

TECHNICAL CORROSION COLLABORATION (TCC)

Definitions Document

1. Introduction: The Technical Corrosion Collaboration (TCC) was the logical outgrowth of the University Corrosion Collaboration (UCC) pilot program, which was initiated in 2007 under congressionally directed funding. The TCC builds on the advantages of the research collaboration and educational opportunities demonstrated under the UCC by expanding and formalizing the role of DoD personnel in problem identification, research project development, project monitoring, and product transition. Greater involvement of DoD personnel in these areas will result in a higher degree of interaction with the students and result in enhanced educational opportunities for them as well.

The TCC fulfills, in part, the duties of the Office of Corrosion Policy and Oversight (CPO) within the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics as defined in 10 USC 2228. In addition, it serves to balance the investment portfolio of the CPO in the area of high risk, high reward research to complement the lower risk, more technically mature efforts being sponsored by CPO and undertaken by the services. The effort is an important part of the long-term strategic plan for corrosion mitigation of DoD assets being implemented by the CPO.

2. TCC Concept: The TCC concept is depicted in Figure C-1. Under this concept, DoD personnel work with their respective service Corrosion Prevention and Control Executives (CCPEs), principle investigators, and users to identify research topics that have the potential to reduce the cost of corrosion, increase availability, and/or improve the safety of military weapons systems and infrastructure. They then work with the CPO and university personnel to refine the topic into a research program. Once the research program begins, university personnel undertake the majority of the efforts. DoD personnel continue their involvement at a lower level, monitoring and guiding the research. Upon completion of the research, the university will transition their products (knowledge, technologies, processes, materials) that are suitable for advanced development, prototype demonstration or insertion in systems.

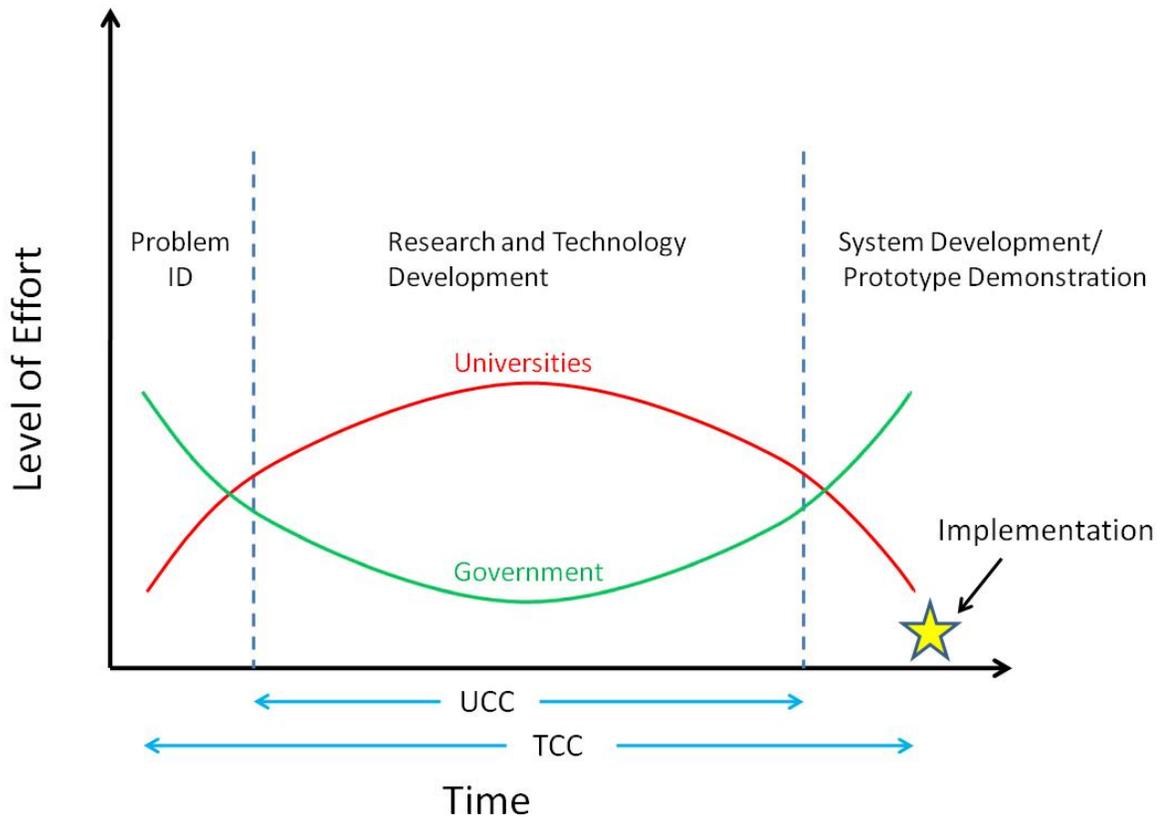


Figure C-1. Technical Corrosion Collaboration (TCC) Concept

3. Objectives: The objectives of the TCC are twofold and have equal importance. One objective is to produce solutions that tangibly reduce the impact of corrosion on DoD weapons systems and infrastructure. It is understood that this is a relatively long-term effort that is only achieved after completion of both the component and systems phases of the work. The other goal is to produce individuals with education and skills, to form the future core of the corrosion prevention and control technical community within DoD, its support network, and its suppliers.

