

Advanced Manufacturing-Crisis Production Response (AMCPR) Program Opportunities



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Today's Objectives

1 | Overview of AMCPR Program

2 | Benefits of Participation

3 | Specific Opportunities

Meet Today's Speakers

America Makes Leadership



John Wilczynski
Executive Director, America Makes

AMCPR POCs

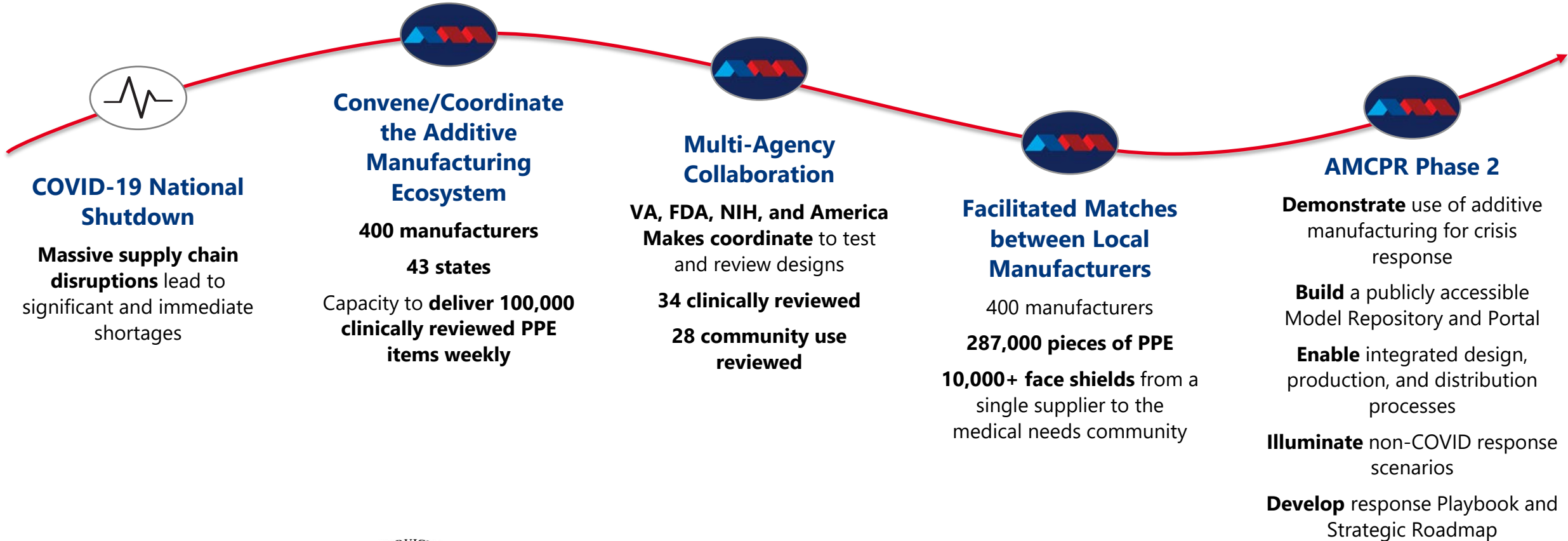


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Advanced Manufacturing Crisis Production Response (AMCPR) Overview



U.S. Department of Veterans Affairs



NIST National Institute of Standards and Technology
U.S. Department of Commerce



Advanced Manufacturing Crisis Production Response (AMCPR) Phase 2

AMCPR seeks to **create an enduring strategic infrastructure** for AM crisis response capabilities that includes workforce readiness, regulatory awareness and access to supply and designs.

This strategic infrastructure can help prepare the U.S. for future crises **and enhance overall national economic competitiveness and security.**



RAPID RESPONSE

Enable rapid deployment of capabilities and leverage analytics to establish a crisis response capability. Document lessons learned in a deployable playbook for future use.



CONVENING AN ECOSYSTEM

Convene industry, members, and other institutes to align around Grand Challenges and assess urgent needs, roles, and responsibilities.



SCALING CAPABILITY

Build an enduring infrastructure, based on principles of the Model-Based Enterprise, to distribute data across supply networks. Access data through a user-friendly portal, and leverage playbook for guidance.



EXERCISING CAPABILITY

Routinely utilize digital infrastructure and ecosystem capabilities to promote robustness in time of crisis.

