

Modeling and Simulation engineer Laura Wilson and Systems engineer Robert Kramer help Boeing understand the capabilities customers want, and develop systems to meet those needs, as part of the Joint Warfare Integrated Systems Assessment team.

RICHARD RAU/BOEING

A look inside

A simulation tool assesses battlefield assets, reveals future customer needs

By Marc Sklar

When military leaders seek performance improvements in the effectiveness of their forces, or want to assess the impact of a new piece of hardware, new Concept of Operations (CONOPS) or a new or enhanced network, they need an extremely sophisticated system to explore their options.

Integrated Defense Systems has that in the Joint Warfare Integrated Systems Assessment (JWISA). This modeling, simulation and experimentation (MSE) system gives IDS an edge in developing the programs that will be its future—as well as insight on forthcoming customer needs. “With JWISA, we are at the front end working with the customer, looking at a gap we think may exist through a disciplined engineering approach, and seeing where potential solutions might fill that,” said Keith Trumbull, Strategy Integration manager for Advanced Boeing Military Aircraft. “This also helps us, because we are doing this jointly with the customer, so we’re doing it before we’ve actually done a lot of engineering.”

JWISA was also created to have a disciplined process for determining experiments to run in Boeing’s Virtual Warfare Center, one of the customer engagement centers operated by Advanced Systems’ Analysis, Modeling, Simulation and Experimentation organization. The result: Insight that ensures Boeing focuses investment and effort in the right places.

“The JWISA process is helping us explore the customer needs and design space for mobility systems, both emerging and future,” said Tom Gurbach, director, Advanced Global Mobility. His team used JWISA in developing concepts of operation supporting U.S. Army and Air Force mobility capabilities in battlespace environments. “It saves cost by helping us narrow the areas of performance-effectiveness tradeoffs before committing to design solutions and invites customer participation in a manner that builds confidence in the development process.”

The ultimate payoff for Boeing will be more sales. “JWISA is helping to grow business here in Denver,” said Alan Feldkamp, director, Colorado Operations, Network and Space Systems. He noted that his team is using JWISA for the Space Tracking Surveillance System, a Missile Defense Agency program pursuit.

The VWC is networked with Boeing’s numerous MSE facilities and can be tied into simulators, customer facilities and even operational systems (aircraft and others) as needed. That network is enabled by the web of Boeing employees located companywide.

Team members are enthusiastic about working on JWISA. “The best part of my job is working in the simulation environment where you can find the strengths and areas for improvement in systems before they are delivered to the warfighters,” said Laura Wilson, Modeling and Simulation engineer.

The team’s small and flexible nature makes it Lean by default, but the teammates continue to seek ways to improve their performance. “We’ve designed our systems so we’re quickly able to put together configurations, ‘fly’ them in a warfighting battlespace and find out whether that configuration works or not. Then we can quickly reconfigure and try something different,” said Don Kenney, technical fellow, JWISA chief analyst. “It’s almost a life-cycle design process.”

With all the preparation for performing an experiment with the customer, “game day” is quite intense. “A good day for us is when the operators, the warfighters, leave and they’re worn out. They’re sweaty and they feel like they were engaged in combat, doing the things they needed to do, and we’ve learned lessons together,” said Stuart Voboril, JWISA project manager.

That engagement is helping ensure future business for Boeing. “We really are trying to be a partner for growth for IDS,” said Trumbull. “This process, we think, is a disciplined way to go out and explore our future, experiment with the warfighter, and figure out where the opportunities lie.” ■

marc.a.sklar@boeing.com