The Vermont Manufacturing Extension Center (VMEC) has operated statewide as a not-for-profit Center since 1995, collaborating with public and private partners in business, government and education to bring world-class assistance and resources to Vermont manufacturers and other enterprises of all sizes, helping them overcome ever-changing challenges, become more competitive and grow their profitability.

A valuable local Resource and Trusted Advisor, VMEC has a 20+ year track record of achieving measured results and quantified impact for its clients, with a high average Return-On-Investment (ROI) reported by clients as a direct result of VMEC assistance.

The VMEC Team brings expertise in consulting, coaching, hands-on implementation, continuing support, and training & education for leaders and workers – helping them to innovate, plan, perform and accelerate profitable growth in ways that drive increasing enterprise value.

The VMEC Team provides proven systems and solutions focused on Strategies, Processes, Products, Technologies and People.

A Closer Look at VMEC

**HOW VMEC ASSISTS COMPANIES & ORGANIZATIONS**

**Operational Excellence and Continuous Improvement**

Ongoing continuous improvement, cost reduction strategies and operational excellence remain among the top needs we hear from manufacturers. VMEC can recommend and support systems and solutions to identify and systematically drive out waste in all of its forms, transform office/administrative and plant processes, solve problems, lower costs, improve quality, increase customer and employee satisfaction, manage talent and train employees, and grow a culture of continuous improvement. VMEC advisors focus on how to transform and continuously improve companies and organizations, helping them implement innovative strategies that positively impact top and bottom lines of their enterprises, enabling the achievement of new levels of success. We help leaders plan and implement winning strategies to create and sustain a profitable future. We understand all that’s required to grow revenues, profits and increase enterprise value.

**Innovation, Growth and Technology Acceleration**

Vermont Manufacturers are asking for help to develop new products and increase sales to new markets. Spanning the innovation continuum, VMEC can help plan, accelerate and implement strategies to integrate advanced manufacturing technologies into profitable new Products & Services, Processes and Business Models for systemic excellence and sustainable growth. VMEC was an early Innovation Engineering™ “pioneer” (2006) and is a licensed member of the growing global Innovation Engineering Network of practitioners and 20+ Universities and Colleges now offering this new scientific discipline and field of academic study that is grounded in over 36 years of real world projects.

The VMEC Team includes certified Innovation Engineering Black Belts who help our clients address their innovation challenges – by advancing innovation CREATIVITY, developing a world class innovation CAPABILITY and growing an innovation CULTURE. Our Innovation Engineering Black Belts can train and educate enterprise leaders and their staff and also lead and coach innovation projects using a variety of intelligent tools, methods and systems to increase Speed of Innovation and Speed to Market (up to 6X), while decreasing risk associated with innovation (30-80%).

**Resources for Vermont Manufacturers**

Manufacturers need quick access to information and resources for wide-ranging needs. The VMEC team is comprised of a highly experienced group of professionals with many years of combined experience in all aspects of manufacturing and enterprise growth. When necessary, we have ready access and established relationships with State of Vermont and private resources, plus more than 1,500 NIST MEP National Network consultants and numerous other resources across the nation through VMEC’s longstanding affiliation with federal stakeholder partner, the Hollings National Institute of Standards & Technology (NIST) Manufacturing Extension Partnership (MEP) within the U.S. Department of Commerce. Companies can also access a wealth of valuable information and resources through the VMEC website, newsletters, events, certification programs, and connections to numerous local, regional and national resources.

**Workforce Strategies and Talent Development**

Developing a highly skilled workforce is critical to Vermont’s manufacturers. VMEC offers a variety of networking and training opportunities through its basic and advanced public and on-site Workshops, Vermont Manufacturing Forums held at local plants, and focused Special Events. These exceptional offerings are designed to inform, challenge and train attendees about how they might improve their operations, accelerate profitable growth, and gain competitive advantage through best practices in advanced talent management and investments in people.
## Manufacturing is Critical to Vermont’s Economy

- **Jobs**: In 2014, manufacturing employed about 32,000 people, or 10.4% of Vermont’s total employment population of about 306,700. This was a greater proportion than the United States overall at 9%.  
  *Source: U.S. Bureau of Labor Statistics*

- **Wages**: In 2014, manufacturing paid average annual wages that were 29% higher ($55,290/yr) than the state average wage ($43,017/yr). Total manufacturing wages paid in 2014 exceeded $1.725 billion.  
  *Source: VT Department of Labor, ELMI Division*

- **State GDP**: In 2015, manufacturing accounted for about $2.8 billion or 9% of the state’s gross domestic product (GDP).  
  *Source: U.S. Bureau of Economic Analysis*

- **Exports**: In 2014, manufactured goods exported by Vermont companies made up almost 71% of all Vermont exports, or about $2.57 billion in total value.  
  *Source: U.S. Census Bureau Foreign Trade Division*

- **Economic Multiplier Impact**: Every $1 in manufactured goods generates an estimated $1.37 worth of additional economic activity—the highest of any other economic sector.  
  *Source: Bureau of Economic Analysis, Industry Input-Output Tables (2013)*

- **Employment Multiplier**: Each manufacturing job supports an additional 1.6 jobs, and each “Advanced Manufacturing” job supports as many as 4.9 other jobs.  
  *Source: Local Multipliers,” American Economic Review, Papers & Proceedings 100*

