identify and hire qualified people, please include them here.

31. How many total additional full time employees by job function do you anticipate hiring in the next three (3) years?

Manufacturing/operations	
Technical (engineers, researchers, scientists, etc.)	
Finance	
Marketing and sales	
Administrative/executive	
Service/support	
Other	

Patents

32. Does your company actively file for protection of Intellectual Property?

○ Yes

○ No

33. How many patents has your company applied for and how many have been issued in the past three (3) years?

	Applied	Issued
2009 - 2012		

34. Do you anticipate filing for new patents in the next three (3) years?

- Yes
- Maybe
- No

Economic Development Programs

35. Are you aware of the economic development programs offered by the following agencies or organizations?

- i. Maine Department of Economic and Community Development (Community Development Block Grant program)
- ii. Seed Capital or other tax credit
- iii. Other tax credits including Pinetree and DTTR
- iv. Finance Authority of Maine (FAME) Loan Guarantees
- v. Maine Department of Economic and Community Development(DECD) /Department of Labor (DOL)
- vi. Small Business Administration (SBA)
- vii. Rural Development Authority
- viii. Maine Community College System
- ix. Department of Defense
- x. Maine Patent Program
- xi. Department of Agriculture
- xii. Other

Other (please specify)

36. Besides MTI, what other sources and amounts of funding has your company obtained to date? (For example, the number $250,000 will be entered as "250000". Amounts in USD. Because a response is required for all response categories a "0" should be entered for all sources of funding not utilized.)

Small Business Administration loan	
SBIR/STTR	
Angel fund	

Venture capital	
Commercial loan	
Self or Business funded	
Family and Friends	
FAME Guarantee	
Community Development Block Grant (CDBG)	
Maine Rural Development Authority (MRDA)	
Other	

37. Which of the following Maine agencies or organizations have you engaged with? (select all that apply)

	Engaged
MITC: Maine International Trade Center	○
DECD: Department of Economic & Community Development	○
MCED: Maine Center for Entrepreneurial Development	○
SBA: Small Business Administration	○
SBDC: Maine Small Business Development Center	○
REDC: Regional Economic Development Corp	○
MEP: Maine Manufacturing Extension Program	○
MPP: Maine Patent Program	○
SCORE	○
MPTAC: Maine Procurement Technical Assistance Center	○
CDBG: Community Development Block Grant	○
MRDA: Maine Rural Development Authority	○
Industry Trade Association	○
None of those listed	○

Other (please specify)

MTI Programs

38. What additional funding programs should MTI consider? (Identify up to three.)

1.
2.
3.

39. What additional services other than funding should MTI provide? (Identify up to three.)

1.
2.
3.

40. Have you applied for incentive programs from agencies or organizations other than MTI?

- Yes
- No

When selecting 'No' you will directly proceed to the questions regarding the economic benefits of MTI's funding support for the State of Maine's economy.

Other Maine Incentive Programs

41. Please identify the type and nature of the assistance, grant, loan or tax support which your company applied for?

	Name of Incentive Program	Amount in USD	Number of Years
Incentive Program 1			
Incentive Program 2			
Incentive Program 3			
Incentive Program 4			
Incentive Program 5			

42. What is the total amount of money or financial benefit your company received from all Maine incentive programs for each of the last three (3) years? (If you received no money or financial benefits for any of the years identified, enter a "0" for those years.)

2010	
2011	
2012	

43. What were the direct results of these incentives?

	Additional jobs	Total number of retained jobs*	Additional Payroll Taxes (in USD)	Additional Capital Investments (in USD)	Additional Exports (in USD)
2010					
2011					
2012					

New Investments

44. Are you planning to invest in expanding your facilities or operations in the State of Maine in the next 12 months?

- ○ Definitely
- ○ Very likely
- ○ Likely
- ○ Unlikely
- ○ Unknown

45. Are you planning to make new investments in your facilities or operations in the following three (3) years?

- ○ Yes
- ○ No

Investments & Incentives

46. Please select the appropriate business activity for each type of new investment your company plans to make in the next three years. (Select all that apply.)

	Manufacturing	R&D Center	Laboratory	Training Center	Shared Service Center	Headquarters	Repair Center	Customer Service Center	Call Center
Existing facility	☐	☐	☐	☐	☐	☐	☐	☐	☐

New facility	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

47. On a scale between 1 - 10 (1 representing "not at all important" and 10 representing "critically important") please rate the importance of Maine's existing funding or incentive assistance programs for your company's growth plans.

	1	2	3	4	5	6	7	8	9	10
Rate importance	○	○	○	○	○	○	○	○	○	○

Marketing

48. Does your company have a written marketing plan that covers the key aspects of product development, positioning, pricing, promotion, branding, distribution, sales and service support?

- ○ Yes
- ○ In development
- ○ No

49. Please identify the stage your company is in at this time. (Select the one that is closest.)

- ○ Very early stage (idea and/or concept evaluation)
- ○ Early stage (R&D and/or alpha/beta testing)
- ○ Mid stage (product development and release)
- ○ Growth stage (established product line with sales growth and diversification)
- ○ Mature stage (multiple product lines, consistently growing sales and markets)

Comment about stage:

Capital Needs

50. Have you been able to raise the capital needed to grow your business?

- ○ Yes
- ○ No

51. On a scale of 1 to 10 (1 being "not at all satisfied" and 10 being "totally satisfied") please rate your degree of satisfaction with the amount and the terms of capital your company has raised to date.

	1	2	3	4	5	6	7	8	9	10	N/A
Amount of Capital	○	○	○	○	○	○	○	○	○	○	○
Terms of Capital	○	○	○	○	○	○	○	○	○	○	○

Please identify the primary reason(s) for your rating.

52. How much additional capital do you anticipate your company will need over the next three (3) years? (For example, $2,000,000 is entered as "2000000". (in US dollars))

53. On a scale between 1 - 10 (1 being "not confident" and 10 being "very confident") how would you rate your ability to raise the funds identified in the previous question on acceptable terms?

	1	2	3	4	5	6	7	8	9	10
Level of confidence	○	○	○	○	○	○	○	○	○	○

Please provide the basis for your response.

