

BACON'S REBELLION

The Op/Ed Page for Virginia's New Economy

Sim City

Suffolk is emerging as a leading center of Modeling & Simulation expertise. The Warner administration wants to leverage the military and university assets there into a world-class technology cluster.

By James A. Bacon

If you want to see the future of economic development in Virginia, you'll find it in Suffolk. Not in the quaint old downtown that once proclaimed itself the peanut capital of the world, but out on the exurban fringe of Hampton Roads, just off Interstate 664 on land that, only a decade ago, consisted mainly of farms and woodland.

There, a world-class cluster of "Modeling and Simulation" enterprises has taken root around the U.S. Joint Forces Command and an Old Dominion University research center. So far, the simulations have been primarily military in nature--massive war games firing up supercomputers to muscle through scenarios of unprecedented complexity. But potential applications of the simulation technology--from training for natural disasters to running massive multiplayer, Doom-style shoot 'em ups--are limited only by the imagination.

To this point, the agglomeration of U.S. military, academic and private-sector M&S enterprises in Hampton Roads has occurred largely spontaneously, with limited assistance from policy makers in the Commonwealth. But that's changing. The Warner administration is turning Suffolk's M&S industry into a model of what can be accomplished through high-level coordination

of state resources. Suffolk will become the crucible for an economic-development experiment the likes of which Virginia has never seen before.

Under the banner of the Virginia Modeling and Simulation Initiative (VIMSIM), the administration is mobilizing the research resources of ODU and the workforce training capabilities of Tidewater Community College. VIMSIM also is enlisting the Virginia Economic Development Partnership



to target out-of-state businesses engaged in Modeling & Simulation for recruitment, and it plans to extend the ultra high-speed Internet connectivity of the Lambda Rail project to the supercomputing simulation centers in Suffolk. Even Gov. Mark R. Warner himself has taken an intense personal interest in the initiative, meeting with defense industry CEOs as well as corporate executives intimately involved in Modeling & Simulation operations. Never have so many branches of Virginia state government worked in concert on such a sophisticated cluster-building strategy. Says Secretary of Commerce and Trade Michael Schewel: "We're trying to hit it at all levels."

If successful, VIMSIM could stimulate development of a unique high-tech industry with

multi-billion dollar revenue potential. Modeling & Simulation isn't an industry that's been targeted by a dozen other states, like biotech, nor must it be built from scratch. "We're leveraging existing strengths," emphasizes Secretary of Technology Eugene Huang. "We can turn [Modeling & Simulation] into a key point of leadership for Virginia, not only nationally but internationally."

In Hampton Roads, the computer modeling of highly complex phenomenon has its roots in the 1990s, if not earlier. A number of military commands in the region utilize Modeling & Simulation extensively to develop doctrine, test equipment, tactics and strategy, and train military personnel. Spotting an opportunity to expand its R&D program, Old Dominion University established the Virginia Modeling, Analysis and Simulation Center (VMASC) in 1997 to work with the military and its technical support contractors. Over the years, VMASC has developed complex simulations from military war games to port transportation models, from models of crowd behavior to newspaper distribution systems.

But the driving force in the Hampton Roads V&S cluster indisputably has been military transformation. Along with the shift to lighter, more mobile, more information-intensive forces, the U.S. military is placing greater emphasis on "joint" operations between the Army, Navy, Air Force and Marines. As a consequence, the Joint Forces Command (JFCOM), which maintains its headquarters in Norfolk and a simulation center in Suffolk, has enjoyed rapid growth in federal funding over the past

several years. JFCOM is continually testing new military weapons, tactics and doctrine, simulating a wide range of scenarios such as the invasion of Iraq. That exercise drew upon some 30,000 participants around the country.

Ever alert to where the money is, major defense contractors are expanding their presence in Hampton Roads. Most recently--and spectacularly--Lockheed Martin opened a \$30 million computer-based modeling, simulation, and integration center near JFCOM and VMASC in Suffolk. "As a growing high technology hub with proximity to major defense, homeland security and other important customer installations, Suffolk is the ideal location for our new center," said CEO Vance Coffman in announcing the expansion in late 2003.

The Lockheed Martin facility is "an eye-popping place," says Schewel. "It's the newest, flashiest and most astonishing thing I've seen in quite a while." Although the M&S nerve center is in Suffolk, the broader business ecosystem of vendors, suppliers and support companies extends across Hampton Roads. By Schewel's count, more than 130 M&S companies, including some of the biggest names in the defense sector, are scattered from Williamsburg to Virginia Beach. Five years ago, VMASC (the ODU simulation center) estimated that the economic value of Modeling & Simulation activity in the region at more than \$500 million a year. The number may well have doubled since then.