Get Involved

Working together we can build an **enduring advanced manufacturing infrastructure** for the nation that can be deployed in a time of crisis to produce critical parts and products



The Goal of AMCPR is to:

- **Demonstrate** use of additive manufacturing for crisis response
- **Build** a publicly accessible Model Repository and Platform (MRP)
- **Enable** integrated design, production, and distribution processes
- **Illuminate** non-COVID response scenarios
- **Develop** a response playbook and strategic roadmap



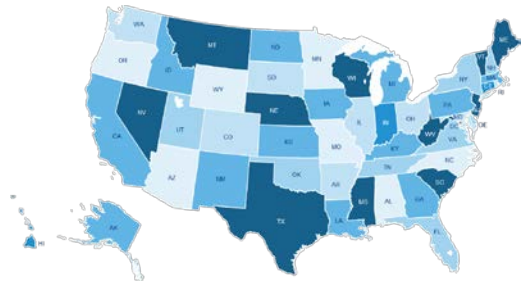
Member Benefits:

- **Opportunities** to visibly demonstrate your additive manufacturing capabilities with respect to design, production, and delivery
- **Opportunity** to substantively influence the development of a national crisis production response capability
- **Visibility** as a leader in the advanced manufacturing ecosystem
- **Shared investment** – community of action with cost share applied to membership

Achieving the Mission

ENGAGING THE ECOSYSTEM

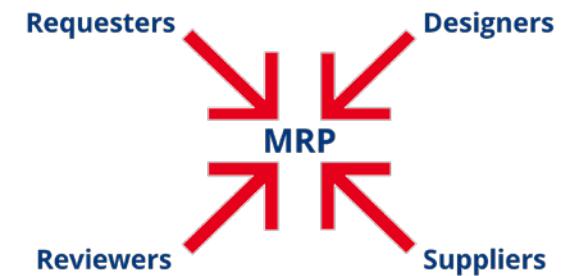
Convene and catalyze the AM community to respond to critical supply chain needs



Identifying the **needs, motivations, and capabilities** of the AM Ecosystem through the AMCPR will **enhance national mobilization and preparedness** through **digitally distributed manufacturing**