54. Please identify the critical needs for the future success of your company.

55. On a scale between 1 - 10 (1 being "no success" and 10 being a "significant success") how do you rate your accomplishments in terms of the following elements:

	1	2	3	4	5	6	7	8	9	10
Developing products	○	○	○	○	○	○	○	○	○	○
Bringing products to market	○	○	○	○	○	○	○	○	○	○
Growing sales revenue	○	○	○	○	○	○	○	○	○	○
Manufacturing	○	○	○	○	○	○	○	○	○	○
Providing service	○	○	○	○	○	○	○	○	○	○
Building partnerships	○	○	○	○	○	○	○	○	○	○
Developing supplier relationships	○	○	○	○	○	○	○	○	○	○
Building staff	○	○	○	○	○	○	○	○	○	○
Raising capital	○	○	○	○	○	○	○	○	○	○
Expanding markets	○	○	○	○	○	○	○	○	○	○

56. What are the most critical challenges to your continued growth? Please select the top three in order.

	Business concern
Business concern 1	
Business concern 2	
Business concern 3	

Please identify other challenges if not listed in the responses.

Board of Directors

57. Do you have a Board of Directors?

- Yes
- No

Board & Shareholders

58. How many members are on your Board of Directors and how many are outside directors? Please note, outside directors are NOT officers or employees of the company.

Number of Board Members	
Number of outside Directors	

59. Does your company have shareholders from outside the State of Maine?

- Yes
- No

Shareholders

60. Please provide a breakdown of the shareholder structure of your company by entering a percentage for each type of shareholder in the space below. (For example, "25%" is entered as "25". The total for all three types of shareholders must add up to 100%.)

Shareholders within Maine	
US Shareholders outside of Maine	
Non US Shareholders	

MTI Performance

61. Based on your experience working with MTI on a scale of 1 to 10, (1 being "very poor" and 10 being "exceptional") how would you rate MTI on the following:

	1	2	3	4	5	6	7	8	9	10	N/A
Efficiency of process	○	○		○	○	○	○	○	○	○	○
Knowledge of staff	○	○	○	○	○	○	○	○	○	○	○
Reporting requirements	○	○	○	○	○	○	○	○	○	○	○
Supporting services	○	○	○	○	○	○	○	○	○	○	○
Responsiveness	○	○	○	○	○	○	○	○	○	○	○

62. On a scale of 1 to 12 (1 being "very low" and 12 being "very high") please rate the likelihood you will recommend MTI to other companies.

	1	2	3	4	5	6	7	8	9	10	11	12
Rate likelihood	○	○	○	○	○	○	○	○	○	○	○	

Please provide a basis for your response in the field below.

Contact & Comments

63. In case of questions regarding this survey whom should we contact?

Name

Phone number

Email address

64. Is there anything else you would like to share with us with regards to this survey?

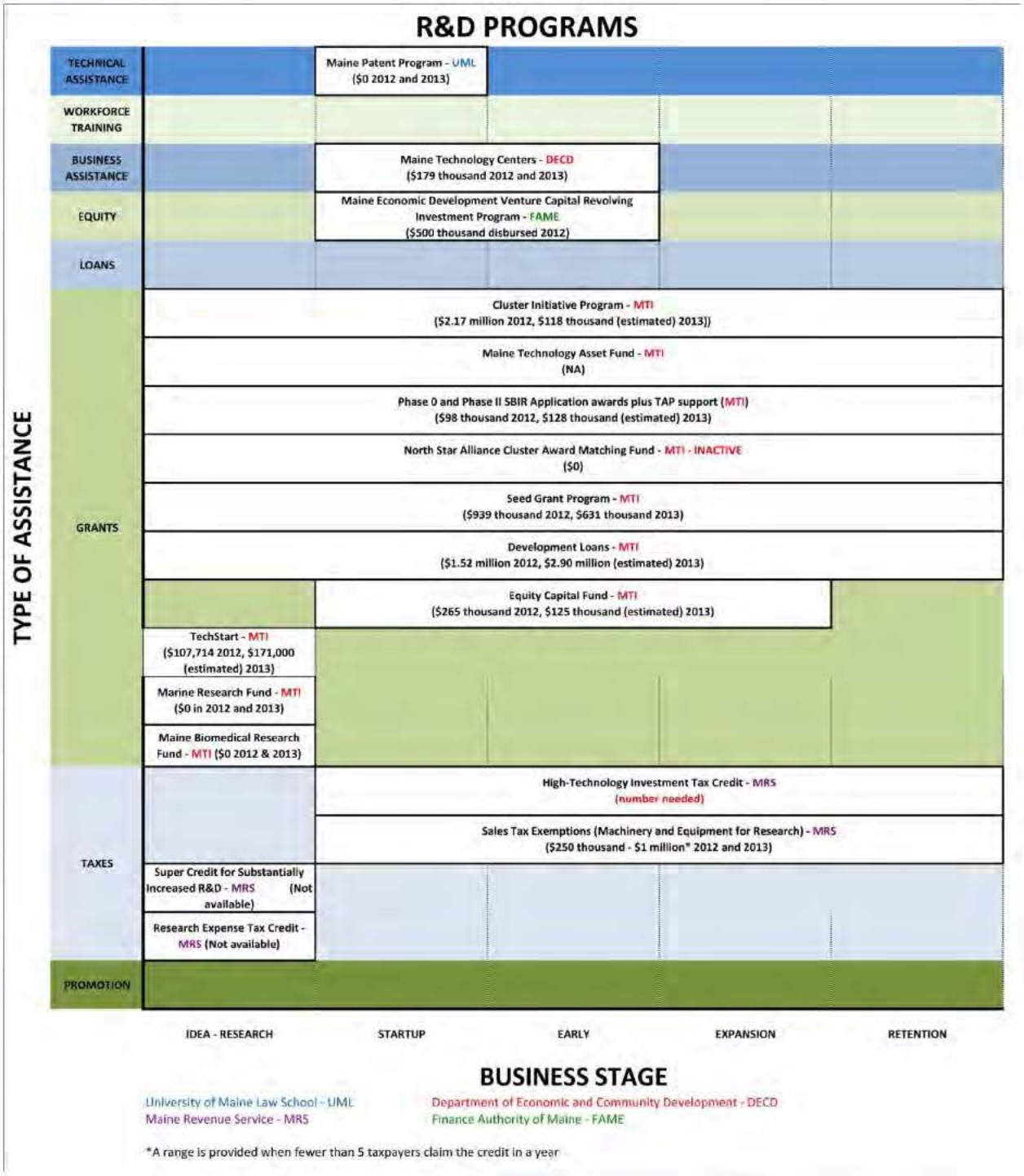
Thank You

Thank you very much for completing this survey. Please note that you cannot go back and modify your answers after you submit your responses at the end of the survey.

