The Digital Manufacturing Institute

MxD REQUEST FOR PROPOSAL

TECHNICAL SUMMARY, PROGRAM OVERVIEW and PROPOSAL PREPARATION INFORMATION

MxD-21-06:

Dynamic Production Scheduling and Optimization

Revision 1.0 Release Date: September 9, 2021

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I. RECORD OF CHANGE

Revision	Date	Sections	Description
1.0	9 September, 2021	N/A	Original

II. PROJECT OVERVIEW

RFP Released	9 September, 2021
Deadline to be included in Initial Teaming List	16 September, 2021
Pitch Session (Optional)	28 September, 2021
Technical and Cost Proposal Due	4 November, 2021
Anticipated MxD Funding	$500,000
Period of Performance	12 – 15 Months

III. INTRODUCTION

MxD: The Digital Manufacturing Institute is where innovative manufacturers go to forge their futures. In partnership with the Department of Defense, MxD (also referred to as the Institute) equips U.S. factories with the digital tools and expertise they need to begin building every part better than the last. MxD's core mission is to transform American manufacturing, by fully integrating the digital thread across the manufacturing enterprise to reduce overall manufacturing costs, stabilize and grow the manufacturing industrial base and improve US competitiveness through the world.

MxD has invested over $120 million in more than 85 applied research and development projects in areas including design, product development, systems engineering, future factories, agile and resilient supply chains, and cybersecurity.

MxD operates from a nearly 75,000-square-foot innovation center near downtown Chicago. Its future factory floor features some of the most advanced manufacturing equipment in the world, which partners can use for experimentation and training on everything from augmented reality to advanced simulation techniques.

MxD uses a broad and collaborative process to develop the Strategic Investment Plan (SIP) and Technology Roadmap to ensure its technology, outreach, and education investments provide U.S. manufacturing with the right skills, solutions, and tools to compete globally. A Request for Proposal (RFP) is initiated when MxD desires new and creative solutions to problems and/or advances in knowledge, understanding and technology for digital manufacturing and design. Once the RFP topic is developed and approved, the MxD RFP will be posted to the MxD website and represents the official notification to Proposal Teams of a request to submit the required documents.

This RFP contains the following elements:

1. Technical Summary: description of a specific technology objective
2. Program Overview: description of technical and program requirements
3. Proposal Preparation Information: background and guidance for the preparation of required forms and instructions needed to submit a proposal to MxD

The RFP is available on the MxD website at https://mxdusa.org/projects/. Amendments to a MxD RFP may be used to extend due dates, clarify procedural requirements, or modify technical requirements. If an updated RFP is issued, the previous RFP will be rescinded. Proposal Teams should carefully monitor the MxD website after an original posting of an RFP, up to the time of the Technical Proposal and Cost Proposal submission date. Any revisions, amendments or updates will appear in the same section of the website as the original solicitation. It is the responsibility of the Proposal Team to monitor the MxD RFP updates and ensure their proposal meets the solicitation requirements. MxD welcomes any comments or suggestions for improving the contents of this guide. Please address them to projects@mxdusa.org.

MxD refers to the Proposal Team Lead as the non-Federal organization that submits a proposal in response to a Request for Proposals. Proposal Team members are other participants on the proposal and are further broken down into Recipient/Subrecipient relationships similar to a prime/subcontractor relationship in traditional contracting.

Any questions regarding this solicitation must be provided to projects@mxdusa.org. The questions will be sent to the appropriate MxD and/or Government POC, and answers will be published on the MxD website, if appropriate. Questions submitted within one week prior to a deadline may not be answered.

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TECHNICAL SUMMARY

IV. TECHNICAL SUMMARY

PROBLEM STATEMENT

As manufacturing environments increase in complexity, scheduling systems must account for the inevitable risks and uncertainties inherent to them. Traditional scheduling tools and manual methods such as spreadsheets cannot respond dynamically to unexpected changes and quickly become obsolete when disruptions do occur. These disruptions can include asset downtime when a component fails, a sudden manpower shortage due to illness, or a critical part shortage when a supplier delivery deadline is missed.

