



Analysis of Modeling & Simulation

FREDERICKSBURG REGION

REPORT SUMMARY
The ASTA Group, LLC • November 2014

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Fredericksburg Regional Overview



Fredericksburg regional study participants reported more M&S work than there were people available to perform it, yet this region is not seen as a significant force in M&S. There are difficulties in public-private collaboration, and regional M&S networking is limited but enthusiastic.

Asset Summary

Eight assets were identified for this region. They consist primarily of commercial businesses.

Industry Sector	Total Employment	M&S Specific Employment
Total Fredericksburg Region Employment	148,523.98	
Total Fredericksburg Region Employment, M&S Related Sectors Only	14,754.57	147.55
Pharmaceutical Preparation Manufacturing	0.00	0.00
Other Commercial & Service Industry Machinery Manufacturing	4.75	0.05
Ship Building & Repairing	0.00	0.00
Software Publishers	40.70	0.41
Telecommunications	322.72	3.23
Other Information Services	106.93	1.07
Architectural, Engineering & Related Services	2,314.98	23.15
Custom Computer Programming Services	2,031.22	20.31
Computer Systems Design Services	3,020.62	30.21
Other Computer Related Services, Including Facilities Management	310.64	3.11
Management, Scientific & Technical Consulting Services	1,169.71	11.70
Scientific Research & Development Services	447.37	4.47
All Other Miscellaneous Professional, Scientific & Technical Services	511.30	5.11
Other Private Educational Services	928.33	9.28
Private Hospitals	3,545.31	35.45

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 highest M&S employment in the Fredericksburg region is found in *Hospitals; Architecture & Engineering* and *Computer Design & Programming Services*.

As the numbers in the table demonstrate, 14,754.57, or about 10%, of the region's total industry employment (148,523.98) is comprised of employment in the M&S related sectors. Approximately 0.1% to 0.15% of the total for M&S related employment is actually M&S specific in each sector, so at a minimum, approximately 147 jobs in the related sectors are specific to M&S. For example, of the 322 employed in *Telecommunications*, 3 are estimated to be M&S specific jobs.

Economic Impact

The M&S contribution to the Fredericksburg GRP is estimated at \$363-\$538 million. Total economic impact of M&S on the regional economy is estimated at \$597-\$873 million.

Growth projections for M&S industry sectors within the Fredericksburg region range from 15% to 20% through 2020. Analyses project that the region will add 26 to 39 new M&S specific jobs, for a potential contribution of \$3.2-\$4.8 billion to the Fredericksburg region GRP from 2011-2020.

M&S Workforce

According to study participants, many job candidates lack an M&S experience base along with their primary field. Healthcare-related data management experience was seen as a necessary skill for the changing M&S workforce. The University of Mary Washington (UMW) is reported to need more faculty members to teach the increasingly large number of computer science students.

M&S Networking and Collaboration

Difficulties in collaboration are characterized by study participants as self-imposed and related to contracting issues. Stakeholders would particularly like to see increased collaborations with the Commonwealth's strong academic network and university-based research centers.

Solutions

To encourage business growth in Virginia's less urban areas, study participants advise the establishment of tax incentives for businesses operating and investing in M&S technology. To meet education needs, the tailoring of a UMW program to the M&S field, to include at least one upper-level science course and an introduction to M&S, was suggested. Networking might be bolstered through the establishment of an annual conference that pulls together Virginia-based M&S stakeholders and prospective customers to network, share information and collaborate.



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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