Bob Martin
President
The Maine Technology Institute (MTI)

Appendix H – Cost Modeling

Figure 1 R&D Programs



Methodology

Based on the classification as described above, and in close collaboration with DECD and the Steering Committee we decided to conduct full scale CBA assessments for four comprehensive programs being the BETR program, the PTDZ program, the Development Loans and the programs offered by FAME, the Commercial Loan Insurance Program and the Economic Recovery Loan Program.

From a methodological point of view, the CBA model aggregates the average individual firm characteristics in terms of, amongst others, headcount, salary costs, sales revenues, cost to sales, job creation and retained jobs, and ownership structure. This aggregated level simulates the total number of certified companies that are actually making use of the program. For all four CBA assessments this forms the first point of departure for further analysis.

In an ideal world all required statistics are available, however, evaluating rather complex incentive programs per definition requires a mixture of primary data gathering, desk research and the use of assumptions where data is missing or non-existing. For these models, available annual program reports were carefully analyzed and complemented with the detailed results from the survey.

Since the model looks at financial flows from 2010 – 2012, benefits and costs incurred in the past. It is therefore important to discount the cash flows to the current value. The CBA uses general cash flow analysis practices to discount cash flows to current values, and below is the formula used:

$$CURRENT\ VALUE = \sum_{t=0}^{T} \frac{X_t}{(1+r)^{-t}}$$

(X_t) represents the specific amounts one specific year (t). This value is 'discounted', by dividing it by the 'discount rate' (r = 5%) for each year (t). This rate (1+r) is the yield (or return on investment) that normally should have been made on the investment, and $-t$ is the number of years in the past.

The model calculated two scenarios:

1. The incentive is provided; and
2. The incentive is not provided.

For both scenarios the direct tax revenues for the following taxes are calculated:

- Corporate income tax;
- Personal income tax;
- Dividends tax;
- Sales tax; and
- Payroll tax.

If the second scenario leads to lower tax revenues (i.e. as a result of less employment) than this can be considered a cost in the form of revenues foregone. If the revenues foregone are larger than the cost of providing and monitoring the incentive program than the model shows a positive rate of return.

It might also be possible that a specific aspect of an incentive program results in a lower tax revenue in one field but compensated by higher tax revenues in other fields. For instance a corporate income tax reduction (as a form of incentive) results in lower corporate income tax revenues, but this loss is compensated by companies being able to hire more personnel, resulting in higher personal income taxes and higher sales tax revenues. If this is the case, the model also shows a positive rate of return.

There will be a negative IRR if the tax revenue stream in the first scenario, as a result of the benefits provided to companies, is lower compared to the revenue stream in the second scenario.

Important indicators

1. Corporate Taxes

The corporate income tax revenue is based on the corporate tax liability. The tax liability is calculated as the aggregated taxable income after (tax) incentives and depreciation. There are progressive tax rates depending on the taxable amount. Below is an overview of the State Corporate Income Tax.

Table 26 State Level Corporate income tax rates

Taxable Income ($) Minimum	Taxable Income ($) Maximum	Fixed amount	State of Maine rate	Of the amount over
$-	$25,000.00	$0.00	3.50%	$0.00
$25,000.00	$75,000.00	$875.00	7.93%	$25,000.00
$75,000.00	$250,000.00	$4,840.00	8.33%	$75,000.00
$250,000.00	…	$19,417.50	8.93%	$250,000.00

As an example: A company with a taxable income of $500,000 pays a State Tax amount of $41,742.50 equivalent to an effective tax rate of 8.35%. The formula is as follows:

- Fixed amount of $19,417.50 plus 8.93% x $500,000 – $250,000

Similarly the effective corporate income tax rates have been averaged on the following assumption:

- Tax liability of USD$500.000 at Federal Level – resulting in tax amount of USD$170.000, thus 34%

These two effective rates are used to calculate the corporate income tax revenues. In the current model we assume similar CIT rates in both scenarios (with and without incentive program) however, the model is build in such a way that it allows for easy adjustments should this be necessary to represent a reduced CIT rate under a specific incentive program, which is for instance the case in the PTDZ program.

2. Salary Costs

To simulate the workforce of an average company, we have included 12 different job profiles representing 4 job functions (based on the Bureau of Labor Statistics – BLS). The job functions are:

1. Top Management;
2. Managerial Support – including HR, Accountants and Auditors;
3. Technical Support – including software and IT, operations research analysts, engineers; and
4. Direct Workers – Including warehouse and production workers.

The average salary level for each job function is calculated based on the weighted annual salary costs for each underlying job profile:

Table 27 Salary cost levels for different job positions

Top Management	2%	$146,400.00
General and Operations Managers(111021)	3%	$87,670.00
Human Resources Managers(113121)	2%	$81,980.00
Accountants and Auditors(132011)	3%	$60,860.00
Managerial Support	8%	$76,193.75
Software Developers, Systems Software(151133)	5%	$84,190.00
Operations Research Analysts(152031)	2%	$67,230.00
Medical Scientists Except Epidemiologists(191042)	3%	$108,000.00
Industrial Engineers(172112)	5%	$75,410.00
Technical Support	15%	$83,764.00
Transportation Storage and Distribution Managers(113071)	5%	$71,080.00
Logisticians(131081)	5%	$62,940.00
First-Line Supervisors of Production and Operating Workers(511011)	10%	$53,550.00
Assemblers and Fabricators All Other(512099)	55%	$24,540.00
Direct workers	75%	$34,070.67

Source: Bureau Labor Statistics 2013

These statistics result in an average annual salary cost per person employed of $47,141.10. This is an important amount to calculate the average personal income tax rates at State and Federal Level.

