

Flexible firepower, driven by data

With several effectors, new Multi-Mission Launcher gives soldiers options – and intel

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In all of Jim Tuite's 26 years as an infantry officer in the U.S. Army, the launchers on his units' Bradley Fighting Vehicles only did one thing: they fired TOW missiles at adversaries.

Now, he's working for Raytheon on its Multi-Mission Launcher, which does more than he could have imagined.

The system provides three main advantages. It's compatible with multiple missile designs, it can target adversaries beyond the line of sight, and its software can take in data collected by missiles in flight, quickly giving soldiers a more complete picture of what's happening on the battlefield.

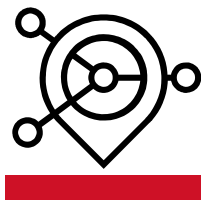
"This would have blown my mind, to be honest," Tuite said, "In my deepest dreams I never would have thought of organic beyond-line-of-sight fighting at the tactical formation level. I didn't even know that was in the art of possible – it was like Star Trek."

The Lynx XM30

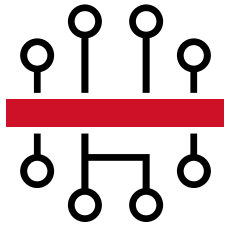
Raytheon, an RTX business, created the Multi-Mission Launcher for American Rheinmetall Vehicle's proposed design for the Lynx XM30, the Army's replacement for the Bradley Fighting Vehicle. Raytheon is a member of the American Rheinmetall Vehicle-led Team Lynx, a group of leaders in defense technologies, each contributing to the vehicle's design and capabilities. The Army will choose its vendor in 2027 and put into production the most advanced combat vehicle yet. Its improvements include:



Unsurpassed firepower from a 50 mm gun turret with modern sensors and launcher



Active protection systems and strengthened armor for superior protection



A modular, open systems architecture to accommodate future technologies



Advanced technologies like AI that allow it to operate with a two-soldier crew instead of three

The design

With the Multi-Mission Launcher, the Lynx XM30 will be capable of firing all of the Army's chosen effectors, which can include Raytheon's Coyote Block 3 family of unmanned aircraft systems and effectors for collaborative beyond-line-of-sight missions, and Javelin for fire-and-forget engagements. It is also ready for the future integration of Raytheon's TOW missile family for speed, range, and high-volume engagements.

"You can now mix and match," Tuite said, "and have this quiver of capability in the back of your vehicle to load the appropriate effectors that you need given your mission."

This flexibility is made possible by innovative hardware and software design. John Weinzettle, who directs the team designing the launcher, said most launchers today are built as small as possible to fit whatever they're designed to fire, but their launcher is a little bigger with standardized connections. This means as needs on the battlefield evolve and new effectors are created, as long as they fit the size and connection requirements, they'll be compatible with minimal changes.

That's where the software comes in. Today, most effectors run off cards that are embedded in the launcher. To use a different effector, you'd have to take the launcher apart and rebuild it with a new card. The Multi-Mission Launcher team designed software that gives the launcher a common fire system.

“Now my fire control is more like a computer. I have a base chassis, where I can put cards in and change them,” Weinzettle said. “I don't have to redesign everything every time.”

The software also enables the missiles to multi-task. Their main job is still to strike a target, but now, they will be able to collect data in flight with their sensors and send it back to the Lynx XM30 to provide its crew a clearer picture of the battlefield – including targets and threats that lurk beyond visual range.

“Today, we have launchers that can do direct fire munitions, which means I have to see the target to fire the effector on it,” Weinzettle said, “But now, you can now fire an effector that actually does ISR and strike beyond line of sight. We provide the software package that allows that to happen.”



Soldiers at a touchpoint exercise in 2023 provide feedback on how they'd use the XM30 combat vehicle, which will replace the Bradley Fighting Vehicle. Photo credit Dan Heaton.

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The battlefield of tomorrow

According to Tuite, the Multi-Mission Launcher is fundamental to the military's vision for a more connected battlespace. RTX is investing in several transformative technologies including artificial intelligence, advanced sensing and integrated systems to seamlessly connect sensors to shooters.

The XM30 is part of this vision because it drastically improves the mechanized infantry's awareness and ability to act in combat. Today, the three-soldier Bradley crew has a limited view of the battlefield – the driver, gunner and commander look through periscopes to see what's in front of them.

Tuite describes it as looking through a straw. To see anything outside of that straw, crews must ask headquarters to use another method of surveillance and relay the information back to them.

“Like an iceberg,” Tuite said, “what you see is barely 10 percent of what's probably out there.”

Inside the proposed Lynx XM30, though, the crew would have screens that continuously display real-time data taken from aerial and ground sensors. Artificial intelligence and machine learning will fuse that data and be able to show on a map what assets and adversaries are nearby.

“A fused picture is going to allow this entire formation to see a map that's populated with essentially the other side of the chessboard,” Tuite said.

The launcher’s design team plans to have a version mounted to a turret for testing in 2025, and Weinzettle believes it will have applications beyond the XM30 as well.

“It never occurred to me that we would have systems that could fuse together a picture to tell me with pretty high fidelity where the enemy positions are before they could see me directly – and then provide the ability to actually affect them,” Tuite said. “As we go forward, I'm very excited for what this brings to the units.”

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