Seeing extraordinary economic-development potential for the M&S sector, the Governor brought in a team of his cabinet members and other senior state officials to meet with Admiral Edmund P. Giambastiani, the

commander of U.S. Joint Forces Command, and his senior aides. Says Schewel: "We asked how the state of Virginia could better support JFCOM and its mission."

Virginia could do quite a lot, as it turned out. To continue expanding in the region, JFCOM would have to continue attracting highly trained technicians and professionals in the Modeling & Simulation field. There were two ways to accomplish that goal: Graduate the talent from local colleges and universities, and deepen the talent pool by recruiting more M&S businesses.

Early this year, Schewel crafted a plan to address the workforce issue and detail other ways the state could foster growth of M&S activity. Key elements included:

Research: Boost the capability of ODU's VMASC facility by adding dedicated faculty and providing greater funds to promote research, development and inter-university programs.

Workforce: Improve the local supply of technicians and scientists by expanding graduate-level programs at VMASC and technical training at Tidewater Community College. In addition, set up linkages with other Virginia universities turning out graduates in M&S-related disciplines, and cooperate with JFCOM and private contractors to recruit M&S professionals to the Hampton Roads area.

Real estate: Expand the availability of office space by developing surplus land at the current TCC site, identify alternative sites and use local IDA rent guarantees to encourage speculative office space for M&S contractors.

Incentives: Create incentives for new M&S companies to locate in Virginia by providing

workforce training dollars and local incentives through use of "technology zone" legislation, other direct local grants and, perhaps, targeted state incentive grants.

Lambda Rail. Bring Lambda Rail, the Internet supercomputing highway connecting major R&D institutions throughout the country, to VMASC and JFCOM.

Homeland Security Institute. Create a Institute for Homeland Security and Crisis Management (IHSCM) to provide a new non-defense focus for Simulation & Modeling activities that can allow remote access by users in Northern Virginia and Washington, D.C.

Industrial recruitment. Work with the VEDP and local economic developers to actively recruit defense and non-defense M&S companies to Hampton Roads.

The state is moving ahead with several of these proposals. Most critically, the Warner administration persuaded legislators in the 2005 General Assembly session to allocate an extra \$1.45 million to expand the faculty at VMASC. Meanwhile, the VEDP has set aside \$125,000 for targeted industrial recruitment. Funds for the Homeland Security Institute probably can be found in federal Homeland Security moneys set aside for the state.

What makes the VIMSIM initiative important, however, is not the scale of state funds invested. It's the strategic thinking that goes into the development of an industry cluster. Instead of vying for a single industrial or commercial prospect, which may or may not have existing business linkages to Virginia, the Warner Wonks recognize that Knowledge Economy businesses are more likely to

invest in a region where they can recruit employees with highly specialized skills and engage the support of universities, suppliers and other enterprises with specialized capabilities. Access to talent and expertise far outweighs in importance the financial incentives that economic developers traditionally have offered.

Pursuing cluster-related development makes sense for another reason. The mutually supporting enterprises of an industry cluster sink deeper roots in a region than branch manufacturing plants or back-office facilities that exist in a business vacuum. Clusters may wither if they're not fed and cared for, but they don't close shop and abruptly move out of town either. If properly tended to, the Modeling & Simulation industry could well evolve into a pillar of the Hampton Roads economy comparable to shipbuilding and the ports. Indeed, given potential applications of the technology to a wide variety of fields beyond the military, M&S potentially could transform Hampton Roads from a predominantly military/blue collar town into a recognized Mecca for supercomputing applications.

The main piece that seems to be missing in Hampton Roads at this point is the "soft" infrastructure capable of identifying, nurturing, funding and supporting entrepreneurs from the M&S community with ideas for exciting new ventures. Another concern is the long-term viability of an industry set in an antiseptic, "edge city" in which jobs, housing, shopping and amenities are scattered, disconnected and accessible only by automobile. As popular tastes change, it may be increasingly difficult to persuade talented, creative employees to work in such an environment.

Despite such concerns, the M&S industry cluster clearly offers the Hampton Roads region a new path to prosperity. And the cluster-development strategy articulated by the Warner administration offers other Virginia regions a new way to think about economic development generally.

Events move too quickly for other regions to "wait and see" how the Sim City experiment in Suffolk turns out. Every region in Virginia needs to start thinking *now* about how to build their own world-beating clusters based on the specialized knowledge and expertise that resides in their communities.

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