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Content - Our Impact

Our Impact

The SEI was founded as a federally funded research and development center (FFRDC) in 1984 to provide leadership for advancing software engineering to help the U.S. Department of Defense (DoD) achieve strategic advantages for its mission-critical systems. Over the decades since its foundation, the SEI has evolved from responding to threats as they emerge to developing world-leading expertise in software engineering, cybersecurity, and artificial intelligence (AI) engineering.

Today, we continue to conduct cutting-edge research to broaden our understanding of software and to address the impact that both established and emerging technologies can have on government and society, as well as real events and people.

Our Projects	Our Expertise	Our Value	Our Research Showcase
See some of the impactful projects we've completed for our customers.	See the research that the SEI works on.	See how we've advanced software engineering, cybersecurity, and AI over the years.	See recent presentations from our principal investigators about the research they conduct.

Innovations for a Better Future

Our innovations help create a safer, more secure, and more prosperous future.

At the heart of the SEI's success is its creative approach to problem solving. Over the years, the SEI has evolved to tackle harder and harder problems as software has advanced more and more rapidly. To anticipate new and unexpected challenges, the SEI has fostered a culture of innovation to deliver novel yet enduring tools, technologies, and practices across the military, academia, government, and industry. Those capabilities have helped maintain the U.S. at the forefront of technological advancement in software, and they have helped organizations of all kinds improve software development, streamline software operations, and gain an overall edge in maturing software capabilities.

[See the SEI's History of Innovation](#)

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Transforming the Software Workforce Through Education

The SEI delivers the insights of its research to the public through courses, certificate programs, workshops, publications, and workforce development tools and events. These offerings have helped many organizations improve their software engineering activities and methods, their cybersecurity, and their knowledge of how to build and apply artificial intelligence (AI) and machine learning (ML) technologies securely and safely.

See our course and certification offerings

[Courses](#) [Credentials](#)

Learn how our workforce development activities can help your organization

[AI Workforce Development](#) [Cybersecurity Workforce Development](#)

Collaborations That Make a Difference

We work with organizations in government, industry, and academia to create groundbreaking solutions and extend the reach of our impact.

- **The Networking and Information Technology Research and Development Program:** The SEI cohosted a workshop with the Networking and Information Technology Research and Development (NITRD) program of the White House Office of Science and Technology Policy (OSTP). The workshop identified five critical needs and priorities for building and maintaining U.S. leadership in software engineering and AI engineering. For more information, see [Workshop Identifies Critical Needs for U.S. Leadership in Software Engineering, AI Engineering](#).
- **U.S. Army:** The SEI helped the U.S. Army prepare to implement zero trust in a tactical environment for the first time. To learn more about the SEI's role, see [Bringing Zero Trust Practices to Army Tactical Networks](#).
- **Office of the Under Secretary of Defense for Research and Engineering:** The [Office of the Under Secretary of Defense for Research and Engineering \(OUSD\(R&E\)\)](#) and the SEI launched the Center for Calibrated Trust Measurement and Evaluation (CaTE), which is aimed at establishing methods for assuring trustworthiness in AI systems with emphasis on interaction between humans and autonomous systems. For more information, see [Assuring Trustworthiness of AI for Warfighters](#).
- **Chief Digital and Artificial Intelligence Office:** The Chief Digital and Artificial Intelligence Office (CDAO) leads DoD implementation of responsible AI (RAI) policy and guidance and engaged the SEI to create training for AI workforce development. The SEI has extensive knowledge and experience in the field of RAI and how it extends across different types of complex systems. Read more about this work in [Supporting the Human and Technical Elements of Responsible AI for National Defense](#).
- **Department of Energy:** A 2011 White House initiative tasked the Department of Energy (DOE) to create a more comprehensive, consistent approach to measuring the security

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posture of the energy sector. The DOE formed a working group of research organizations, including the SEI, and energy sector stakeholders. In just five months, the working group produced the [Cybersecurity Capability Maturity Model \(C2M2\)](#), which received a major update in 2022. For more information, see [Updated Energy Sector Cybersecurity Maturity Model Helps Keep the Lights on](#).

Looking Ahead: Innovating the Future

The pace of advancements in software will only continue to grow, and the SEI is positioned to continue to meet future challenges.

- AI and ML systems have created new capabilities to solve problems that directly improve economic health, societal well-being, and the security of the nation. However, these technologies are not without risk. In fact, failures in AI and ML system development and deployment have already had wide-ranging impacts. In response, the SEI created the first-of-its-kind [artificial intelligence security incident response team \(AISIRT\)](#) to launch new research to learn more about AI vulnerabilities and respond to AI-specific threats as AI and ML continue to advance and grow.
- The SEI chartered an initiative to catalyze future research decisions for the Department of Defense, federal government, and industry. The result, [Architecting the Future of Software Engineering: A National Agenda for Software Engineering & Development](#), provides a multi-year research and development vision and roadmap to engineer the next generation of software-reliant systems.
- The SEI launched the [National Initiative for AI Engineering](#) aimed at establishing and growing the discipline of AI engineering. The initiative, under the SEI's leadership, guides a multiyear research and development effort to form the practices, processes, and knowledge to build new generations of AI systems that are robust and secure, scalable, and human centered.

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