

AGREEMENT
between
ARMY CONTRACTING COMMAND – REDSTONE
and
UI LABS
2201 W. CAMPBELL PARK DRIVE
CHICAGO, ILLINOIS 60612

Agreement for
Digital Manufacturing and Design Innovation Institute

Agreement No.: W31P4Q-14-2-0001

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Total Estimated Recipient Funding of the Agreement: \$105,820,041.00

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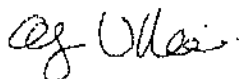
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This Cooperative Agreement, hereinafter referred to as the Agreement, is entered into between the Army Contracting Command – Redstone (the Federal Awarding agency) on behalf of the United States of America, hereinafter referred to as the "Government," and UI LABS, hereinafter referred to as the "Recipient," and collectively referred to as the parties pursuant to and under U.S. Federal Law.

FOR THE
UI LABS



Digitally signed by Caralynn V. Nowinski
DN: cn=Caralynn V. Nowinski, o=UI
LABS, ou, email=cnovinski@ui-labs.org,
c=US
Date: 2014.02.21 19:15:43 -06'00'

Signature

Date


Caralynn V. Nowinski

Typed Name

Chief Operating Officer & Interim Executive Director

Title

FOR THE UNITED STATES OF AMERICA
ARMY CONTRACTING COMMAND -
REDSTONE:

 21 Feb 2014

Signature

Date

Jeffrey T. Knight

Typed Name

Agreements Officer

Title

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ARTICLE 1. INTRODUCTION AND PURPOSE

The objective of this agreement is to establish a Digital Manufacturing and Design Innovation (DMDI) Institute that will significantly advance manufacturing within the United States.

The Government has led several independent initiatives addressing technologies both on and above the factory floor with the goal of maximizing the use of digital data across the life cycle of products. This “digital thread” captures information generated from concept development and design to analysis, planning, manufacturing, assembly, maintainability, and through to disposal. The complexity of what can be designed, built, and maintained to meeting product needs in both military and commercial markets is constantly increasing while the lead time available to develop and move these products from design to the customer is decreasing. Early consideration of manufacturability, during both the development of the science and technology and the design and acquisition phases, is essential to dealing with this complexity. Government and industry both have recognized the need to integrate physics-based characteristics into models that enable the simultaneous consideration of the physical configuration, computational elements, and predictable system behaviors to promote products and processes that are both “correct-by-design” (designed correctly) and “correct-by-construction” (built correctly). Other enabling technologies like 3D scanning of prototypes and final products should be fully embraced and integrated with design and manufacturing tools. The intended results are reduced tooling cost and lead time with increased fidelity in manufactured parts for quality control of the final product. Further development is needed in system level digital assembly based on 3D scanned data for “as built” and “as assembled” product. Optimized digital data generated above the factory floor needs to be seamlessly translated to intelligent machines on the factory floor that are capable of self-monitoring and control to enable manufacturing products with zero defects. Digital product data must be further enhanced by smart cyber-enabled, cyber-enhanced, and cyber-secure design. Manufacturing systems which are capable of providing information about system health and performance should also enhance the digital product data, establishing critical feedback loops within secure distributed environments, if needed.

The risk to industry to develop and implement these technologies is high and access to this technology for small and medium sized enterprises is limited due to the increasing complexity, difficulty, and costs. Competition on many fronts makes it difficult for individual companies to capitalize or develop these technologies in a global marketplace. The “factory of the future,” with prospects of advanced automation, affordability, and transformation of the workforce from low-wage manual labor to higher-wage technical labor, has been beyond the reach of traditional manufacturing enterprises, with companies opting to outsource to lower cost in lieu of technology development and infrastructure investments.

The goal of DMDI is to establish a national institute as a resource to focus on these

complex issues in advanced manufacturing and develop solutions to offset the risk to the U.S. Industrial base in adopting these new technologies using a collaborative approach. The ability to reduce the time and cost to bring products to the marketplace is a common need shared by Government and industry.

Since global competitiveness is driven by the speed at which products can enter the marketplace at a competitive price point, this institute's focus must be on enterprise-wide utilization of the digital thread, enabling highly integrated manufacturing and design of complex products at reduced cost and time. Government and industry also need a way to reduce the risk of adopting new technologies. The DMDI Institute can reduce that risk by providing a demonstration facility that integrates the next generation (NexGen) of manufacturing practices utilizing intelligent machines with advanced product development on the factory floor and advanced factory command, control, and communications to demonstrate agile, flexible, and reconfigurable operations. By demonstrating the potential for integrating information technology, smart factory process (e.g. computer simulation, use of advanced materials), and sophisticated analytics, a DMDI Institute could be a key competitive differentiator in efforts to overcome those risks and create a quantum leap forward in advanced manufacturing. This rapid revolution in the development and application of manufacturing intelligence to every phase of the product life cycle has the potential to fundamentally change how products are invented, manufactured, shipped, sold, and supported. It could be a key factor in keeping jobs in the US by helping manufacturers become more competitive in the global marketplace. The DMDI Institute is envisioned to be the innovation engine for digital manufacturing and design, as well as the NexGen demonstration platform for industry to use a test-bed for product design, manufacturing, and support.

The Institute must bring together the resources and developmental potential of the Federal Government, Original Equipment Manufacturers and other manufacturers, software providers' component suppliers, product designer, academia, state and local governments, and other key stakeholders. This public-private partnership will foster agile manufacturing advances that provide support to both government and commercial needs, developing market focused manufacturing advances supporting product and system performance, affordability, and ultimately increased market demand. These dynamics strongly suggest the need to instill within the collaborative environment an integrative approach that applies systems engineering principles to foster advanced manufacturing innovations that help to optimize component and system designs and accelerate time to market. The focused collaboration and the leverage of resources, of the Institute will drive innovations across the Manufacturing Readiness Level (MRL) 4-7 range to reduce industrial risks. This will help transition these critical new manufacturing capabilities into the U.S. industrial landscape to enable production scale-up and commercialization.

ARTICLE 2. DEFINITIONS

Advanced Analysis – The use of computational analysis techniques of structural systems in operating environments. This includes extreme shock, high rate loading, thermal loading, dynamic/cyclic loading, and interaction of structures with fluids. The analysis lends itself to design optimization and is linked, directly or indirectly, to the solid modeling software so that the technical data can be altered based on the analysis and the manufacturing processes adjusted accordingly.

Advanced Manufacturing Enterprise (AME) – AME is a set of robust, digitally driven manufacturing strategies and integrated capabilities that dramatically reduce the cost and time of producing complex systems in today's global manufacturing enterprises. These strategies include:

- An industrial information infrastructure that can pass all relevant data between design, fabrication, test, and sustainment operations quickly and without distortion, error, or omission;
- Advanced engineering tools and practices that eliminate multiple design, prototype, and test iterations required for product or process qualification; and,
- Supply network integration technologies and management practices that provide connectivity and enhance collaboration among disparate and geographically distant organizations in the supply network, thereby relentlessly shortening lead times.

Agreements Administrator – The Government's principal point of contact for all administrative, financial, or other non-technical issues arising under the Agreement.

Applied Research – Efforts that attempt to determine and exploit the potential of scientific discoveries or improvements in technology such as new materials, devices, methods, and processes. Applied research includes manufacturability, and spans Technology Readiness Levels 4-7 and MRLs 4 to 7. Applied research within the context of this Cooperative Agreement seeks to solve specific problems related to advanced manufacturing. Applied research may be focused on, but is not limited to, areas outlined within the Technical Plan/Scope section of the Broad Agency Announcement (BAA-13-01DMDI) and towards technology transitions to products that address current and future operational needs of the Government and commercial sector.

Cash Contribution - Any contribution of funds for which the Recipient is required to pay cash and which would normally be authorized for reimbursement as a direct or indirect charge to the Agreement. Cash contribution does not include profit or fee.

Consortium - Any combination of universities, other nonprofit organizations, governmental organizations, for-profit organizations, and other entities whose participation in this Agreement is defined and recognized by Articles of Collaboration.

Cyber Physical Systems (CPS) Security – CPS provides a secure and trusted infrastructure for the management of information assets in a collaborative manufacturing environment. CPS includes the accommodation of self-organized dynamic groups of interconnected entities according to elements such as manufacturing domains, sectors, capabilities, etc. The ability to employ an open data structure tailored to the implementation of search engines and model-based engineering approaches using advanced information-processing technologies that unleash the ability to innovate. Shared information must be available, when it is needed, where it is needed, and in the form that it is needed across entire manufacturing supply chains, complete product lifecycles, multiple industries, and small, medium, and large enterprises.

Design Innovation – A multidisciplinary process of discovery, experimentation and prototyping that produces new product-centered, future –oriented value propositions by integrating functional, commercial, and human logic into design elements as a source of distinctive competitive advantage and sustainable business growth.

Digital Manufacturing – The use of an integrated, intelligence-based system (which is comprised of both human and computers) to facilitate the bi-direction flow and coordination of information, instructions, and manufacturing intelligence through interoperability standards from the device level throughout the factory floor and across the manufacturing supply chain. Digital manufacturing enables a coordinated and efficient manufacturing enterprise that quickly responds to the needs of the customer and takes advantage of 3D visualization, communication, modeling & simulation, analytics, and various collaboration tools to create products. Digital manufacturing includes model based tools and approaches to optimize producibility during early design and support standard data environments which facilitate life cycle support; network centric manufacturing capabilities to facilitate resilient and adaptable supply chains; intelligent manufacturing planning and factory execution; and, modeling and simulation capabilities and advanced business practices.

Government Program Manager – as used herein, “Program Manager” means the Government Program Manager, is the Government’s representative charged with overall responsibility for program performance.

Grants Officer – as used herein, “Agreements Officer” is an official with the authority to enter into, administer, and/or terminate grants or cooperative agreements.

In-Kind Contribution - Any contribution of equipment, facilities, manpower, etc. which is necessary for performance of the Statement of Work for which a usage or depreciation charge is normally assessed versus reimbursement of the actual costs for acquiring or providing the item. Examples include costs associated with the provision or rental of real property, special tooling or test equipment, and licensing fees for software where the Government has no pre-existing right to free use.

Infrastructure – The physical and organizational structure of the DMDI Institute. Does

not allow Government funding being applied to be used for building new facilities or renovating existing facilities, but it may include equipment, services (including educational and workforce development) and maintenance of existing facilities necessary for the Institute to function.

Innovative Manufacturing Institute – Center for technical excellence within which research, development, demonstration, technology transition, integrative education, and workforce development take place, managed by a non-profit organization, closely tied to a physical or virtual cluster of specialized manufacturing firms and associated institutions specializing in the technology focus area.

Intelligent Machines – An intelligent machine is a single device or set of devices comprised of an interoperable framework of hardware, sensors, and software solutions that support heuristic based process planning, adaptive control, decision making and management of manufacturing processes across the platform, driving towards an optimal solution while meeting customer requirements such as form, fit, and function.

Participant - The term includes all Recipients, Sub-recipients, and consortium members receiving financial assistance under an Agreement.

Party(ies) - The Government and/or Recipient(s) of this Agreement.

Principal Investigator – Those technical representatives of the Recipient Program Manager charged by the Recipient Program manager with responsibility for day-to-day program execution and for monitoring technical program progress, jointly coordinating with the Technical Agent(s) on review and verification of technical reporting requirement, facilitating any modification to the Statement of Work set forth herein, and acting as Recipient principal technical point(s) of contact.

Program income - Gross income earned during the period of performance by the recipient that is directly generated by a supported activity or earned as a result of the award. Program income includes, but is not limited to, income from fees for services performed, the use or rental of real or personal property acquired under federally-funded projects, the sale of commodities or items fabricated under an award, license fees and royalties on patents and copyrights, and interest on loans made with award funds. Interest earned on advances of federal funds is not program income. Except as otherwise provided in program regulations or the terms and conditions of the award, program income does not include the receipt of principal on loans, rebates, credits, discounts, etc., or interest earned on any of them.

Recipient - The legal entity executing this Agreement with the Government, the purpose of which is for the receipt of direct financial assistance for performance of a project or program. As used herein, “Recipient” means UI LABS.

Recipient Administrator – The authorized agent of the Recipient charged with

maintaining the program financial management function including receipt and distribution of program funds, monitoring of financial program progress, and facilitating overall program financial and reporting requirements on behalf of the Recipient.

Recipient Program Manager – The authorized technical agent of the Recipient charged with maintaining a technical/administration point of contact function with responsibilities including receipt and distribution of technical communications between the Government and the Recipient, monitoring of technical program progress and facilitation of overall program technical and reporting requirements on behalf of the Recipient, acting as the principal technical point of contact.

Subaward - An award of financial assistance in the form of money, or property in lieu of money, made under an award by a Recipient to an eligible Subrecipient or by a Subrecipient to a lower tier Subrecipient. The term includes financial assistance when provided by any legal agreement, even if the agreement is called a contract, but does not include the procurement of goods and services which are not an integral part of the research project or program.

Subrecipient - The legal entity to which a Subaward is made and which is accountable to the Recipient and the Recipient Administrator for the use of funds provided. The term includes the recipient of financial assistance when provided by any legal agreement, even if the agreement is called a contract, but does not include the supplier of goods and services which are not an integral part of the research project or program.

DMDI Technology Demonstration – A next generation (NexGen) enterprise-wide platform where design, analysis, and intelligent machines are integrated in a “living lab” to act as an integration site for sensors on intelligent machines, linking advanced analytics and high performance computing to design and manufacturing planning, and connecting these in a relevant advanced manufacturing enterprise. The NexGen Enterprise serves as a “plug and play” beta test site.

Work Force Development – Ensures the workforce is capable of supporting the commercial and DOD organic industrial base by developing curriculum for, and in partnership with, educational institutions. Curriculum development will include (but not be limited to): open standards; “manufacturing literacy”; systems engineering; digital data; as well as an understanding of advanced sensors and analytics that are part of process control. Partner with existing science, technology, engineering, and mathematics (STEM) related activities where students learn from a variety of manufacturing processes (additive manufacturing, carbon fiber, CNC, etc.) with the intention of motivating students to manufacturing related fields, introduce them to the design process and selection of manufacturing processes based on part and component complexity.

