Software as a Strategic Advantage for National Security

OUR NATION'S MILITARY AND CIVILIAN GOVERNMENT ORGANIZATIONS work to protect our nation's security and deter war. Their capabilities increasingly rely on complex, software-based systems and networks. At the Carnegie Mellon University Software Engineering Institute (SEI), a federally funded research and development center, we work continually to improve software development, use, and security, because organizations need

- Software to do more. Software delivers capability that gives or maintains an edge over competitors or adversaries.

- Software to be deployed rapidly. Being able to put software into use as soon as possible assures timely response to operational needs.

- Software cost to be affordable. The total cost of software, despite increased capability, needs to be predictable and where possible reduced.

- Software to be secure. Mission- and business-critical software must be free from exploitable defects, especially in today's environment of rising cyber threats.

Inventing and Deploying

Combining strengths in technology research, development, and application, we bridge the gap from the invention of the possible to the deployment of the practical.

We research complex software engineering, cyber operations, and artificial intelligence (AI) engineering to develop solutions for

- Streamlining rapid, iterative approaches to development and fielding
- Driving software budget discipline and affordability
- Assuring cyber workforce readiness
- Improving cyber operations to defend systems and networks at the speed of relevance
- Leveraging emerging technologies

We apply novel tools, techniques, and practices throughout the software acquisition and cyber operations lifecycle. And, we back up our technologies with the know-how to provide customers with both rapid-response and long-term support.

Contact us when you

- Face a hard problem or a technical challenge that is a strategic priority
- Are uncertain how to understand or approach a new problem
- Need an independent technical assessment
- Need to work with a partner that can perform both classified and unclassified work

Improving Software

We produce and refine solutions to make software more innovative and affordable, better-built, and better-secured by

- Questioning assumptions about what is possible in our focus areas
- Collaborating deeply with CMU and broadly across academia, government, and industry
- Collecting evidence from our domain experience and analysis of the technology landscape
- Designing, building, piloting, and proving new solutions
- Automating solutions so that they can be more easily implemented by our customers

Saving Development Time, Deploying Software Faster, Assuring Software Quality

- Cut system integration costs 7x by applying SEI-developed technology in the Army's Joint Multi-Role Technology Demonstrator project
- Shortened authority-to-operate approval from months to a single day for the Joint Improvised-Threat
- Furnished technology that enabled U .S. Army PEO-STRI to avoid more than $300 million in software cost over five years
- Enabled the DoD to assess the cybersecurity capabilities of 300,000 DoD contractors through co-developing the Cybersecurity Maturity Model Certification
- Developed more than 50,000 software vulnerability reports; broadly shared more than 3,600 vulnerability notes
- Selected by the Office of the Director of National Intelligence to lead a national initiative in engineering artificial intelligence (AI) for defense and national security

About the SEI

The Software Engineering Institute is a federally funded research and development center (FFRDC) that works with defense and government organizations, industry, and academia to advance the state of the art in software engineering and cybersecurity to benefit the public interest. Part of Carnegie Mellon University, the SEI is a national resource in pioneering emerging technologies, cybersecurity, software acquisition, and software lifecycle assurance.

Contact Us