3. Personal Income Tax

There are different tax rates for married persons filling in joint returns compared to single taxpayers. This has an impact on the total amount of personal income tax revenues received by the Maine Revenue Department as well as the Federal tax authorities.

According to the New York Times (2013), the split between married versus single taxpayers is now 48% against 52%, a breakdown we have used in this model too. The annual salary cost per person employed (i.e. $47,141.10) is then subject to the different personal income tax systems both at State and Federal Level.

Table 28 Effective personal income taxes at State and Federal level

State of Maine Level		Federal Level	
Average salary cost per person employed	$47,141.10	Average salary cost per person employed	$47,141.10
Average income tax revenue Single	$3,320.36	Average income tax revenue Single	$7,714.03
Average income tax revenue Married	$2,632.61	Average income tax revenue Married	$6,178.67
Average income tax revenue at	$2,990.24	Average income tax revenue	$6,977.05
Effective income tax rate	6.34%	Effective income tax rate	14.80%

The different brackets are based on sources directly from the Maine Revenue Services, the IRS – US TaxCenter and Bankrate.com. The reason why the Federal taxes are included is to calculate the net disposable income. A portion of this disposable income is allocated to purchase local goods and services from Maine suppliers, which in turn leads to additional sales tax revenues.

Table 29 Total personal income tax burden

Average salary cost per person employed	$47,141.10
Effective income tax rate (State level)	6.34%
Effective income tax rate (Federal level)	14.80%
Total Personal Income Tax Burden	21.41%

4. Dividends Taxation

The Maine Revenue Service describes that in the State of Maine dividends is considered the same as any other type of individual income and therefore taxed according the personal income tax scheme as presented above (i.e. effectively 6.34%).

At Federal level the American Taxpayer Relief Act of 2012 (H.R. 8) was passed by the United States Congress and signed into law by President Barack Obama in the first days of 2013. This legislation extended the 0 and 15 percent capital gains and dividends tax rates for taxpayers whose income does not exceed the thresholds set for the highest income tax rate (39.6 percent). Those who exceed those thresholds ($400,000 for single filers; $425,000 for heads of households; $450,000 for joint filers) became subject to a 20 percent rate for capital gains and dividends. In this model we use the effective dividends tax rate of 15%

5. Sales Tax

Only end customers pay 5.0% Sales Tax[3] on top of the cost of the final product and, contrary to the VAT system, not the active companies operational in the supply chain. Below an example of this system:

[3] The sales tax rate has been increased in October 2013 to 5.5%

With a 5.0% sales tax (the previous rate of sales tax was 5%, but per October 2013 a sales tax of 5.5% is applicable – an increase of 10%):

- The manufacturer spends $1.00 for the raw materials, certifying it is not a final consumer.
- The manufacturer charges the retailer $1.20, checking that the retailer is not a consumer, leaving the same gross margin of $0.20.
- The retailer charges the consumer $1.50 + ($1.50 x 5.0%) = $1.575 and pays the government $0.075, leaving the gross margin of $0.30.

So the consumer has paid 5% ($0.075) extra, compared to the no taxation scheme, and the government has collected this amount in taxation. The retailers have not paid any tax directly (it is the final customer who has paid the tax in full), but the retailer has to do the paperwork in order to correctly pass on to the government the sales tax it has collected. Suppliers and manufacturers only have the administrative burden of supplying correct certifications, and checking that their customers (retailers) aren't the final consumers.

6. Payroll Taxes for employers: unemployment tax and CSSF

The 2012 New employer rate is 3.08% plus 0.06% Competitive Skills Scholarship Fund rate. The combined payroll taxes paid by employers is 3.14%.

7. Administration costs

In this section we calculate the annual personnel cost of employees responsible for administering and monitoring the incentive program. We assume a total of 7 employees ranging from senior managers to support staff. The overhead costs are estimated at a rate of 20% of the total annual salary cost of all staff.

Table 30 Total administration costs

	Annual wages	Number	Total
Senior managers	$75,000.00	1	$75,000.00
Middle managers	$30,000.00	1	$30,000.00
Assistants	$10,000.00	2	$20,000.00
Support staff	$ 4,000.00	3	$12,000.00
	Total	7	$137,000.00
		Annual salary costs administrative staff	$137,000.00
		Overhead rate (% of total wage bill)	20%
		Overhead costs (% of total wage bill)	$27,400.00
		Total estimated Support Staff Costs (2013)	$164,400.00

Other important indicators and loan terms:

Table 31 Important model criteria

Discount rate	5%
Wage inflation rate	2.1%
Earnings retained (the rest in Dividend)	50%
Total expenditure by firms on local products	25%
Total expenditure by residents on local products	40%

Table 32 Assumptions on loan terms

Loan Terms	Effective Interest rate	Comments
Established private or publicly traded company	4%	Low-interest unsecured subordinated 5 yrs note
Start-up or early stage company**	2%	No interest until 3 years post first sale
Business Accelerator Grant	0%	No repayment require

Because the ratio between established private or publicly traded companies and the start-up or early stage companies is 38% and 62% respectively, results in a weighted interest rate of 3.1% for the total sample of certified companies.

Findings

On the next page there is a detailed overview of the calculations for this specific program, and below the main findings:

Since 2010, the total number of awarded loan projects decreased from 17 in 2010 to 6 in 2012. During the most recent fiscal year, MTI Technology Boards reviewed 29 Development Loan applications from Maine businesses. Twelve applications were funded for a total of $3.6 million and matched by over $4.9 million. Companies that had received earlier Development Loans made payments back to MTI totaling $1,434,614 this year, the highest repayment amount to date and an indication of commercialization success.

The companies that qualify for the development are relatively small. On average these companies employ 20 full time equivalents (FTE) and their annual sales turnover totals $4.7 million.

Survey results show that the average additional jobs per certified company ranges between 2.7 and 5.4 FTE as a direct result of the Development Loan program. These figures were utilized in the CBA assessment as a proxy for the loss in jobs in case of the scenario in which the development loans were not provided.

There are different terms and conditions of the loans between established or publicly traded companies and start-up or early stage companies. Analyzing previous annual reports show that 38% of the applicants belong to the first group, while 62% of the applicants are in a start-up or early stage.