Scheduling is often tribal knowledge based, leaving critical decisions about production planning, scheduling, and order sequencing inaccessible to the organization and contained within an individual. Commercially available solutions and even scheduling capabilities added to enterprise systems (e.g. MES, ERP, etc.) can be inflexible, don't account for resource constraints, or are independent of factory floor data. Improved scheduling can directly impact operational performance in the form of increased throughput, more efficient machine utilization rates, and improved worker productivity.

There are many barriers to implementation and adoption of these types of solutions. Manufacturers often lack the expertise needed to properly implement the tools and are unsuccessful with deployment. Some solutions are overly sensitive to changes and use static constraints that make incorrect assumptions. They may often recommend schedule changes that are not feasible and require auxiliary resources such as an unavailable crane to move parts or extra workers.

There is often apprehension regarding cost and time investment, resistance to change within the organization, and a belief that legacy lines/systems cannot provide valuable data. Ultimately, manufacturers are unable to choose an optimal scheduling tool from available commercial offerings, successfully deploy these solutions, and gauge return on investment (ROI). This is especially true for SMMs who often have limited data, time, and resources to implement real-time scheduling solutions.

To address these industry needs, MxD is funding the implementation and validation of a real-time, dynamic scheduling and optimization solution that can provide manufacturers with actionable insights into plant scheduling. The solution should incorporate factory floor data and demonstrate ROI to manufacturers seeking to implement tools that address and optimize scheduling.

OBJECTIVES

The following objectives outline the key activities that MxD considers applicable for a successful project. MxD's recommended set of requirements are included under each objective, but the team is encouraged to make justified, value-added changes to the requirements as they see fit.

1. **Development of a Framework for Integration:** Solution must interface with prevailing legacy and/or enterprise systems (MES, ERP, etc.) that enables the tool to analyze relevant data and independently recommend scheduling changes.

The requirements for this objective are as follows:

- Develop a plan for ingesting data from multiple sources that can drive analytic decisions and optimize scheduling. It is not uncommon for manufacturers to have multiple enterprise systems running different software versions so the solution must be able to access and utilize this data.
- The solution should use real-time data coming from the manufacturer's production systems and equipment sensors, where applicable.

2. **Implementation with Manufacturer(s):** Engage with a manufacturer(s) to identify a subset of the factory or the appropriate line(s) within their facility to initiate and track a pilot deployment.

   The requirements for this objective are as follows:

   - The manufacturer will drive the use case, KPIs, and success metrics.
   - The Proposal Team should target use cases and manufacturers where sufficient production data is present to provide meaningful insights and for which data is sufficient to be utilized during the project period of performance.
   - Determine an appropriate manufacturing use case based on data availability and suitability towards demonstrating improvements in defined KPI.
   - Protect proprietary information through anonymization as necessary. Determine which data are sensitive/contain IP and determine a strategy for securing this data.
   - The Proposal Team can choose any manufacturing paradigm or environment as long as the outlined objectives and requirements are met and adequate data is available to inform the tool.

3. **Demonstrate and Prove Return-on-Investment (ROI):** Create detailed case studies and a guidebook to provide success stories and help other manufacturers build confidence about what to expect when implementing a real-time, dynamic scheduling and optimization solution.

   The requirements for this objective are as follows:

   - Using a commercially available, modified, or originally developed tool, the Proposal Team should demonstrate and document the implementation process of a real-time scheduling solution.
   - Record both tangible and intangible ROI, best practices, and identify common pitfalls to avoid when deploying these solutions. Though it can be difficult to calculate ROI and translate it across different companies, improvements in relevant metrics such as throughput, efficiency, productivity must be clear.
   - If applicable, detail the change management process and the experience proactively managing and overcoming resistance.

Through these objectives, the project primarily seeks to address the following general use cases. Furthermore, it is expected that the Proposal Team will identify and propose with a manufacturer to provide their own relevant use cases.

