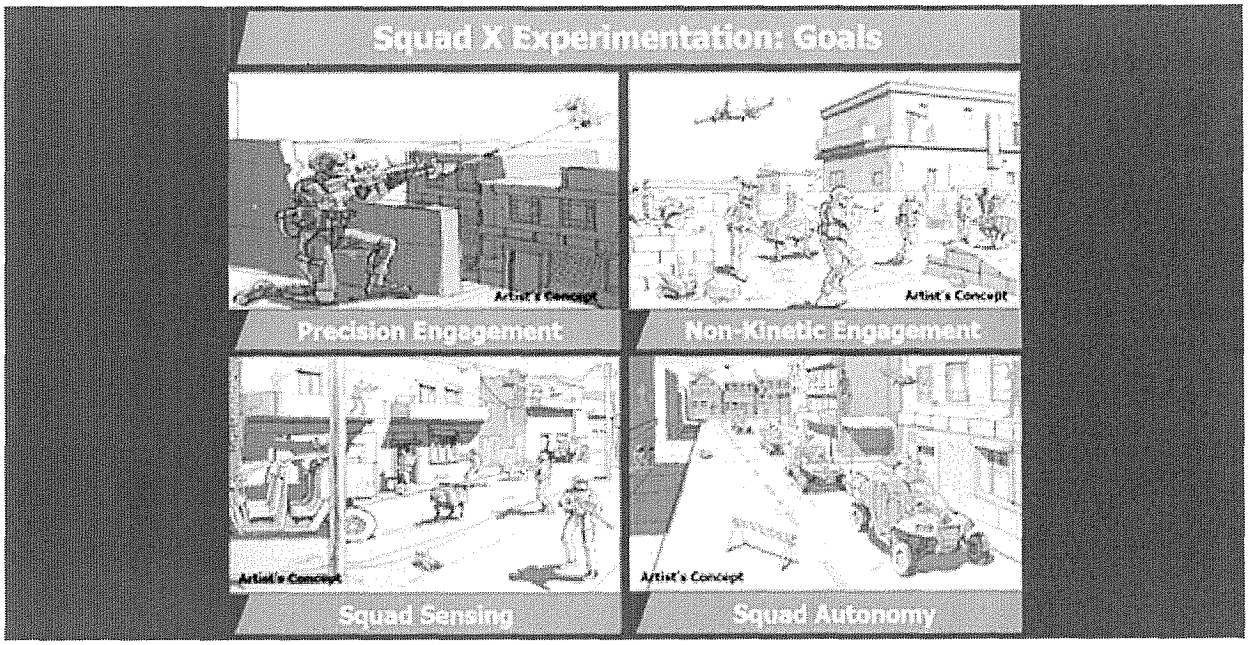
Squad X Program Envisions Dismounted Infantry Squads of the Future

Program seeks to develop portable, integrated systems that would provide vastly improved capabilities in the physical, electromagnetic and cyber domains

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Modern military engagements increasingly take place in complex and uncertain battlefield conditions where attacks can come from multiple directions at once, and in the electromagnetic spectrum and cyber domains as well. U.S. Army and U.S. Marine Corps dismounted infantry squads, however, have been unable to take full advantage of some highly effective multi-domain defensive and offensive capabilities that vehicle-assigned forces currently enjoy—in large part because many of the relevant technologies are too heavy and cumbersome for individual Soldiers and Marines to carry or too difficult to use under demanding field conditions.

To help overcome these challenges and help ensure U.S. squad dominance over adversaries in the decades to come, DARPA has launched the Squad X Experimentation (Squad X) program. Squad X seeks to design, develop and validate system prototypes for combined-arms squads. The program intends to lay the foundation for breakthrough technologies and capabilities that would:

- Improve shared situational understanding of the multi-domain operational environment: physical, electromagnetic and cyber
- Increase the time and space in which squads can maneuver through optimized use of physical, cognitive and material resources
- Shape and dominate the battlespace through synchronization of fire and maneuvering in all three domains

"Through Squad X, we want to vastly improve dismounted squad effectiveness in all domains by integrating new and existing technologies into systems that squads can bring with them," said Maj. Christopher Orlowski, DARPA program manager. "The squad is the formation with the greatest potential for impact and innovation, while having the lowest barrier to entry for experimentation

and system development. The lessons we learn and the technology we create could not only transform dismounted squads' capabilities, but also eventually help all warfighters more intuitively understand and control their complex mission environments."