This ratio was used to calculate an effective interest rate of 3.1%, compared to an interest rate of 6% for a commercial loan. The difference between both interest rates and the costs to administer the program are considered the direct costs of this program. On the other hand, the soft loan arrangement makes it possible for certified companies to lower their finance costs, to commercialize their products, and to grow in headcount and sales revenues.

In the scenario of not providing the development loans, the finance cost of these companies would more than double, and the companies were not able to grow with the additional new hires as anticipated. As a result of this, the total amount of disposable income is lower, and there is less spending on local goods and services. Additionally, the higher finance costs results in lower taxable income and subsequently the overall profitability.

These related effects eventually cause for lower corporate income tax revenues, lower personnel income tax revenues, lower sales tax revenues, lower dividends tax revenues and finally lower payroll tax revenues.

The conclusion is that the Cost Benefit Assessment presents a consistently high rate of return for the development loan program by MTI; Measured over a period of three years (FY10 – FY12) the CBA shows that on every 1 dollar spent on the Development Loan program, the output is 1.124 dollar, a return of 12.4%.

Figure 2 CBA model of the Development Loan Program

Category\Year		2010	2011	2012	TOTAL - Value in 2013 US$
General Information					
Number of active projects in the program (Average over 1 year)		17	9	6	
Number of persons employed		249	132	12	
Total annual salary cost		$ 11 752 801	$ 7 143 011	$ 5 697 388	$ 27 462 763
Total Annual Sales Revenues		$ 75 606 919	$ 40 027 192	$ 26 584 795	$ 159 673 474
Total Cost of Sales (including manufacturing R&D and marketing etc.)	71.55%	$ 54 850 960	$ 29 038 743	$ 19 359 167	$ 115 839 178
Total Loan Amount		$ 5 046 064	$ 2 583 799	$ 1 687 768	$ 10 462 245
Financing costs	3.08%	$ 155 621	$ 79 684	$ 52 053	$ 322 656
Tax liability amount		$ 20 600 188	$ 10 908 765	$ 7 279 562	$ 43 511 640
With incentive status					
Corporate income tax Maine State Level*:	8.35%	$ 1 720 128	$ 910 882	$ 607 344	$ 3 633 222
Corporate income tax US Federal Level*:	34.00%	$ 7 004 115	$ 3 708 980	$ 2 473 018	$ 14 793 958
	3.08%				
Net profit under incentive program		$ 11 876 095	$ 6 288 903	$ 4 193 220	$ 25 084 461
Retained earnings	50%	$ 5 938 048	$ 3 144 451	$ 2 096 610	$ 12 542 230
Dividends payable to Maine residents	70%	$ 4 156 633	$ 2 201 116	$ 1 467 627	$ 8 779 561
Dividends payable to non-residents	30%	$ 1 781 414	$ 943 335	$ 628 983	$ 3 762 669
Benefits					
Additional job creation					
New Jobs Created		91	48	32	192
Gross income Effects		$ 4 286 178	$ 2 269 153	$ 1 512 769	$ 9 051 936
Additional payroll taxes paid by employers at reduced rate	3.14%	$ 134 586	$ 71 251	$ 47 501	$ 284 231
Federal level personal income tax paid by employees	14.80%	$ 634 370	$ 335 843	$ 223 895	$ 1 339 719
State level personal income tax paid by employees	8.44%	$ 271 879	$ 143 936	$ 95 957	$ 574 179
Net income after personal income taxes for Maine residents		$ 3 379 929	$ 1 789 374	$ 1 192 916	$ 7 138 037
Personal income from employment and dividend					-
Employment benefit					-
Gross income effects for Maine residents		$ 11 752 801	$ 7 143 011	$ 5 697 388	$ 27 462 763
Personal income tax for State of Maine	8.44%	$ 745 500	$ 453 093	$ 361 395	$ 1 742 009
Federal level personal income tax	14.80%	$ 1 739 457	$ 1 057 191	$ 843 234	$ 4 064 588
Net income after personal income tax for Maine residents		$ 9 267 844	$ 5 632 727	$ 4 492 759	$ 21 656 167
Net income after dividends tax for Maine residents		$ 3 002 264	$ 1 580 828	$ 1 060 041	$ 6 341 325
Total net income benefits Maine residents		$ 15 650 087	$ 9 011 929	$ 6 745 717	$ 35 135 539
					-
Total Annual Sales in the State of Maine	27.13%	$ 16 773 104	$ 8 879 879	$ 5 919 919	$ 35 422 946
Sales Tax Maine (sales side - paid by consumers)	5.50%	$ 922 521	$ 488 393	$ 325 596	$ 1 948 262
Total sales tax benefits for Maine		$ 922 521	$ 488 393	$ 325 596	$ 1 948 262
					-
Average additional capital expenditures		5 046 064	2 583 799	1 687 768	$ 10 462 245
Total Capital and Exports benefits for Maine		$ 5 046 064	$ 2 583 799	$ 1 687 768	$ 10 462 245
					-
Indirect goods and services purchased in the State of Maine					-
Local Purchases by corporates from local Maine suppliers	25.0%	$ 13 712 740	$ 7 258 686	$ 4 830 791	$ 28 959 794
Sales tax revenues (buy side paid by companies)	5.2%	$ 685 637	$ 362 984	$ 241 990	$ 1 447 990
Local Purchases by local residents from local Maine suppliers	40.0%	$ 5 260 015	$ 2 784 772	$ 2 698 287	$ 14 054 211
Benefit of use of local supp lers		$ 19 972 755	$ 10 864 457	$ 7 5 8 077	$ 43 014 006
					-
Tax income revenues for State of Maine					-
Corporate income tax for the State of Maine	8.35%	$ 1 720 128	$ 910 882	$ 607 344	$ 3 633 222
Sales Tax revenues	5.50%	$ 1 608 158	$ 851 378	$ 567 585	$ 3 396 252