- *As a plant scheduler, I want to understand how delays in a process will affect delivery time in order to inform scheduling.*

- *As a production supervisor, I want actionable insights to quickly respond to an unexpected machine failure in order to reallocate resources and meet production demand.*

- *As a production manager, I want visibility into machine utilization rates in order to optimize allocation of resources and improve scheduling.*

RFP Scope of Work

The above objectives must be completed within the following project constraints:

Period of Performance: 12 – 15 months
Anticipated MxD Funding: $500,000
Minimum Cost Share Contribution: $500,000

During the period of performance, the Proposal Team should engage the manufacturer(s) early on to gain a deeper understanding of their needs, determine relevant metrics and KPIs, and further refine the requirements for their deliverables. The Proposal Team can choose to implement and validate a commercially available, modified, or originally developed solution. They will need to conduct initial market research and document the criteria used for choosing an off-the-shelf solution from the numerous options commercially available or justify their use of a modified or originally developed tool.

The development process should employ agile methodology. Thus, the Proposal Team should have active engagement from manufacturing partners throughout the period of performance to ensure the development is headed in a value-added direction. To support their solution, a Proposal Team may choose to leverage relevant outcomes of previous MxD projects. This includes a previous project, 16-04-02 Integrated Scheduling and Control for Real-Time Factory Operations, which used process instrumentation feedback to drive dynamic scheduling in a virtual environment.

Based on the timeline and funding amount, it should be noted that data integrity and retrofitting of a manufacturer's environment with sensors are considered **outside the scope of this project** and should not be the main focus. The Proposal Team is expected to focus its proposal on a scope that is realistic, achievable, and aligned with its unique subject matter expertise.

During the period of performance, the Proposal Team will produce deployable deliverables that will be shared with the MxD membership in accordance with the Membership Agreement. The recommended deliverables are listed below in Table 1, but **the Proposal Team is encouraged to include additional deliverables or provide value-added changes to the recommended set of deliverables. As the team defines their deliverables, they should keep in mind that the outcomes should be above and beyond what any one organization can produce alone. They should fill a gap in industry and truly represent the mission of using federal funding to advance the state of US manufacturing.**

IMPORTANT: If changes are made to the deliverables, the Proposal Team must provide the reasoning and detail any assumptions to provide context for the changes. Their proposed set of deliverables must align with MxD's focus on achieving deployable outcomes and enabling the transition of the research.

Table 1. *Technical Deliverables*

Deliverable	Description	Deliverable Due Date (Month #)
Landscape Assessment	Conduct an asset audit of enterprise systems, data collection mechanisms (e.g. sensors), and define baseline KPIs, metrics	Month 2
Data Architecture and Integration Framework	Documentation of the data architecture and integration framework including approach, diagrams, and considerations for compliance and security	Month 4
Implementation at Pilot Manufacturer (s)	Implement a commercially available, modified, or originally developed scheduling solution at a manufacturing site to validate their effectiveness	Month 6
Guidebook	A general guidebook detailing best practices for choosing a scheduling solution and common pitfalls to avoid	Month 11
Detailed Case Study	A case study providing a detailed account of the implementation with a focus on ROI and lessons learned	Month 12
Technical Demonstrations at MxD	Demonstration of technical research and development outcomes in MxD's factory or via remote presentation	Month 12
Developer Documentation	Includes software documentation, integration documentation, documentation for modifications to software, documentation of known bugs and issues	Month 12

The Proposal Team is expected to develop a transition plan, which is detailed in Table 2 in Section V. MxD is focused on supporting the transition of project outcomes to its membership in the form of pilot integrations on their factory floors, follow-on research projects or commercialized products available for use. Proposal Teams are expected to tailor their deliverables to their transition goals in order to provide outcomes that have continuing impact after the period of performance is complete. **Pilot deployments and actionable transition plans are a priority for MxD to help maximize the benefits of funded research to the membership and ultimately, help increase the competitiveness of the US manufacturing base through new technological advancements. Thus, it is important that proposals emphasize not just technical merit but transition and deployment.**

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PROGRAM OVERVIEW

V. PROGRAM REQUIREMENTS

COLLABORATION

Participation in this program requires collaboration with a team of organizations with diverse capabilities. Competitive teams should include representation from the manufacturing base, academia, solution/service providers, and systems integrators.

