



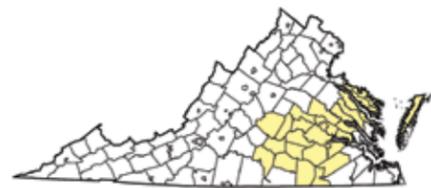
Analysis of Modeling & Simulation

RICHMOND REGION

REPORT SUMMARY
The ASTA Group, LLC • November 2014

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Richmond Regional Overview



The Richmond region has a strong M&S presence in healthcare applications and benefits from a high density of universities and healthcare organizations. Regional stakeholders seek networking opportunities, as well as help with product commercialization through expertise assistance and funding.

Asset Summary

Thirty-one M&S assets were identified within this region, including nine commercial businesses, ten universities and six university-based healthcare organizations.

Economic Impact

The M&S contribution to the regional GRP is estimated at \$2.5-\$3.2 billion. The total economic impact of M&S on the regional economy is estimated at \$4.2-\$5.4 billion.

Growth projections for M&S industry sectors within the Richmond region range from 15% to 20% through 2020. Analyses project that the region will add 126 to 170 new M&S specific jobs, and that M&S will contribute \$22.2-\$29.1 billion to the region's GRP from 2011-2020.

Market

Stakeholders are exploring ways to bridge M&S and healthcare, jumpstart entrepreneurship and enable small businesses. Toward that end, many businesses lack the experience to commercialize products, find new markets and identify startup or venture capital sources.

Industry Sector	Total Employment	M&S Specific Employment
Total Richmond Region Employment	847,006.49	
Total Richmond Region Employment, M&S Related Sectors Only	70,138.52	701.39
Pharmaceutical Preparation Manufacturing	926.30	9.26
Other Commercial & Service Industry Machinery Manufacturing	15.05	0.15
Ship Building & Repairing	54.70	0.55
Software Publishers	335.85	3.36
Telecommunications	5,026.01	50.26
Other Information Services	146.36	1.46
Architectural, Engineering & Related Services	9,238.15	92.38
Custom Computer Programming Services	5,617.80	56.18
Computer Systems Design Services	7,248.16	72.48
Other Computer Related Services, Including Facilities Management	1,726.68	17.27
Management, Scientific & Technical Consulting Services	5,904.47	59.05
Scientific Research & Development Services	3,702.92	37.03
All Other Miscellaneous Professional, Scientific & Technical Services	1,219.06	12.19
Other Private Educational Services	5,034.50	50.35
Private Hospitals	23,942.50	239.43

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, although estimated at a lower weight, the related sector of *Architectural, Engineering & Related Services* has higher M&S employment in the Richmond region than the core sectors.

Also shown in the table, about 8% (70,139) of the region's total employment (847,006) is comprised of employment in the M&S related sectors. Approximately 0.08% to 0.11% of the total for M&S related sector employment is actually M&S specific in each sector, so at a minimum, approximately 701 jobs in the related sectors are specific to M&S. For example, of the 9,238 jobs in *Architectural, Engineering & Related Services*, 92 are M&S specific.

M&S Workforce

Workers with a combination of knowledge in one of the physical sciences and proficiency in scientific programming are needed. Organizations also anticipate a growing need for employees with a solid logistics and sustainment background, STEM degrees and professional certifications. The implementation of cross-disciplinary computer science and physical science programs is suggested by regional stakeholders.

M&S Networking and Collaboration

Though networking around M&S is limited in this region, university collaboration is strong. Businesses rely on university collaboration to produce proof-of-principle samples but lack funding to support these activities. Fairs and events seem focused on M&S training and education only, deterring attendees focused on other market sectors.

Solutions

Increased university-business collaboration would help small businesses grow through leveraging university tools, materials and expertise. Stakeholders suggest providing resources to nursing clinical simulation training centers in an effort to both develop business case models and facilitate hospital use of centers. Small businesses would benefit from a center to provide regional access to the computing power necessary to support M&S activities.



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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