ARTICLE 3. PERIOD OF PERFORMANCE

The period of performance shall commence from the effective date of award through sixty (60) months thereafter. All changes to the period of performance must be included as a modification to this Agreement by the Agreements Officer (AO). If the Recipient desires an extension to the period of performance of this Agreement, the Recipient shall submit a request in writing to the AO, in accordance with Section 14.4, Modifications, of Article 14, Administrative Matters.

ARTICLE 4. STATEMENT OF WORK

The Statement of Work (SOW), included as Attachment 1 hereto, provides a detailed description of the work to be accomplished. All changes to the SOW attachment must be approved by the Government Program Manager and included as a modification to this Agreement by the AO. It is recognized that much of the effort to be performed is research and development and that changes to the SOW may be necessary as the work progresses. However, failure to obtain Government approval for SOW changes could result in the unallowability of costs and/or termination of the Agreement.

ARTICLE 5. DESIGNATED GOVERNMENT OFFICIALS

5.1. The Agreements Office will be:

DoDAAC: W31P4Q

Army Contracting Command - Redstone
Building 7804 Patton Road
Redstone Arsenal, AL 35898-5000
Jeffrey T. Knight
Phone No: (256) 842-5083
E-mail: jeffrey.t.knight4.civ@mail.mil

5.2. The Government Program Manager is:

DoDAAC: W90BWX

U.S. Army Aviation and Missile Research Development and Engineering Center
(AMRDEC)
5400 Fowler Road
Redstone Arsenal, AL 35898-5000
Program Manager: Dr. Gregory A. Harris, P.E.
Phone No: (256) 842-7655

E-mail: gregory.a.harris81.civ@mail.mil

5.3. The Agreements Administration Office will be:

DoDAAC: N62880

Office of Naval Research (ONR) Chicago
230 S. Dearborn, Room 380
Chicago, IL 60605-1595

5.4. The Agreements Administration Officer (AAO) will be:

Tom Pettit
Phone No: (312) 886-2363
Email Address: thomas.pettit@navy.mil

5.5. The Government Audit Agency will be:

DoDAAC: HAA643

Defense Contract Audit Agency
Chicago Branch Office
635 Butterfield Road, Suite 210
Oakbrook Terrace, IL 60181-4041
Phone No: (630) 268-8590

5.6. The Payment Office will be:

DFAS Columbus, GAFS BQ, F03000
3990 E. Broad St.
Columbus, OH 43213-1152

ARTICLE 6. PROGRAM MANAGEMENT

6.1. The Recipient Points of Contact:

a. Business Point of Contact:

Caralynn V. Nowinski, M.D.
2201 W. Campbell Park Dr.
Chicago, IL 60612
Phone No: (312) 927-3570
E-mail: cnowinski@uilabs.org

b. Technical Point of Contact:

William P. King, Ph.D.
2201 W. Campbell Park Dr.
Chicago, IL 60612
Phone No: (217) 778-7493
E-mail: wpk@uilabs.org

6.2. Management Decisions and Technical Direction.

(i) The following management decisions are subject to Government approval from the AO as noted below:

- (a) Technical and/or funding revisions to the Agreement require approval from the AO.
- (b) Recipients are required to report deviations from budget and program plans, and request prior approvals from the AO for budget and program plan revisions for the situations listed in DoD Grant and Agreement Regulations (DoDGARs¹) 32.25(c)(1) through 32.25(c)(9) and 32.25(e). The budget plan is the financial expression of the program as approved during the award process. The budget includes the sum of the Government and Recipient Cost Share.
- (c) Initiation of technical projects selected by the Institute requires approval from the AO. The Recipient shall provide to the Government Program Manager and AO, support for the selection of the project including the objectives, scopes of work, and budget for the proposed technical project as well as the proposed participation of any Foreign Firm or Institution and confirmation on whether the written notice required by Article 10.3.3 has been submitted.

(ii) Technical Direction under this agreement is subject to the following limitations:

(a) Performance of the work for technical projects approved by the AO is subject to the technical direction of the Government Program Manager designated in this agreement, or duly authorized representative. For the purposes of this article, technical direction includes the following:

- (1) Direction to the Recipient which shifts work emphasis between work areas or tasks, requires pursuit of certain lines of inquiry, fills in details or otherwise serves to accomplish the objectives described in the SOW;

¹ The applicable version of the DoDGARS for this agreement is the version as updated through Change 5, dated 27 AUG 2007.

(2) Guidelines to the Recipient which assist in the interpretation of drawings, specifications or technical portions of work description.

(b) Technical direction must be within the general scope of work stated in the agreement or approved technical project. Technical direction may not be used to:

(1) Assign additional work under the Agreement;

(2) Increase or decrease the estimated agreement or approved technical project cost or the time required for Agreement performance; or

(3) Change any of the terms, conditions or specifications of the agreement.

(c) The only individual authorized to in any way amend or modify any of the terms of this agreement shall be the AO. When, in the opinion of the Recipient, any technical direction calls for effort outside the scope of the Agreement or approved technical project, or is inconsistent with this special provision, the Recipient shall notify the AO in writing within ten working days after its receipt. The Recipient shall not proceed with the work affected by the technical direction until the Recipient is notified by the AO that the technical direction is within the scope of the Agreement.

(d) Nothing in the foregoing paragraphs may be construed to excuse the Recipient from performing that portion of the work statement which is not affected by the disputed technical direction.

6.3. Program Management Meetings.

The Recipient Program Manager shall conduct, at a minimum, weekly interactions with the Government Program Manager in order to discuss options, clarify guidance, and provide a regular avenue for the Government to provide Technical Direction.

The Recipient shall also be responsible for establishing a schedule of Program Management meetings, to be held on a bi-annual basis, with the Government Program Manager. The purpose of these meetings will be to discuss technical, programmatic, reporting, financial, and administrative matters that arise during the performance of this Agreement. The Recipient shall notify the Government Program Manager of the established meeting schedule and, in the event of changes to this schedule, shall notify the Government Program Manager 30 days prior to the next scheduled meeting. Participation by the Government Program Manager in such meetings shall not be a substitute for any required Government approvals set forth anywhere in this Agreement. All such approvals must be provided in writing by the designated Government approving

official. Reviews may be conducted by telephonic conference call at the discretion of the Government Program Manager. Program Review Presentation materials and the latest Quarterly Progress reports, as called for in Attachment Number 3, shall be provided at these meetings.

6.4. Program Management Planning Process.

6.4.1. Initial Program Plan: The SOW in Attachment 1 shall serve as the initial program plan.

6.4.2. Annual Program Plan

6.4.2.1. The Recipient, with the Government Program Manager's participation and review, shall prepare an overall Annual Program Plan by/within 90 days of the effective date of this Agreement and annually thereafter. The Annual Program Plan will be presented and reviewed at an annual site review concurrent with the appropriate Bi-Annual Program Management Meetings, which will be attended by the Recipient and the Government Program Manager, as well as other Government personnel as appropriate.

6.4.2.2 The Annual Program Plan provides a detailed schedule of research activities, commits the Recipient to use its best efforts to meet specific performance objectives, includes forecasted expenditures and describes the milestones. In the event that the milestones are not achieved, the Recipient shall provide to the Government Program Manager an "Adjustment Action Plan" in writing not later than fifteen (15) days following the relevant milestone date. The "Adjustment Action Plan" shall be reviewed at the next scheduled bi-annual meeting. The Recipient will document the accomplishment of all milestones in accordance with the milestone schedule. The term "Milestone" means a scheduled significant event or deliverable signifying the completion of a major deliverable or a set of related deliverables.

6.4.2.3. For any additional or revised milestones that are recommended either in an "Adjustment Action Plan" or the Annual Program Plan, the Recipient shall supply appropriate written documentation to the Government Program Manager with a copy to the AO. This documentation letter shall describe the effort, and adjusted targets and adjusted milestone forecasts.

ARTICLE 7. FINANCIAL ADMINISTRATION AND PAYMENTS

7.1 Standards for Financial Management Systems.

The Recipient shall utilize its existing financial management systems and additional controls (if needed) sufficient to meet the standards of the DoDGARs Part 32.21.

7.2 Allowable Costs

7.2.1 Allowability of costs for Recipient costs incurred shall be determined in accordance with DoDGARs Part 32.27 and OMB Circular A-122, Cost Principles for Non-Profit Organizations. The allowability of costs for the Recipient Administrator shall be determined in accordance with the Federal Acquisition Regulation (FAR), Part 31. The Recipient's Cost Share, including any In-Kind contributions, shall comply with and be valued in accordance with DoDGARs Part 32.23. The following clarifications regarding the allowability of costs and/or the valuation of cost share apply to this agreement:

- Costs for the construction of buildings or to buy land are not allowable as a direct cost under this Agreement, regardless of whether using Government or Recipient cost share.
- The total value of any donated land and/or buildings for which title passes to the recipient will not be accepted as cost share, however IAW DoDGARs Part 32.23(g)(2) depreciation or use charges for donated buildings and/or fair rental charges for donated land may be used as Recipient cost share.
- The portion of costs to renovate buildings, i.e., capital improvements to existing buildings and equipment, which are allocable to this agreement may be used as Recipient cost share with prior written approval from the AO, but may not be charged as direct costs using Government funds.
- Equipment purchased as direct costs under this award must be special purpose equipment necessary for the unique needs of the Institute. Prior written approval to purchase is required from the AO.
- General purpose equipment may be used as Recipient cost share for that portion directly allocable to this agreement with prior written approval from the AO, but may not be charged as direct costs using Government funds.
- Pre-award costs are not permitted under this award.

It is herein understood and agreed that Government funds and funds identified as Recipient contributions are to be used solely for Agreement-related costs incurred that are reasonable in nature and amount, and allocable to this Agreement.

7.2.2 In accordance with DoDGARs 22.205(b) and DoD Policy, the payment of fee or profit is unallowable under assistance agreements to either the Recipient or under subawards.

7.3 Audit Requirements & Financial Records.

The Recipient and the Recipient Administrator shall ensure that audit(s) sufficient to meet the requirements of DoDGARs Part 32.26 are conducted. The Recipient and the Recipient Administrator shall maintain adequate records to account for all funding under this Agreement in accordance with DoDGARS 32.53. The Recipient's and the

Recipient's Administrator's relevant financial records, supporting documents, statistical records and all other records pertinent to an award shall be maintained and are subject to examination or audit by the Government for a period of three (3) years after expiration of the period of performance of this Agreement. The only exceptions are as specified under DoDGARS 32.53(b). The Government shall have direct access to sufficient records and information of the Recipient and the Recipient's Administrator, to ensure full accountability for all funding under this Agreement. Such audit, examination, or access shall be performed during business hours on business days upon prior written notice and shall be subject to the security requirements of the audited Party.

7.4 Funding.

7.4.1 Agreement Amount. The Government and Recipient estimate that the SOW described under Attachment 1 is to be accomplished with total funding of \$175,820,041.00. The Government's share for performance of the work under this Agreement is \$70,000,000.00 (cost share 39.81%). The Recipient's share for performance of work under this Agreement is \$105,820,041.00 (cost share 60.19%), including \$46,729,681.00 which is the estimated value of the Recipient's cash contributions and \$59,090,360.00 which is the estimated value for In-Kind contributions.

7.4.2 Obligated Funding. The Government's liability to make payments to the Recipient is limited to those funds obligated under this Agreement as indicated on page 1 of this Agreement and any subsequent modifications. In no event shall the Government's financial obligation exceed the amount of funds obligated under this Agreement or by modification to the Agreement. The Government will obligate funds to the Agreement incrementally.

7.5 Program Income.

Program Income generated under this DMDI Institute Agreement shall be handled in accordance with DoDGARS 32.24 with the following clarifications. Program income earned during the project period shall be retained by the Recipient and used to finance the Recipient cost share required under the Agreement. However, during the performance of the Agreement, the Recipient is not required to use program income earned from license fees and royalties for copyrighted material, patents, patent applications, trademarks, and inventions produced under this agreement to finance the Recipient cost share required under the Agreement. The Recipient has no obligation to the Government for program income earned after the end date of the award.

7.6 Payments.

7.6.1 Payment Amounts.

Payments will be made on a cost reimbursable basis, subject to the funds obligated as indicated in paragraph 7.4.2 above. Payments may be requested monthly

by the Recipient for reimbursement of the Government's share of incurred costs through the submission of a Standard Form (SF) 270, "Request for Advance or Reimbursement" to the AAO and Government Program Manager. Payment documentation in support of each request for payment should be provided to the AAO and Government Program Manager in accordance with Reporting Requirements, Attachment 3. The AAO will certify and transmit the SF 270 for payment to the Payment Office under Article 5 of the award. Cash advances shall be limited to the minimum amounts needed and be timed to be in accordance with the Recipient's actual, immediate cash requirements in carrying out the purpose of the Agreement. The timing and amount of cash advances shall be as close as is administratively feasible to the Recipient's actual disbursements for direct program costs and the proportionate share of any allowable indirect costs. The final payment can only be made if the ratio or percentage of cost sharing specified in paragraph 7.4.1 has been provided by the Recipient. Subject to annual reconciliation of Government funding to cost share, individual payments for the Government's share of the costs will be authorized by the AAO.