Each Proposal Team must include participation by a manufacturer to drive use case and operational requirements. The manufacturer(s) are expected to define technical requirements, drive the business case for project outcomes and serve as a pilot manufacturer for test and validation of the solution. **The most competitive proposals will identify and pilot use cases at both a SMM and a large manufacturer.**

The Proposal Preparation Information section outlines the opportunities that MxD provides to facilitate proposal team development:

- Teaming List: MxD will collect contact information from parties interested in teaming during the first weeks of the proposal period and will then disseminate the compiled list of contacts to the responders via email.
- Pitch Session: MxD will host a Pitch Session to provide organizations and/or teams the opportunity to share a snapshot of their solution approach and allow them to identify synergies with other interested parties.
- Participation in the Teaming List and Pitch Session is optional and NOT required in order to submit a proposal.

PROGRAM MANAGEMENT

MxD will be responsible for managing the project to ensure the team meets all the technical objectives and requirements proposed within the project's period of performance and budget. The MxD Project Manager will coordinate with Principal Investigators (PIs) of the Proposal Team to manage the program following MxD's project processes. The Director of R&D Projects, in coordination with the assigned MxD Project Manager, will monitor technical performance and project costs of the associated Enterprise Award Agreement (EAA), the agreement that governs a project awarded by MxD to the Proposal Team Lead. Proposal Teams will submit the reports listed below in Table 2 to their identified Project Manager to fulfill their reporting requirements. These reports will be internally accessed by the MxD Director of R&D Projects, the Government, the Project Manager and other authorized MxD staff members in the course of their official duties. Technology advancements will be summarized at least annually in order to support reporting to the Executive Committee, Technical Advisory Committee, MxD Members, and the Government, when applicable.

Table 2. Program Deliverables

Deliverable	Description
Project Immersion Workshop	Face to face meeting with manufacturer(s) including stakeholders from key business units to review project transition plan and define pilot requirements.
Transition Plan	Written plan for successful transition of project outcomes after period of performance including technology integration, educational distribution, and potential commercialization.
Monthly Technical and Financial Reports	Monthly report from the Project Team Lead including the financial and technical status of the project.
Member Technical Reviews	Presentation encompassing all technical advancements made prior to key milestone and presented to the MxD Project Manager, members of the Technical Advisory Committee, and other interested MxD members.
Presentations at MxD	Presentation and demonstration of developed technology presented in person at MxD.
Annual Patent Reports	Report of inventions and subcontracts
Intellectual Property Reports	Participants must promptly notify the MxD Project Manager apprised of Project IP created, filing status, claims against the Project IP, and BIP licensed to other Members.
Safety Accident/Incident Report	Participants must report any major accident/incident (including fire) resulting in any one or more of the following situations: one or more fatalities or one or more disabling injuries; damage of Government property exceeding $10,000; impact to Project planning or production schedules or degradation of the safety of equipment under contract. Such report will also identify potential hazards requiring corrective action.
Draft Final Technical Report	Draft report must include a comprehensive, cumulative, and substantive summary of all technical advancements and significant accomplishments achieved during the project.
Final Technical Report	See above
Project Team Lead Release	Release by Project Team Lead confirming scope of work to be complete.
Property Report	List of all MxD funded equipment and planned disposition
Final Patent Report	Report of inventions and subcontracts

Travel Requirements

Proposals should include funding for four (4) trips per year for two (2) people for each member of the Proposal Team. These trips will be used for face-to-face meetings and presenting to the MxD membership. These trips may be for travel to MxD or to another location at the request of MxD (e.g., a conference, workshop, showcase, etc.). For estimation purposes, use Chicago, IL as the destination. Proposals may include additional funding for travel to pilot site for implementation and testing with proper justification.

