



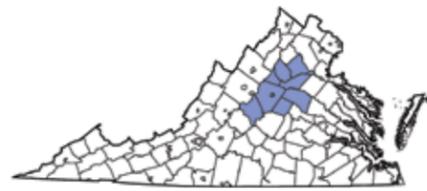
Analysis of Modeling & Simulation

# CHARLOTTESVILLE REGION

REPORT SUMMARY  
The ASTA Group, LLC • November 2014

This study was prepared under contract with the Commonwealth of Virginia, with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the Commonwealth of Virginia and does not necessarily reflect the views of the Office of Economic Adjustment or the Department of Defense.

# Charlottesville Regional Overview



The Charlottesville region has significant M&S talent and companies. The region has not, in stakeholder terms, “reached critical mass” of M&S activity nor achieved recognition of these assets. There is a reliance on personal professional networks for collaboration.

Stakeholders would like to achieve the critical mass necessary to attract M&S technology and retain talented university graduates in the area.

## Asset Summary

Thirteen M&S assets were identified for this region. They include primarily commercial businesses.

Industry Sector	Total Employment	M&S Specific Employment
Total Charlottesville Region Employment	183,947.61	
Total Charlottesville Region Employment, M&S Related Sectors Only	12,433.65	124.34
Pharmaceutical Preparation Manufacturing	7.57	0.08
Other Commercial & Service Industry Machinery Manufacturing	0.63	0.01
Ship Building & Repairing	80.79	0.81
<b>Software Publishers</b>	166.53	1.67
Telecommunications	511.75	5.12
Other Information Services	9.3	0.09
Architectural, Engineering & Related Services	1,550.50	15.51
<b>Custom Computer Programming Services</b>	1,131.67	11.32
<b>Computer Systems Design Services</b>	1,135.64	11.36
Other Computer Related Services, Including Facilities Management	627.95	6.28
<b>Management, Scientific &amp; Technical Consulting Services</b>	1,011.74	10.12
<b>Scientific Research &amp; Development Services</b>	2,013.01	20.13
<b>All Other Miscellaneous Professional, Scientific &amp; Technical Services</b>	342.85	3.43
Other Private Educational Services	1,427.21	14.27
Private Hospitals	2,416.50	24.17

Bold text indicates core sectors of the M&S industry.

## Regional Employment in M&S

This table includes estimates for total employment in the region, for employment in M&S related sectors, and estimates for employment in each individual industry sector analyzed in this study.

As shown in the table, the primary sector Scientific Research & Development Services represents the greatest proportion of M&S employment in the Charlottesville region.

Also shown in the table, about 7% (12,433.65) of the region’s total employment (183,947.61) is comprised of employment in the M&S related sectors. Approximately .07% to .08% of the total for M&S related sector employment is actually M&S specific, so at a minimum, approximately 124 jobs in the related sectors are specific to M&S. For example, of the 2,013 jobs in *Scientific Research & Development Services*, 20 are M&S specific.

### Economic Impact

The M&S contribution to the regional GRP is estimated at \$360-\$533 million. The total economic impact of M&S on the regional economy is estimated to be \$605-\$890 million.

Growth projections for M&S industry sectors within the Charlottesville region range from 15% to 20% through 2020. Analyses project that the region will add 22 to 33 new M&S specific jobs, and that M&S will contribute \$3.2-\$4.7 billion to the regional GRP, from 2011-2020.

### M&S Workforce

The small-town feel of the Charlottesville region encourages employees to stay in the area, but there is also a perception that most high-tech job opportunities, including those for M&S, lie in more urban areas. Workforce needs include employees with a better mix of bioengineering, programming and scientific skills, as well as more experience in simulation and modeling.

### M&S Networking and Collaboration

Individual professional networks seem well established, yet there is a lack of an M&S entrepreneurial community and small business networking at the organizational level; consequently, there is little sense of an M&S community.

Increased networking would enable identification of cross-disciplinary capabilities and promote collaboration, particularly in the realm of public-private partnerships. The business community may be unaware of M&S university talent. Progress seems stymied by legal impediments and incentives that do not promote public-private partnerships.

### Solutions

Stakeholders believe that a regional technology incubator, leveraging both university and industry assets, would facilitate networking and collaboration. This environment would provide for opportunities to collaborate across disciplines, commercialize products and attract skilled M&S workers.



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## Report Description

This report provides regional highlights of a 2013 study undertaken to assess the state of Modeling and Simulation (M&S) within Virginia, analyze its economic impact, and identify projected growth areas. The study produced an inventory of Commonwealth M&S assets, a survey of M&S business regionally, economic analyses of the M&S sector and workforce, and a meta-analysis of previous studies. Focus group interviews were held in each Commonwealth region to provide insight and information about M&S. Participating stakeholders represented academia, government and industry. Impact Analysis for Planning (IMPLAN®) and United States Bureau of Labor Statistics data were used for the economic and workforce analyses. The full report can be found online at the following websites:

ModSim Connected: [modsimconnected.com](http://modsimconnected.com)

Secretary of Technology: [technology.virginia.gov](http://technology.virginia.gov)

