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**Advanced research activities:** Boeing and Alenia Aeronautica recently signed a memorandum of understanding that calls for the companies to jointly develop research activities in advanced materials and integrated fuselage aircraft structures. **Page 39**

**Educational collaboration:** Through its connections and support, Boeing is helping strengthen the high-tech skill base of southern Italy by facilitating a partnership between a university in the United States and one in Italy. **Page 40**

By MAUREEN JENKINS

For Boeing, doing business in Italy is about more than merely selling commercial airplanes or military aircraft. It's also about leveraging the country's high-tech and aerospace infrastructure—and that includes its scientists and engineers—so that Italian companies can better compete in the global marketplace. And with Italian corporations of all sizes partnering on key Boeing programs, it's critical that they be involved in the creation and development of advanced technologies.

The next step in the frequent collaboration between Alenia Aeronautica and Boeing is a newly signed memorandum of understanding, one where they'll jointly develop research activities in advanced materials and integrated fuselage aircraft structures. The agreement also provides for the opening of a small Boeing Italian Research Office in the southern region of Campania, an area where government officials are keen on strengthening the high-tech skill base and creating jobs.

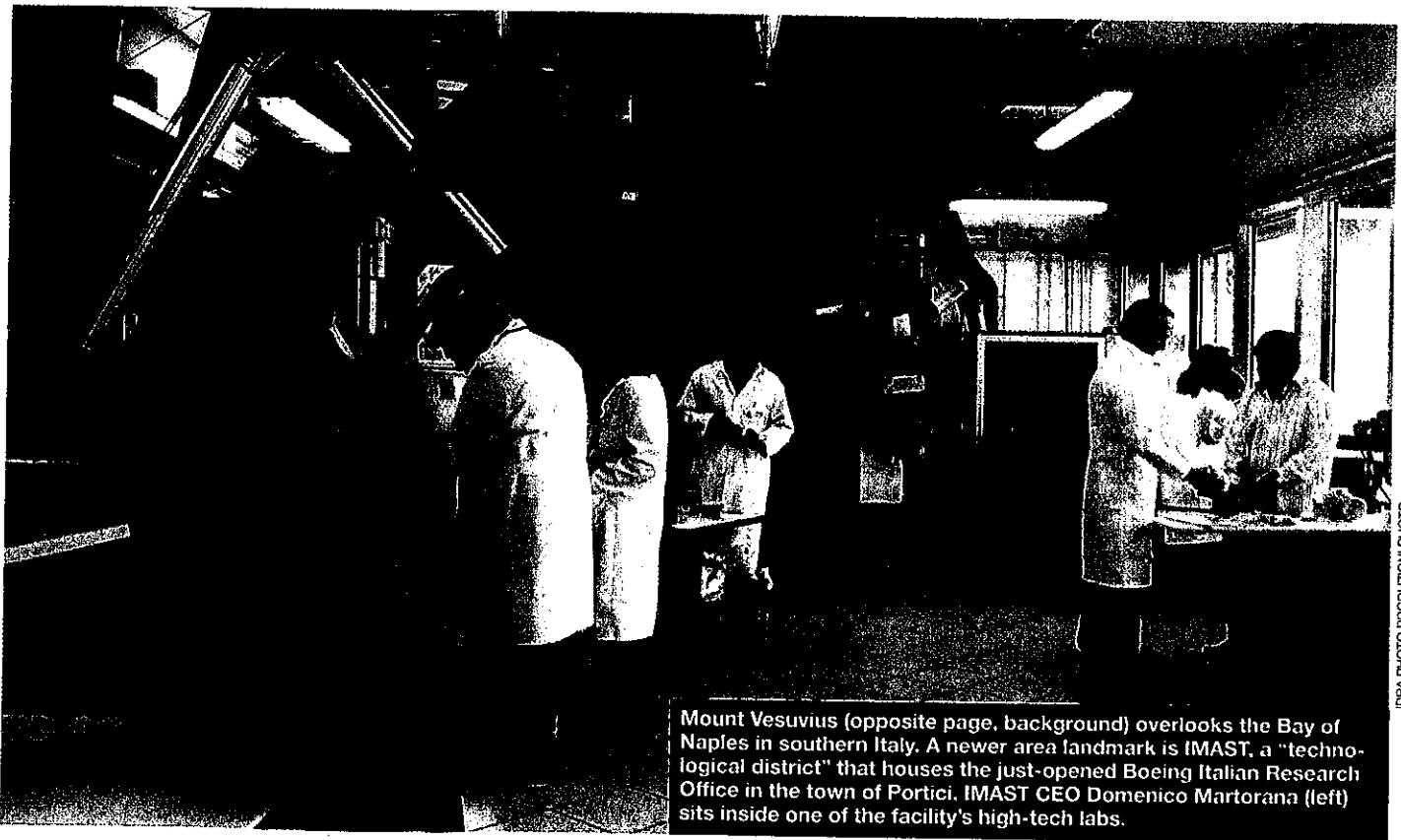
It's a move that will benefit both Boeing and the Italian high-tech supply chain for decades to come—and one that highlights the company's global strategy of working with top technology providers around the world. And, added Boeing Italy President Rinaldo Petrigiani, this milestone reinforces the perception of Boeing as a valuable and integrated part of the Italian landscape.

