

# America Makes Rapid Innovation Call Jan. 21, 2021

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# Rapid Innovation Call – Jan. 21, 2021

- 1 step response – Full Proposal
- Shortened proposal response format
- All team members must be America Makes members

**America Makes RFP**

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**Rapid Innovation Call**

 **America Makes** | Driven by  **NCDMM**  
NATIONAL CENTER FOR DEFENSE  
MANUFACTURING AND MACHINING

Prepared by  
**The National Center for Defense  
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# Schedule

Event	Date
Project Call Announcement and Posting	01/21/2021
Project Call Kickoff Webinar	01/27/2021
Questions from Proposers about Scope or Approach Due	01/28/2021
Responses to Proposers about Scope or Approach Due	02/02/2021
Deadline for all team members to be an America Makes Member	02/02/2021
Fully Executed NDA with NCDMM (only if proposal contains proprietary information)	02/02/2021
Full Project Proposal Submission Due Date ( <b>Note: No Concept Paper Submission</b> )	02/08/2021
Anticipated Decision and Notification to Project Proposal Teams	02/22/2021
Anticipated Date to have ALL Projects on Contract	03/31/2021
All project finalized reports and deliverables received <b>no later than</b>	07/31/2021

# • Topic 1: Additive Manufacturing Materials Database

Development of a searchable and scalable AM materials database capable of compiling mechanical/ physical property data.

## ▪ Background

- Materials mechanical and physical property data exists within the Digital Store Front in many forms (reports, presentations, spreadsheets, etc.)
- A user-friendly interface for accessing project materials mechanical and physical property data offers efficiency improvements

## ▪ Considerations

- Method to compile/ organize project data
- Must facilitate the export of data in a widely accepted file format (.xml, .csv, .json) for analytics/ comparison across project portfolio
- Adaptable to types/ categories of data as member needs evolve
- Method to incorporate additional project data must be developed and documented
- Demonstration using at least one America Makes project data set with associated pedigree details
- Documented user guide or manual should be delivered
- Demonstration of security posture of any application architecture is highly encouraged
  - Ensure application architecture is secure and maintains minimum attack surface post deployment
  - Demonstrate that data cannot be easily exfiltrated by malicious actors

# Topic 1: Additive Manufacturing Materials Database

- Collection of member guidance/ needs through engagement or workshops is encouraged
- Search capability is highly desired.
  - Examples of search criteria:
    - Material, ASTM AM process types, AM equipment OEM name, Mechanical or physical property type
- Filtering is also highly desired.
  - Examples of filter criteria:
    - Material type, ASTM AM process types, AM machine make and model, Mechanical test type, Heat treatment
- Proposals should address licensing of the database resulting in no, limited, or negligible financial burden to ensure continued use by membership

# Topic 2: AM Melt Pool Monitoring Characterization Using a Reference Material

Develop, demonstrate, and document a method to achieve repeatable and reliable protocols to quantitatively assess melt pool monitoring instrumentation calibration and accuracy utilizing high purity metals as a reference material.

## ■ Background:

- Melt pool monitoring (MPM) systems are being widely adopted on commercial metal AM systems including powder bed fusion and directed energy deposition.
- Need to assess MPM system performance over time and across different AM platforms and user facilities
- Calibration or characterization methods that are stable, repeatable, reproducible, and replicate characteristics of the measured object are very important

# Topic 2: AM Melt Pool Monitoring Characterization Using a Reference Material

## ▪ Considerations:

- Address development and documentation of MPM characterization and validation methods (procedures, hardware, software, analytical methods) using high purity metals as a reference material
- Benefits of high purity metals
  - Easily obtainable, unambiguous chemical composition, Relatively well-defined/ documented thermal and optical properties
- Outline approach identifying:
  - Suitable high purity metals (with associated temperature regimes)
  - Address process/ measurement consistency or repeatability
  - Demonstrate a method to leverage high purity metals for characterizing MPM instrumentation
  - Assess different operating conditions

# Funding Overview: Two Awards

Funding Description	Amount
Total Award Funds Available	\$100,000
Max requested award per project	\$50,000
Cost Share Topic 1 Topic 2	Topic 1 - No cost share Topic 2 - 25% based upon award amount requested
Maximum Allowed Period of Performance (PoP) – shorter periods are acceptable*	4 Months (3 months technical and 1 month reporting) – no extensions will be considered

\*PoP may be longer if contracting can be expedited, but no proposed PoP's longer than 4 months will be considered for funding. Non-funded (no guarantee) follow on efforts may be included – counts towards page count



# Minimum Deliverables

Minimum Deliverables	Timeline
Written Final Report (minimum one round of revision completed with PM/NCDMM prior to final submission)	Due on or prior to 7/31/2021 (non-negotiable deadline, no extensions will be considered)
Financial and man-hour reports	Monthly
TRX, MMX, webinar, or other America Makes hosted forum to brief membership	Minimum of one for closeout, two at most (including closeout)
Lead organization shall participate on at least one working group, advisory group, steering committee, etc. relevant to the subject matter of the project.	Hours shall be tracked and reported
Data management plan, key performance parameters (KPP's), planned project deliverables list with corresponding (existing/ new) Technology/EWD roadmap requirements	Draft at time of proposal Final 1 month after award

# Reporting

1. At minimum, one (at most two) project briefing at America Makes Members Meeting and Exchange (MMX), Technical Review and Exchange (TRX), an America Makes hosted forum and/or an online webinar primarily for purpose of closeout
2. Data Management Plan, Key performance parameters (KPP's), planned project deliverables list with corresponding (existing/new) Technology Roadmap requirements finalized and documented within one month of project start date
3. Review of Data Management Plan and Execution 60 days prior to end of PoP
4. Virtual monthly team meetings that include the NCDMM PM and Government Technical advisors that are assigned post award as necessary or as agreed upon by lead organization/NCDMM/government technical advisors
5. Reports, presentations, or teleconferences upon request by NCDMM or AFRL
6. Working group, advisory group, or steering committee participation shall include presentation of milestone achievements or lessons learned relevant to the fulfillment or creation of roadmap requirements, requesting subject matter expertise support, and consultation for project steering group purposes or as necessary
7. Finalized, written report (minimum one round of revisions with NCDMM required before final submission) submitted to NCDMM by no later than end of proposed period of performance

# Proposal Evaluation Criteria

Technical Approach (0-30 percent)

Delivery and Management (0-70 percent)

# When America Makes America Works

