

SUCCESS STORY

3031

Development of integrated Cold Spray roadmap identified DoD common interests to facilitate joint strategies and investments

Roadmap instrumental in acceleration of Cold Spray adoption and guidance of 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 expanding its applications and benefits. The DoD integrated roadmap coordinates 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 were compared, assessed, and compiled to develop the DoD-wide Cold Spray technology roadmap.



**AMERICA MAKES
TECHNOLOGY
DEVELOPMENT
ROADMAP**

This project aligns to:



VALUE CHAIN

**ASTM PROCESS
CATEGORY**
N/A

EQUIPMENT
N/A

MATERIAL
N/A

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 areas 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 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)

PROJECT END DATE

July 2020

DELIVERABLES

- Army, Air Force, NAVAIR, NAVSEA Draft Detailed Roadmaps
- Army, Air Force, NAVAIR, NAVSEA Draft High-Level Roadmaps
- Three final Service Roadmaps (Army, Air Force, Navy). Prioritized common capabilities and gaps; Populated findings into DoD Roadmap.
- DoD Integrated Roadmap. Prioritized list of common gaps and collaboration areas.
- Final Report

FUNDING

\$750K total project budget

PROJECT PARTICIPANTS

Project Principal:

NCDMM/America Makes

Other Project Participant:

The Barnes Global Advisors (TBGA)

Public Participant:

U.S. Department of Defense