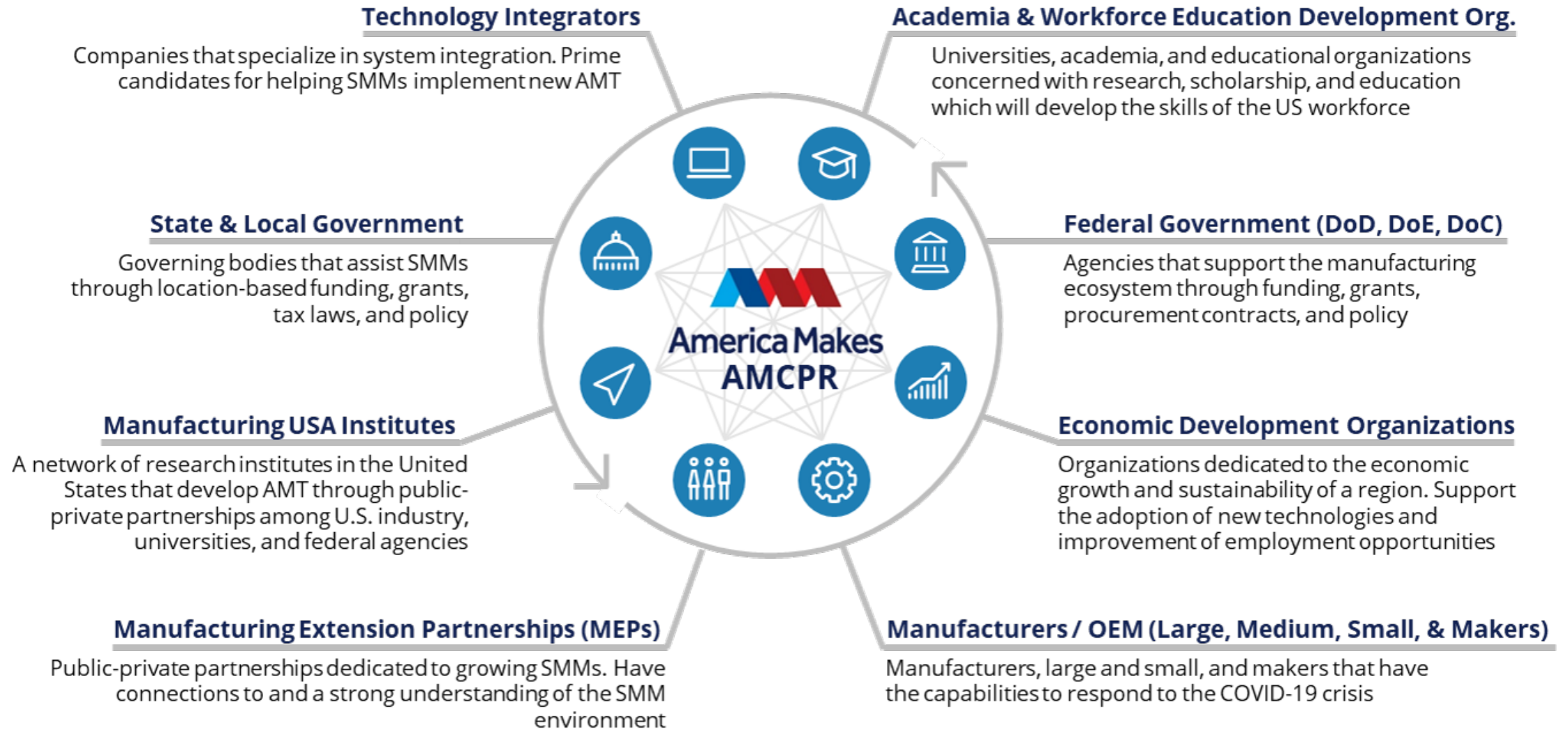
MODEL REPOSITORY & PORTAL

Scalable web application for quick deployment in cloud or traditional hosting environments



The MRP will **act as a conduit for rapid production** to existing national repositories, and **provide a platform** for needs requesters to connect with capable designers and manufacturers

National AM Ecosystem



MRP User Personas

The MRP is being designed with the four primary personas (user types) listed below. Focusing on the needs, experiences, behaviors, and goals of these personas will help optimize the MRP user experience.



I need something that I cannot find!

Requesters

- Individuals or organizations with unfulfilled needs – a recent example includes hospitals in need of face shields
- Provides product performance requirements



I have a design for something useful!

Designers

- Create TDP (if not available) and model
- Submits advanced manufacturing designs to the model repository
- Participates in sponsored design challenges to promote the creation of new designs



I need to be sure items are safe!

Reviewers

- Assess, evaluate, and approve/reject designs submitted to the MRP
- Evaluate and score design challenge submissions using performance specifications
- Evaluate and approve/reject manufactured product using performance specifications



I have the capacity to make good things!






Suppliers

- Connects with product requestors via the MRP
- Fulfills demand by supplying requestors with manufactured products
- Manufacturers products based on MRP hosted designs

Scenario Testing: Evaluating the AMCPR

The AMCPR and MRP will be **evaluated through a set of test scenarios that:**

- **Bring to life the capabilities** that will be deployed through the AMCPR, inclusive of the MRP
- Determine **technical and process requirements** supported in the **near-term** (Phase 2) **vs. immediate-to-long term** (i.e., Roadmap)
- Contains **five dimensions**, or **key properties of the AMCPR** effort, to **comprehensively and systematically assess response capabilities** to a given crisis

-  **Process Complexity** – number of different task groupings in a scenario
-  **Product Complexity** – manufacturing, functional, business, and regulatory/legal complexity of the object to be manufactured
-  **Ecosystem Complexity** –number of stakeholders involved in a given scenario, and/or level of “closeness” of their relationship with America Makes
-  **Stakeholder Capability Risk** –level of capability a given stakeholder has demonstrated in relation to its assigned process or task
-  **Connectivity Risk** –ability of a stakeholder to reliably connect to a cloud-based system vs. having to operate in an "offline" or asynchronous environment

Dimensions	Scenarios						
	A	B	C	D	E	F	G
Process Complexity	Low	High	Low	High	High	Low	High
Product Complexity	Low	Low	Low	High	High	High	High
Ecosystem Complexity	Low	High	High	Low	Low	Low	High
Stakeholder Capability Risk	Low	Low	High	High	Low	Low	High
Connectivity Risk	Low	Low	Low	Low	Low	High	High

Scenario B: Community Crushes COVID-19!