7.6.2 Payment Submission and Processing

a. All payments shall be made by funds transfers to the bank account registered in the System for Award Management (SAM), <https://www.sam.gov> . The Recipient agrees to maintain its registration under the SAM including information necessary to facilitate payment via Electronic Funds Transfer (EFT). Should a change in registry or other incident necessitate the payment to an account other than that maintained in SAM, it is the Recipient's responsibility to notify the AAO and obtain a modification to this Agreement reflecting the change. The Government shall not be held responsible for any misdirection or loss of payment which occurs as the result of a Recipient's failure to maintain correct/current EFT information within its SAM registration.

b. Wide Area Work Flow (WAWF) has been designated as the Department of Defense standard for electronic invoicing and payment. To facilitate this effort for Universities and Nonprofit Organizations with awards administered by the Office of Naval Research (ONR) Regional Offices, DoD has established the ONR Electronic Payment System (PayWeb) (<https://onronline.onr.navy.mil/payweb/>), as an initial entry point to WAWF. If the Recipient participates in the PayWeb system, the Recipient shall submit an electronic request for payment to the AAO at the Administrative Office under Article 5 of the award, using the standard PayWeb processes.

c. Participation in the PayWeb system requires the Recipient to obtain an External Certificate Authority (ECA) certificate from an approved Certificate Authority for access. Operational Research Consultants (ORC) (<http://www.eca.orc.com>) and VeriSign (<http://www.verisign.com/gov/ieca>) are approved ECA Authorities. If you have questions or require technical assistance in implementing your certificate, contact the Navy PKI Help Desk at 1-800-304-4636. The Recipient shall Contact the AAO at the

Administrative Office under Article 5 of the award for instructions on how to register and use WAWF and PayWeb.

d. Electronic submission of payment requests requires the Recipient to register in WAWF and have the appropriate CAGE code activated. The Recipient's SAM Electronic Business Point of Contact (EBPOC) is responsible for activating the CAGE code in WAWF by calling 1-866-618-5988. Once the Recipient's CAGE Code is activated, the SAM EBPOC will self-register in WAWF and follow the instructions for a group administrator. The ONR Regional Offices will assist in this process. The ONR Regional Office is listed as the Administrative Office under Article 5 of the award.

e. If the Recipient does not participate in the ONR PayWeb System, the Recipient shall submit payment requests electronically via Wide Area Work Flow (WAWF). The Recipient shall contact the AAO at the Administrative Office under Article 5 of the award for instructions on how to register and use WAWF.

f. The Recipient shall maintain federal assistance funds in interest bearing accounts. Use of women-owned and minority-owned banks is encouraged. Interest earned on federal assistance funds shall be remitted in accordance with DoDGARs 32.22(k).

7.6.3. Limitation of Payments

Failure of either Party to provide its contribution may result in termination of this Agreement, in accordance with Article 11, Suspension and Termination, of this Agreement. If either the Government or the Recipient is unable to provide all of its respective contribution, the other Party may reduce its funding by a proportionate amount. The Recipient intends, and by entering into this Agreement undertakes, to cause its share of funding to be provided. Upon completion or termination of the Agreement, if the Recipient's actual incurred costs are less than the estimated costs set forth in paragraph 7.4.1 above, the Government shall be responsible to pay only an amount proportionate to its share of the estimated costs set forth in paragraph 7.4.1. The Recipient shall promptly return any difference between the Government's share of the actual costs incurred and the amount previously paid by the Government.

7.7 Administration and Cost Principles

Applicable to this Agreement, and incorporated herein by reference, are the requirements, standards, and provisions of the appropriate Department of Defense Grant and Agreement Regulations (DoDGARs) and OMB Circulars and attachments hereto, as revised as of the effective date of this Agreement, listed below. For purposes of this paragraph, the term "appropriate" is determined by the organizational nature of the Recipient (educational institution, non-profit organization, for-profit organization, state or local Government).

- a. 32 CFR Part 22, "DoD Grants and agreements – Award and Administration"
- b. 32 CFR Part 32, "Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations"
- c. 32 CFR Part 33, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments"
- d. A-21, "Cost Principles for Educational Institutions"
- e. A-87, "Cost Principles for State, Local and Indian Tribal Governments"
- f. A-102, "Grants and Cooperative Agreements with State and Local Governments"
- g. A-110, "Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations"
- h. A-122, "Cost Principles for Non-Profit Organizations"
- i. A-133, "Audits of States, Local Governments, and Non-Profit Organizations"
- j. 32 CFR Part 34, "Administrative Requirements for Grants and Agreements with For Profit Organizations"

7.8 Closeout, Adjustment, Continuing Responsibilities and Collection

7.8.1 Closeout, adjustment and collection of amounts due shall be accomplished in accordance with DoDGARS 32.71 through 32.73 and DoDGARS 22.825. Final payment cannot be made nor can the agreement be closed out until the recipient delivers to the Government all disclosures of subject inventions required by this agreement, a final property report, an acceptable final report pursuant to Attachment Number 4 and all confirmatory instruments. The AAO may make a settlement for any downward adjustment to Federal share of costs after closeout documents are received.

7.8.2 Within ninety (90) days after the end date of the Agreement, any overpayment of funds provided by the Agreement shall be remitted to the AAO at the Administrative Office in Article 5 of the Award/Modification document, by check made payable to the US Treasury, DFAS, or Department of Army.

7.9 Established Indirect Cost Rates

In accordance with OMB Circular A-122 E(2)(b), "A non-profit organization which has not previously established an indirect cost rate with a Federal agency shall submit its initial cost proposal immediately after the organization is advised that an award will be made and, in no event, later than three months after the effect date of the award."

Guidance for submitting a proposal can be found at <http://www.onr.navy.mil/Contracts-Grants/manage-grant/indirect-cost-proposal.aspx>. Failure of UI LABS to submit its initial indirect cost proposal within three months of the effective date of the award may result in termination of this Agreement, in accordance with Article 11, Suspension and Termination, of this Agreement.

7.10 Subawards.

The Recipient will include Article 7, suitably modified to identify the parties and payment provisions, in all subawards, regardless of tier, for experimental, research or development work.

ARTICLE 8. RIGHTS IN TECHNICAL DATA AND COMPUTER SOFTWARE

8.1 Definitions.

- a. "Commercial Computer Software" means software developed or regularly used for non-governmental purposes which has been sold, leased, or licensed to the public or has been offered to the public or will be offered in time to satisfy the delivery requirements or requires minor modification to meet the requirements of this Agreement.
- b. "Commercial Item" does not include commercial computer software.
- c. "Computer Database" means a collection of data recorded in a form capable of being processed by a computer. This term does not include computer software.
- d. "Computer Program" means a set of instructions, rules or routines recorded in a form that is capable of causing a computer to perform a specific operation or series of operations.
- e. "Computer Software" means computer programs, source code, source code listings, object code listings, design details, algorithms, processes, flow charts, formulae and related material that would enable the software to be reproduced, recreated, or recompiled. Computer software does not include computer data bases or computer software documentation.
- f. "Computer Software Documentation" means owner's manuals, user's manuals, installation instructions, operating instructions, and other similar items, regardless of storage medium, that explain the capabilities of the computer software or provide instructions for using the software.
- g. "Consortium" means any combination of universities, other nonprofit organizations, governmental organizations, for-profit organizations, and other

entities whose participation in this Agreement is defined and recognized by Articles of Collaboration.

- h. "Detailed Manufacturing or Process Data" means technical data that describe the steps, sequences, and conditions of manufacturing, processing or assembly used by the manufacturer to produce an item or component or to perform a process.
- i. "Developed" means that an item, component, or process exists and is workable. The item or component must have been constructed or the process practiced. Workability is generally established when the item, component, or process has been analyzed or tested sufficiently to demonstrate to reasonable people skilled in the applicable art that there is a high probability that it will operate as intended. To be considered "developed", the item, component, or process need not be at the stage where it could be offered for sale or sold on the commercial market, not must the item, component, or process be actually reduced to practice within the meaning of Title 35 of the United States Code.
- j. "Developed Exclusively at Private Expense" means development was accomplished entirely with costs charged to indirect cost pools, costs not allocated to a government contract either as cost incurred or as required cost-sharing, or any combination thereof.
- k. "Developed Exclusively with Government Funds" means development was not accomplished exclusively or partially at private expense by the Recipient.
- l. "Development with Mixed Funding" means the development was accomplished at partial expense by the Recipient.
- m. "Form, Fit and Function Data" means technical data that describes the required overall physical, functional, and performance characteristics of an item, component or process to the extent necessary to permit identification of physically and functionally interchangeable items.
- n. "Government Purpose" means any activity in which the United States Government is a party. Government purposes include competitive procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose technical data for commercial purposes or authorize others to do so.
- o. "Government Purpose Rights" means the rights to: 1) use, modify, reproduce, release, perform, display, or disclose technical data, computer software and/or computer software documentation within the Government without restriction; and 2) release or disclose technical data, computer software and/or computer software documentation outside the Government and authorize persons to

whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose that technical data, computer software and/or computer software documentation for United States Government purposes.

- p. "Intellectual Property" means any inventions, creations, improvements, technical data, mask works, works of authorship or other developments, including software, and improvements thereto, whether patentable, copyrightable or not. "Intellectual Property Rights" means any rights in intellectual property including patents, copyrights, data rights in technical data and software, mask works, trade secrets and confidential information.
- q. "Item" includes components or processes.
- r. "Limited Rights" means the rights to use, modify, reproduce, release, perform, display, or disclose technical data, in whole or in part, within the Government. Technical data in which the Government has Limited Rights may be transferred or disclosed outside the Government for the purposes of emergency repair or overhaul.
- s. "Minor Modification" means a modification that does not significantly alter the non-governmental function or purpose of the software or is of the type customarily provided in the commercial marketplace.
- t. "Noncommercial Computer Software" means software that does not qualify as commercial computer software.
- u. "Restricted Rights" applies only to noncommercial computer software and means the Government's right to use a computer program with one computer at one time, transfer the program to another agency if all copies are destroyed and the licensor is notified, make copies for archival or modification purposes, modify the software, permit contractors and subcontractors to use or modify the computer software when performing service contracts in support of this Agreement or related agreements or contracts, and permit contractors or subcontractors to use or modify the computer software when performing emergency repairs or overhaul.
- v. "Technical Data" means recorded information, regardless of the form or method of the recording, of a scientific or technical nature (including computer software documentation but not computer software). The term does not include computer software or data incidental to agreement administration, such as financial and/or management information.
- w. "Unlimited Rights" means rights to use, modify, reproduce, perform, display, release, or disclose technical data in whole or in part, in any manner, and for any purpose whatsoever, and to have or authorize others to do so.

8.2 The Recipient grants or shall obtain for the Government the following royalty-free, world-wide, nonexclusive, irrevocable license rights in technical data, computer software documentation, and computer software. The Recipient retains all rights not granted to the Government.

- a. **Unlimited Rights.** The Government shall have unlimited rights in technical data that are 1) Data pertaining to an item, component, or process developed exclusively with Government funds; 2) Studies, analysis or similar data produced as an element of performance; 3) Form, fit and function data; 4) Necessary for installation, operation, maintenance, or training purposes; 5) Corrections or changes to Government-furnished data; 6) Publicly available or available to the Government with unlimited rights; 7) Data with expired Government-purpose rights. The Government shall have unlimited rights in i) Computer software developed exclusively with Government funds; ii) Computer software documentation required to be delivered; iii) Corrections or changes to computer software or its documentation furnished by the Government; iv) Computer Software publicly available or available to the Government with unlimited rights; and v) Computer software or its documentation with expired restricted or Government-purpose rights.
- b. **Government Purpose Rights.** The Government shall have Government Purpose Rights (GPR) for a period of fifteen (15) years from the execution of this Agreement or modification pertaining to the Technical Data or Noncommercial Computer Software, or such other period as may be negotiated, in Noncommercial Computer Software, or Technical Data that pertains to items, components, or processes developed with mixed funding, unless (i) the Government has Unlimited Rights in the data in accordance with subparagraph a. or (ii) the Government has negotiated Unlimited Rights notwithstanding the fact that the data pertains to items, components, or processes that were developed with mixed funding. The Government will not release or disclose Noncommercial Computer Software or Technical Data with GPR unless the disclosure is made subject to a nondisclosure agreement between the data recipient and Government or the data recipient is a Government contractor performing under a contract with the DFARS clause 252.227-7025. The Recipient has the exclusive right, including the right to license others, to use the Technical Data for any commercial purpose during the period in which the Government has GPR and the non-exclusive right to do so thereafter. Upon expiration of the period for Government Purpose Rights, the Government shall have Unlimited Rights as set forth in paragraph a. above.
- c. **Limited Rights.** The Government shall have Limited Rights in Technical Data that pertain to items, components, or processes Developed Exclusively at Private Expense and are so marked unless the Government has Unlimited Rights in accordance with subparagraph a. If Technical Data in which the

Government has these rights are transferred or disclosed outside the Government for the purposes of emergency repair or overhaul, the Government shall require the Technical Data recipient to destroy the Technical Data and all copies upon completion of work and to notify Recipient of the destruction. Technical Data pertaining to Commercial Items are assumed to be Developed Exclusively at Private Expense.

- d. **Restricted Rights.** The Government shall have restricted rights in noncommercial computer software required to be delivered or otherwise provided that was developed exclusively at private expense.
- e. **Specifically Negotiated License Rights.** The above standard license rights 8.2 (a. – d.), including the period of Government Purpose Rights, may be modified by mutual agreement but may not provide the Government with lesser rights than limited rights or restricted rights. The Recipient, the Recipient Administrator, its Subrecipients and its suppliers are not required to provide the Government with greater rights, but the Recipient does agree to promptly enter into negotiations with the AO after a request to negotiate for greater rights. All Technical Data and Noncommercial Computer Software in which the Recipient has granted greater rights shall be listed in a license that enumerates or describes the greater rights and is made part of the Agreement.
- f. **License Rights in Commercial Computer Software.** The Government shall have the rights provided in the usual license agreement of the supplier of the computer software.

8.3 The Government may, at any time during the performance of this Agreement, and for two years after termination or completion of performance of this Agreement, whichever is later, order from the Recipient any Technical Data, Computer Software (excluding commercial software source code), or Computer Software Documentation generated in the performance of this Agreement or any subaward hereunder. The Government's rights to use said data or computer software shall be pursuant to the rights defined in 8.2(a.-d.).

8.4 The Recipient shall not, without written approval of the AO, incorporate or deliver any copyrighted data, computer software or computer software documentation in which necessary license rights have not been obtained.

8.5 The Government shall retain its rights in the unchanged portions of any delivered computer software or computer software documentation that the Recipient uses to prepare, or includes in, derivative computer software or computer software documentation.

8.6 The Recipient must identify in an attachment to the Agreement and mark all data, computer software, and computer software documentation with restrictions on use,

release, or disclosure. Throughout the performance of this Agreement, the Recipient, its Subrecipients and suppliers that will deliver technical data, computer software, or computer software documentation with less than unlimited rights must have, maintain, and follow written procedures to assure that the restrictive markings are justified and keep records of the procedures. The Government may ignore or, at the Recipient's expense, correct or strike if a marking is determined to be unjustified or nonconforming. This paragraph does not apply to restrictions based solely on copyright.

8.7 The Recipient shall ensure that the rights afforded its Subrecipients and suppliers under 10 U.S.C. § 2320 and § 2321 are recognized and protected. The Recipient shall use Article 8 in its subagreements, shall not change the rights provided by this Agreement, and shall not use its power to award contracts and enter into agreements to obtain rights from Subrecipients in Technical Data, Computer Software or Computer Software Documentation (other than as part of any approved Consortium membership agreement).

