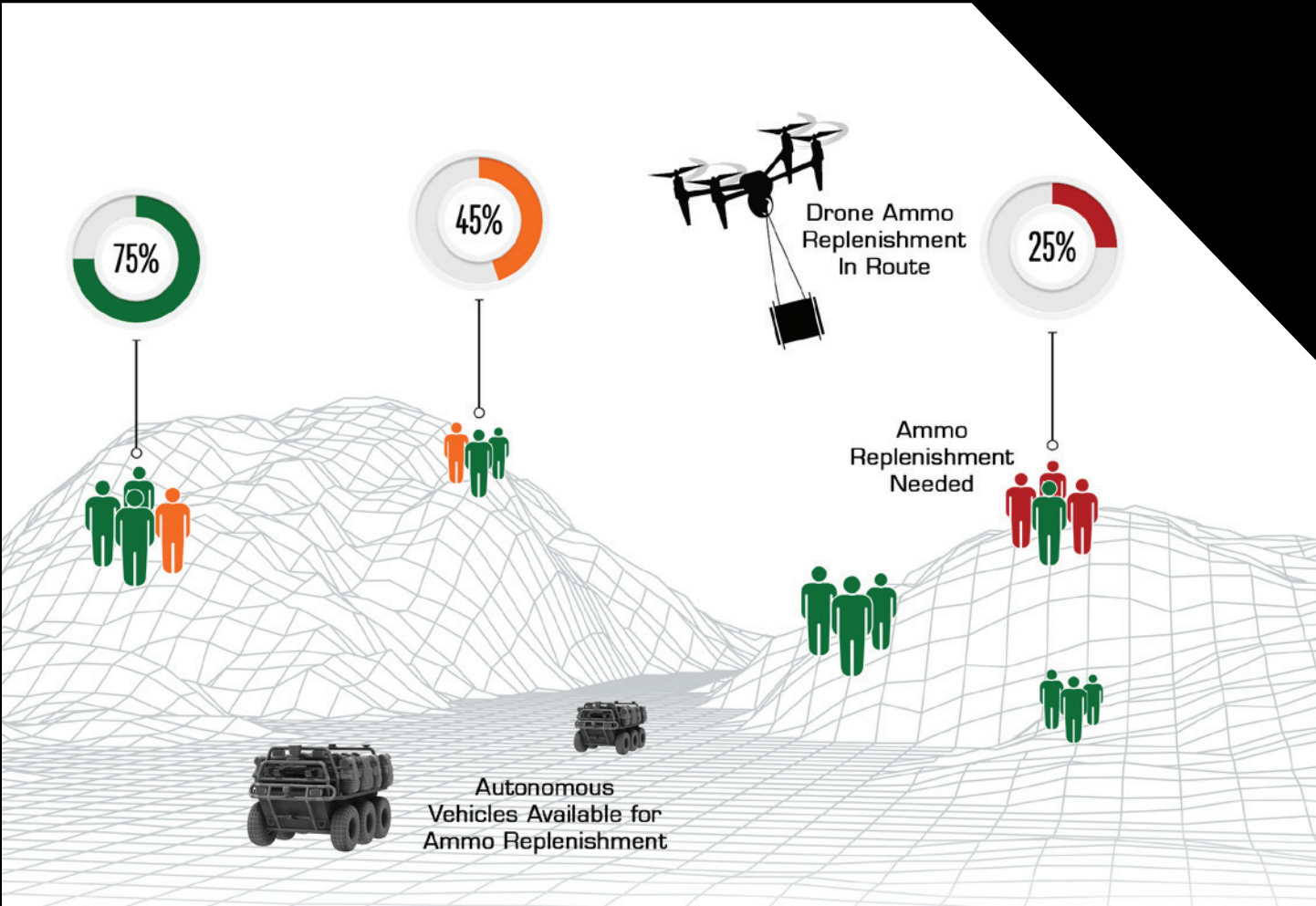


TECHNICAL BRIEF

The Science & Art of Operational Sustainment

BY BLUEFORCE DEVELOPMENT



Battlefield, disaster response, and public safety sustainment is both an art and science; it's about synchronizing, integrating, and transporting commodities in a highly "just-in-time" manner to provide maneuver and incident commanders with freedom of action, extended operational reach, and prolonged endurance. As it turns out, the "science" of sustainment is not terribly difficult as it is grounded in basic math and computation, based on real-time data from the operational space. A fire team deploys with X amount of ammunition multiplied by the number of soldiers on a fire team, and then an ability to monitor ammunition consumption in real-time. The same calculus can be made for food, water, fuel, medical necessities, and nearly every other class of supply.



The "art" of sustainment is about considering how the tactical or incident response environment affects logistics and resupply. The "cog" at the center of the autonomous replenishment machine is data and situational awareness, fed by an array of IoT sensors (body worn and proximate) and stream analytics to anticipate resupply needs. Using a very simple example, a vehicle that takes X amount of petrol may be started early to warm up on a cold day which will require additional fuel sooner. Similarly, on a hot day with soldiers experiencing an accelerated operational tempo will drive faster and more acute need for resupply of water. Core to the discussion of "art", is all channel access to IoT, GIS, and environmental data, but also recognitional support "services" in the form of rules and AI.

