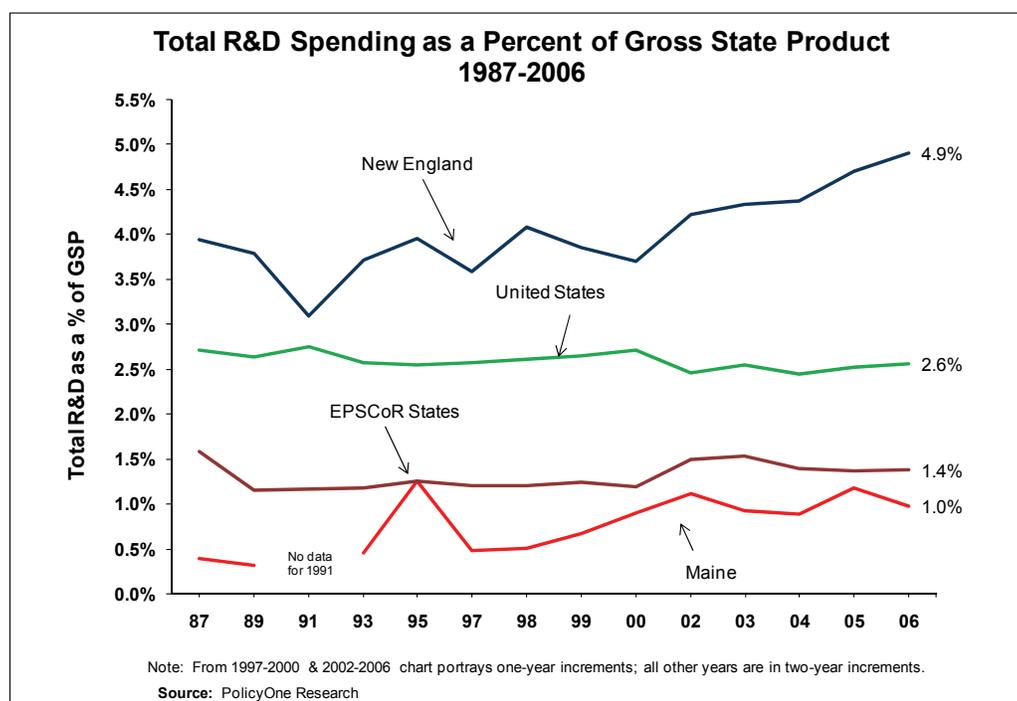


## Innovation

*“According to the Council on Competitiveness innovation is the ‘single most important factor in determining America’s success through the 21<sup>st</sup> century. It will drive productivity, standard of living, and leadership in the global economy.’ ”*

Policy One Research, Inc., for Maine Office of Innovation, Maine Innovation Index

Innovation is essentially our ability to develop and implement new and better ideas. In the context of the economy, these new ideas help new and existing businesses grow and create new ventures. This allows Maine businesses to be competitive nationally and globally, to generate greater wealth, and to create good sustainable jobs. Investment in innovation entails supporting the entire process from idea to market and, when done correctly, generates a great return on investment for Maine.



## Facts and Findings

**Maine lags many states in the nation in terms of total R&D investment.**

According to the Maine Economic Growth Council, Measures of Growth in Focus, 2010 (see chart above):

- Total R&D investment in Maine is 1% of GDP – this is less than half the national average and less than a quarter of the New England average

- Maine's national rank in total R&D investment is 38<sup>th</sup>

**Jobs in an innovation economy have growth potential and tend to pay better.**

According to Luke Davulis, Maine Department of Labor, STEM Occupations in Maine, 2008:

- Average wages in STEM (Science, Technology, Engineering, and Mathematics) occupations in Maine are \$55,690 – 48% above other occupations
- In Maine, STEM employment through 2014 is projected to grow 7.5% (vs. 7.2% for other occupations)
- Mean earnings of engineers in Maine is \$70,840 – 101% above other occupations