ARTICLE 9 PATENT RIGHTS

9.1 Definitions.

a. "Consortium" means any combination of universities, other nonprofit organizations, governmental organizations, for-profit organizations, and other entities whose participation in this Agreement is defined and recognized by the Articles of Collaboration.

b. "Government Purpose" means any activity in which the United States Government is a party. Government purposes include competitive procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose Technical Data for commercial purposes or authorize others to do so.

c. "Invention" means any invention or discovery which is or may be patentable or otherwise protected under title 35 of the United States Code.

d. "Made" when used in relation to any invention means the conception or first actual reduction to practice of such invention.

e. "Practical application" means to manufacture, in the case of a composition of product; to practice, in the case of a process or method, or to operate, in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms.

f. "Subject invention" means any invention of the Recipient conceived or first actually reduced to practice in the performance of work under this Agreement.

9.2 Allocation of Rights.

a. The Recipient may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of this clause and 35 U.S.C. § 203. With respect to any subject invention in which the Recipient retains title, the Federal Government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States for Government purposes the subject invention throughout the world.

b. The Recipient will convey to the Army AMRDEC (through the AO), upon written request, title to any subject invention if the Recipient fails to disclose or elect title to the subject invention within the times specified in section 9.3 of this article, or elects not to retain title.

c. The Recipient will convey to the Army AMRDEC (through the AO), upon written request, title to any subject invention in any country where the Recipient decides not to file a patent application or continue the prosecution of any patent application.

d. The Recipient will retain a nonexclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the Recipient fails to disclose the invention within the times specified in section 9.3 of this article. The Recipient's license extends to its domestic subsidiary and affiliates, if any, within the corporate structure of which the Recipient is a party and includes the right to grant sublicenses of the same scope to the extent the Recipient was legally obligated to do so at the time the Agreement was awarded. The license may be revoked or modified by the Army AMRDEC to the extent necessary to achieve expeditious practical application of the subject invention.

9.3 Invention Disclosure, Election of Title and Filing of Patent Application.

a. The Recipient will disclose each subject invention to the Army AMRDEC (through the AO) within two months after the inventor discloses it in writing to Recipient personnel responsible for patent matters. The disclosure shall be in the form of a written report and shall identify the Agreement under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding to the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, optical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure or other bar under 35 U.S.C. § 102(b), as well as anticipated bars. This obligation is a continuing obligation.

b. The Recipient will notify the Army AMRDEC (through the AO) in writing of its

election to retain title within one year of its disclosure to the Army AMRDEC. The period for election of title may be shortened by the Army AMRDEC to no more than sixty days prior to the loss of the right to obtain patent protection in the United States.

c. The Recipient will file its initial patent application on a subject invention within one year after the election to retain title. However, in any case where a publication, on sale, or public use has initiated the 1-year statutory period which valid patent protection can be obtained in the United States, the Recipient shall file the application prior to the end of the statutory period. The Recipient may elect to file patent applications in additional countries or international patent offices within 10 months of the corresponding initial U.S. patent application or six (6) months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications.

d. Requests for extension of time for disclosure, election and filing under this section may be granted at the discretion of the Army AMRDEC and after considering the position of the Recipient.

9.4 Recipient's Actions to Protect the Government's Interest.

a. The Recipient agrees to execute or to have executed and promptly deliver to the AO all instruments necessary to confirm or establish the rights or title of the U.S. Government throughout the world in a Subject Invention to which the Recipient elects to convey title to the Government when requested and to enable the Government to obtain patent protection throughout the world in that Subject Invention.

b. The Recipient agrees to require, by written agreement, its employees, other than clerical and nontechnical employees to send promptly, but not later than three months after the invention is made, a written description of the invention to its personnel who are responsible for the administration of patent matters.

c. The Recipient will notify the Army AMRDEC (through the AO) of any decision not to continue the prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than 30 days before the expiration of the response period required by the relevant patent office.

d. The Recipient agrees to include, within the specification of any United States patent application and any patent issuing thereon covering a Subject Invention, the following statement, "This invention was made with Government support under Agreement No. W31P4Q-14-2-0001 for the Digital Manufacturing and Design Innovation Institute. The Government has certain rights in the invention."

9.5 Subawards.

The Recipient will include Article 9, suitably modified to identify the parties, in all

subawards, regardless of their tier, for experimental, research or development work. The Subrecipient will retain all rights provided for the Recipient in Article 9, and Recipient will not, as part of the consideration for awarding the subaward, obtain rights in the Subrecipient's subject inventions (other than as part of any approved Consortium membership agreement).

9.6 Reporting on Utilization of Subject Inventions.

The Recipient agrees to submit, on request, periodic reports no less frequently than annually on the utilization of a Subject Invention or on the efforts at obtaining such utilization by Recipient or its licensee or assignees of the inventor. The report will include data and information that the Army AMRDEC may reasonably specify.

9.7 Preference for United States Industry.

The Recipient agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any Subject Inventions in the United States unless such person agrees that any products embodying the Subject Invention or produced through the use of the Subject Invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the Government upon a showing by the Recipient or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

9.8 March-in-Rights.

The Recipient agrees that, with respect to any Subject Invention in which it has acquired title, the Government has the right to require the Recipient, an assignee or an exclusive licensee of the Subject Invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances. If the Recipient, assignee, or exclusive licensee refuses such request, the Government has the right to grant such a license itself if the Government determines that such action is necessary to:

- (a) Achieve practical application of the Subject Invention; or
- (b) Alleviate health or safety needs that are not being reasonably satisfied;
- or
- (c) Meet requirements for public use that are not being reasonably met; or
- (d) Meet the requirements of section 9.7 of this Article.

9.9 Patent Infringement.

The Government does not give its authorization and consent under 28 U.S.C. 1498 for the use or manufacture of any invention described in and covered by a patent of the

United States or for the infringement of a copyright in any work protected under the copyright laws of the United States.

9.10 Notice and Assistance Regarding Patent and Copyright Infringement.

a. The Recipient shall report to the AO, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this Agreement of which the Recipient has knowledge.

b. In the event of any claim or law suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this Agreement or out of the use of any supplies furnished or work or services performed under this Agreement, the Recipient shall furnish to the Government, when requested by the AO, all evidence and information in the possession of the Recipient pertaining to such law suit or claim.

c. The Recipient agrees to include, and require inclusion of, this clause in all subawards/subcontracts at any tier for research, or research-related supplies and services, expected to exceed \$100,000.00.

ARTICLE 10. FOREIGN ACCESS TO TECHNOLOGY

Note: This Article shall remain in effect during the period of performance of the Agreement and for five (5) years thereafter.

10.1. Definitions.

10.1.1. A Foreign Firm or Institution is defined as a Foreign Person as set forth in the International Traffic in Arms Regulations 22 C.F.R. §120.16.

10.1.2. Know-How means all information first produced in the performance of this Agreement including but not limited to discoveries, formulas, materials, inventions, processes, ideas, approaches, concepts, techniques, methods, software, programs, documentation, procedures, firmware, hardware, technical data, specifications, devices, apparatus and machines.

10.1.3. Technology means discoveries, innovations, Know-How and Subject Inventions, whether patentable or not, including computer software, recognized under U.S. law as intellectual creations to which rights of ownership accrue. The term also includes patents, trade secrets, mask works, and copyrights developed under this Agreement.

10.2. General.

The Parties agree that research findings and technology developments under the DMDI Institute may constitute a significant enhancement to the national defense and to the economic vitality of the United States. Accordingly, access to technology developments under this Agreement by a Foreign Firm or Institution must be carefully controlled. The controls contemplated in this Article adopt and incorporate by reference as if fully set forth herein the provisions of the International Traffic in Arms Regulation (22 CFR Part 121 et seq.) (ITAR), the DoD Industrial Security Regulation (DoD 5220.22-R) and the Department of Commerce Export Administration Regulation (15 CFR Part 770 et seq.) (EAR).

10.3. Restrictions on Sale or Transfer of Technology to a Foreign Firm or Institution.

10.3.1. In order to promote the national security interests of the United States and to effectuate the policies that underlie the regulations cited above, the procedures stated in subparagraphs 10.3.2 - 10.3.5 below shall apply to any transfer of Technology. For purposes of this paragraph, a transfer includes a sale of the company, and sales or licensing of Technology. Transfers do not include:

- (a) sales of products or components subject to an export license issued pursuant to ITAR or the EAR; or
- (b) licenses of software or documentation related to sales of products or components; or
- (c) transfer to U.S. incorporated companies that are owned or substantially controlled by foreign governments, firms, institutions, or individuals that have received the required export license issued by the Government; or
- (d) transfer which provides access to Technology to a Foreign Firm or Institution that is the subject of an approved Technical Assistance Agreement (TAA) or Manufacturing License Agreement (MLA) as those terms are defined in the ITAR and/or EAR for the conduct of research under this Agreement provided that such transfer shall be limited to that necessary to allow the firm or institution to perform its approved role under the TAA or MLA and the terms of this Agreement.

10.3.2. The Recipient shall provide timely notice to the Government of any desired transfers from the Recipient of Technology developed with Government funding under this Agreement to a Foreign Firm or Institution. The Recipient shall provide the Government the name of the proposed Foreign Firm or Institution. The AO will, in a timely manner but not longer than 30 days, provide a response to the Recipient indicating their concurrence or non-concurrence with the proposed transfer. If the AO concurs with the intended transfer and the Foreign Firm or Institution, the Recipient shall submit the fully executed TAA or MLA to the Agency promptly after approval by the State Department. The Recipient shall keep the AO apprised of this process and subsequently provide copies of approved documentation as well as track subsequent transfers pursuant to the approved documentation. The Recipient shall provide a copy of the fully executed and authorized TAA or MLA to the AO promptly after approval by the State Department.

10.3.3. In any event, the Recipient shall provide written notice to the Government Program Manager, AO, and AAO of any proposed transfer to the Foreign Firm or Institution at least thirty (30) calendar days prior to the proposed date of transfer. Such notice shall cite this Article and shall include a copy of the TAA or MLA and state specifically what is to be transferred and the general terms of the transfer. In addition, the notice shall provide the information specified in Article 14.2.3.

10.3.4. Except as provided in subparagraph 10.3.1 above and except in the event the transfer of Technology to a Foreign Firm or Institution as approved by the Government, the Recipient may be required to refund to the Government some or all of the funds paid under this Agreement for that development that was specifically attributable to the development of the Technology that was transferred. In the event a transfer of Technology to a Foreign Firm or Institution takes place that is not approved by the Government or that is in violation of the applicable export regulations, the Recipient shall refund all the Government funds paid under this Agreement for that development that was specifically attributable to the Technology that was transferred. The Government may, in its sole discretion, waive in whole or in part, this refund requirement.

10.3.5. In the event a transfer of Technology to a Foreign Firm or Institution takes place that is not approved by the Government or that is in violation of the applicable export regulations, the Recipient may, without limitation, be subject to the penalties for seizure, forfeiture, debarment or suspension as set forth in 22 C.F.R. §127 et seq. and other applicable regulations.

10.4. Subawards.

The Recipient shall include this Article, suitably modified to identify the Parties, in all subcontracts or lower tier agreements, regardless of tier, for experimental, research, or developmental work.

ARTICLE 11. SUSPENSION AND TERMINATION

11.1. Suspension.

The Recipient agrees to comply with the requirements regarding debarment and suspension in Subpart C of the OMB guidance in 2 CFR Part 180, as implemented by the Department of Defense in 2 CFR 1125. The Recipient also agrees to communicate the requirement to comply with Subpart C to persons at the lower next tier with whom the Recipient enters into transactions that are “covered transactions” under Subpart B of 2 CFR Part 180 and the DoD implementation in 2 CFR 1125.

Upon the AO’s determination that the Recipient is not in compliance with the terms and

conditions of this Agreement, the AO may suspend the performance of this Agreement. The AO shall notify the Recipient of the suspension in writing, setting forth the effective date of suspension, stating the reasons for suspension and providing the Recipient thirty (30) days to provide evidence of compliance with the terms and conditions of this Agreement. Thirty (30) days after notice of suspension, if the AO determines that substantial evidence of compliance has not been provided, the AO may terminate this Agreement as provided below.

11.2. Termination.

11.2.1. With or without prior suspension, this Agreement may be terminated in whole or in part:

(a) By the AO, with or without prior notice, if the Agreement Officer determines that the Recipient materially fails to comply with the terms and conditions of this Agreement;

(b) By mutual agreement of the parties, in which case the parties shall agree upon the termination conditions, including the effective date and, in the case of partial termination, the portion to be terminated; or

(c) By either signatory party to this Agreement upon sending to the other party written notification setting forth the reasons for such termination, the effective date, and, in the case of partial termination, the portion to be terminated. The terminating party must provide such notice at least 30 days prior to the effective date of the termination.

(d) By the AO if insufficient funds are available.

11.2.2. In the event that the AO terminates the Agreement in accordance with paragraphs 11.2.1. (a) or (b) above, the AO shall notify the Recipient in writing of the termination and its effective date.

11.2.3. If either party determines in the case of partial termination that the reduced or modified portion of the award will not accomplish the purpose for which the Agreement was executed, either party may terminate the award in its entirety.

11.3 Enforcement.

If the Recipient fails to materially comply with these terms and conditions, the AO may impose special conditions as outlined in DoDGARs 32.14 or take the appropriate action as listed at DoDGARs 32.62(a)(1)-(5).

11.4 Claims Arising from Suspension or Termination.

In the event of suspension or termination, any claim by the Recipient for costs incurred

under this Agreement must be received within 6 months after the date of suspension or termination. No termination costs are payable in the event of a termination based on the Recipients failure to comply with the terms and conditions of this Agreement. The Government's total liability for work supported by this Agreement and for any claims, including suspension or termination claims, shall not exceed the federal funds obligated on the Agreement as set forth herein. Allowability of costs under any termination claim shall be determined in accordance with DoDGARs 32.62(c).

ARTICLE 12. CLAIMS, DISPUTES, AND APPEALS

12.1. Recipient Claims.

Recipients shall submit claims arising out of this Agreement to the AO. Claims shall specify the nature and basis for the relief requested and shall include all data and relevant facts in support of the claim.

