



# Joint Additive Manufacturing Working Group & Data Management Update

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# Overview



- **Why Additive Manufacturing?**
- **Department of Defense Strategic Approach to Additive Manufacturing**
- **OUSD(R&E) Approaches**
- **Joint Additive Manufacturing Working Group and Data Management**





# Why Additive Manufacturing?



- **Modernize Defense Systems**
  - New geometries enabled by AM
  - Part reduction
  - Faster prototype and build cycles
  - ***Faster, lighter, stronger, more impactful systems***
- **Increase Material Readiness and Efficiency**
  - Address part obsolescence
  - Reduced logistics footprint
  - Rapid tooling and job aids
  - ***Increased system availability and lower cost***
- **Enhanced Warfighter Innovation & Capability**
  - Training and job aids
  - Innovative solutions in theater
  - ***More responsive and capable units***



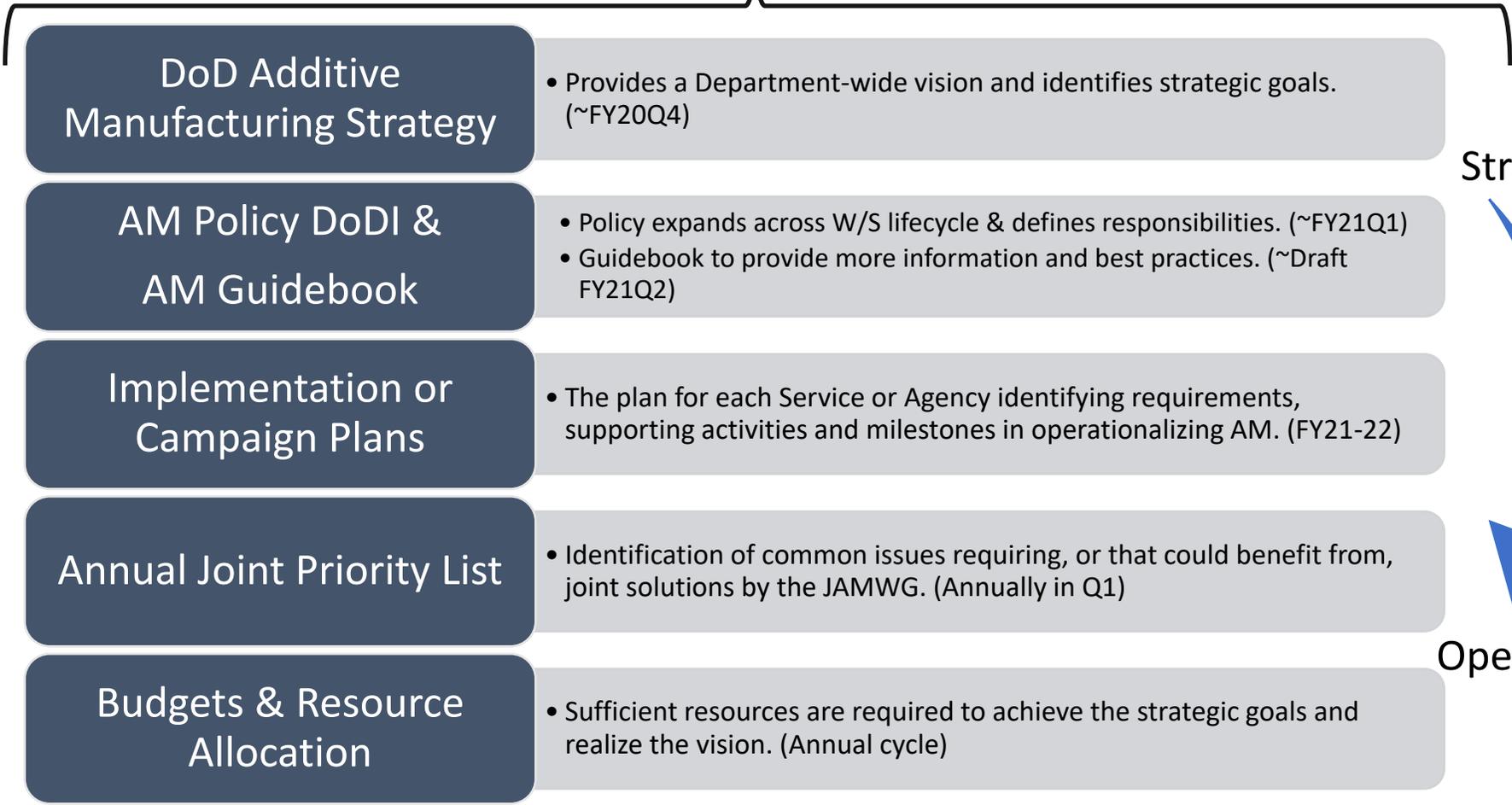
SOURCE: Defense.gov



# DoD's Strategic Approach to Additive Manufacturing



## National Defense Strategy



Strategic



Operational



# DoD AM Strategic Goals



1. Integrate AM into DoD and the Defense Industrial Base.
2. Align AM activities across DoD and with external partners.
3. Advance and promote agile use of AM.
4. Expand proficiency in AM: learn, practice, and share knowledge.
5. Secure the AM Workflow.





# OUSD(R&E) Approaches



## Lead and Facilitate

- Joint AM coordination and collaboration