"That's an aspect that helps our company, because going global means learning how to interface," said Associate Technical Fellow Giacomo Licciardi, who works in Engineering & Technology Integration for Boeing Commercial Airplanes.

"We're not talking about an isolated Boeing office," continued

# IMAST be in the right place

How a small office in southern Italy exemplifies Boeing's plan of working with the world's top tech providers



Mount Vesuvius (opposite page, background) overlooks the Bay of Naples in southern Italy. A newer area landmark is IMAST, a "technological district" that houses the just-opened Boeing Italian Research Office in the town of Portici. IMAST CEO Domenico Martorana (left) sits inside one of the facility's high-tech labs.

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## ■ FEATURE STORY

Licciardi, who's one of two Boeing employees in the research facility (the other is Associate Technical Fellow Jim Thomas from Phantom Works). "We're talking about a center dedicated to joint projects where local small- and medium-size companies and research centers will participate." Both Licciardi and Thomas will serve as technical liaisons between Boeing and local Italian companies, universities and government agencies.

### COMPOSITE EXPERTISE

The new office, which works in coordination with the Phantom Works-led Boeing Research & Technology Europe facility in Madrid, Spain, will make an impact beyond its small size, with newly created technologies having cross-enterprise applications at Boeing. It will be housed at IMAST, a three-year-old "technological district" near Naples in the small town of Portici, where researchers and engineers work on behalf of sponsor companies and universities to develop polymeric and composite materials. The consortium's goal: to enhance the research capabilities and competitiveness of Campania and southern Italy while teaming with global corporations like Boeing.

And it makes sense to house such an office in this area, said IMAST Chief Executive Officer Domenico Martorana, as companies in Naples and the nearby Puglia region are becoming known for their work with composite materials.

"For us, it is very important to have technical Boeing people here interfacing with our researchers," Martorana said. "In the (United) States, you have a different culture, and it is very important for our researchers to work with your people and their methods of working.

"Boeing is now the leader in the world in using composite materials in the industrial sector," he continued. "For any researcher in the world, it is very interesting to work with a company using this type of material." Many IMAST projects and corporate partners address some sort of transportation, from Boeing and Alenia to the Fiat Group and Avio SpA, a leader in propulsion technology.

And thanks to joint work with Alenia and IMAST researchers, Boeing benefits from improvements to the Italian supply chain. This boosts productivity of Boeing products and local suppliers, and in turn supports Italy's goal of boosting high-tech employment within southern Italian companies of all sizes.

"There are a lot of great minds here," Licciardi said. "Innovation. Young people with a lot of ideas. And of course, with that comes boosting of the south. When this much effort is invested, what is the return? Jobs, increasing revenue for the local industries and with that, a strong industry supply chain to fuel our company's future frontiers." ■

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# From Rolla to Naples

## How a systems engineering program helped build a transatlantic bridge

By MAUREEN JENKINS

One doesn't usually speak of the Midwestern U.S. state of Missouri and the Mediterranean nation of Italy in the same breath. But thanks to a partnership between two universities in these very different places, Boeing is helping to build high-tech bridges across the Atlantic Ocean.

The situation: Regional governments in southern Italy want to strengthen the area's high-tech skill base so it can better compete in the global marketplace. So when Leonardo Lecce, an aeronautical engineering professor at University of Naples Federico II and a member of the Campania Aerospace Research Network (CARN), learned that Boeing was willing to use its connections and dollars to help achieve this goal, "I had the idea to make a collaborative activity with education."