Personal income taxes for the State of Maine		$ 1 017 379	$ 397 039	$ 457 852	$ 2 316 188
Residents dividends tax	8.34%	$ 263 662	$ 139 620	$ 93 094	$ 556 903
Payroll taxes employer State of Maine	5.14%	$ 503 624	$ 266 542	$ 228 399	$ 1 146 562
Direct tax benefits for Maine		$ 5 113 951	$ 2 794 451	$ 1 951 774	$ 11 049 126
					-
Tax benefits at Federal Level					-
Corporate income tax at federal level	34.00%	$ 7 004 115	$ 3 708 980	$ 2 473 018	$ 14 793 958
Personal income tax at federal level	14.80%	$ 2 373 827	$ 1 393 034	$ 1 067 129	$ 5 404 307
Dividends tax at federal level	15.00%	$ 890 707	$ 471 668	$ 314 491	$ 1 881 335
Total other benefits		$ 10 268 649	$ 5 573 682	$ 3 854 638	$ 22 079 599
					-
Total Dirct Benefits		$ 5 113 951	$ 2 794 451	$ 1 951 774	$ 11 049 126
Total Invact Benefits		$ 50 937 505	$ 28 033 867	$ 19 826 200	$ 110 691 378
Costs					
Cost of soft loan p ng am		$ 147 143.23	$ 75 343.58	$ 49 215.31	$ 05 079
Cost of non- epayable g ant		$ 262 148.18	$ 134 231.00	$ 87 681.27	$ 543 524
Costs incentive program		$ 409 291	$ 209 575	$ 1 6 897	$ 848 603
Number of persons employed - minus retained jobs		204	127	105	
Total annual salary cost		$ 9 609 712	$ 6 008 435	$ 4 941 005	$ 22 936 796
Total Annual Sales Revenues		$ 61 820 217	$ 33 660 82	$ 23 142 125	$ 132 984 353
Total Cost of Sales (including manufacturing R&D and marketing etc.)	72.55%	$ 44 849 047	$ 24 426 08	$ 16 789 043	$ 96 476 877
Tax liability amount		$ 16 971 170	$ 9 243 073	$ 6 353 083	$ 36 507 476
No incentive status					
Corporate income tax MaineState Level*:	8.35%	$ 1 719 819	$ 910 718	$ 607 235	$ 3 632 569
Corporate income tax US Federal Level*:	34.00%	$ 7 004 115	$ 3 708 980	$ 2 473 018	$ 14 793 958
Net profit - no incentive		$ 11 876 404	$ 6 289 066	$ 4 193 329	$ 25 085 113
Retained earnings	50%	$ 5 938 202	$ 3 144 533	$ 2 096 665	$ 12 542 557
Dividends payable to Maine residents	69%	$ 4 097 359	$ 2 169 728	$ 1 446 699	$ 8 654 364
Dividends payable to non-residents	31%	$ 1 840 843	$ 974 805	$ 649 966	$ 3 888 193
Opportunity cost Net Income (salary and dividends)		$ 11 675 239	$ 6 807 768	$ 5 343 000	$ 26 741 512
Total Annual Sales in the State of Maine	22.13%	$ 13 714 577	$ 7 469 423	$ 5 133 992	$ 29 302 067
Sales Tax Maine (sales side - paid by consumers)	5.50%	$ 754 302	$ 410 818	$ 282 370	$ 1 622 614
Opportunity cost total sales tax benefits for Maine		$ 754 302	$ 410 818	$ 282 370	$ 1 622 614
Indirect goods and services purchased in the State of Maine					
Local Purchases by corporates from local Maine suppliers	25.0%	$ 11 212 262	$ 6 106 577	$ 4 197 261	$ 24 119 219
Sales tax revenues (buy side paid by companies)	5.0%	$ 560 613	$ 305 329	$ 209 863	
Local Purchases by local residents from local Maine suppliers	40.0%	$ 4 670 096	$ 2 763 07	$ 2 137 200	$ 10 606 605
Benefit of use of local supp lers		$ 16 442 970	$ 9 175 013	$ 6 544 324	$ 36 021 785
Tax income revenues for State of Maine					
Corporate income tax for the State of Maine	8.35%	$ 1 416 838	$ 771 658	$ 5 0 387	$ 3 047 827
Sales Tax revenues	34.00%	$ 1 314 915	$ 716 147	$ 492 233	$ 2 828 575
Personal income taxes for the State of Maine	8.34%	$ 609 560	$ 881 125	$ 313 416	$ 1 454 919
Residents dividends tax	8.34%	$ 259 902	$ 137 629	$ 91 766	$ 548 961
Payroll taxes employer State of Maine	5.14%	$ 301 745	$ 188 665	$ 155 148	$ 720 215
Direct tax benefits for Maine		$ 3 902 960	$ 2 195 224	$ 1 582 950	$ 8 600 497
Administrative costs					
Total wage costsadministrative support staff		$ 131 422	$ 134 82	$ 137 000	$ 443 524
Overhead costs (% of total wage bill)	20%	$ 26 284	$ 26 836	$ 27 400	$ 88 785
Total administrative costs		$ 157 707	$ 161 018	$ 164 400	$ 532 708
Opportunity costs of taxes at Federal Level					
Corporate income tax at federal level	34.00%	$ 5 770 198	$ 3 142 645	$ 2 160 048	$ 12 412 542
Personal income tax at federal level	14.80%	$ 1 422 272	$ 889 270	$ 731 286	$ 3 394 728
Dividends tax at federal level	15.00%	$ 890 730	$ 471 680	$ 314 500	$ 1 881 384
Total opportunity cost federal taxes		$ 8 083 200	$ 4 503 595	$ 3 205 834	$ 17 688 654
Total direct costs		$ 4 469 958	$ 2 565 818	$ 1 884 246	$ 9 981 808
Total indirect costs		$ 36 201 410	$ 20 586 376	$ 15 093 157	$ 80 451 951

Appendix I – State R&D Benchmark Assessment

Maine R&D Programs

Goals of Maine's Research and Development Programs

The State of Maine established its current R&D program in 2007. It seeks to encourage companies to create jobs and innovation throughout the State. As part of its wider program of economic development assistance, the R&D program focuses on technical advancement within existing and operating companies. The individual programs are the following:

- The Research Expense Tax Credit;
- The Research and Development Super Credit; and
- The High-Technology Investment Tax Credit.

These are all based on the Federal Credit for Increasing Research Activities of the Internal Revenue Code Section 41; qualifying for the Federal program is a pre-requisite. All are credits against State taxes.