- Funding to support joint priority AM projects
- Sponsor the Additive Manufacturing Innovation Institute
- Develop DoD AM Strategy
- Develop DoD AM Policy

## Partner

- Manufacturing Innovation Institutes:
  - America Makes
  - Manufacturing times Digital (MxD)
  - Lightweight Innovations for Tomorrow (LIFT)
  - NextFlex
- Other Partnerships:
  - NDIA Manufacturing Division
  - Additive Manufacturing for Maintenance Operations

## Invest in R&D

- Manufacturing of Gradient Index (GRIN) Polymer Lenses for Military Optics
- Cold Spray Additive Manufacturing (AM) & Structural Repair (SR)
- Enhanced Energetics
- Conformal Antennas



# Strategic Technology Protection & Exploitation Mission and Focused Lines of Effort



Deputy Director  
Strategic Technology Protection & Exploitation (STP&E)  
*Dr. Robert Irie*

Acting D, Maintaining  
Technology Advantage  
*Mr. Kristopher Gardner*



***Maintain Leadership in Critical  
Technology Modernization Areas***

D, Resilient Systems  
*Ms. Melinda Reed*



***Foster Assured Resilient Missions,  
Systems and Components***

D, Technology and  
Manufacturing Industrial Base  
*Mr. Robert Gold*



***Advance Domestic Innovation Base  
to Deliver Modernization Goals***

## ***STP&E MISSION:***

***Promote and protect technology advantage and counter unwanted technology transfer to ensure Warfighter dominance through superior, assured, and resilient systems, and a healthy, viable national security innovation base.***