12.2. DOD Component Claims.

Claims by a DOD Component shall be the subject of a written decision by the AO.

12.3. Alternative Dispute Resolution (ADR).

The Parties shall endeavor to agree upon an ADR technique (such as discussions, mediation, or mini-trial) appropriate to resolve any dispute, and they shall use ADR to the maximum extent practicable.

12.4. AO decisions.

12.4.1. Within 60 calendar days after receipt of a written claim, the AO shall:

(a) Prepare a written decision, which shall include the basis for the decision, the relevant facts on which the decision is based, and the identity and address of the cognizant Appeal Authority; or

(b) Notify the Recipient of a date when the decision will be rendered. The notice shall address why additional time is needed and what, if any, additional information is required from the Recipient to adjudicate the claim.

12.4.2. The AO's decision is final, unless appealed. In the event of an appeal, the Parties shall endeavor to use ADR procedures to the maximum extent practicable.

12.5. Formal Administrative Appeals.

12.5.1. Appeal Authority. The Executive Director of the Army Contracting

Command – Redstone (ACC-RSA) is the Appeal Authority to decide formal, administrative appeals under this Agreement. If the Executive Director of the ACC-RSA is unable to serve in this capacity, the Deputy Executive Director of ACC-RSA shall so serve.

12.5.2. A Recipient may appeal an AO's decision within 90 calendar days of receiving the decision by filing a written notice of appeal with the Appeals Authority and the AO.

12.5.3. If the Parties elect to use ADR following the AO's decision, the remaining portion of the 90-day period for filing notice of appeal shall be tolled during the period running from the date the Parties agree in writing to utilize ADR to the date either (1) an ADR decision is issued or (2) one party notifies the other in writing that it is abandoning the ADR process.

12.5.4. Appeal File. Within 30 calendar days of receipt of the notice of appeal, the AO shall forward to the Appeal Authority and the Recipient the appeal file, which shall include copies of all documents relevant to the appeal. The Recipient may supplement the file with additional documents it deems relevant. Either Party may supplement the file with a memorandum in support of its position, and the Appeal Authority may request additional information from the Parties.

12.5.5 Decision. The appeal shall be decided solely on the basis of the written record, unless the Appeal Authority decides to conduct fact-finding or an oral hearing on the appeal. Any fact-finding or hearing shall be conducted using procedures that the Appeal Authority deems appropriate.

12.5.6. Representation. A Recipient may be represented by counsel or any other designated representative in any claim, appeal, or ADR proceeding brought pursuant to this section, as long as the representative is not otherwise prohibited by law or regulation from appearing before ACC-RSA.

12.6. Non-exclusivity of remedies.

Nothing in this section is intended to limit a Recipient's right to any remedy under the law.

ARTICLE 13. LIABILITY

13.1 Limitation of Liability.

The Government does not waive its sovereign immunity except as otherwise provided by law. The Recipient is solely responsible for any damages which may arise from any suit, action, or claim and for any costs from or incidental to these suits, actions or

claims, including but not limited to settlement and defense costs, except to the extent the Government has waived its sovereign immunity under the Federal Torts Claims Act or other express provisions of law. Further, the Recipient agrees that it shall not pursue litigation or any other judicial or administrative recourse against the Government or take any action to enter the Government as party to any suit, action, or claim in which the Recipient may become involved except as otherwise provided herein.

13.2 Environmental Liability.

The Recipient is solely responsible for achieving compliance with all environmental laws applicable to the work performed under this Agreement, including but not limited to any licenses and permit applications required under Federal, State, or local laws or regulations. The Recipient shall not name the United States, the Department of the Army, or any other Government agency, instrumentality or employee as an owner, operator or in any other capacity on any license or permit application required under environmental laws unless written consent is first obtained from an authorized agent of the Federal agency or instrumentality to be named. The Recipient shall not accept issuance of any permit or license which purports to impose upon the United States, the Department of the Army, or any Government instrumentality or employee any obligation or liability for an operations or activities covered by such permit or license except upon prior written consent.

13.3 Disclosure of Unmarked Data.

The United States Government is not responsible for any disclosure or transfer of proprietary data or software that was not marked by the data owner in accordance with Article 8.

ARTICLE 14. ADMINISTRATIVE MATTERS

14.1. Property Management.

In accordance with Appendix C of Part 22 of the DoDGARs (DoD 3210.6-R or 32 C.F.R. Part 22), the Recipient shall manage, dispose of, and insure property acquired or furnished under this Agreement in accordance with the guidance promulgated at 32.30 and the sections referenced therein. This section of the DoDGARs sets forth uniform standards for the management, use, and disposition of Recipient-acquired and/or Government-furnished property.

14.1.1 Title to Acquired and Furnished Property

(a) Title to approved equipment and other tangible personal property (e.g., fabricated equipment, supplies and other expendable property) purchased under this Agreement shall vest in the Recipient subject to the conditions in DoDGARs 32.34

and 32.35

(b) Title to real property for which the associated costs are specifically identified in Article 7.2.1 as allowable for use as Recipient cost share under the agreement shall vest in the Recipient subject to the conditions in DoDGARs 32.32.

(c) Title to furnished equipment and other tangible personal property identified as federally owned shall remain vested with the Federal Government.

14.2 Controlled Information, Foreign Participation, and Publications Approval.

14.2.1 Export-Controlled Items

(a) Definition. "Export-controlled items," as used in this clause, means items subject to the Export Administration Regulations (EAR) (15 CFR Parts 730-774) or the International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130). The term includes:

(1) "Defense items," defined in the Arms Export Control Act, 22 U.S.C. 2778(j)(4)(A), as defense articles, defense services, and related technical data, and further defined in the ITAR, 22 CFR Part 120.

(2) "Items," defined in the EAR as "commodities", "software", and "technology," terms that are also defined in the EAR, 15 CFR 772.1.

(b) The Recipient shall comply with all applicable laws and regulations regarding export-controlled items, including, but not limited to, the requirement for Recipients to register with the Department of State in accordance with the ITAR. The Recipient shall consult with the Department of State regarding any questions relating to compliance with the ITAR and shall consult with the Department of Commerce regarding any questions relating to compliance with the EAR.

(c) The Recipient's responsibility to comply with all applicable laws and regulations regarding export-controlled items exists independent of, and is not established or limited by, the information provided by this clause.

(d) Nothing in the terms of this section or any resulting agreement adds, changes, supersedes, or waives any of the requirements of applicable Federal laws, Executive orders, and regulations, including but not limited to—

(1) The Export Administration Act of 1979, as amended (50 U.S.C. App.2401, et seq.);

- (2) The Arms Export Control Act (22 U.S.C. 2751, et seq.);
- (3) The International Emergency Economic Powers Act (50 U.S.C. 1701, et seq.);
- (4) The Export Administration Regulations (15 CFR Parts 730-774);
- (5) The International Traffic in Arms Regulations (22 CFR Parts 120-130); and
- (6) Executive Order 13222, as extended;

(e) The Recipient shall include the substance of this clause, including this paragraph (e), in all subawards and subcontracts.

14.2.2 Security

The Recipient's personnel will not have access to classified United States Government information under this Agreement. If security restrictions should happen to apply to certain aspects of the proposed Agreement, the AO will inform the Recipient. The Recipient shall promptly notify the AO if information is developed which might, if disclosed, affect the national security adversely. Written concurrence from the AO must be obtained prior to disclosure of such information.

14.2.3 Foreign Participation

The Recipient of the award of this Agreement shall be registered as a U.S. organization. U.S. incorporated companies that are owned or substantially controlled by foreign governments, firms, institutions, or individuals may become eligible to be members of the Institute, and sub-awardees of federal support if they are able to demonstrate to the satisfaction of the DMDI Institute Management and the Government that: 1) their participation is in the best interest of the DMDI Institute, U.S. industry, and U.S. economic development; 2) adequate IP and data protection protocols exist between the U.S. subsidiary and its foreign parent organization; 3) the work is conducted within the U.S.; 4) other conditions that may be deemed necessary by the Institute and the Government to protect U.S. government interests are met, and 5) The Institute and its members are in compliance with 8 U.S.C. 1324a and 8 CFR 274a.2. Prior approval from the Government for foreign participation in technical projects under the Agreement is required as specified in Article 10 of the Agreement.

Some projects within the Institute may be subject to export control laws and regulations. Under no circumstances may foreign entities (organizations, companies or persons) receive access to export controlled information unless proper export procedures have been satisfied. The DMDI Institute Management will address participation by foreign entities (organizations, companies or persons) on a case-by-case basis, and will ensure measures that properly protect Export Controlled

information.

14.2.4 Publications

14.2.4.1 The Parties agree to confer and consult with each other prior to publication or other public disclosure of the results of work under this Agreement to ensure that no classified data, proprietary information, military critical technology or other controlled information is released. Prior to submitting a manuscript for publication or before any other public disclosure, each Party will offer the other Party ample opportunity to review such proposed publication or disclosure, to submit objections, and to file applications for letters patent in a timely manner.

14.2.4.2 Publication of results of the research project in appropriate professional journals is encouraged as an important method of recording and reporting scientific information. One copy of each paper planned for publication will be submitted to the Government Program Manager under Article 5 of the Award/Modification document simultaneously with its submission for publication. Following publication, copies of published papers shall be submitted to the Government Program Manager.

14.2.4.3 The Recipient agrees that when releasing information relating to this Agreement, the release shall include a statement to the effect that the project or effort undertaken was or is sponsored by the Department of the Army.

14.2.4.4 Disclaimer: The Recipient is responsible for assuring that every publication of material (including World Wide Web pages) based on or developed under this award, except scientific articles or papers appearing in scientific, technical or professional journals, contains the following disclaimer: "Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Department of the Army."

14.2.4.5 For the purpose of this clause, information includes news releases, articles, manuscripts, brochures, advertisements, still and motion pictures, speeches, trade association proceedings and symposia.

14.2.4.6 Nothing in the foregoing shall affect compliance with the Security requirements under this Agreement.

14.3 Reporting Requirements.

The Recipient shall submit reports as set forth in the Reporting Requirements, Attachment 3 to this Agreement. All reports and correspondence submitted under this Agreement shall include the Agreement number. A copy of the letter of transmittal shall be provided to the Agreements Office and the Agreements Administration Office.

14.4 Modifications.

Any Party to this Agreement who wishes to modify this Agreement shall confer in good faith with the other signatory parties to determine the desirability of the proposed modification. Modifications shall not be effective until a written modification is signed by the Agreement signatories (or their successors). Administrative modifications may be unilaterally executed by the AO.

14.5 Notices.

All notices and prior approvals required hereunder shall be in writing and shall be addressed to the parties identified on the Agreement cover page and in Article 5, Designated Government Officials. Notices shall be effective when received, not when sent. If sent certified or registered mail, postage prepaid, return receipt requested, notice shall be effective on the date the return receipt shows the notice was accepted, refused, or returned undeliverable. Notices can be sent by facsimile transmission or electronic mail (e-mail) but shall be effective only if the sender can produce documentary evidence to establish that the addressee actually received the notice.

14.6 Waiver of Rights.

Any waiver of any requirement contained in this Agreement shall be by mutual agreement of the Parties. Any waiver shall be reduced to writing and a copy of the waiver shall be provided to each Party. Failure to insist upon performance of any of the terms and conditions of the Agreement shall not be deemed a waiver of any rights by any Party.

14.7 Severability.

If any clause, provision or section of this Agreement is held to be illegal or invalid by any court, the invalidity of such clause, provision or section shall not affect any of the remaining clauses, provisions or sections hereof and this Agreement shall be construed and enforced as if such illegal or invalid clause, provision or section had not been contained herein.

14.8 Force Majeure.

Neither Party shall be in breach of this Agreement for any failure to perform caused by any event beyond its reasonable control and not caused by the fault or negligence of that Party. In the event such a force majeure event occurs, the Party unable to perform shall promptly notify the other Party in accordance with paragraph 14.5, Notices, above, and shall in good faith continue performance to the extent reasonably possible.

14.9 Assignment of Claims.

a. Pursuant to the provisions of the Assignment of Claims Act of 1940, as amended, 31 U.S.C. 3727, 41 U.S.C. 15, claims for monies due or to become due to the Recipient from the Government under this Agreement may be assigned to a bank, trust company, or other financial institution, including any such Federal institution. Any such assignment or re-assignment shall cover all amounts payable under this Agreement and not already paid, and shall not be made to more than one party as agent or trustee for two or more parties participating in such financing. All assignment and re-assignment final decisions are subject to review by the cognizant AAO.

b. Copies of this Agreement, or any plans, specifications, or other similar document relating to work under this Agreement, if marked "TOP SECRET", "SECRET", "CONFIDENTIAL", or "U.S. GOVERNMENT USE ONLY," shall not be furnished to any assignee of any claim arising under this Agreement, or to any person not entitled to receive the same, without the prior written authorization of the AO.

14.10 Governing Laws & Regulations.

This Agreement shall be enforced and interpreted in accordance with applicable federal laws and regulations, directives, circulars or other guidance. Federal laws and regulations shall govern in the event of any conflict with the provisions of this Agreement. When signed, this Agreement will become binding on the Recipient and the Government to be administered in accordance with OMB Circular A-110, DoD Grant and Agreement Regulations, 3210.6-R, and as specified herein. In the event of a conflict between the provisions of this Agreement and the OMB Circulars, the OMB Circulars shall govern.

14.11 Cargo Preference.

The Recipient agrees that it will comply with the Cargo Preference Act of 1954 (46 U.S.C. 1241), as implemented by Department of Transportation regulations at 46 CFR 381.7, which requires that at least 50 percent of equipment, materials or commodities procured or otherwise obtained with U.S. Government funds under this Agreement, and which may be transported by ocean vessel, shall be transported on privately owned U.S.-flag commercial vessels, if available.

14.12 Preference for U.S. Flag Air Carriers

Travel supported by U.S. Government funds under this Agreement shall use U.S. flag air carriers (air carriers holding certificates under 49 U.S.C. 41102) for international air transportation of people and property to the extent that such service is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118) and the interpretative guidelines issued by the Comptroller General of the United States in the March 31, 1981 amendment to the Comptroller

General's Decision B-138942. Such Act and guidelines are incorporated in this Agreement by reference.