Sales tax exemptions and loans for R&D activity are not examined here. Neither are venture capital programs. Sale tax exemption programs and loans are similar between states and are rarely differentiating incentives. Venture capital programs tend to nurture new ideas and businesses from within a state and not an attraction mechanism since young companies are rarely mobile and often have little financial substance.

Research Expense Tax Credit

This is a tax credit for qualified research expenses, including in-house and contracts, seeking to uncover technological information that can be used in developing new businesses or improving existing ones. Key components include:

- Based on excess of three-year base period;
- Credit limited to 5% of excess of qualified research plus 7.5% of basic research payment under IRC § 41(e)(1)(A);
- Limited to 100% of the first $25,000 in tax liability, plus 75% in excess of $25,000; and
- Carry-forward period is up to 15 years.

The Research and Development Super Credit

This credit is in addition to the Research Expense Tax Credit for larger increases over the base year period. Key components include:

- Applies to qualified research that exceeds 150% of the three-year base period;
- Credit is limited to 50% of the tax otherwise due after all other credits are taken;
- The credit cannot reduce the tax liability below amount due on the previous year after credits taken; and
- No carry-back, but can be carried forward up to five years.

High-Technology Investment Tax Credit

This credit is based on the adjusted basis of eligible high-tech equipment purchased or leased by the business engaged primarily in high year activities.

- The credit cannot reduce the tax liability below amount due on the previous year after credits taken.
- No carry-back, but can be carried forward up to five years.

The State also has full or partial sales tax exemption for machinery and equipment related to manufacturing, R&D, custom computer programming, fuel and electricity and biotechnology.

Maine Technology Institute

In 1999 the state established the Maine Technology Institute (MTI) to encourage the growth of technology companies that create high-quality jobs. Funded by the Department Economic and Community Development (DECD), MTI is a private, non-profit organization and offers assistance in the form of early-stage capital, loans and grants, as well as commercialization assistance. The center, based in Brunswick, focuses its effort on seven technology sectors leveraging off strengths in knowledge and skill sets within the State:

8. Biotechnology – genetics, genomics, diagnostic products
9. Composites and Advanced Materials –boat building, industrial and renewable energy
10. Environment Technologies – services and engineering
11. Forest Products & Agriculture – variations on tradition product lines, biofuels, bioplastics, specialty and locally-produced foods and beverages
12. Information Technology – geospatial technologies, new media, bioinformatics and application to other clusters
13. Marine Technology and Aquaculture – sustaining and preserving fisheries
14. Precision Manufacturing – metal products and electronics, network development, training and certification in aviation manufacturing, and bio manufacturing

The MTI also administers the State's bond fund, Maine Asset Technology Fund.

Though the focus of the center is on new technology and the companies that are being created to develop them, the State

Competitive State Programs

The State of Maine borders and/or is in close proximity to the States of New Hampshire and Connecticut and the Commonwealth of Massachusetts. These are considered main competitors for attracting companies and jobs, since expanding companies often take a regional approach to their location searches. To this mix, the consultant team has added the State of Iowa, which has been selected due to its leadership and success in evaluating incentive programs. Iowa also has an agricultural industry and must compete against larger, more centrally-located state neighbors. It also has been seeking to diversify its economy and attract and develop innovation.

These competitors have similar programs to those of Maine's, but with certain distinctive features.

Massachusetts

Massachusetts is well-known as a developer of innovation with the Massachusetts Institute of Technology (MIT) and its university system including Harvard, the University of Massachusetts and Boston College. It is home to 12 *Fortune 500* companies including Raytheon, Boston Scientific and Biogen.

The Commonwealth offers its Research and Development Tax Credit. A key distinction is that it offers a 10% credit for any research expense incurred and a 15% credit for any research payments related to donations to research organizations. This is a feature which Maine does not offer.

The Commonwealth also offers a tax credit for the purchase and lease of tangible property including technical equipment and personal property constructed.

Connecticut

Connecticut is a leader in development in the Northeast of the US. Home 16 *Fortune 500* corporations including General Electric and United Technologies, the State is known as a manufacturing base and for renewable energy technology that has leveraged the technologies and skill sets developed. The State also boasts a number of top universities including the Ivy League Yale and the University of Connecticut.

Connecticut has several programs that are focused on R&D. The Corporation Business Tax Credit for Research and Development Expenses offers tax credits for R&D expenses paid or incurred and is ratably increased from one percent ($50 million or less) to six percent (exceeding $200 million). The limit is 20% of R&D expenditures exceeding R&D expenditures over the prior taxable year and no more than one-third of the credit amount can be taken in that income year. A key difference is that credits can be sold back to the State of 65% of its value allowing a cash option for companies with revenues of $70million or less.

The State also has its Credit for Increasing Research and Experimental Expenditures, whereby grants to institutions of higher learning for R&D research and advancement, can be credited again state taxes. It is based on overage from preceding three years.

New Hampshire

The State of New Hampshire is one of the smallest states and least populous in the union. It is home to Dartmouth College and the University of New Hampshire. No *Fortune 500* companies are headquartered in the State.

Its program, Research and Development Credit, focuses on qualified manufacturing activity for wages paid in the state. The credit is 10% of qualified R&D expenditure or $50,000. The state has recently doubled its allocation for the program to $2 million.

Iowa

The State of Iowa is a Midwestern State with a larger geographic size to Maine, with nearly three times the population. It too must compete against larger states surrounding it. Known as an agricultural

state, it has diversified its economy significantly into advanced manufacturing, financial services, information technology, biotechnology, and green energy production. The University of Iowa and Iowa State University are its major educational institutions. Iowa has two *Fortune 500* companies headquartered in the State.

Iowa has a single program, Research Activities Credit (RAC). It is for research activities within the State and includes wages paid, tangible property, manufacturing process improvement, as well as designing and testing manufacturing processes. The program allows 6.5% of qualified annual research expenses, with a fixed base average of five years. The program is also refundable once tax liabilities are met.

Supplemental RACs are available through Iowa's Enterprise Zone and High Quality Jobs programs. The amount of the credit's increase is dependent upon the gross revenue of the company.