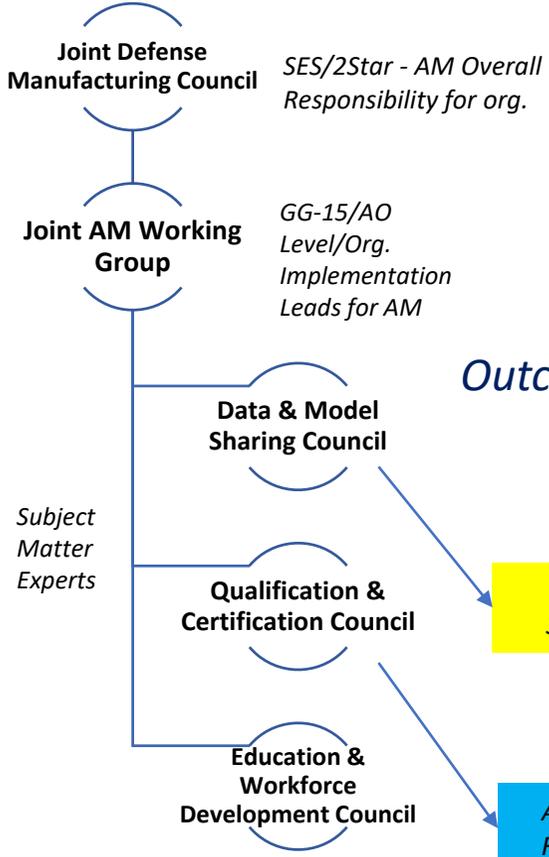


# Joint Additive Manufacturing Working Group (JAMWG)



## Coordinating Across the DoD Enterprise: Research & Engineering, Acquisition, Sustainment and Logistics

### Organization:



### Objectives:



### Outcomes:



### Opportunities:

- Qualification Tools
- Digital Thread
- Workforce
- Communication
- Business Practices
- Cybersecurity
- Supply Chain Integration



# Joint Additive Manufacturing Model EXchange (JAMMEX)



## WHAT IS JAMMEX

A secure web-based system to collaboratively share 3D models across DoD in support of additive manufacturing. JAMMEX links to various Service-Specific JAMMEX Repositories containing 3D models allowing users to search and view the 3D models, edit the models, and download the associated files. JAMMEX is accessible by CAC authentication for all users.

### JAMMEX

## WHY DO I NEED IT

Enhance supply chain efficiency

Reduce lead times with real time access to data

Address obsolescent parts and hard to procure parts

Alternate sources of supply

- Leveraging the available 3D models of all the services and allowing cross-service access
- Streamlined collaborative process across DoD



### JAMMEX

## HOW DO I GET ACCESS

Access can be requested through **DLA AMPS** (Account Management and Provisioning System).

1. Go to [amps.dla.mil](https://amps.dla.mil).

**(Note: Navy Only - Remove "noclick" from the URL)**

2. Click on "How to register for an AMPS account: External Users" and follow the directions.

3. Go into AMPS and request the desired role for JAMMEX.

4. You must have the contact information for your Supervisor, Security official and applicable External Approving Official (EAO)

## HELP!! WHO DO I CONTACT?

If you have any questions or encounter any issues, you can reach out to:

[J62HJAMMEXPMO@dla.mil](mailto:J62HJAMMEXPMO@dla.mil) or [Catrina.Murphy@dla.mil](mailto:Catrina.Murphy@dla.mil)

You can also go to [jammex.dla.mil](https://jammex.dla.mil) website and the No Account landing page will provide the contact information.

