

The background of the slide is a deep space scene. On the right side, a large, reddish-orange planet, likely Mars, is partially visible, showing its textured surface and some atmospheric haze. The rest of the background is a dark blue-black space filled with numerous stars of varying brightness and several colorful nebulae or galaxy structures in shades of blue, purple, and white.

**NASA/MARSHALL SPACE
FLIGHT CENTER**

JOINT COUNSELING SESSION

March 12, 2020

Background

COMPANY NAME:	4M Research, Inc	ADDRESS:	675 Discovery Drive Suite 303 Huntsville, AL 35806
OWNER:	Julie Martz	CONTACT NAME:	Julie Martz
EMAIL:	Julie.Martz@4mresearch.com	YEARS IN BUSINESS:	9
CAGE CODE:	52KB5	DUNS NUMBER:	825907434
WEB SITE:	4mresearch.com	NAICS CODES:	541330, 541511, 541715, 336892

CERTIFICATIONS (e.g., ISO 9001, AS 9100, etc.):

Certified WOSB by US Women's Chamber of Commerce and SBA

TS/SCI Facility Clearance

GSA Multiple Award Schedule (MAS)

DCAA Approved Accounting System

Defense Federal Acquisitions Regulation Supplement (DFARS) Compliant

Business Size & Classifications

EMPLOYEES (range):	50-100
AVERAGE SALES (range):*	\$8-16.5M

CLASSIFICATIONS (select from list below):	Yes/No
SMALL BUSINESS	YES
SMALL DISADVANTAGED BUSINESS	NO
NATIVE AMERICAN-OWNED	NO
ALASKAN NATIVE CORPORATION	NO
WOMEN OWNED	YES
ECONOMICALLY DISADVANTAGED WOMEN OWNED	NO
VETERAN-OWNED	NO
SERVICE DISABLED VETERAN OWNED	NO
HUBZONE CERTIFIED	NO
8(A) CERTIFIED	NO
8(A) EXPIRATION DATE (if applicable)	NO

*Based around NAICS 541330



Primary Capabilities

NASA Mission Operations and Integration

- Console Real-Time Operations
- Mission Preparation
- Review of CDR Data Packs
- Create Payload Crew Procedures
- Manage the Execution of Payloads and Experiments
- Payload Safety
- Science Operations Support

System Engineering and Analysis

- Requirements Analysis
- Coding/Program Structured Analysis
- Software Design
- Software Reuse
- Software Integration
- Software Testing
- Configuration Management
- Data Management
- IV&V and VV&A
- User Training
- Aviation Logistics Information Systems

Information Technology

- Desktop Publishing
- Operations & Maintenance
- Database Design & Development
- Database Administration
- Configuration Management Tools
- Web-Based Applications
- Systems Analysis
- Application Development
- Network Design & Administration
- Information Assurance/Cyber Security

Enterprise Solutions

- SAP System Architecture Design
- SAP Master Data Architecture
- SAP Governance, Risk & Compliance
- SAP Infrastructure Support
- Solution Testing & Training
- SAP Analytics, BI/BW & BOBJ
- Oracle Development
- Enterprise Center Operations
- Product Support

IA/Cyber Security

- Risk Managed Framework (RMF) Support
- Plans of Action and Milestones (POAMs)
- eMASS Administration
- Facility Assessments
- Authorization and Assessment (A&A) Processes

Field Support Services

- Sustainment and Maintenance
- Vehicle Mod Design
- Aviation Logistics and Maintenance

Medical Staffing Services

- Recruitment
- Onboarding
- Clearances/Credentialing



Current and Recent Contracts/Performance (< 5 years)

Business Intelligence/Business Warehouse (BI/BW) Support

Prime Contract providing SAP software architecture, development, testing, and fielding services for the Army's Enterprise Resource Planning (ERP) program

Red River Army Depot Logistics Modernization Program (LMP)

Prime Contract providing software development, logistics functional expertise, and training in support of the Depot's LMP transformation

Governance, Risk, and Compliance (GRC)