Squad X intends to combine off-the-shelf technologies and new capabilities under development through DARPA's Squad X Core Technologies (SXCT) program, which was launched specifically to develop novel technologies that Squad X could integrate into user-friendly systems. SXCT shares Squad X's overarching goal of ensuring that Soldiers and Marines maintain uncontested tactical superiority over potential adversaries by exploring capabilities in four areas: precision engagement, non-kinetic engagement, squad sensing and squad autonomy. In an important step toward that goal, SXCT recently awarded Phase 1 contracts to nine organizations.

The U.S. Army, U.S. Navy and U.S. Marine Corps have expressed interest in future Squad X capabilities and plan to support the experimentation efforts with testing in simulated operational environments as the program progresses.

To familiarize potential participants with the technical objectives of Squad X, DARPA has scheduled Squad X Information Days and a Proposers Day in advance of a planned Broad Agency Announcement (BAA). The Information Days will be held on Tuesday and Wednesday, March 29 and 30, 2016, and the Proposers Day will be held on Friday, April 22, 2016. All events will take place at the DARPA Conference Center in Arlington, Va., from 9:00 AM to 4:00 PM Eastern.

The Special Notice announcing the events is available at http://go.usa.gov/cGfrm. Advance registration is required for all events through the registration website: http://ow.ly/ZduQo. Registration opens on Tuesday, March 15, 2016, at 11:00 AM Eastern and closes Thursday, March 24, 2016, at 3:00 PM Eastern or when capacity is reached, whichever comes first. There is no fee for registration. Due to space limitations of the conference facility, attendance will be limited to the first 150 registrants for each event, and no more than two representatives per organization (parent company).

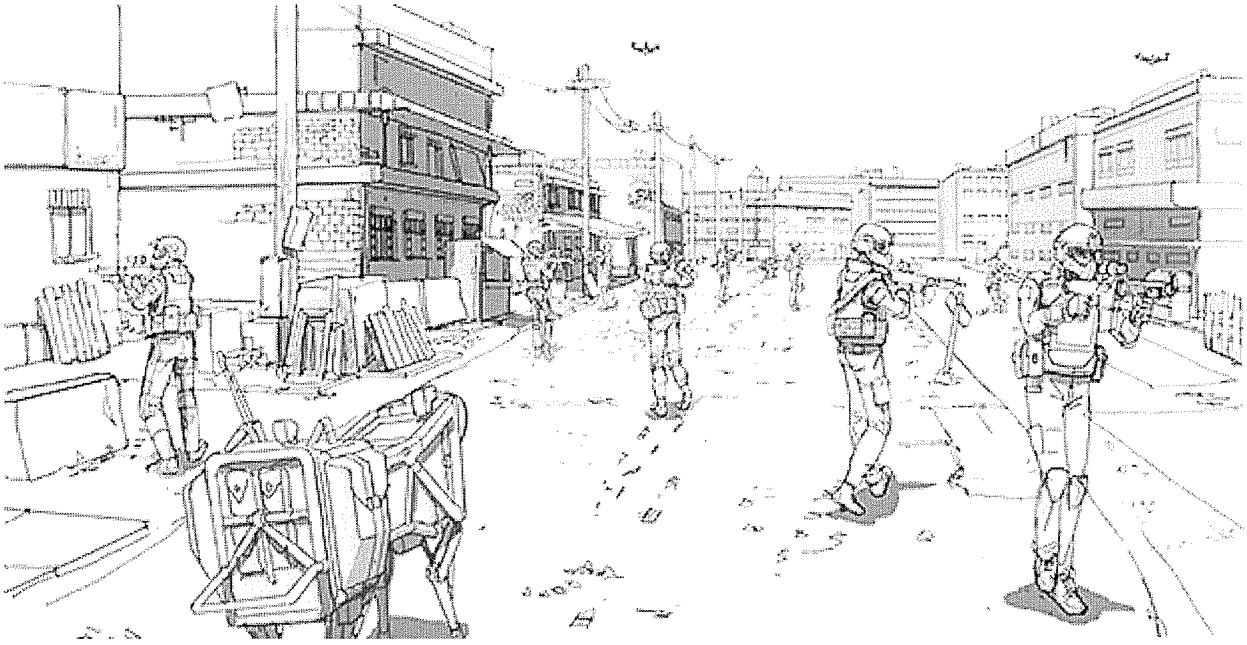
To maximize the pool of innovative proposal concepts, DARPA strongly encourages participation in these events by and subsequent submissions from non-traditional performers, including small businesses, academic and research institutions and first-time government contractors.