Wilcox Industries has partnered with Blueforce Development Corporation and Thunderbolt Solutions, to develop a packaged capability for operational sustainment based

on deployed fire teams using the [Wilcox FUSION System](#). The FUSION System houses an integrated maintenance counter which monitors the number of rounds fired, as well as barrel temperature and other rail sensors, and moves weapon data using BlueforceTACTICAL (BTAC) where the data is shared amongst the fire team and their commander but is also shared with the Wilcox Armorers Module in an armory. FUSION System data is also monitored in real-time by Blueforce's new Autonomous Orchestration Plugin for BlueforceEDGE, which monitors a wide array of soldier systems to include the Wilcox FUSION System, physiological wearables, CBRN, laser rangefinders/targeting, and others for single-variant and multi-variant threats. The Plugin contains sets of business rules that can detect active engagement and shot counts, but also looks across an entire deployed fire team, versus a single operator.



Once certain thresholds are reached or a team requests support, the Plugin engages Thunderbolt's Manned-unmanned Teaming (MUM-T) framework, which autonomously monitors, selects and dispatches unmanned assets to perform situation based resupply, reconnaissance and overwatch missions. This creates a fully extensible environment capable of integrating additional components, sensors, datasets, UxVs and missions. These products house an integrated maintenance counter which monitors the number of rounds fired as well as barrel temperature and other rail sensors and moves weapon data using BlueforceTACTICAL (BTAC) where the data is shared amongst the fire team and their commander but is also shared with the Wilcox Armorers Module in an armory.



BTAC ([BlueforceTACTICAL](#)) is an extensible situational awareness mobile application that enables the rapid formation of mobile teams and fuses sensor data of attached or proximate sensors to provide real-time location and sensor sharing... providing teams the information they need in the palm of their hands. BTAC obliterates traditional IoT and AI information stovepipes by fusing real-time human and sensor data across multiple incident modalities, collapsing the distance from sensor-to-decision maker-to-responder, and accelerating recognitional support by widening the decision-makers aperture to greater numbers and types of sensor inputs. BTAC is secure, field-proven, and enables operators to extend their capabilities, share information horizontally, and swarm faster than their adversaries by communicating with devices that they carry and those installed at fixed locations, mounted on manned and unmanned systems, or worn on the body.

FEATURES

- Fusion and coordination between body worn and/or proximate sensors, like the Wilcox RAPTAR S, FUSION SYSTEM, HYBRID PATRIOT 5510 and the Wilcox Xe Line of Products.
- Tracking and shared location services: Real-time LAT, LON, and/or MGRS with plugins for subterranean, external, and/or GPS denied/dead reckoning trackers.
- Rapid and secure formation of people, sensors, and AI services via simple email-like addresses or QR code scans.
- Online/offline moving maps with full support for the capture and/or consumption of geospatial/targeting information
- Secure 1:1/mass broadcast text; Push-to-Talk (can also support LMR bridging); and native "Android as a bodycam" with ultra low latency streaming.
- Future-proof extensibility and rapid adaptation through off-the-shelf software plugins or leverage of the Blueforce API/SDK (Android and Windows) for new best-in-class sensors or systems. 275+ commercially available sensors supported today.



OPERATIONAL BENEFITS

Predictive Maintenance

Wilcox Weapons System data can be shared in real time with the Wilcox Armorer's Module, a pluggable module for BlueforceCOMMAND, and the authoritative application for service and predictive maintenance.

Autonomous Replenishment

Because BTAC and the Wilcox Plugin for BTAC are constantly monitoring weapons systems across a team, autonomous delivery platforms can be cued for just-in time field replenishment.

Force Readiness

The Wilcox Armorer's Module not only drives supply chain value, but can also provide awareness of force readiness and can display weapon location and status.

Tactical Awareness

Real-time shared awareness of oxygen and PPE operating modes, environmental data, maintenance counters, barrel temperature, and maintenance status of Wilcox devices shared in real-time amongst the team and command.



[VIEW TECH DEMO](#)

OPERATIONAL SUSTAINMENT

*Autonomous Replenishment
Technical Demonstration*



©2022 Wilcox Industries Corp. All rights reserved. The WILCOX logo, "X" icon, and Hybrid Patriot 5510 are Federally Registered Trademarks of Wilcox Industries Corp. BTAC is a trademark of Blueforce Development Corp. FUSION SYSTEM and Xe are trademarks of Wilcox Industries Corp. Specifications subject to change without notice. | Export of these products are regulated by the U.S. Department of State in accordance with guidelines of ITAR per Title 22, Code of Federal Regulations, Parts 121-128. | U.S. Food and Drug Administration restricts the sale of high powered lasers to military and law enforcement agencies only.

25 PISCATAQUA DRIVE | NEWINGTON NH, 03801 | 603.431.1331 | WWW.WILCOXIND.COM