4. Participants: Participants include CPO, DoD technical personnel, and TCC member universities.

a. CPO will:

1. Advocate for TCC funding as a part of the President's budget
2. Fund TCC projects based on the available budget. Funding will be provided to both the DoD technical personnel and the universities commensurate with their roles in the projects
3. Provide overall program management and oversight
4. Convene and chair the project selection panel
5. Regularly communicate progress and status to Military Department Corrosion Control and Prevention Executives (CCPE).

- b. DoD Technical Personnel will:
 - 1. Coordinate activities with their respective CCPEs
 - 2. Participate with the CPO and TCC member university researchers in the development of a corrosion control technology roadmap
 - 3. Identify areas of research and development that can mitigate current DoD corrosion problems or address future problems and work with the TCC member universities to develop sound and focused research and development projects
 - 4. Monitor and guide work in progress at the universities
 - 5. Take delivery of successful research products from the universities and further mature the technology through advanced development, systems development, and/or technology demonstration projects

- c. The TCC member universities will:
 - 1. Assist in the identification of research and development opportunities
 - 2. Identify promising students and post-graduates to work within the TCC
 - 3. Develop research and development projects in coordination with the government focal points and the CPO
 - 4. Conduct world-class research and development in collaboration with other universities and DoD technical personnel
 - 5. Produce products that can be transitioned to advanced development, systems development, or prototype demonstration
 - 6. Provide technical assistance as required during technology insertion and implementation.

5. Process:

- a. University/Government Engagement and Awareness: The CPO hosted two seminars to promote engagement between the member universities and various government activities. The purpose was to ensure that all organizations are aware of other organizations' technical interest areas and capabilities, with the intent of promoting logical and appropriate collaboration.
 - 1. The first seminar was held 10-12 January 2012 in conjunction with the TCC in-process review (IPR) and addressed the following:
 - a. High-level overview briefs on interests and capabilities from universities and government activities.
 - b. Technology-focused discussions allowing more specific identification of potential collaboration opportunities.
 - 2. The second seminar was held during the August 2012 TCC IPR.

b. Identification of Advanced Development Opportunities: The CPO sponsored workshops focused on identification of advanced development opportunities. Participants included CPO, DoD technical personnel, and TCC member universities. The products of these workshops were high-level research plans spanning the next 20 years that included identification of technology gaps. Products were categorized as follows:

- 1-3 Years – Sustainment
 - 5-10 Years – Acquisition
 - 10-20 Years – New Capabilities
1. The first workshop was held 8 December 2011 in conjunction with the CPCIPT Forum's S&T WIPT in McLean, VA. The workshop focused on problem identification and categorization. Results from the initial workshop were briefed to the CCPEs.
 2. The second workshop was held in March 2012 in conjunction with the NACE Corrosion Conference in Salt Lake City, UT. The focus of the second workshop was to link problems with technologies that may offer solutions. A TCC roadmap was initiated and technology gaps characterized at this workshop.
- c. Project Selection The minimum requirements for a research project to be funded under the TCC include:
1. Linkage to the identified advanced development opportunities and to the cost of corrosion and/or materiel availability studies
 2. Formalized collaboration agreement between a minimum of two TCC member universities and one government activity
 3. Joint (multi-service) application
 4. Maximum 4 year timeframe for execution of the university research and development phase of the effort
 5. Inclusion of a student or students who are eligible to work for DoD following graduation.

Other issues that will be considered during project selection include:

1. Identified applications for the technology
2. University capability that is complementary to existing TCC member universities with strong potential for further collaborative work
3. Level of customer involvement in the plan
4. Specific and planned transition demonstrations in the project schedule
5. Timeline to technology spinoffs or demonstrations
6. The return on investment, if successful.

- d. Progress Reviews: The CPO hosts annual programmatic and technical program reviews of the TCC. Government and university personnel are expected to attend and present progress, results, and issues. These progress reviews also facilitate peer review and comment.
- e. Site Reviews: CPO also travels to the member universities for a site review on an annual basis. This provides a better understanding of the research by observing the laboratory equipment and process flow associated with the research. It also provides opportunity to discuss the TCC program with the individual participants, which is not readily available at the annual review meeting.
- f. Products: The TCC will deliver the following products:
 - 1. Advanced component development opportunities spanning 20 years;
 - 2. Research results and products that are focused on DoD corrosion prevention and control and that are suitable for systems development or prototype demonstration;
 - 3. Personnel with advanced education that will form the core of the corrosion prevention and control technical community within DoD, its support network, or its suppliers.