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Squad X Core Technologies (SXCT)

MAJ Christopher Orlowski, USA, Ph.D.



To succeed in their missions, military units must have a robust, multi-faceted picture of their operational environments, including the location, nature and activity of both threats and allied forces around them. Technology is making this kind of rich, real-time situational awareness increasingly available to airborne and other vehicle-assigned forces, along with a capacity to deploy precision armaments more safely, quickly and effectively. Dismounted infantry squads, however, have so far been unable to take full advantage of some of these highly effective capabilities because many of the technologies underlying them are too heavy and cumbersome for individual Soldiers and Marines to carry or too difficult to use under demanding field conditions.

DARPA's Squad X Core Technologies (SXCT) program aims to develop novel technologies that could be integrated into user-friendly systems that would extend squad awareness and engagement capabilities without imposing physical and cognitive burdens. The goal is to speed the development of new, lightweight, integrated systems that provide infantry squads unprecedented awareness, adaptability and flexibility in complex environments, and enable dismounted Soldiers and Marines to more intuitively understand and control their complex mission environments.

SXCT plans to explore four key technical areas:

- Precision Engagement: Precisely engage threats out to 0.6 mile (1,000 meters), while maintaining compatibility with infantry weapon systems and without imposing weight or operational burdens that would negatively affect mission effectiveness. Capabilities of interest include distributed, non-line-of-sight targeting and guided munitions.
- Non-Kinetic Engagement: Disrupt enemy command and control, communications and use of unmanned assets at a squad-relevant operational pace (walking with occasional bursts of speed). Capabilities of interest include disaggregated electronic surveillance and coordinated effects from distributed platforms.

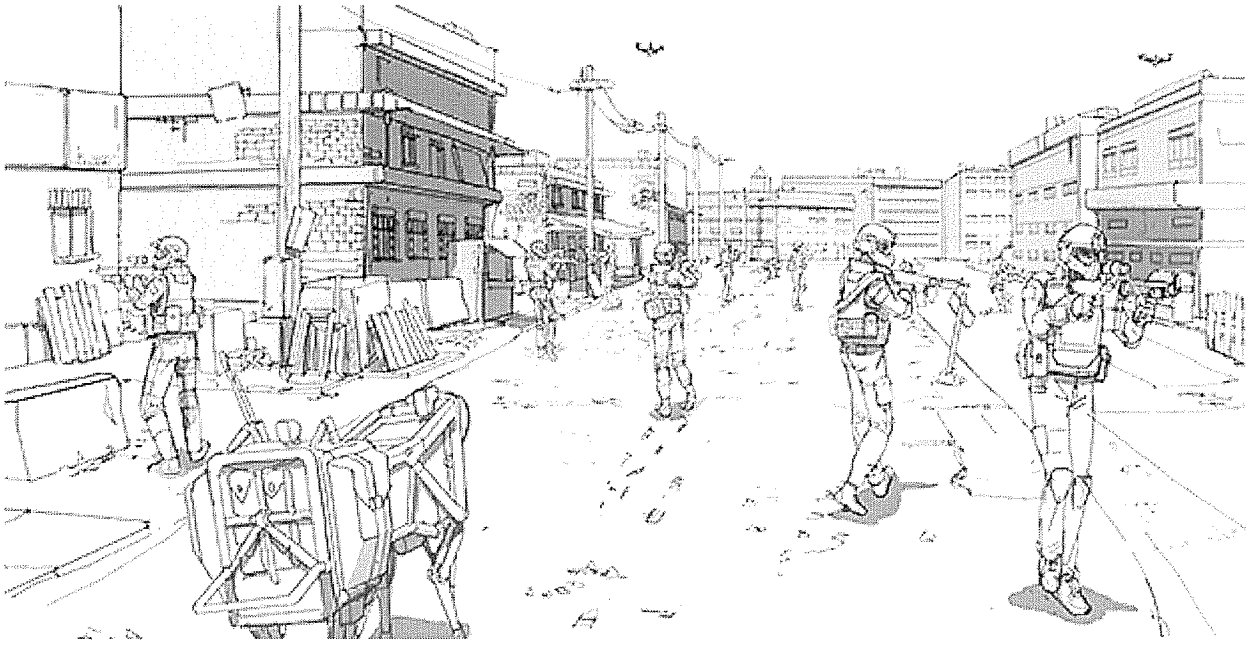
- **Squad Sensing: Detect potential threats out to 0.6 mile (1,000 meters) at a squad-relevant operational pace. Capabilities of interest include multi-source data fusion and autonomous threat detection.**
- **Squad Autonomy: Increase squad members' real-time knowledge of their own and teammates' locations to less than 20 feet (6 meters) in GPS-denied environments through collaboration with embedded unmanned air and ground systems. Capabilities of interest include robust collaboration between humans and unmanned systems.**