14.13 Officials Not to Benefit

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit arising from it, in accordance with 41 U.S.C. 22.

14.14 Activities Abroad

The Recipient shall assure that project activities carried on outside the United States are coordinated as necessary with appropriate Government authorities and that appropriate licenses, permits, or approvals are obtained prior to undertaking proposed activities. The awarding agency does not assume responsibility for the Recipient's compliance with the laws and regulations of the country in which the activities are to be conducted.

14.15 Reporting Subawards and Executive Compensation

The Recipient shall report on first-tier subawards and executive compensation in accordance with the Federal Funding Accountability and Transparency Act (FFATA) of 2006 and associated 2008 amendments. Reporting is required for Agreements equal to or over \$25,000. If the initial award is below \$25,000 but subsequent Agreement modifications result in a total award equal to or over \$25,000, the award will be subject to the reporting requirements, as of the date the award exceeds \$25,000. If the initial award equals or exceeds \$25,000 but funding is subsequently deobligated such that the total award amount falls below \$25,000, the award continues to be subject to the reporting requirements of the Transparency Act.

14.16 Financial Assistance Use of Universal Identifier and System for Award Management Registration (SAM)

Recipient and first-tier subrecipients shall have Dun and Bradstreet Data Universal Numbering System (DUNS) numbers and maintain current registrations in the SAM data base.

14.17 Freedom of Information Act (FOIA) Access to Researcher's Data

Upon this Agency's request, pursuant to DoDGARs 32.36(d), the Recipient shall provide, within a reasonable time, research data as defined in DoDGARs 32.36(d)(2)(i).

14.18 Metric System

The Recipient shall use the metric system, to the maximum extent practicable, in

measurement-sensitive activities supported by the Agreement and in measurement-sensitive outputs of this Agreement.

14.19 Resource Conservation and Recovery Act

In accordance with the Resource Conservation and Recovery Act (section 6002, Pub. L. 94-580, 42 U.S.C. 6962), State and local institutions of higher education, hospitals, and non-profit organizations that receive direct Federal awards or other Federal funds shall give preference in their procurement programs funded with Federal funds to the purchase of recycled products pursuant to the guidelines developed by the Environmental Protection Agency.

14.20 Entire Agreement.

This Agreement with Attachment Numbers 1, 2, 3, and 4 constitutes the entire agreement between the parties concerning the subject matter hereof and supersedes any prior understanding or written or oral agreement relative to said matter.

ARTICLE 15. CERTIFICATIONS

15.1 The following Certifications and Representations, which have been executed by the Recipient prior to award of this Agreement and are on file with the issuing office, are hereby incorporated herein by reference: (1) Certification Regarding Lobbying, Appendix A to 32 CFR Part 28 and (2) Representation Regarding an Unpaid Delinquent Tax Liability or Felony Conviction under any Federal Law – DoD Appropriations

15.2 Recipients shall comply with all the requirements of DoDGARs Part 1125, Subpart C, “Responsibilities of Participants Regarding Transactions” (32 CFR Part 25, Subpart C). The recipient shall include a similar term or condition in lower-tier covered transactions as required by DoDGARs Part 1125, Subpart B (32 CFR Part 25, Subpart B).

15.3 By this Agreement or accepting funds under this Agreement, the recipient agrees to comply with the “Government-Wide Drug-Free Workplace (Grants)” requirements specified by DoDGARs Part 26, Subpart B (or Subpart C, if the recipient is an individual) of 32 CFR Part 26 (2004), which implements sec. 5151-5160 of Drug-Free Workplace Act of 1988 (41 USC 701, et seq.).

15.4 By signing this Agreement or accepting funds under this Agreement, the Recipient assures that it will comply with applicable provisions of the following national policies prohibiting discrimination:

a. On the basis of race, color, or national origin, in Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d, et seq.), as implemented by DoD regulations at 32 CFR part

195.

b. On the basis of race, color, religion, sex, or national origin, in Executive Order 11246 (3 CFR, 1964-1965 Comp. p. 339), as implemented by Department of Labor regulations at 41 CFR part 60.

c. On the basis of sex or blindness, in Title IX of the Education Amendments of 1972 (20 U.S.C. 1681, et seq.)

d. On the basis of age, in the Age Discrimination Act of 1975 (42 U.S.C. 6101, et seq.), as implemented by Department of Health and Human Services regulations at 45 CFR part 90.

e. On the basis of handicap, in Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794), as implemented by Department of Justice regulations at 28 CFR part 41 and DoD regulations at 32 CFR part 56.

15.5 By signing this Agreement or accepting funds under this Agreement, the Recipient assures that it will comply with applicable provisions of the Clean Air Act (42 U.S.C. 7401 et seq.), as amended and the Clean Water Act (33 U.S.C. 1251 et seq.), as implemented by Executive Order No. 11738 (3 CFR, 1971-1975 Comp. P. 799), and the related regulations of the Environmental Protection Agency (EPA) (40 CFR part 15). Said regulations, Executive Order, and Acts are incorporated in this Agreement by reference.

15.6 By signing this Agreement or accepting funds under this Agreement, the Recipient assures that it will not use any facility on the EPA's List of Violating Facilities in performing any award that is nonexempt under 40 CFR 15.5, as long as the facility remains on the list. If, in performing this award, the Agreement recipient intends to use a facility that is on the List of Violating Facilities or that the Agreement recipient knows has been recommended to be placed on the List of Violating Facilities, the Agreement recipient shall notify the AO and Government Program Manager listed under Article 5 of this Agreement.

15.7 By signing this Agreement or accepting funds under this Agreement, the Recipient assures that it will comply with section 106 (g) of the Trafficking Victims Protection Act of 2000 (22 U.S.C. 7104). If the Recipient or any subagreement recipient (i) engages in severe forms of trafficking in persons or has procured a commercial sex act during the period of time the Agreement is in effect or (ii) uses forced labor in the performance of the Agreement, the Government shall be authorized to terminate the Agreement without penalty.

ARTICLE 16. GOVERNANCE

16.1 Institution.

The governance of the Institute shall be in accordance with the Governance Document, Attachment 4.

16.2 Applied Research Projects.

The Institute will perform applied research projects in support of its mission. The execution of these projects shall be in accordance with Section VII(e)(2)(f) of the Governance Document, Attachment 4.

END OF AGREEMENT

Statement of Work – Institute Requirements Attachment Number 1

1.0 OBJECTIVE: The objective of this effort is to establish and sustain an Institute for Digital Manufacturing and Design to accelerate research, development, and demonstration of Advanced Manufacturing Enterprise (AME), Intelligent Machines (IM) and Advanced Analysis (AA) and transition technology to manufacturing enterprises within the United States.

2.0 SCOPE: The goal of the Digital Manufacturing and Design Innovation Institute (DMDII) is to accelerate research, development, and demonstration in the integration of AME, IM, and AA in a secure and trusted cyber physical system, with institute initiatives in Work Force Development and Technology Demonstration. This Institute will bring together large and small businesses, academia, and federal and state agencies to accelerate innovation by investing in industrially relevant manufacturing technologies. The DMDII will serve as a technical center of excellence, providing the innovation infrastructure to support manufacturing enterprises of all sizes and ensure that the U.S. manufacturing sector is a key pillar in an enduring and thriving economy. The expected outcome of the Institute is to increase the successful transition of digital manufacturing and innovative design technologies through advanced manufacturing, create an adaptive workforce capable of meeting industry needs, further increasing domestic competitiveness, and meet participating defense and civilian agency requirements.

3.0 BACKGROUND: The future National Network for Manufacturing Innovation (NNMI) may consist of up to or more than 15 Institutes for Manufacturing Innovation around the country. The vision is for the institutes to bring together industry, universities and community colleges, federal agencies, and regional and state organizations to accelerate innovation by investing in industrially-relevant manufacturing technologies with broad applications. The (DMDII) will play a major part in the establishment and organization of the future NNMI institutes and network.

4.0 TASKS/TECHNICAL REQUIREMENTS

4.1 Create DMDII to serve as a technical center of excellence

4.1.1 Operations

4.1.1.1 Establish facilities and infrastructure presence by execution of facility agreements and lease obligations and execute staffing agreements for the DMDII organizational structure.

4.1.1.2 Establish the DMDII organizational structure, governance system, executive board, management structure and committees as needed.

4.1.1.3 Establish consortium management such as a teaming agreement/Memorandum of Agreement with the original team members of the institute.

4.1.1.4 Establish a Charter for the Institute to include a Mission, Vision, and Performance Metrics, based on driving toward sustainability, in collaboration with the management and technical members.

4.1.1.5 Establish and advertise structure for membership describing benefits, technical activities, and rules of engagement.

4.1.1.6 Develop and maintain register of DMDII proficiencies including centralized and distributed member capabilities.

4.1.1.7 Establish the business operations and management processes for the operations of the institute and project management processes for the management of technical initiatives.

4.1.1.8 Support efforts to form a Pilot Network of Institutes for Manufacturing Innovation (IMIs) comprised of the DOD and DOE-led IMIs established or being established in support of the U.S. Administration's innovative manufacturing initiative. The Institute's leadership will be required to attend regularly scheduled in-person meetings with equivalent leaders of the other DOD and DOE-led IMIs (meeting cycle is to be determined; e.g., quarterly, semi-annual, etc.). Support the development of strategies and common processes supporting efficient and effective, value-added network-level functions benefitting the IMIs themselves as well as national advanced manufacturing interests. These efforts will include meetings for the purpose of coordination in which the government program manager supporting each IMI as well as other invited officials from federal agencies leading efforts in advanced manufacturing innovation will attend. During the course of this agreement, this Pilot Network may grow as new IMIs are established and added and/or other key stakeholders are identified to engage in maturing the Network beyond this pilot stage, progressing towards becoming a fully developed, robust network of domestic IMIs. Should a NNMI authorization and appropriation by Congress become reality it is expected to further inform the attributes of the Network in both its pilot and maturing phases. Each IMI's participation in Pilot Network meetings will not be required any sooner than three (3) months after the award of its Cooperative Agreement.

4.1.2 Technology Advancement

4.1.2.1 Facilitate and develop the strategic National Digital Manufacturing and Design technology roadmap for the DMDII using existing roadmaps, sponsors and industry, government, and academic team members that includes addressing gaps in key technology areas, with greatest attention towards meeting industry needs and accelerating innovation.

4.1.2.2 Design and implement a project call process based upon the Digital Manufacturing and Design technology roadmap and with an implementation plan for vetting and selection of projects including establishing evaluation criteria and selection process taking into account input from industry, academia, and government members, with greatest consideration to projects that directly and broadly benefit industry.

4.1.2.3 Execute and manage selected projects including evaluation of technical performance and transition, to include the integrated digital, sustainability, and workforce development and training threads within the projects.

4.1.2.4 Execution of Intellectual Property strategy and individual agreements with DMDII membership.

4.1.2.5 Facilitate and execute agency-driven projects (government-funded) on Digital Manufacturing and Design through the consortium when identified by agency stakeholders and as deemed within the mission of the DMDII institute by the DMDII Program Manager, Agreements Officer (AO), and DMDII Director.

4.1.3 Technology Transition and Dissemination

4.1.3.1 Mature and direct technology towards transition to industry for applications that directly address stakeholder needs; the Digital Manufacturing and Design technology roadmap developed shall ensure that technology transition applications will meet the needs of industry to meet the needs specific to the Government, as well as commercial applications.

4.1.3.2 Outreach and Engagement

4.1.3.2.1 Promote DMDII's capabilities, equipment, expertise and services focused on attracting industry funding and participation.

4.1.3.2.2 Leverage facilities and capabilities to be created and managed by the proposer, to provide innovation infrastructure to support manufacturing enterprises of all sizes and provide access to expertise and equipment that support the Digital Manufacturing and Design technology roadmap.

4.1.3.2.3 Promote DMDII's capabilities, equipment, expertise and services focused on attracting existing research and technology development efforts from universities and research facilities, government agencies; industry associations, professional societies, and economic development organizations; and leveraging government authorities such as the Manufacturing Extension Partnerships (MEPs).

4.1.3.2.4 Implement a Technology Dissemination process to disclose Intellectual Property created by the DMDII, such as disclosures, license opportunities and patents.

4.1.3.2.5 Conduct semi-annual full project reviews and to include project teams, sponsors, governance board, industry, universities, and partners, with portions of the meetings open to the public if possible.

4.1.3.2.6 Implement an Information Propagation process to distribute information on Digital Manufacturing and Design technologies and industry advancements including successes focused on increasing awareness and knowledge.

4.1.3.2.7 Attend and conduct Conferences/Events, public forums, workshops, and technical seminars, and/or other methods to disseminate results of applied research to the broader community to drive Digital Manufacturing and Design supportive policy.

4.1.3.8 Engage SMEs through: outreach and engagement methodologies; open innovation supply chains using social networking models; and create a nationwide roll-out strategy with the MEP program to engage SMEs nationally as well as other markets.

4.1.3.9 Conduct activities that advance the collaborative scale-up and commercialization potential of products; provide an incubation services infrastructure; provide technical assistance.

4.1.4 Educational Outreach and Workforce Development

4.1.4.1 Establish a framework and infrastructure to create a project based learning environment and create appropriate interfaces to interact with external educational and workforce training activities with the goal of educating students and training workers in advanced Digital Manufacturing and Design skills.

4.1.4.2 Design and implement a process to attract and develop students at all levels including non-traditional students, K-12, and veterans, through multi-modal interfaces, hands-on training and programming and to attract and educate teachers, faculty and instructors on Digital Manufacturing and Design; and integrate Digital Manufacturing and Design into existing curriculum and STEM efforts.

4.1.4.3 Identify and engage relevant industry and industry association partners to address needs and skill gaps and create validated and accepted educational activities, programs, certifications and credentials and encourage career ladders, 2+2+2 programs, stackable credentialing, and articulation agreements.

4.1.4.4 Provide professional education on Digital Manufacturing and Design and deploy educational activities, programs, certifications and credentials to students and workforce at all levels, including team members and partners.

4.1.4.5 The Institute will work with regional "Manufacturing Extension Partnership" locations as well as professional educational content developers to develop appropriate levels of training courses to facilitate further dissemination of the body of knowledge to

SME's and the public at large. Within the first 100 days after execution of the Cooperative Agreement, the Institute Professional Staff will work closely with the PM to identify methods and ideas for course content development directed towards this specific effort. Metrics will be developed and agreed to by the PM on which topics to address first and how many course deliverables will be achieved and in what time frame.