Table 33 Table Comparison of the State's R&D Programs

Jurisdiction	Title	Type	Focus	Description	Limit	Eligibility	Carry	Timeline	Reference
State of Maine	Research Expense Tax Credit	Tax Credit	Increase in qualified research	5% of excess expenses over previous three years average plus 7.5% of the basic research payments	Limited to 100% of the first $25,000 in tax liability, plus 75% of tax liability in excess of $25,000	Qualified research expenditures based on a percentage of the federal Credit for Increasing Research Activities Limitations	Carry forward for up to 15 years. No carry back.	Annually as part of a company's state corporate tax return.	36 MRSA § 5219-K Definitions follow the Internal Revenue Code § 41 Form and Instructions (PDF)
State of Maine	Super Research and Development Credit	Tax Credit	Substantial increase in qualified research	Based on qualified research payments exceeding 150% of the average for the three-year period prior to the effective date of the credit	Limited to 50% of the tax otherwise due after all other credits	Must qualify for Research Expense Tax Credit	Carry forward for up to five years. Cannot be carried back	Annually as part of a company's state corporate tax return.	36 MRSA § 5219-L. Definitions follow the Internal Revenue Code § 41 Form and Instructions (PDF)
State of Maine	High-Technology Investment Tax Credit	Tax Credit	High-tech equipment purchase or lease.	Based on the adjusted basis of eligible equipment	The credit cannot reduce tax to an amount below the previous year's tax after credits Limited to high-tech equipment purchased (or leased) by businesses engaged primarily in high-tech activities	Eligible equipment includes computer equipment, electronic components and accessories, communication equipment and computer software placed in service in Maine. Eligible equipment must be used in a high-technology activity.	Carry forward for up to five years. Cannot be carried back	Annually as part of a company's state corporate tax return.	36 MRSA § 5219-M. Form and Instructions (PDF)
Commonwealth of Massachusetts	Research & Development Tax Credit	Tax Credit	Offers qualifying Massachusetts companies credit against excise tax for qualified research expenditures.	1) 10% credit designed for any research expense incurred 2) 15% credit to Basic Research Payments for any costs related to donations and contributions made to research organizations such as hospitals and universities	Limited to 100% of the first $25,000 in tax liability, plus 75% of excise tax in excess of $25,000. May reduce the corporation's tax to the minimum tax of $456	Research activity must qualify for the Federal R&D tax credit	Can be carried forward year over year for up to 15 years and attributable to another corporation group member. If qualified Life Sciences company, remaining credit is up to 90% refundable.	Annually as part of a company's Commonwealth corporate tax return.	Massachusetts R&D tax credit is permanent Can be taken in conjunction with the state's Investment Tax Credit of three-percent (or five-percent as part of the Economic Development Incentive Program). MGL Chapter 63 section 38M
Commonwealth of Massachusetts	Investment Tax Credit (ITC)	Tax Credit	Used for the purchase and lease of qualified	3% of the cost (or other basis for federal income tax purposes) of qualifying tangible	Limited to excise tax liability based on qualified property and after federal tax	Available to manufacturers, certain research and development corporations and	Unused credits may be carried over to three subsequent	Annually as part of a company's Commonwealth corporate tax	http://www.mass.gov/hed/business/incentives/investment-tax-credit.html

			tangible property used in the course of business operations	property acquired, constructed, reconstructed, or erected during the taxable year, after federal tax deductions are taken on the property	deductions are taken on the property	corporations engaged primarily in agriculture or commercial fishing	years	return.	MGL Chapter 63, section 31a
State of Connecticut	Corporation Business Tax Credit for Research and Development Expenses	Tax Credit	Research or experimental expenditures paid or incurred *in Connecticut*	increases ratably from 1% of the annual research and development expenses paid or incurred, where such expenses equal $50 million or less, to 6% of the annual research and development expenses paid or incurred, where such expenses exceed $200 million.	20% of the R&D expenditures in CT in the current income year exceeding R&D expenditures of the prior taxable year	No more than one-third of the amount of the credit allowed for any income year may be included in the amount of the credit that may be taken in that income year. The total amount of the credit that may be taken for any income year is limited to the greater of (a) 50% of the taxpayer's tax liability, determined without regard to any credits allowed by the Act, or (b) the lesser of 200% of the credit otherwise allowed for the income year and 90% of the taxpayer's tax liability. Credits that are allowed but which exceed the amount that may be taken in an income year may be carried forward to each successive income year until such credits are fully taken.	Carry forward or, for companies with revenues of $70MM or less, can be sold back to the State for 65% of the value		DECD 1993 Conn. Pub. Acts 433 and Conn. Gen. Stat. §12-217j, established by 1993 Conn. Pub. Acts 403 Special accommodation for large companies and aerospace companies
State of Connecticut	Credit For Increasing Research and Experimental Expenditures	Tax Credit	Grants to institutions of higher learning for R&D-related technology advancement	25% credit for any increase in grants	To come	Amount must be over the average grants provided during the preceding three years	To come	Part of State Corporate Tax Return	
New Hampshire	Research and Development Credit	Tax Credit	R&D for qualified manufacturing activity	Paid wages for R&D activity in New Hampshire	10% of qualified R&D or $50,000.	Section 41 qualified wages	5-years	Applications must be filed to the Dept. of Revenue Administration on or before	$2MM credit passed 5/20/13 up from $1MM. Should annual aggregate exceed $2,000,000, all credits will be reduced

								June 30.	proportionately. Can be applied first to Business Profits Tax, then Business Enterprise Tax
State of Iowa	Research Activities Credit	Tax Credit	Research activities in Iowa,	Refundable once tax liabilities are met	6.5% of qualified research expenses within tax year based on fixed base average of five years (maxed at 16%)	Must meet the qualifications of the Federal Research Activities. May include wages paid to employees or supervisors, supplies including tangible property May also include manufacturing process improvements, engineers' time, management and employees designing and testing new mfg processes. Supplies does not include land or improvements to land, or depreciable property	none	Part of State Corporate Tax Return	Supplemental Research Activities Credits are available through the Enterprise Zone and High Quality Jobs programs (+10% if gross revenue < $20MM; +3% if >$20MM). http://www.iowaeconomicdevelopment.com/Finance/Research