Biological Technologies Office (BTO): DARPA's Biological Technologies Office develops capabilities that embrace the unique properties of biology—adaptation, replication, complexity—and applies those features to revolutionize how the United States defends the homeland and prepares and protects its servicemen:

- Detecting and characterizing chemical, viral, and bacterial threats to deployed service members.
- Developing accelerated countermeasures for and protection from natural and engineered agents.
- Improving readiness, resilience, and recovery of warfighters to extreme physical injury and mental stress
- Developing high-resolution, noninvasive brain interfaces that can be used by service members to enhance their ability to learn new skills and interact with complex systems.
- Research into the design and control of performance in biological systems, the creation of living biomaterials for use in building materials and construction, and synthetic biomanufacturing.

Find out more: BTO's research programs; E-mail darpabto@darpa.mil to sign up for BTO News Updates

Defense Sciences Office (DSO): DARPA's Defense Sciences Office (DSO) identifies and pursues high-risk, high-payoff research initiatives across a broad spectrum of science and engineering disciplines and transforms them into important, new game-changing technologies for U.S. national security. Current DSO themes include frontiers in math, computation and design, limits of sensing and sensors, complex social systems, and anticipating surprise. DSO relies on the greater scientific research community to help identify and explore ideas that could potentially revolutionize the state-of-the-art. DSO is currently exploring a number of research areas including:

- New materials and structures for extreme environments
- Using neuroscience and the understanding of complex social systems to enhance human learning
- Applying quantum information tools to reveal the difference between correlation and causation
- Intersections of computation and mathematics with chemical systems to accelerate discovery
- Quantum and Materials Science
- Neuromorphic Computing and Artificial Intelligence/Machine Learning
- Scalable methods for identifying and understanding cultural models, biases, and beliefs in social groups
- Improving AI's ability to understand human and social systems
- Machine learning research to achieve specialized "super intelligence"
- Novel concepts to exploit complex dynamical natural or artificial phenomena to perform computation
- High-efficiency sensing and AI with information security

Find out more: DSO Exploration Areas; DSO's Current Investment Portfolio; Sign up for DSO News Updates

Information Innovation Office (I2O): Modern society depends on information and information depends on information systems. Timely, insightful, reliable, and relevant information is essential, particularly for national security. To ensure information advantage for the U.S. and its allies, the Information Innovation Office (I2O) sponsors basic and applied research in three thrust areas:

- Research to enable computing systems to become partners to humans in problem solving.
- Research into the analytical tools and technologies that rapidly transform the data and information in internet, social media, and other information ecosystems into effective courses of action for conflict resolution, stabilization, and other complex challenges.
- Investments to create information and operational technology that are resistant to cyber-attack and to detect, deflect, and respond to subtle and overt escalations of cyber conflict.

Find out more: I2O Research Programs