The development of an integrated Cold Spray roadmap identifies common interests across the DoD to facilitate joint strategies and investments.

Roadmap accelerates Cold Spray adoption, avoids redundancy, and guides future investment

For more than 20 years, the DoD has successfully used Cold Spray technology for repair applications across the Services.

Workshops were held with each Service and DoD to create and refine roadmaps.

PROBLEM

Cold Spray is an established technology supporting operational readiness, maintenance, and sustainment across the Department of Defense (DoD). Development activities are relatively disparate, with close working relationships of participants preventing duplication.

OBJECTIVE

To develop a DoD integrated Cold Spray technology roadmap while identifying the current state, common needs and actions, technology investment gaps, and priorities. Army, Air Force, and Navy – along with contractors and research partners – have been developing and implementing Cold Spray technology for more than two decades.

Throughout the early stages of implementation, Cold Spray demonstrated a reduction in maintenance materials and costs, while increasing readiness. DoD-wide awareness of ongoing and planned Cold Spray programs is critical to expand its applications and benefits. The DoD integrated roadmap coordinates of individual Service investments in Cold Spray technology, and communicates current needs and planned activities, while enhancing collaboration, streamlining efforts and facilitating joint strategies.

TECHNICAL APPROACH

Commissioned by the Office of the Secretary of Defense (OSD), the National Center for Defense Manufacturing and Machining (NCDMM)/America Makes partnered with The Barnes Global Advisors (TBGA) to coordinate individual workshops with the Army, Air Force, and Navy (Naval Air Systems Command [NAVAIR], Naval Sea Systems Command [NAVSEA]). Workshop participants included Service-specific research and development, program engineering, and sustainment personnel.

Data gathered during the workshops was analyzed to determine individual Service status, needs, gaps, priorities, and future efforts. Service-specific data was compared, assessed, and compiled to develop the DoD wide Cold Spray technology roadmap.

This project aligns to:

Strategic Roadmapping

PROJECT END DATE
July 2020

Developing investment strategies for critical technologies.

SUCCESS STORY

ACCOMPLISHMENTS

- Formed the Roadmap Project Team.
- Coordinated teleconferences, workshops, and other events.
- Collected data from events to integrate all Service input.
- Organized and mapped major activities, and confirmed that overlaps were DoD-wide priorities.
  - Standardized terminology to highlight common activities and unique areas.
  - Prioritized future activities focused on area enabling collaboration to create the broadest DoD impact by mapping gaps to key service capabilities.
  - Drove consensus via face-to-face workshops, enabled brainstorming and large group discussions, and allowed opportunities for feedback and refinement.
- Established of a Cold Spray Integration Working Group (CSIWG) to drive a collaborative culture.
- Developed (and maintain) a current, living web-based roadmap, including roadmaps of varying detail levels.
- Recommended short-and long-term projects to advance the development and implementation of Cold Spray.
  - Initiated four short-term projects:
    Database/taxonomy
    Safety
    Training
    Supply chain
  - Initiated four long-term projects:
    Training curricula
    Supply chain maturation
    NDT and QA development
    Integrated Computational Materials Engineering (ICME)

FUNDING

$750K total project budget

PROJECT PARTICIPANTS

Project Principal:
NCDMM/America Makes

Other Project Participants:
The Barnes Global Advisors (TBGA)

Public Participants:
U.S. Department of Defense

About NCDMM

NCDMM delivers innovative and collaborative manufacturing solutions that enhance our nation's workforce and economic competitiveness. NCDMM has extensive knowledge and depth in manufacturing areas—both commercial and defense—continually innovate, improve, and advance manufacturing technologies and methodologies. Our experienced team specializes in identifying the needs, players, technologies, and processes to attain optimal solutions for our customers. We connect the dots. That's the NCDMM methodology. NCDMM also manages America Makes and the V4 Institute and is the cornerstone of the Manufacturing Technology Deployment Group, Inc. (MTDG). To learn more, visit ncdmm.org.