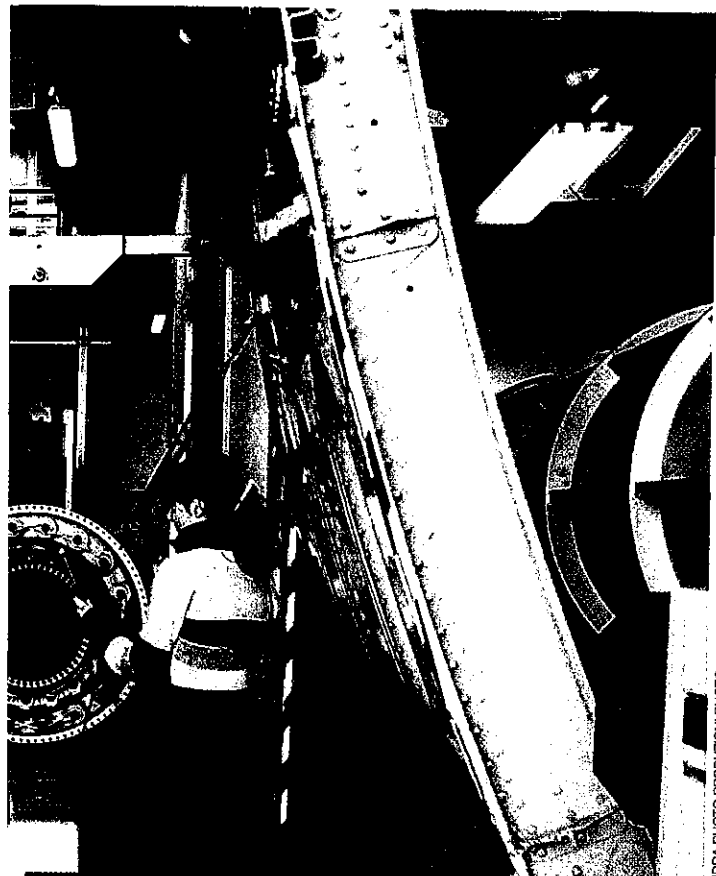
The end result? A Boeing-funded master's degree program in systems engineering.

Twelve students at the University of Naples—founded in 1224, it's one of the world's oldest—now are in the second of a three-year, 10-course program jointly run by the University of Missouri-Rolla and sponsored by Boeing. It's one of the tangible outcomes of Boeing's industrial participation program related to the Italian Air





Government officials in southern Italy are keen on strengthening the high-tech skill base in the region of Campania, where Naples and Portici are located. It's also true in Puglia, where Alenia is building key 787 Dreamliner elements in Grottaglie.



A Boeing-funded master's degree program at Italy's University of Naples Federico II is equipping students with systems engineering skills. Professor Leonardo Lecce (center) works with Igor Bovio (left) and Benedetta Capano in a lab where the students are using a scanning laser vibrometer to conduct experimental model analysis on an aircraft engine component.

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Force purchase of four KC-767A Tankers (Italy was the tankers' international launch customer).

The joint university venture is a win-win situation for Boeing and for the long-term development of the Italian aerospace industry, which supports Boeing in cross-enterprise efforts. For example, Alenia Aeronautica will help support the new tankers—and Alenia's state-of-the-art facility in Grottaglie, a small city in the southeastern region of Puglia, is a major supplier to the 787.

"The need was coming from industry," said Lecce. "There was a need to have education that took an integrated view to managing large projects in aerospace." And no other university in Italy was then offering the systems engineering degree these professionals needed.

So in stepped Boeing, which has a long-standing relationship with the University of Missouri-Rolla, one of this U.S. state's premier technological research universities. The university is an important employee pipeline to Boeing. And the school continues educating the company's employees even after they're on the job, offering in-classroom and video Internet distance education programs to graduate-level students.

Because of these ties—and the university's strong systems engineering master's program—Boeing enlisted Missouri-Rolla's help in setting up a similar function thousands of miles away at the University of Naples. Jim Mundloch, senior manager in Global Technologies for Engineering, Operations & Technology, met with CARN in southern Italy to get things rolling.

Classes in the program are taught by professors in Naples and in Missouri via the Internet, with CARN shaping four design classes that Mundloch said "broadened the curriculum and gave it an Italian accent." Naples' students—who must know English well enough to participate at the master's level—hail from the University of Naples, Alenia, the Italian Air Force, vehicle manufacturer Piaggio and Centro Italiano Ricerche Aerospaziali (CIRA). Boeing in 2003 signed a memorandum of understanding with CIRA to investigate and develop technology projects of mutual interest.

"What the research network in Campania recognizes is they're being asked to handle more-complex systems," Mundloch said. And, he added, with a program designed to last beyond this first class's graduation, "the structure's there for them to continually enhance their skills in systems engineering."

Rick Cisewski, Integrated Defense Systems' country manager for Italy Industrial Participation Programs, noted, "Industrial Return programs are increasingly becoming greater discriminators in our international campaigns, and our ability to develop and successfully implement nontraditional projects such as this demonstrate the long-term benefits we can deliver to our customers."

Added Mundloch: "With the enhanced capabilities of having systems engineering knowledge within these companies, such as Alenia on the 787, that can only improve their ability to perform on some of Boeing's programs." And this knowledge also will benefit Boeing's research work with CIRA, which he said "enhances the capabilities of our suppliers and collaborations."

Lecce admitted that the program is "a challenge, but very stimulating. I know that our students relish the opportunity to interact with students in the U.S." It's this professor's hope that the program live far beyond this first class of a dozen engineers.

He said he wants to show Italian aerospace companies "the advantage of [their employees] applying to this master's, and also to the regional government to make grants for students to apply for this program. I think in the south, there will be a long-term effect. They are only 12 people, but if the program continues, it can spread out and make contributions to the improvement of our companies." ■

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