Period of Performance Requirements

Proposed projects should be no more than fifteen months in duration. Please note that projects are initiated once an EAA is signed, therefore, the project duration must include the subcontracting of all project participants between the Proposal Team Lead and each member of the Proposal Team.

Ownership of Deliverables and Intellectual Property

To accelerate digital adoption, cybersecurity, and workforce development across the U.S. manufacturing sector and to support the increased priority from our funding partners to transition project technology, MxD desires to own or co-own all the rights to intellectual property (IP) created during the project (Foreground IP or Project IP). It is the expectation that a member of the Proposal Team will co-own or will have a non-exclusive, non-transferable license to use the Foreground IP it creates. MxD will negotiate in good faith to achieve this result. MxD expects that the IP Management Plan (Attachment 1b) submitted with this proposal will reflect this position. MxD will have no rights to pre-existing intellectual property (Background IP) belonging to any member of the Proposal Team except as may be expressly agreed to in the Project documents. It is important to note that MxD will consider proposals that do not meet this request; proposals with IP Management Plans that reflect this will be favorably reviewed.

Funding Requirements

MxD anticipates awarding one project for no more than $500,000 of Federal Funding, not inclusive of required cost share, under the MxD-21-06 RFP. MxD reserves the right to fund all, some or none of the Technical Proposals received under issued RFPs. Final award amounts will be adjusted accordingly based on proposals received and subsequent evaluations.

This project requires a minimum 1-to-1 Cost Share in aggregate by the Proposal Team. For every dollar of Federal funding awarded, the Proposal Team must contribute at least a dollar of in-kind effort or cash. Thus, the Proposal Team in aggregate will need to provide at minimum 50% of the total project cost (inclusive of labor, equipment, materials, indirect, etc.) in cost share. This cost share can be in-kind or cash and can be distributed among the members of the Proposal Team however the team decides. Cost share must be accounted for in the cost proposal, as described in the Cost Development Guide found in the Proposal Preparation Kit.

Neither MxD nor the U.S. Government has any responsibility for costs associated with Technical Proposal or Cost Proposal development, submissions, or pre-award negotiations.

If down selected, the Proposal Team must submit substantiating documentation for all Proposal Team Member costs (including cost share) and MxD will complete a comprehensive cost analysis (including cost reasonableness and cost realism) prior to award. In addition, the Government Agreements office may conduct a cost analysis of all submitted cost proposals to approve the project. Approval of the Cost Proposal and Technical Proposal by the Government Agreements office and the DoD Program Manager is required for all MxD projects.

NOTE: Project award timelines are subject to approval of the project plan by the government and the allotment of funds from the government.

VI. ELIGIBILITY

MxD Membership

This RFP is open to the public; any organizations regardless of membership status may submit a Technical Proposal and Cost Proposal in response to this RFP. However, the MxD Membership Agreement must be fully executed with every Proposal Team member prior to project award. Any non-MxD members of the Proposal Team are encouraged to review the Membership Agreement prior to submission and to direct questions to MxD's Director of Business Development, Tony Papke (tony.papke@mxdusa.org). For more information on how to become a MxD Member, please visit the MxD Membership page on our website.

Federally Funded Research and Development Centers (FFRDCs) and Government entities (Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations and cannot propose to RFPs in any capacity unless they address the following conditions:

- FFRDCs or Government entities may not exclusively team on any specific proposal team.
- FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector and must also provide a letter on letterhead from their sponsoring organization citing the specific authority establishing their eligibility to compete with industry and propose to solicitations utilizing Government funding.
- Government entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority, as well as, where relevant, contractual authority, establishing their ability to propose to solicitations utilizing government funding.

Government agencies interested in participating in MxD RFPs as part of Proposal Team should notify MxD in advance of Proposal submission. For RFPs utilizing Federal funding, special agreements and considerations may need to be implemented to enable participation.

