



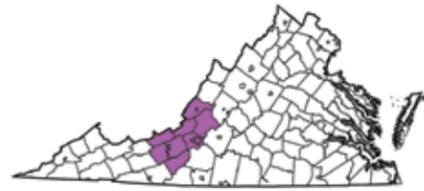
Analysis of Modeling & Simulation

ROANOKE-BLACKSBURG REGION

REPORT SUMMARY
The ASTA Group, LLC • November 2014

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Roanoke-Blacksburg Regional Overview



The Roanoke-Blacksburg region has the critical mass to draw in M&S companies. However, a lack of public-private collaboration, impediments to startup businesses, transportation issues, and need for high-speed Internet access hinder growth. Stakeholders want to better connect industry and academia to benefit product and workforce development.

Asset Summary

Fourteen M&S assets were identified in the region. These include eight university-based laboratory and research organizations.

Economic Impact

The M&S contribution to the regional GRP is estimated at \$595-\$706 million. The total economic impact of M&S on the regional economy is estimated at \$1.0-\$1.2 billion.

Growth projections for M&S industry sectors within the Roanoke-Blacksburg region range from 15% to 20% through 2020. Analyses project that the region will add 34 to 42 new M&S specific jobs, and that M&S will contribute \$5.4-\$6.4 billion to the regional GRP from 2011-2020.

Market

Lack of entrepreneurship is cited by study participants as a concern. It may be impeded by the high degree of sub-specialization in university faculty, lack of startup funding and high fees associated with startups.

Industry Sector	Total Employment	M&S Specific Employment
Total Roanoke-Blacksburg Employment	259,012.30	
Total Roanoke-Blacksburg Employment, M&S Related Sectors Only	19,516.15	195.16
Pharmaceutical Preparation Manufacturing	59.03	0.59
Other Commercial & Service Industry Machinery Manufacturing	26.98	0.27
Ship Building & Repairing	0.00	0.00
Software Publishers	107.38	1.07
Telecommunications	980.98	9.81
Other Information Services	18.83	0.19
Architectural, Engineering & Related Services	2,099.96	21.00
Custom Computer Programming Services	1,184.96	11.85
Computer Systems Design Services	1,018.41	10.18
Other Computer Related Services, Including Facilities Management	2,655.14	26.55
Management, Scientific & Technical Consulting Services	589.51	5.90
Scientific Research & Development Services	910.25	9.10
All Other Miscellaneous Professional, Scientific & Technical Services	306.82	3.07
Other Private Educational Services	973.03	9.73
Private Hospitals	8,584.88	85.85

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 related sectors of *Other Computer Related Services, Including Facilities Management* and *Architectural, Engineering & Related Services* have higher employment than any of the primary M&S industry sectors in the Roanoke-Blacksburg region.

Also shown in the table, about 7.5% (19,516.15) of the region's total employment (259,012.30) is comprised of employment in the M&S related sectors. Approximately 0.08% to 0.09% of the total for M&S related sector employment is actually M&S specific in each sector, so at a minimum, 195 jobs in the related sectors are specific to M&S. For example, of the 2,099 jobs in *Architectural, Engineering & Related Services*, only 21 are M&S specific.

M&S Workforce

The M&S workforce needs to bridge the gap between defining requirements and creating solutions and products. Stakeholders want workers with more physical and executable knowledge relevant to M&S applications. A lack of systems engineering among M&S practitioners was also identified.

M&S Networking and Collaboration

Study participants report a lack of networking and collaboration. This is a concern for university faculty because they must find real-world projects to support increasing numbers of students. Private-public barriers also affect the sharing of large datasets and the commercialization of university-produced research products.

Solutions

Possible solutions are oriented around university investment and action. For example, stakeholders would like funding provided to universities to bring in projects and build data nodes to host data. Moreover, they assert that framework exists at Virginia Tech to promote connections for an accreditation center for new and donated software.



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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

Secretary of Technology: technology.virginia.gov