Squad X Core Technologies Takes First Steps toward Improving Capabilities for Dismounted Soldiers and Marines

DARPA selects nine organizations to start developing novel technologies that could enhance squads' ability to collaborate, understand their surroundings and act effectively

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12/10/2015



To succeed in their missions, military units must have a robust, multi-faceted picture of their operational environments, including the location, nature and activity of both threats and allied forces around them. Technology is making this kind of rich, real-time situational awareness increasingly available to airborne and other vehicle-assigned forces, along with a capacity to deploy precision armaments more safely, quickly and effectively. Dismounted infantry squads, however, have so far been unable to take full advantage of some of these highly effective capabilities because many of the technologies underlying them are too heavy and cumbersome for individual Soldiers and Marines to carry or too difficult to use under demanding field conditions.

To address this application lag, DARPA's Squad X Core Technologies (SXCT) program aims to develop novel technologies that could be integrated into user-friendly systems that would extend squad awareness and engagement capabilities without imposing physical and cognitive burdens. The

program, whose overarching goal is to ensure that Soldiers and Marines maintain uncontested tactical superiority over potential adversaries, recently awarded Phase 1 contracts to nine organizations.

"Our goal is to develop technologies that support a three-dimensional common operating picture leveraging input from integrated mobile sensors, as well as the ability to organically locate and identify friendly forces and threat locations in near real time," said Maj. Christopher Orlowski, DARPA program manager. "The Phase 1 performers for SXCT have proposed a variety of technologies that, in the future, could provide unprecedented awareness, adaptability and flexibility to dismounted Soldiers and Marines and enable squad members to more intuitively understand and control their complex mission environments."

DARPA has awarded Phase 1 contracts for SXCT to the following organizations:

- Helios Remote Sensing Systems (Utica, N.Y.)
- Kitware (Clifton Park, N.Y.)
- Leidos (Huntsville, Ala., and San Diego, Calif.)
- Lockheed Martin Corporation (Cherry Hill, N.J., and Grand Prairie, Tex.)
- Raytheon Company (Tucson, Ariz.)
- Scientific Systems Company, Inc. (Woburn, Mass.)
- Six3 Systems, Inc. (Mclean, Va.)
- SoarTech (Ann Arbor, Mich.)
- SRI International (Menlo Park, Calif.)

SXCT is pursuing research in the following four technical areas:

- Precision Engagement: Precisely engage threats out to 0.6 mile (1,000 meters), while maintaining compatibility with infantry weapon systems and without imposing weight or operational burdens that would negatively affect mission effectiveness. Capabilities of interest include distributed, non-line-of-sight targeting and guided munitions.
- Non-Kinetic Engagement: Disrupt enemy command and control, communications and use of unmanned assets at a squad-relevant operational pace (walking with occasional bursts of speed). Capabilities of interest include disaggregated electronic surveillance and coordinated effects from distributed platforms.
- Squad Sensing: Detect potential threats out to 0.6 mile (1,000 meters) at a squad-relevant operational pace. Capabilities of interest include multi-source data fusion and autonomous threat detection.
- Squad Autonomy: Increase squad members' real-time knowledge of their own and teammates' locations to less than 20 feet (6 meters) in GPS-denied environments through collaboration with embedded unmanned air and ground systems. Capabilities of interest include robust collaboration between humans and unmanned systems.

The U.S. Army, U.S. Navy and U.S. Marine Corps have expressed interest in future SXCT capabilities.

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