- **Research & Development**: Manufacturers in the U.S. perform two-thirds of all private sector research and development in the nation, driving more innovation than any other sector.  
  *Source: National Science Foundation*

## Partial VMEC Impact

- Jobs created that otherwise would not have existed: **118**  
  *Last three years: 308*

- Jobs retained: **143** / Last three years: **346**

- Total jobs created (direct, indirect, and induced): **736** that paid a total of **$36.8 million** in employer wages and benefits

- Client investment in modernization: **$16,423,000**

- Last three years: **$44,807,000**

- Cost savings: **$7,577,000** / Last three years: **$26,704,000**

- Increased and retained sales: **$33,697,000**  
  *Last three years: **$195,616,000***

- Additional labor compensation: **$51,400,000**  
  *that paid a total of $26,704,000***

- Total value added (gross state product): **$60,715,000**

This data reflects the results of VMEC client projects from July 2015 through June 2016. The data is from formal surveys conducted by a third party under contract to the National Institute of Standards and Technology (NIST), Hollings Manufacturing Extension Partnership (MEP). Clients surveyed represent 53% of all Vermont clients served by VMEC during the period. “Client-reported impact as a direct result of VMEC assistance.” *Results of input-output analysis (IMPLAN modeling) based on results from VMEC clients surveyed.*

## Manufacturing in Vermont

- **Computers & Electronics**: 25%  
  - 1-9: 12%  
  - 10-49: 6%  
  - 50-99: 8%  
  - 100-499: 6%  
  - 500+: 2%

- **Food & Beverage**: 18%  
  - 1-9: 12%  
  - 10-49: 11%  
  - 50-99: 11%  
  - 100-499: 5%  
  - 500+: 1%

- **Machinery**: 9%  
  - 1-9: 2%  
  - 10-49: 7%  
  - 50-99: 13%  
  - 100-499: 2%  
  - 500+: 7%

- **Wood Products & Furniture**: 7%  
  - 1-9: 6%  
  - 10-49: 1%  
  - 50-99: 2%  
  - 100-499: 1%  
  - 500+: 5%

- **Electrical Equipment & Components**: 6%  
  - 1-9: 0%  
  - 10-49: 0%  
  - 50-99: 1%  
  - 100-499: 5%  
  - 500+: 4%

- **Transportation Equipment & Components**: 5%  
  - 1-9: 0%  
  - 10-49: 0%  
  - 50-99: 0%  
  - 100-499: 0%  
  - 500+: 1%

- **Chemical Products**: 4%  
  - 1-9: 0%  
  - 10-49: 0%  
  - 50-99: 0%  
  - 100-499: 0%  
  - 500+: 1%

- **Non-metallic Minerals Products**: 4%  
  - 1-9: 0%  
  - 10-49: 0%  
  - 50-99: 0%  
  - 100-499: 0%  
  - 500+: 1%

- **Plastics**: 4%  
  - 1-9: 0%  
  - 10-49: 0%  
  - 50-99: 0%  
  - 100-499: 0%  
  - 500+: 1%

- **Other Durable Goods**: 4%  
  - 1-9: 0%  
  - 10-49: 0%  
  - 50-99: 0%  
  - 100-499: 0%  
  - 500+: 1%

- **Other Non-durable Goods**: 6%  
  - 1-9: 0%  
  - 10-49: 0%  
  - 50-99: 0%  
  - 100-499: 0%  
  - 500+: 1%

## Client ROI ➔ 169:1

**Average 3-Year Return on Investment (ROI)**

Over the past 3 years, every $1 spent by clients on VMEC assistance returned an average on that investment of $169.  

*(Based on company-reported data from April 2013 through March 2016.)*
Challenges to Manufacturing Growth in Vermont

VMEC client surveys completed October 2015 – September 2016 by an independent third party under contract to NIST MEP, revealed that their five highest-ranking strategic challenges included:

- 65% Ongoing Continuous Improvement/Cost Reduction
- 54% Product Innovation and Development
- 52% Growth Opportunities
- 44% Employee Recruitment and Retention
- 22% Sustainability in Products and Processes

VMEC’s Total Impact on Vermont’s Economy

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1996 – June 2016</td>
<td>$1,826,462,000</td>
</tr>
<tr>
<td>July 2015 – June 2016</td>
<td>$170,377,000</td>
</tr>
</tbody>
</table>

Includes the direct client impact reported by clients via third-party survey, the indirect impact generated when clients’ firms increase their purchases from suppliers, and the induced impact caused by increased household expenditures generated by direct and indirect effects. Reported impacts are modeled using IMPLAN 3.0 Software and Vermont 2011 State data package.

RESPONSES TO INDEPENDENT SURVEY QUESTION:
“What are the three biggest challenges facing your clients?”

- 100% Technology Needs
- 80% Managing Partners & Suppliers
- 60% Sustainability in Products & Processes
- 40% Exporting/Global Engagement
- 20% Ongoing Continuous Improvement/Cost Reduction
- 20% Identifying Growth Opportunities
- 20% Employee Recruitment & Retention
- 10% Financing

Vermont Manufacturing Extension Center

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