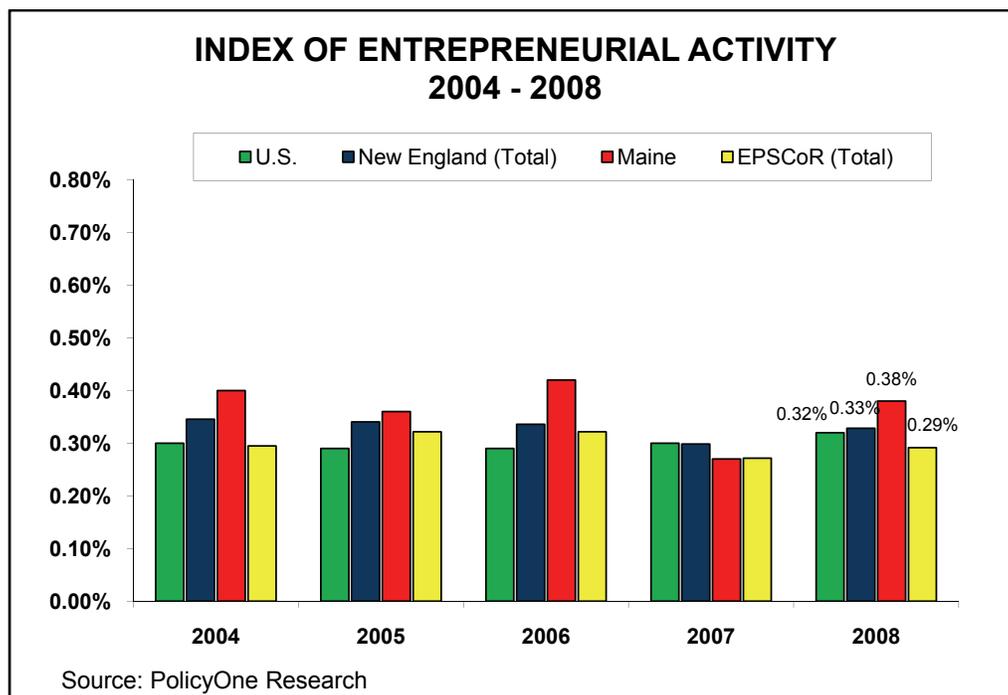
**Maine receives mixed ratings in terms of educating people for the innovation economy.**

According to the Maine Office of Innovation, Maine Innovation Index, 2009:

- Nationally, Maine 8<sup>th</sup> graders' math and science skills rank 12<sup>th</sup> and 9<sup>th</sup>, higher education enrollment among young people ranks 13<sup>th</sup>, science and engineering graduate enrollments rank 51<sup>st</sup>, science and engineering degrees awarded rank 38<sup>th</sup>

According to the Maine Economic Growth Council, Measures of Growth in Focus, 2010:

- Maine adults have a higher degree attainment rate of 34.4% in 2008 – which is lower than national and regional rates



## **Relative to the nation, Maine currently ranks low in innovation capacity.**

According to the Maine Office of Innovation, Maine Innovation Index, 2009:

- Maine ranks 38<sup>th</sup> in venture capital investments 43<sup>rd</sup> in patents issued, and 31<sup>st</sup> in entrepreneurial activity
- Maine ranks 35<sup>th</sup> in high tech employment growth, 44<sup>th</sup> in high tech business growth, and 44<sup>th</sup> in scientists and engineers in workforce

## **Survey Says**

MDF worked in partnership with several Maine trade and professional associations to distribute a survey to their members to understand their experiences with investment and policy issues in the state. 1,039 business leaders responded to the survey. The following is a summary of responses concerning innovation.

### **When asked to report the influence of 19 public policy issues on their businesses and organizations:**

- Respondents cited Maine-based research and development among the top three most positive factors

### **When asked to choose the top 3 priorities for Maine's next Governor and Legislature to tackle to help grow the economy:**

- After overwhelmingly selecting the issues that were negatively impacting their businesses, respondents selected Maine-based research and development as the 8<sup>th</sup> most popular priority

## **Experts Recommend**

The following is a summary of key recommendations from various reports, committees and efforts on the topic of innovation.