Notification of Participation by Foreign Firms & Non-U.S. Citizens

Membership in MxD shall be granted only to U.S. companies, firms, organizations, institutions, or other entities organized or existing under the laws of the United States, its territories, or possessions (as defined in Section 120.15 of International Traffic in Arms Regulations, 22 CFR § 120 et. seq. ("ITAR")).

Membership and project participation (or participation in projects without membership status) will be granted on a case-by-case basis at the sole discretion of the MxD Senior Leadership Team upon approval of the U.S. Government for any of the following:

- Any agency or instrumentality of a foreign government;
- Companies, firms, organizations, institutions, or other entities not organized or existing under the laws of the United States (as defined in Section 120.16 of the ITAR); and
- Non-U.S. Citizens.

In such event, all Members will be notified immediately of the foreign entity's role.

If a Member is a Corporation with subsidiaries or affiliates, its membership will include its wholly-owned and controlled and majority-owned and controlled U.S. subsidiaries and affiliates who qualify as a U.S. person under Section 120.15 of the ITAR.

It is a requirement that work related to the project must be completed in the U.S. by people legally authorized to work in the U.S. All proposed project participation by non-U.S. Citizens must be disclosed to MxD on Attachment 2c MxD Foreign Firms, Travel, & Non-U.S. Citizens at least 60 days prior to proposed participation. Written approval of foreign firms and/or non-U.S. Citizens must be received by the member of the Proposal Team from MxD prior to commencing work.

VII. TECHNICAL & COST PROPOSAL EVALUATION

EVALUATION PROCESS

An MxD Evaluation Board (EB) will review and evaluate each submitted Technical Proposal utilizing the evaluation criteria specified in the following section.

The EB may consist of recognized experts from industry and academia and key government stakeholder representatives (when appropriate). MxD representatives, such as the Director of R&D Projects, and respective Project Managers, may participate in and lead EB meetings. All members of the EB will need to meet strict standards of personal and organizational conflict of interest. The evaluators may be supported by subject matter experts to review and comment upon the proposed work.

Through its deliberations, the EB will determine “selectability” of each submission. Selectability determination incorporates average EB score, judgement of market impact, and budget availability. The EB will identify a list of all proposed Technical Proposals that are “selectable for negotiation” leading to a subagreement award, along with their associated evaluation scores, to the Project Manager. The Director of R&D Projects, with the consultation of other MxD representatives, will determine which subset of the proposed Technical Proposals deemed “selectable for negotiation” will be down selected for negotiations. This determination will take into account the EB’s recommendation, funding availability, alignment with MxD’s SIP as well as external stakeholder requirements (when applicable).

EVALUATION CRITERIA

MxD’s primary goal is to apply digital manufacturing technologies to solve business problems. To this end, successful proposers must demonstrate an understanding of both the business needs as well as the technology solutions. Proposals should provide a clear explanation of how the solutions address business problems and technical requirements outlined in the RFP, any assumptions, and considerations for deployment of developed solution through a pilot.

Each proposal is evaluated by a specific set of criteria. Below are the Proposal Evaluation criteria for this RFP:

Proposal Evaluation Criteria	Order of Importance
Requirements Compliance • *Clearly articulates how the team will meet all the capabilities required by the RFP* • *Proposed solution clearly addresses problem statement and use cases identified in RFP* • *Clear identification of assumptions, risks, and mitigations; proposed deliverables align with requirements* • *Program management plan meets requirements in the RFP and is reasonable for the scope of work described in the technical proposal*	1
Methodology • *Clear and concise work effort scope targeted at problem statement* • *Proposed effort of direct relevance to RFP* • *Clear identification of barriers to implementation and explanation of how they will be overcome* • *Innovative methodology with high-potential for market impact* • *Significant and impactful use of external resources* • *Methodology demonstrates scientific and technical merit* • *SMART metrics and KPIs identified and described and demonstrate clear understanding of proposed work* • *Provides a maturity level assessment of both current and future state of technology with substantiation of assessed levels* • *Deliverables are fully described and identified*	2
Transition Plan • *Transition plan clearly articulates all project results and application into commercial and/or government products, systems and applications* • *Plan includes detailed descriptions of project results, risks/assumptions/mitigations, all required actions and timing, detailed funding and ROI strategy, key milestones, schedule and go/no-go decision points* • *Proposed team includes appropriate representation from supply chain, researchers and industrial partners* • *Transition tasks and partners identified and thoroughly defined, both to MxD members and the broader industry* • *Solution and strategy to rapidly enable the adoption of the new technologies across the US manufacturing base is presented* • *Clearly defined IP ownership and innovative licensing strategies designed for rapid adoption of the new technologies* • *Discussion of future transition and/or commercialization demonstrates a clear understanding of the industry and possible markets for the technology* • *Benefits of technology are clearly defined and substantiated.*	3

Team Qualifications • *Members of proposed team are highly qualified to accomplish project tasks with clear delineation of roles and responsibilities* • *Solid evidence of commitment by team members, such as letters of commitment from their companies* • *Team members have unique capabilities that are directly associated with the target technology* • *Team includes a broad mix of capabilities and experiences to ensure success along with the commitment of top-tier facilities to accomplish all project tasks.*	4
Cost Factors • *Proposed cost estimates are reasonable and realistic for the proposed work effort* • *The minimum cost share outlined in the RFP has been met or exceeded* • *Cost share is clearly defined and directly applicable to the performance and success of the project* • *Cost share value is readily discernable* • *Cost share from partners is documented with letters of commitment.*	5

VIII. PROJECT AWARDS

CONTRACT

MxD projects will be funded under the MxD Technology Investment Agreement (TIA), Contract Number W15QKN-19-3-0003 between MxD and the Government. All contractual negotiations related to RFPs will be executed by MxD. Funds will be distributed to the Proposal Team Lead selected through the evaluation/selection process utilizing an Enterprise Award Agreement (EAA). EAAs are usually Cost Reimbursement/Cost Share agreements; Milestone Payment/Cost Share based EAAs will be considered upon request.

MxD has provided an EAA template within the PPK for Proposal Teams to **review** prior to proposal submission. **The EAA should not be submitted with the proposal.** After receiving a notification of down selection, MxD will request the down selected Proposal Team to officially begin contract review and negotiations. MxD would prefer to execute an EAA only with the Proposal Team Lead. Once the EAA is executed, the Proposal Team can begin working on the project. When applicable, it is the sole responsibility of the Proposal Team Lead to issue contracts with applicable flow down clauses outlined in the EAA to any subcontractors, consultants, and any suppliers.

FINAL TECHNICAL PROPOSAL & COST PROPOSAL REVISIONS

MxD reserves the right to negotiate the cost and scope of the proposed work with the Proposal Team that has been down selected prior to award. MxD will facilitate the creation of a Statement of Work with the Proposal Team including technical scope modifications and program management aspects. All members of the down selected Proposal Team who intend to pursue selection are required to participate in the proposal revision process prior to award. For example, MxD may request that the organizations revise the technical scope to better align to RFP requirements.

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PROPOSAL PREPARATION INFORMATION

IX. PROPOSAL PREPARATION INFORMATION

This Proposal Preparation Information section offers detailed instructions on how to respond to this RFP; the Proposal Preparation Kit (PPK) includes the required proposal templates and reference documents on how to complete the templates. Together, the Proposal Preparation Information and PPK are intended to provide the basic information necessary for assembling complete proposals.

NOTE: MxD recommends Proposal Teams review the Request for Proposal Technical Summary & Program Overview prior to the PPK.