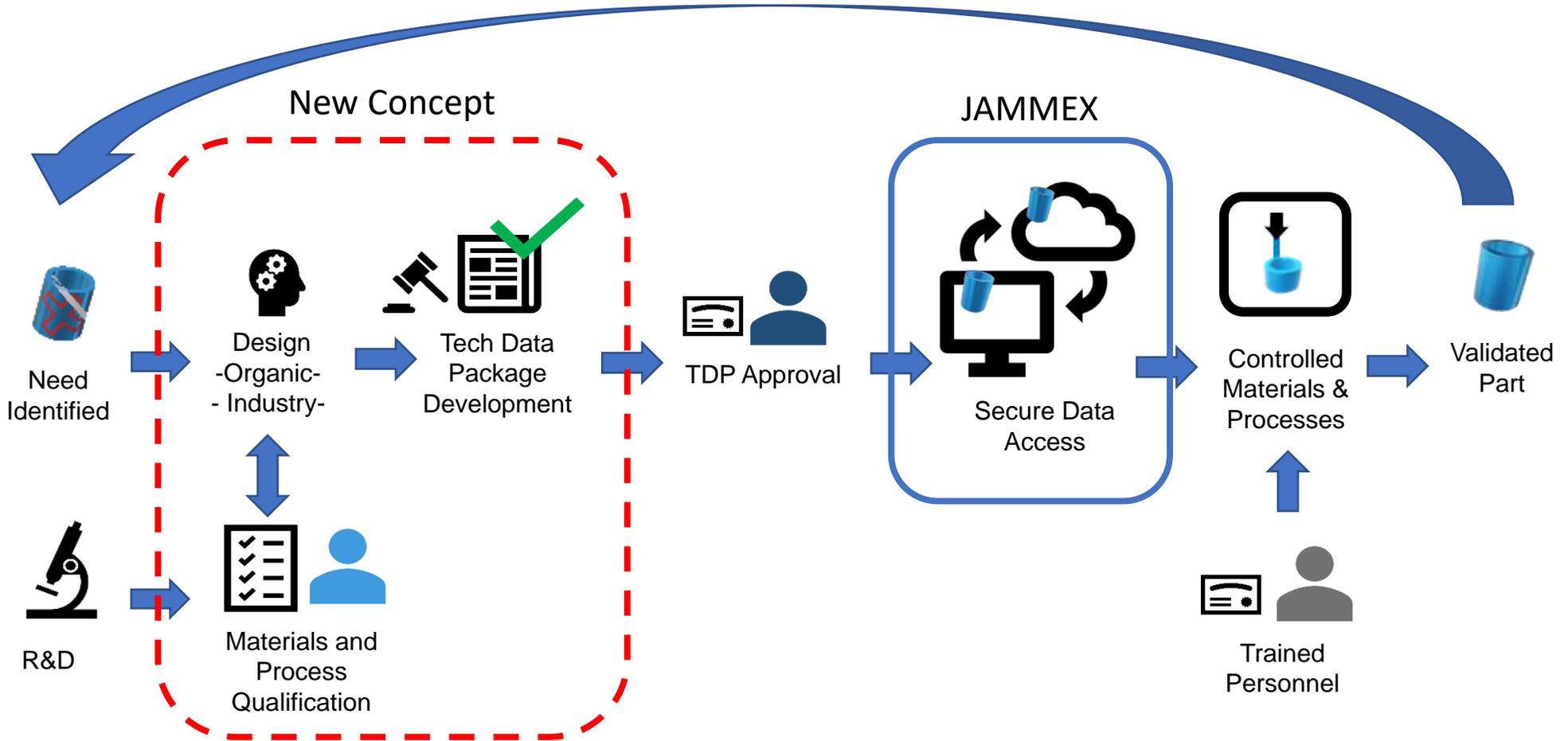




# Additive Manufacturing Process Flow\*



**i** Business Feedback



\*Notional, as an example only.