4.1.5 Reporting and Deliverables

4.1.5.1 Delivery of all of the documentation below shall be done electronically to the AO and Program Manager at gregory.a.harris81.civ@mail.mil, as well as to the appropriate oversight board within the institute organizational structure.

4.1.5.2 Preparation and submission of monthly Recipient Billing Voucher through Wide Area Work Flow.

4.1.5.3 Continually determine the status of funding required for agreement performance through quarterly Funds and Man-hour Expenditure Report.

4.1.5.4 Continually determine the status of the effort and report progress toward accomplishment of agreement requirements through quarterly recipient progress, status, and technical and management reports. Quarterly reports shall include technical progress, educational outreach and workforce development progress, transition progress, as well as status of institute Performance Metrics.

4.1.5.5 Provide a Statement of Project Objectives for the Institute that outlines the Goal and Objectives, Scope/General approach, Tasks/Subtasks (Projects) Description, and Milestones (once projects are selected), in a version appropriate for public dissemination.

4.1.5.6 Conduct presentations/meetings at times and places as determined. Anticipate semi-annual reviews and annual institute meeting. Provide presentations from the semi-annual program reviews.

4.1.5.7 Monthly technical summary reports, of no more than 1-2 pages, bulletized status of the institute (high level update on progress and issues).

4.1.5.8 Strategic Investment Plan (SIP) delivered six-months following award and updated annually thereafter.

4.1.5.9 The Government may order from the Recipient any software (excluding commercial software source code) generated in the performance of this Agreement or any subaward hereunder. Such software will be delivered to include both source code and executables. Such software will be treated appropriately by the Government according to whether Restricted Rights, Government Purpose Rights, or Unlimited

Rights apply as defined in 8.2(a.-d.) of the Cooperative Agreement.

4.1.5.10 Document in the form of a final report all technical work accomplished and information gained during the performance of this effort. This shall include all pertinent observations, nature of problems, positive as well as negative results, and design criteria established, where applicable; also, procedures followed, processes developed, Performance Metrics, "Lesson Learned", etc. The details of all technical work shall be documented to permit full understanding of the techniques and procedures used in evolving technology or processes developed. Final Technical Report due following each project completion and Final Technical Report due at end of agreement term. 30 days after the end of the technical effort, the recipient shall deliver the draft report. The Government will take no more than 30 days to review and make comments. The recipient will take no longer than 30 days to submit the final copy.

4.1.5.11 Cost Share Documentation and Reporting will be included on each monthly invoice. All documentation of cost share must be maintained by the institute and available for audit. Documentation includes:

4.1.5.11.1 The institute must have documented evidence of all cash received from any contributor. This evidence may be in the form of a letter and a bank account statement displaying an electronic funds transfer from a cash contributor to the institute's bank account.

4.1.5.11.2 In-Kind Contributions must be evidenced by written documentation that is signed by the contributor and Institute that describes the contribution, its value, and when and for what purpose it was donated. The Institute must provide an acknowledgement of the contribution. The Institute must have documented evidence of the third party in-kind contribution from the contributor. This evidence must include documentation from the contributor that contains:

- The value of each third party in-kind contribution established in accordance with the applicable cost principles
- The valuation and allocation methods used by the Recipient for purposes allocating third party in-kind contributions to the institute shall be submitted as part of the Institute's operating plan and must be approved by Program Manager and the AO. Upon request, the Recipient shall provide the Program Manager and the AO with documentation supporting the allocation and valuation of third party in-kind contributions,
- A list of the type of third party in-kind contribution, and
- The percentage of time that the contribution was used to support the institute.

**Schedule of Cost Sharing
Attachment Number 2**

TOTAL PROGRAM FUNDING

	FY14	FY15	FY16	FY17	FY18	TOTAL
Federal Government	\$17.00M	\$14.00M	\$14.00M	\$14.00M	\$11.00M	\$ 70.0M
Cost Share	\$27.23M	\$20.91M	\$20.07M	\$18.15M	\$19.46M	\$105.82M
Total Program	\$44.23M	\$34.91M	\$34.07M	\$32.15M	\$30.46M	\$175.82M

TOTAL COST SHARE BY TYPE

	2014		2015		2016		2017		2018	
	Cash	In-Kind	Cash	In-Kind	Cash	In-Kind	Cash	In-Kind	Cash	In-Kind
Research	\$ 2,500,000	\$ 7,500,000	\$ 2,500,000	\$ 7,500,000	\$2,500,000	\$ 7,500,000	\$2,500,000	\$ 7,500,000	\$ 5,016,621	\$7,500,000
Commercialization	\$ 771,257	\$ 594,360	\$ 2,212,347	\$ 1,240,000	\$1,979,184	\$ 710,000	\$2,008,675	\$ 580,000	\$ 2,818,893	\$ 580,000
Facilities & Equipment	\$ 8,250,000	\$ 5,233,000	\$ 750,000	\$ 4,692,000	\$ 750,000	\$ 4,587,000	\$ 750,000	\$ 2,717,000	\$ 750,000	\$ 657,000
Other Operating Costs	\$ 2,383,054	-	\$ 2,018,465	-	\$2,043,974	-	\$2,092,171	-	\$ 2,135,040	-
<i>Total</i>	<i>\$13,904,054</i>	<i>\$13,327,360</i>	<i>\$ 7,480,812</i>	<i>\$13,432,000</i>	<i>\$7,273,158</i>	<i>\$12,797,000</i>	<i>\$7,350,846</i>	<i>\$10,797,000</i>	<i>\$10,720,554</i>	<i>\$8,737,000</i>
GRAND TOTAL	\$27,231,671		\$20,912,812		\$20,070,158		\$18,147,846		\$19,457,554	

Reporting Requirements Attachment Number 3

1. Financial Reporting

1.1 Financial Status Reports

The Recipient shall submit all financial reporting in accordance with the requirements of Standard Form 425, "Federal Financial Report" (FFR). The FFR and instructions for its use are on the OMB web site at http://www.whitehouse.gov/omb/grants/grants_forms.html. All reports shall be submitted on Standard Form 425 and shall be compiled on an [accrual or cash] basis. The Remarks section of Standard Form 425, field 12 shall include documentation to verify the in-kind contributions from all Recipients and sub-recipients or third parties. The reporting period end date for quarterly reports are 3/31, 6/30, 9/30, or 12/31; therefore, quarterly reports shall be submitted within 30 days following the end of each calendar quarter. The final Financial Status Report is required 90 days after the completion date for the term of this Agreement and must include in the remarks the location of financial records and a point of contact for the Government to obtain access to the financial records associated with this Agreement. Domestic institutions of higher learning must complete optional fields 11.a through 11.f, "Indirect Expenses," on the final FFR that it submits after the end of the project period under this award.

Attached to the SF 425 must be a more detailed Funds and Man-hour Expenditure Report that can be cross referenced with any invoices submitted during the reporting quarter. Reports will detail costs and man-hours expended during the reporting quarter for both Government and Recipient Cost Share (including the type, sources (by organization), and amounts).

1.2 Payment Documentation

Payment Documentation - In support of each request for payment (through Wide Area Work Flow - WAWF) the following information must be supplied to the Government Program Manager with a copy to the Agreements Administration Officer (AAO):

- A breakdown of the total requested payment by major task;
- A breakdown of the Recipient cost sharing by type provided (during the period being invoiced as well as the cumulative amount) for each major task;

1.3 Audit Reports

The Recipient shall ensure that if an independent auditor is used for this

Agreement, copies of any audits conducted shall be provided to the Government. At a minimum, the following should be provided: (1) a certified statement from the independent auditor for the Recipient stating the amount of matching funds applicable for each Government Fiscal Year allotment and a summary of the source of such matching amounts and (2) a certified statement from the independent auditor evidencing that Recipient has complied with all requirements of this Agreement. Upon completion or termination of this Agreement, the Recipient shall provide a list of all audits conducted which reviewed expenditures under this Agreement.

2. Property Reports

A final property report shall be provided in accordance with DoDGARs 32.71(f) and shall be due 3 months after the expiration of the final research period.

3. Invention Reports

The Recipient shall file inventions disclosures in accordance with the time periods and requirements in Article 9.3.a. The Recipient shall also file annual Invention (Patent) Reports as of the close of the fiscal year and at the end of the term for this Agreement. Annual reports are due 60 days after the close of the Government Fiscal Year and final reports are due 3 months after the expiration of the final research period. The Recipient shall use DD Form 882, Report of Inventions and Subcontracts, to file an inventions report. Negative reports are also required. The disclosure of the Subject Invention to the Army Aviation and Missile Research Development and Engineering Center (AMRDEC) through the Agreements Officer (AO) shall be sufficiently complete in technical detail to convey a clear understanding to the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication.

In accordance with Article 9.6, the Recipient shall submit, on request, periodic reports no less frequently than annually on the utilization of a Subject Invention or on the efforts at obtaining such utilization by Recipient or its licensee or assignees.

4. Quarterly Progress Reports

The Recipient shall provide quarterly progress reports that include the following:

- Recipient Progress, Status, and Management Report
- Technical Projects Reports

5. Monthly Technical Summary Reports

The Recipient shall provide a 1-2 page monthly technical summary report to

provide a high level update on progress and issues. This report shall include a bulleted status of the Institute. Each monthly technical summary report is due with the monthly invoice within 5 days of the end of each month.

6. Strategic Investment Plan

The Recipient shall provide its Strategic Investment Plan no later than six months following award, then annually thereafter.

7. Presentations from Program Reviews

The Recipient shall provide presentations for the program management reviews that take place bi-annually (twice a year) as required by Article 6. These should be provided at least 72 hours in advance of the review meetings.

8. Final Technical Project Reports

Upon conclusion of a technical project, the Recipient shall submit a Final Project Report addressing the research performed and technical achievements of the project.

9. Annual Program Plan

The Recipient shall provide an Annual Program Plan as required by Article 6.

10. Final Report

On or before the end date of the Agreement in Article 3, the Recipient shall submit a Final Report addressing the technical achievements of the program. The report should provide a synopsis of the research performed and accomplishments made under the Agreement. No proprietary or classified information is to be included in the final report as it is subject to public release.

The Government may order from the Recipient any software (excluding commercial software source code) generated in the performance of this Agreement or any subaward hereunder. Such software will be delivered to include both source code and executables. If any software is developed under the Institute, which would be treated appropriately by the Government according to whether Restricted Rights, Government Purpose Rights, or Unlimited Rights apply as defined in Article 8.2(a.-d.), a copy shall be provided with the Final Report.

DISTRIBUTION REQUIREMENTS FOR REPORTS

Type of Report	Government Program Manager (Original)	Agreements Officer (Copy)	Agreements Admin Officer (Copy)	Audit Agency (Copy)	Defense Technical Information Center (DTIC) (Copy)
Financial Status Reports	1		1		
Payment Documentation	1		1		
Audit Reports		1	1	1	
Property Reports	1		1		
Invention Reports	1	1	1		
Quarterly Progress Reports	1				
Monthly Technical Summary Reports	1	1	1		
Presentations from Program Reviews	1				
Final Technical Project Reports	1				1
Annual Program Plan	1		1		
Final Report *	1		1		1

All unclassified/unlimited reports can be submitted electronically if an E-mail address is provided in this Agreement.

The addresses (physical and E-mail) for the individuals listed above can be found in Article 5, Designated Government Officials, or below.

Before submitting the Final Technical Project Reports to DTIC, the Recipient should

request a Distribution Statement from the Government Program Manager after providing information as to whether the report contains Export Controlled Information or any other type of sensitive information.

The Final Report for the Agreement shall be submitted using Distribution Statement A, which is publically releasable. See Final Report requirements in paragraph 8 of this attachment.

Address for the DTIC is as follows: Defense Technical Information Center, 8725 John J. Kingman Road, STE 0944, Ft. Belvoir, VA 22060-6218. The E-mail address to submit technical reports and final reports to the Defense Technical Information Center is tr@dtic.mil. DTIC prefers .pdf, .tif, and .ps files; however, other formats will also be accepted.

The e-mail address to submit electronic copies of Invention Reports to the Army AMRDEC through the AO is jeffrey.t.knight4.civ@mail.mil.

* A fully completed DD Form 298 must be included with the final report submitted to DTIC so that DTIC can recognize the document as being related to the particular award and properly record its receipt. A copy of the completed DD Form 298 should be provided to the AAO.

**Governance Document
Attachment Number 4**

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1. Background

In March 2012, President Obama announced a major, new initiative focused on strengthening the innovation, performance, competitiveness, and job-creating power of U.S. manufacturing called the National Network for Manufacturing Innovation (NNMI). During his 2013 State of the Union Address, the President indicated his intent to establish three NNMI institutes in 2013 to bring together industry, academia, and Government agencies to accelerate innovation by investing in “industrially-relevant manufacturing technologies with broad applications.”

One of the three institutes envisioned in this 2013 announcement was the Department of Defense (DoD) led Digital Manufacturing and Design Innovation (DMDI) Institute. Modeled after similar public-private research and development (R&D) collaborations both in the U.S. and abroad, the DMDI will be established as a national resource to focus on enterprise-wide utilization of the “digital thread,” enabling highly integrated design and manufacturing of complex products at reduced cost and time thereby enabling accelerated market penetration. The digital thread captures information generated from concept development and design to analysis, planning, manufacturing, assembly, maintainability, and through to disposal.