X. TEAMING OPPORTUNITIES

TEAMING LIST

To facilitate proposal teaming, MxD will collect contact information from parties interested in teaming during the first week of the proposal period. MxD will then disseminate the compiled list of contacts to the responders via email. If you are interested in submitting your contact info to this distributed list, please email projects@mxdusa.org by 5:00PM Central Time, September 16, 2021 with the following information:

> ***"Subject: MxD-XX-XX RFP Teaming***
>
> *[Organization Name]*
>
> *[Name of Contact]*
>
> *[Email address of contact]*
>
> *[1 sentence description of expected contributions to Proposal]*
>
> *I agree to have the information herein disseminated to other organizations that have indicated interest in teaming for MxD's RFP 21-06."*

PITCH SESSION

Additionally, MxD will host a **Pitch Session** on Tuesday, September 28, 2021 to provide organizations and/or teams the opportunity to share a snapshot of their solution and receive preliminary feedback from the MxD community. It will also serve as an excellent teaming opportunity for individuals and groups to identify synergies between their pitches. Pitch Session registration information will be posted at www.mxdusa.org/projects. Participation in the Pitch Session is not required to submit a Technical Proposal and Cost Proposal.

XI. SUBMISSION INSTRUCTIONS

SUBMISSION DETAILS

Each Proposal Team must submit their Technical Proposal and Cost Proposal no later than 5:00PM Central Time, November 4, 2021. All submissions must be made electronically to projects@mxdusa.org. Please include the RFP designation (e.g., "MxD-<XX>-<XX> – <RFP Title> - <Proposal Team> - <Proposal Title>") in the subject line of the email.

REQUIRED PROPOSAL DOCUMENTATION

The following section provides guidance on the necessary documentation, templates and submission formats required to submit a Technical Proposal and Cost Proposal in response to this RFP. Below are the documents (organized by PPK folder) that must be completed and submitted by the due date:

Required Proposal Documentation			
Title	**Document**	**Template**	**Submission Format**
Technical Proposal ONE PER PROPOSAL TEAM	Technical Proposal	Attachment 1a MxD Technical Proposal Template.docx	PDF
	Resume(s) of the Principal Investigator and Key Technical Personnel	N/A	PDF
	Letter(s) of Commitment	N/A	PDF
	Intellectual Property Management Plan (IPMP)	Attachment 1b MxD IP Management Plan.xlsx	XLS
Cost Proposal and Participant Certification ONE PER PROPOSAL TEAM	Cost Proposal	Attachment 2a Project Cost Proposal Template.xlsm	XLS
	Cost Narrative	Attachment 2b Cost Narrative Template.docx	PDF
	Certification of Foreign Firms, Travel and Non-U.S. Citizens	Attachment 2c Foreign Firms, Travel, & Non-U.S. Citizens.docx	PDF

- Each Proposal Team must submit **one Technical Proposal** (Attachment 1a). The instructions for completing the Technical Proposal are in the Technical Proposal template provided in the PPK folder. All questions are required, and attachments should be included.
- Each Proposal Team must submit **one completed IP Management Plan** (Attachment 1b) for the entire team with the Proposal. Instructions for completing the IPMP are provided in the template. The IPMP must contain Background Intellectual Property (BIP), Project (Foreground) IP, and assertions of limited rights to the Government.
- Each Proposal Team must submit **one Cost Proposal** (Attachment 2a) **including the Cost Narrative** (Attachment 2b) that is a summary or "roll-up" of all Proposal costs including cost share. Please reference the MxD Cost Proposal Development Guide for instructions on how to develop the Cost Proposal. An example Cost Proposal Excel Sheet and Cost Narrative are provided for reference. **Proposal Teams should be prepared to**

provide substantiating documentation for all Proposal Team Member costs within two weeks of down selection if the proposal is down selected.

- Each Proposal Team must submit **one Certification of Foreign Firms, Travel and Non-U.S. Citizens** (Attachment 2c) with information from every Proposal Team member. If there is personally identifiable information, separate certifications may be submitted
- The EAA is provided for review prior to submission. **The EAA should <u>not</u> be submitted with the proposal.**

Proposals that do not include the minimum requirements identified in the RFP will be deemed non-responsive and will not be evaluated.