# Data Management Framework Concept

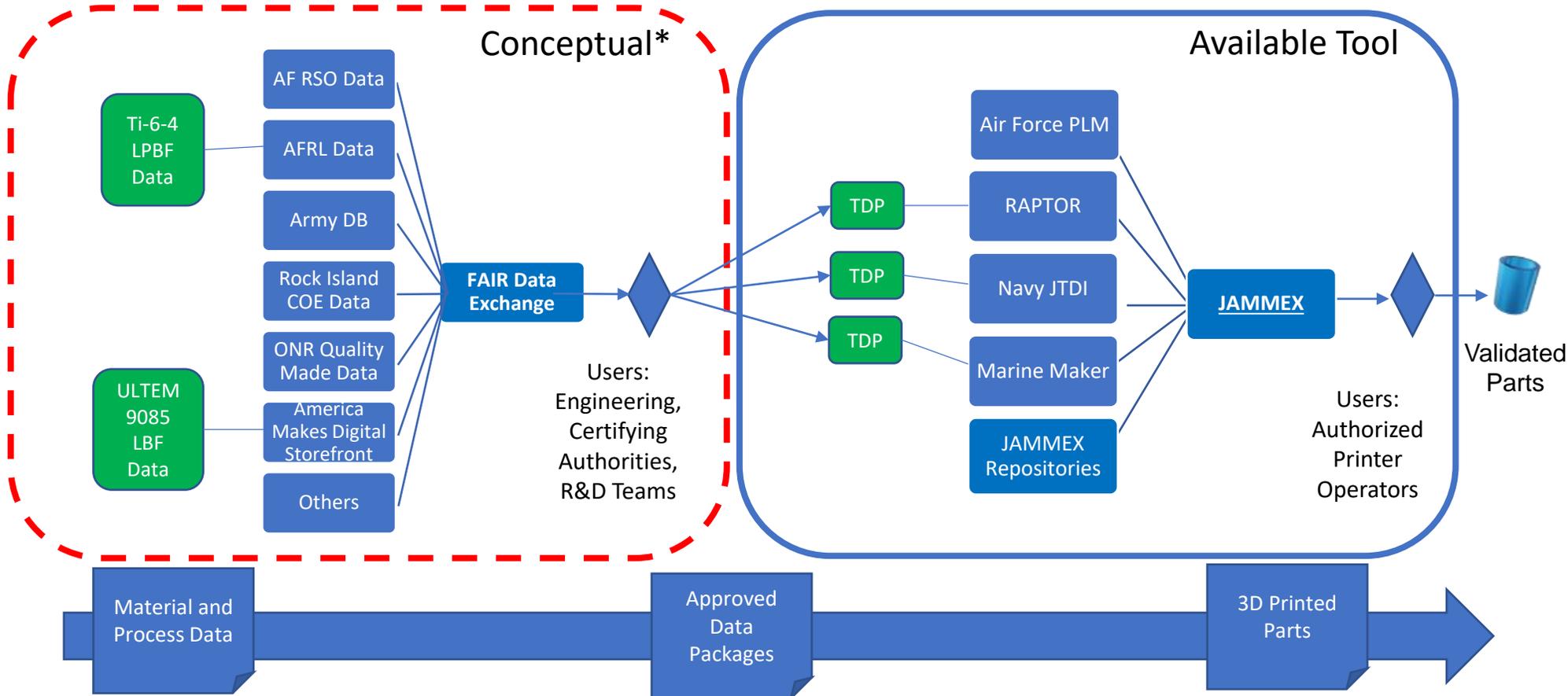


## Raw Data to Approved Data Package

## Approved Data Package to Print

Conceptual\*

Available Tool



Stress, train, fatigue, laser power, material properties, material reuse, etc.

Approved Technical Data Packages, Certified CAD files, qualified AM part files

\*Conceptual idea and examples only.



# JAMWG FY20-21 Priorities

## **1. Accelerate qualification and certification of AM materials, machines and parts.**

- Scope a joint AM Qualification data generation pathfinder project for metals.
- Execute pilot materials data federation project and scope a joint AM materials database approach if appropriate.
- Increase engagement with standards development organizations.
- Promote and transition R&D to mature AM technologies that will increase reliability and accelerate qualification.

## **2. Enhance a secure common digital thread across DoD and industry.**

- Complete demonstration of Joint Additive Manufacturing Model Exchange (JAMMEX) system, roll out to users and define future requirements.
- Common Technical Data Package standard developed, accepted by all Services and published.
- Identify challenges and scope possible solutions to key cyber-physical security needs for AM across DoD.

## **3. Expand proficiency in AM: learn, practice and share knowledge.**

- Identify common requirements, complete asset mapping and a path to fill in gaps with joint Education and Workforce (EWD) Development programs to support Service Implementation plans.
- Develop an artisan/technician certification program and share outcomes across DoD.

## **4. Develop DoD and supply chain integration policies and guidance.**

- Publish DoD Instruction (Policy) on AM.
- Share and issue best practices for AM acquisition and cataloging.
- Provide policy and guidance to integrate the supply chain.

## **5. Improve internal and external communication effectiveness on AM.**

- Publish DoD AM Strategy.
- Develop AM communication plan and utilize AM collaboration tools.
- Share information on metrics to capture value of AM and agree on common metrics.



# Conclusion



Thank you.

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