

### **Earthly benefits in a new space race**

By Jeff Krukin

CHAPEL HILL - If your view of human space activity is one of NASA-owned, multi-billion-dollar, multi-year programs, you are missing an entirely different scene. To borrow an Earth-bound phrase, the race for space moves apace with a commercial embrace (with apologies to Prof. Higgins).

A great deal of work has been done during the last few years in North Carolina to develop an aerospace workforce development plan and boost the state's aerospace industry. However, the primary emphasis has been on aviation and traditional aerospace, with little attention paid to the emerging entrepreneurial space industry, or NewSpace.

While it is understandable to focus on what is known and quantifiable, restricting our efforts this way inevitably leads to missed opportunities that are grabbed by states with greater vision.

For example, the New Mexico Spaceport Authority recently announced the formation of the Spaceport America Institute (SAI). It will be a collaborative effort between Spaceport America and the educational community. Combined resources, talent and technology will augment education in science, technology, engineering and math (STEM). It will also "support key workforce and technology efforts to grow industries in areas such as biotech, optics, energy, communications, and information technology."

See any similarities to the education and economic development goals and industries of North Carolina?

"So what?" you may say. "We don't have a spaceport." Well, nobody has anything until they build it.

A second response may be, "We don't want massive rockets lifting off from North Carolina's Atlantic coast." Quite true. All we need are isolated runways of suitable length for aircraft-like suborbital space vehicles such as the XCOR Aerospace Lynx and Virgin Galactic SpaceShipTwo/WhiteKnightTwo pair.

Where might we find such runways in North Carolina?

Global TransPark in Kinston is an obvious location, but there may be suitable facilities elsewhere for a combined aerospace manufacturing park and intermodal air-sea-land-space transport hub.

A third response may be, "Why should I care about suborbital space trips, I can't afford the \$95,000-\$200,000 ticket?"

Like all new products, the price will come down as competition heats up, which is why this price range exists already for commercial suborbital flights. Plus, it is the wealthy consumers who can afford these first-generation, high-priced products that provide the revenue streams so companies can develop the next generation of lower-cost and more capable products. The economic value of competition is not gravity bound.

But this isn't just about commercial space tourism. Companies like XCOR Aerospace and Virgin Galactic understand that atmospheric and space sciences research, microgravity experimentation, space life sciences work, education, aeronautics and other disciplines will provide business.

Thinking more specifically about North Carolina's industry clusters, environmental and biopharmaceutical companies are just two examples of non-space businesses that can benefit from the NewSpace industry. Or course, the aerospace/aviation industry would also benefit.

Along with its aerospace/aviation and other technology companies, and its renowned research and higher education institutions, North Carolina has another relevant asset; the large military presence and the military's interest in and need for NewSpace capabilities.

When you combine all these assets and add the existence of the All-American Defense Corridor and Gov. Beverly Perdue's determination to increase military business, the pieces are in place. All that is missing is a new organization to lead state and local government, education, research and business entities in formulating and executing a NewSpace business plan that reflects the existing industry clusters.

For such a plan to succeed, it must be more than an academic exercise, and more than a new project of an existing state agency. It must be led by those who possess the spirit of entrepreneurship, an appreciation of the profit motive and the vision to see the goal before all the dots exist -- let alone before they are all connected.

Until then, is North Carolina losing the commercial space race? Yes.

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