Maine Economic Growth Council, Measures of Growth in Focus, 2010:

- Maine must sustain and increase R&D investments to close the gap separating Maine from the nation in this critical indicator and move toward the benchmark of 3% of GDP

Maine Innovation Economy Advisory Board and Maine Office of Innovation, 2010 Science and Technology Action Plan: A Bold Approach to Stimulate Maine's Economy:

- Maine must invest at least \$32 million annually to increase innovation and entrepreneurship
- Increase R&D by academic, non-profit, and private sector:
  - Provide incentives to companies and broaden R&D tax credit
  - Help companies pursue grants and Small Business Innovation Research and Small Business Technology Transfer funding

- Build and maintain research facilities
- Attract and keep high quality researchers and students
- Provide competitive matching funds
- Deepen relationships between research institutions and Maine companies
- Increase employment by building innovative capacity:
  - Increase incentives for investors
  - Improve commercialization capacity
  - Support emerging and established innovation-intensive clusters
  - Build supportive environment for high-growth, high-potential, innovation-based enterprises
- Increase per capita income by increasing the skills of Maine workers:
  - Increase supply of knowledgeable entrepreneurs
  - Align K-20 education and workforce training to skills required and targeted by sectors
  - Increase graduates in STEM disciplines at all levels
  - Recruit high-skilled workers to Maine

Joint Select Committee on Future Maine Prosperity, Time for Change, 2008:

- Support sustained investment in innovation through competitive and collaborative processes
- Use state's comprehensive R&D evaluation in all funding decisions for innovation
- Continue support of Maine Technology Institute (MTI)
- Continue support of MTI Cluster program
- Continue support of Maine Innovation Economy Advisory Board
- Continue support of the Maine Economic Growth Council making recommendations on R&D investments
- Create a Fund of Funds for innovation investments
- Focus work of Department of Economic and Community Development (DECD) to support clusters
- Government, higher education and research institutions work together to create internet and information technology capacity that is second to none

Maine Center for Business and Economic Research, USM, Battelle Technology Partnership Practice, Planning Decisions, Inc, and PolicyOne Research, Inc., Maine's Technology Sectors and Clusters: Status and Strategy, 2008:

- Feed the R&D Pipeline – invest in R&D
- Catalyze clusters and continue to fund innovation that contributes to clusters
- Increase higher educational attainment in STEM and in graduate and PhD degrees

Maine Council on Jobs, Innovation and the Economy, Final Report, 2007:

- Recommends \$150 million bond – allocated \$50 million per year for 3 years
  - Funding is for capital and infrastructure, open to public, non-profit and private sector applicants to promote innovation-based economy
  - Funding available for:

- University of Maine System: \$15 million annually
- Biomedical: \$7 million annually
- Marine: \$5 million annually
- All technology sectors: \$23 million annually

## Investment Imperatives

As Maine's 2010 Science and Technology Plan so clearly articulates, "We need to compete through innovation." Maine businesses need to innovate to create jobs and new opportunities. This is where the growth will occur in the economy. Funding R&D is part of this but there is more. We need to support ideas as they go to market. We need to support small businesses and entrepreneurs in their ventures. And, we need to teach and promote innovation statewide in all things that we do.

## Recommendations

### *Commit to necessary funding levels for innovation statewide*

- Increase Maine's total R&D investment to 3% of GDP by 2015 (same benchmark as 2010 Maine Science and Technology Plan)
- Increase R&D tax incentives to encourage a greater share of private industry investment in R&D
- Support and increase MTI funding to help entrepreneurs leverage additional public and private financing
- Properly capitalize organizations like the Finance Authority of Maine to enable entrepreneurs to have access to affordable capital

### *Provide support for entrepreneurs and small businesses*

- Support Maine's Technology Centers and their work to support the business efforts of Maine inventors and entrepreneurs
- Support Maine's Small Business incubator system
- Support groups like Maine International Trade Center and Maine & Company to connect entrepreneurs with partners across the country and around the world

### *Teach innovation and entrepreneurship statewide*

- Work with regional small business counseling and economic development organizations to provide innovation training to 10,000 small Maine businesses in the next eight years
- Support a plan to recruit top-level science and engineering professors to Maine
- Include entrepreneurship in K-12 curricula statewide