Prime Contract to develop the Army's GRC program and provide testing, and functional expertise for the Army's transition to an SAP Enterprise Resource Planning solution

US Army Logistics Modernization Program (LMP)

Software development, sustainment, and functional support to the Army's conversion to LMP

Technical Support to the Missile Defense Agency

Systems Engineering & Integration; Modeling & Simulation; Developmental Testing & Evaluation; Operational Assessment; Prototype Algorithm Testing; Model Based Systems Engineering; Analysis Expertise

NASA Mission Operations and Integration

Console operations, planning, and training for all flight phases; managing execution of payloads and experiments; coordination of anomaly troubleshooting; reviewing CDR Data Packs; writing payload procedures; supporting crew payload training and usability tests

Preservation of the Force and Family (POTTF)/Special Ops

Medical Staffing at military bases, Recruitment, Onboarding, Clearances/Credentialing



NASA Value - Quad Chart

PROBLEMS:

- 1) **CTEC/SCTEC**: It can be difficult to compare results from new candidate algorithms and confidently pick the best one, if they were developed and tested in different environments and scored under different conditions with different metrics.
- 2) **Machine Learning**: NASA sensors collect an enormous volume of data; in applications where a human operator must interact with it, a high degree of automation is clearly required.
- 3) **Agile Software Development**: Software development for large and complex systems can often be the “long pole” in the system/component timeline.

VALUE:

- 1) **CTEC/SCTEC**: This enables the government to identify the most promising advanced algorithms from multiple candidates and wring out performance issues early in the prototyping phase, while it is still comparatively quick and inexpensive to make changes.
- 2) **Machine Learning**: Machine Learning: When designed and trained properly, these deep learning techniques could cue the human operator when actions are needed, reducing the operator’s work-load and improving system usability.
- 3) **Agile Software Development**: The Agile development process provides continuous delivery of software based on customer feedback and enhanced ability to change/add features late in the development process that engages all developers.

COMPANY SOLUTION:

- 1) **CTEC/SCTEC**: Develop a common environment for testing early prototypes of advanced algorithms and benchmarking their performance against each other, using standardized test conditions and metrics.
- 2) **Machine Learning**: 4M Research staff have experience applying deep learning techniques to support automated image labeling.
- 3) **Agile Software Development**: 4M Research staff have experience applying Agile software process techniques to large development programs.

STATUS OF SOLUTION:

- 1) **CTEC/SCTEC**: 4M Research is an integral part of the CTEC and SCTEC labs in MDA, which successfully apply this solution to new prototypes of battle management, command, control, and communications (BMC3) algorithms and sensor algorithms, respectively. Testing in these labs is now part of the early TRLs for new BMC3 and sensor builds. A similar approach could be applied within NASA.
- 2) **Machine Learning**: 4M Research staff have expertise applying such algorithms for other commercial applications and could apply their expertise to NASA’s problems.
- 3) **Agile Software Development**: 4M Research staff have been supporting the design, development, and testing of the embedded software from Northrop Grumman’s Integrated Air and Missile Defense Battle Command System (IBCS) Program that utilizes the Agile software development approach. Our personnel have been recognized for their knowledge and support of the Agile process on this program.



Awards/Notable Accomplishments

- **Certified WOSB by U.S. Women's Chamber of Commerce and SBA**
- **GSA Multiple Award Schedule (MAS)**
- **DFARS Compliant**
- **DCAA Approved Accounting System**
- **Awarded a Top Secret/SCI Facility Clearance**
- **2019 Nominee for MDA Contractor of the Year**
- **Employee Accolades**
 - **Recipient of DOT&E Coin for contributions to MDA M&S VV&A program**
 - **Recognition for Employee's extra efforts on MO&I support**
 - **Employee Participation on a successful IBCS Flight Test**
 - **Numerous other recognitions for employee performance**
- **Top Contender for Best Places to Work Award**
- **Top Contender for Small Business Award**
- **Top Tiger Award Contender through Auburn University**

Principle Point(s) of Contact

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