Phase 1 of the AMCPR effort revealed that the US economy hosts tremendous latent capacity that can be mobilized to respond to crises such as COVID-19.

In AMCPR Phase 2, we demonstrate the potential of a broad community of professional, capable designers, reviewers and producers to respond to an immediate crisis with a needed product.

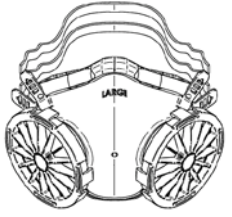




Tabular presentation of dimensional mix

Dimensions	Scenarios						
	A	B	C	D	E	F	G
Process Complexity	Low	High	Low	High	High	Low	High
Product Complexity	Low	Low	Low	High	High	High	High
Ecosystem Complexity	Low	High	High	Low	Low	Low	High
Stakeholder Capability Risk	Low	Low	High	High	Low	Low	High
Connectivity Risk	Low	Low	Low	Low	Low	High	High

Product	Requester	Designer	Reviewer	Supplier
<i>Stop-Gap mask v2</i>	1 Requestor from needs community	1-2 Designers <ul style="list-style-type: none"> design a small, previously unreleased polymer stop-gap mask Develop and load TDPs¹ to website 	Agency partners to review design and request modifications <ul style="list-style-type: none"> NIH VA FDA 	5-10 suppliers through members, MRP, and other communication channels <ul style="list-style-type: none"> Download and print stop-gap mask Send to America Makes for evaluation and review

¹Technical Data Package

AMCPR Scenario Testing – External Involvement Openings

Role	Scenarios				
	B) Community Crushes COVID-19!	C) Earthquakes Earn Enmity!	E) Impossible Impellers!	F) Tooling Takes Too Much Time!	G) Taking a Shot at Shots (Syringes)!
Potential Application					
Requester	1 opening	1-2 openings	1-2 openings	1 opening	N/A
Supplier	5-10 openings	5+ openings	1-2 openings	1-2 openings	5+ openings to print

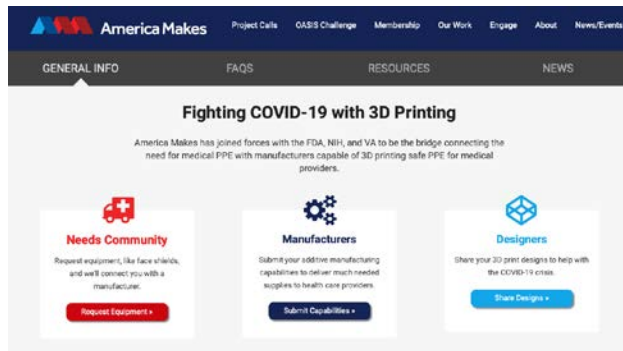
Next Steps

TODAY

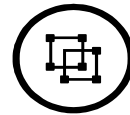


Join the Ecosystem

Submit your requests, capabilities, or designs at <https://www.americamakes.us/amcpr/>, under COVID RESPONSE



NEXT 2 WEEKS



Release Scope of Work for Opportunities

1. America Makes to release Scope of Work week of **December 7** via email and America Makes website, <https://www.americamakes.us/amcpr/>
2. Members respond to Scope of Work by **December 15**

UPCOMING MONTHS



Execute

1. Sign MOU
2. Execute (includes training on the MRP)

TIME FRAME: January through April 2021

Get Involved with AMCPR & America Makes

Join us on December 8th from 1-4 EST to continue to define and shape the AMCPR Program

- Capture a future-state vision for the AMCPR program
- Identify the motivations, attributes, and critical actions needed to inform, empower, and mobilize the AM Ecosystem
- Gather functional and user-experience preferences for the AMCPR Model Repository & Portal

To Register for the Workshop:

<https://www.americamakes.us/events/amcpr-r-osd-workshop-2/>



America Makes

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Interested in learning more about AMCPR and upcoming opportunities to engage?

Contact Georgette Nelson directly @

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Visit:

<https://www.americamakes.us/amcpr/>

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Thank you.

When America Makes America Works