2. Issue

The need to integrate the digital thread across the advanced manufacturing enterprise (AME), intelligent machining (IM), and advanced analysis (AA) has never been more important than it is today. The ever-increasing complexity of systems, diversity of the supply chain and the need for highly complex, low volume products, among a host of other reasons, threatens the affordability of domestic digital manufacturing, and thus, the competitiveness of the U.S. industrial base and our nation’s security. The need and motivation for industry, academia and Government to coalesce is apparent in order to enable the integrated design, development and production of highly complex systems, thereby reducing production times, shortening commercialization timelines and improving affordability. Despite the compelling need for such collaboration, the challenge is great and there are significant roadblocks to developing a robust, integrated digital thread in the U.S. The roadblocks include “establishing true interoperability, the effective and balanced management of intellectual property interests, maintaining network technology and security, as well as advancing machine intelligence, workforce skills, and new organizational cultures that embrace and leverage the ‘digital thread’ to maximize U.S. industrial competitiveness.” (BAA-13-01DMDI)

3. Response – the Digital Lab for Manufacturing

Robust collaboration to solve common problems is a natural way to address complex issues. Such solutions require pre-competitive, enterprise-wide engagement of stakeholders, and deliverables must enjoy widespread adoption to realize the prospective benefits of such collaboration. The *Digital Lab for Manufacturing*, a Chicago-based, UI LABS-led consortium of renowned industry and academic participants offered an innovative, robust, and self-sustaining business model to deliver a fully integrated “digital thread” to the United States, which was selected by the

Government through a competitive evaluation process. It is envisioned, the *Digital Lab* will significantly reduce the DoD's development and deployment costs through facilitating the efficient provision of DoD materiel, while creating billions of dollars of value for DoD and the broader industrial marketplace – improving support to the warfighter, while also spurring long-term U.S. economic growth and job creation. UI LABS, as the recipient of the DoD Cooperative Agreement to support a DMDI Institute, will manage all technical aspects of the DMDI consortium referred to as the *Digital Lab for Manufacturing* (hereinafter “*Digital Lab*”, or “Institute”). The *Digital Lab* will function as a self-governing program within UI LABS. UI LABS' organizational structure is specifically designed to pursue and manage the type of collaborative public-private research projects envisioned for DMDI. The *Digital Lab*'s independent board, composed of members with business, technology and innovation expertise, enables a flexible operation that facilitates collaborative multi-disciplinary projects and industry-academic partnerships.

4. Mission

The *Digital Lab for Manufacturing* will transform American manufacturing, fully integrating the digital thread across the manufacturing enterprise to reduce overall manufacturing costs, stabilize and grow the manufacturing industrial base, and improve U.S. competitiveness throughout the world.

5. Vision

During a Proposers' Day that preceded the solicitation to which the *Digital Lab* is responding, the DoD offered the following vision for the DMDI. As an engaged partner with DoD, the *Digital Lab* shares this same vision and proposes an institute that will:

- Become a national resource to
 - Focus on complex issues in manufacturing
 - Develop solutions to offset the risk to the industrial base in adopting new technologies
 - Improve U.S. manufacturing competitiveness
- Focus on enterprise-wide utilization of the digital thread to
 - Enable highly integrated manufacturing and design of complex products
 - Reduce cost and time
 - Accelerate market place penetration of new products
- Initiate a paradigm shift in the development, production and sustainment of complex systems by accelerating the design-to-production timeline at reduced costs
- Apply digitally networked and synchronized processes and tools that will
 - Result in an open and collaborative environment
 - Sustain and enhance retention of supply chain knowledge
 - Improve the capability to affordably produce low volume, varying demand, complex systems

6. Organization and Management Structure

The *Digital Lab for Manufacturing Consortium* includes a balanced set of diverse stakeholders, including multiple tiers of industry initially comprising 40 corporations and 24 academic institutions, as well as federal and non-federal Government organizations, non-profits, professional societies and trade associations, and manufacturing networks.

The *Digital Lab* is organized to ensure members have the opportunity to provide technical and programmatic direction. Members will enjoy benefits as outlined in the table presented in the Membership section below. There are four primary elements of structure: the Executive Board, the Advisory Committees, the Leadership Team, and Decision Making.

a. Executive Board

An Executive Board consisting of representation from Federal-funding agencies as well as senior management representation from industry, academia, and state and local government members, with tiered representation based on financial and intellectual contributions, will govern the *Digital Lab* consortium. The Executive Board represents the interests of the membership, provides strategic direction expressed in broad policies, offers a clear, future-oriented leadership, outward vision and a broad range of viewpoints. The composition of the Executive Board shall provide representation diversity on behalf of the whole of the organization and the criteria for membership on the board shall include character, talent, and loyalty to *Digital Lab*. During the period of performance of the Cooperative Agreement the Government Program Manager will be a voting member of the Executive Board. The Executive Board will select an Executive Director, who will be a member of that board and who is responsible for the overall management of the *Digital Lab* consortium.

b. Strategic Advisory and Technical Advisory Committees

The *Digital Lab* will include two advisory committees to provide advice and feedback to the Executive Board: the Strategic Advisory Committee (SAC) and the Technical Advisory Committee (TAC). These committees provide a variety of expertise, including: business operations and strategy, science and technology, innovation and commercialization, and education and workforce development, but have no fiduciary responsibilities. The SAC provides guidance to the Executive Director, while the Chief Technology Officer (CTO) coordinates TAC activities.

The SAC is the principal advisory body to provide formal counsel in three main focus areas:

- DoD Focus - Advises on relevance and potential impact of technologies developed within the *Digital Lab* to defense systems.
- DMDI R&D Focus - Advises on scientific and technical merits and degree of innovation of the activities undertaken by the *Digital Lab* and the relevance and potential impact of technologies developed for both other-than-DoD government and commercial applications.

- Innovation Transition Focus - Advises on the transition of innovations into the U.S. manufacturing community and the true commercialization of the advances developed by the *Digital Lab*.

SAC members evaluate performance and integration of the work from applied research projects to development and deployment, give feedback on performance, and provide suggestions to optimize overall impact. The responsibilities of the SAC members are to: have intimate knowledge of Lab activities and strategies; provide constructive and unbiased evaluation; be responsive to *Digital Lab* requests; stay current in the AA, IM, AME fields, and comply with SAC membership terms and conditions such as confidentiality and avoidance of conflict of interest.

The SAC in Year 1 will be comprised of members who are a mix of senior business executives, research thought leaders, and the Government Program Manager or the PM's designee. The senior executives may come from *Digital Lab* Tier 1 Members (see Section 8), but the representatives of these members will never comprise the majority of SAC membership. By Year 2, additional members to the SAC are envisioned, but the ultimate number of members will be established by vote of the Executive Board. During the period of performance of the Cooperative Agreement the Government Program Manager will have a voting seat in the SAC.

To continually infuse the Lab with new thought leadership and reaches into the marketplace, members will be rotated off after they serve a 3-year term and replaced with new members, starting with rotating three members off in Year 3 and continuing this process annually. New members are selected by the *Digital Lab* Executive Board with vetting from the Executive Director and his or her direct reports. The SAC will meet within the "First 100 Days" of award in person, and again six months after that in person. Following Year 1, the SAC will meet semi-annually, with one of the meetings in person.

Synergistically, the TAC focuses on ensuring that the most relevant and high-quality projects are being pursued in order to achieve *Digital Lab* objectives. The main focus areas for the TAC are (1) applied research and technology in AA, AME, and IM to ensure that the most relevant and high-quality R&D are being pursued in order to achieve objectives and (2) identifying and reducing barriers to commercialization. TAC members work together to advise the CTO to ensure projects are redirected when appropriate, feed in new opportunities as they are scanned from the commercial horizon, and propose actions to enable rapid innovation and commercialization. The TAC will evaluate the proposals and recommend the slate of projects to be funded to the Executive Board.

The TAC will initially be composed of one appointee from each Tier 1 and Tier 2 member, academic members committing to at least \$10 million in cost share over five years, as well as representatives from SMEs and state and local government, as determined by the Executive Board. The TAC will include Federal Government Subject Matter Experts as voting members for the period of performance of the Cooperative Agreement at a minimum. The proposed appointees must have subject matter expertise

relevant to DMDI. The TAC may expand at the direction of the Executive Board. New members will be vetted by the TAC and SAC, and voted on by the *Digital Lab* Executive Board. Just as with the SAC, members are rotated off at a rate of three per year starting in Year 3. This ensures a steady infusion of advisors into current operating projects and future project allocations.

c. Leadership Team

(1) Executive Leadership

- **Executive Director** – Responsible for overall management of the *Digital Lab* including authority to make decisions and/or sign documents on behalf of the consortium, under the direction of the Executive Board. Skills required - Executive management skills (financial, technical, and operational); decision-making skills; ability to receive and disseminate guidance; ability to delegate responsibilities and oversee actions; communication skills to serve as primary point of contact for the Government and communicate activities and successes with partners, stakeholders, and the public
- **Chief Technology Officer** – Responsible for ensuring that the technical direction of the *Digital Lab* is consistent with Executive Board and stakeholder expectations. Skills required - Directional, management, and oversight skills within the AME, IM and AA technology arenas
- **Business Operations Director** – Responsible for the overall business operations of the *Digital Lab* including supervision of the Consortium Manager. Skills required - ability to direct and oversee project controls, procurement, financial management, contract administration, facilities and infrastructure, and IP

The *Digital Lab* Executive Leadership Team will interact proactively with DoD stakeholders, member organizations, and program stakeholders through regular meetings, calls, industry events, a *Digital Lab* website, an annual conference, and other means.

(2) Second Tier Leadership

The Executive Leadership Team will be supported in their management and supervision of the *Digital Lab* by second tier leaders who will manage the day-to-day execution of *Digital Lab* operations. These positions include:

- Director, Digital Manufacturing Commons
- Director, Technology Transition
- Director, Project Management & Integration
- Manager, Workforce Development & Education
- Manager, Cyber Physical Systems Security
- Manager, Business Development & Transition
- Manager, Digital Infrastructure
- Manager, Community Management
- Technical Thrust Leads

- Principal Investigators

d. Decision-Making

The *Digital Lab* elicits input from consortium members, operational and technical management staff, and the SAC and TAC for key decisions in areas of membership, operations, capital investments, project selection, funding allocation, and progress towards self-sufficiency. As will be outlined in the forthcoming Articles of Collaboration, the Executive Board retains ultimate decision-making authority with regards to key decisions. Decisions will be communicated via the Cooperative Agreement, Articles of Collaboration, the Strategic Investment Plan, other applicable agreements, and the collective wisdom and judgment of the Executive Board. Such decisions are recorded as Executive Board resolutions or modifications or amendments to applicable documents. The decisions are intended to align with the *Digital Lab* mission objectives. Fundamental to the consortium's success is the active participation of a robust and growing membership (see Section 8 for a discussion of the tiered membership structure). The membership process will balance legal safeguards with a lean, efficient operations organizational model. Consortium membership is open to all interested eligible organizations (eligibility restrictions will be based on Government requirements [e.g., U.S. companies only] and dues-based membership), subject to vote by the Executive Board.

7. Business Operations

Building the foundation for the *Digital Lab* relied heavily on its Founding Members. They have worked tirelessly to develop an organizational construct and operations plan that assure the ability of the *Digital Lab* to begin executing on Day 1 and become a world class, self-sustaining organization by Year 5. Certain market and organizational attributes foretell the probability of success of an R&D consortium. These attributes may include, but are not limited to:

- A market need that cannot be reasonably met by a single entity alone
- Robust cooperation among prospective members in developing the consortium "plan"
- Willingness of members to put "skin in the game" to achieve end results
- Early identification and acknowledgement of a common goal or set of goals and common understanding of actions necessary to achieve success

The market need is clear and the *Digital Lab* consortium has all of the attributes that will lead to its emergence as a world-class digital manufacturing asset to the U.S. manufacturing enterprise.

a. Formation

Digital Lab stand-up activities will be conducted in parallel with the early research projects so as to not waste a single day in advancing and integrating the digital thread. During these "First 100 Days," the *Digital Lab* membership will execute internal agreements (e.g., the Articles of Collaboration, draft provided at the end of this description) to formally define the Institute governance and relationship of the members

and provide guidelines for Institute operations. An entity formally joins the *Digital Lab* as a member upon agreeing to the Articles of Collaboration and remitting the required resource commitment. The membership categories and associated benefits of membership are detailed in Section 8 Membership. The current *Digital Lab* team is comprised of a diverse, yet balanced, core of founding members. These leading digital manufacturing enterprise stakeholders include 40 industrial members, 24 academic members, and numerous state and local government organizations, as well as non-profits, professional societies and trade associations, and manufacturing networks. Upon award, the *Digital Lab* will formally incorporate Federal Government partners as key stakeholders in the enterprise. A significant number of additional original equipment manufacturers (OEMs), technology companies, small and mid-sized enterprises (SMEs), and suppliers have expressed interest in joining the Institute after the award is announced; more than 500 additional companies and organizations have indicated their support and interest.

The *Digital Lab* will be governed by an Executive Board comprised of elected representatives from UI LABS and member organizations (see also Section 6.a.). The allocation of seats on the Executive Board will be based on an allocation methodology that is representative of the Institute composition and based on financial and intellectual property contributions to the *Digital Lab*. The Executive Board will elect a Chairman and a Vice-Chairman, each to serve for a term of two years. Four of the initial board members will have a one-time 3-year term to provide continuity during consortium startup and to establish an annual rotation cycle of approximately one-half of the board members. The Government PM will be a member of the Executive Board for the duration of the Cooperative Agreement at a minimum.

In parallel with formally establishing the board, the *Digital Lab* will formally file notification of its establishment with the United States Department of Justice and the Federal Trade Commission, for publishing in the Federal Register pursuant to the National Cooperative Research and Production Act (15 USC 4301). Periodic updates to this filing will be required through the life of the *Digital Lab* to reflect membership changes.

b. Strategic Investment Plan and Core Business Lines

The *Digital Lab* focuses on commercialization through the launch of three core business lines – Applied Research, Technology Transition, and the Digital Manufacturing Commons – and supporting functions. As indicated earlier, the three proposed applied research projects will kick-off soon after award. These three projects, one each in the areas of AME, AA and IM, are foundational in that they will provide return on investment, demonstrate the project operating model of the consortium, and ensure technical progress in parallel with establishing the *Digital Lab* operating model and infrastructure.

In addition, the *Digital Lab* will enlist broad membership and external stakeholder participation to develop and deliver its Strategic Investment Plan (SIP) to inform the applied research and development activities of the Institute in future years. The SIP will

be developed using a sophisticated set of research planning tools used to develop tailored, consensus-driven, industry-prioritized R&D 'Roadmaps' (aka Investment Plans, Master Research Plans, Annual Program Plans, or other similar titles) to direct specific project efforts. The project efforts are designed to use the Institute's strengths and expertise to enable large OEMs, academia and SMEs to work in concert with one another. The process for development of the *Digital Lab* SIP is tailored to the digital manufacturing enterprise and the mix of stakeholders who develop and use the output. It will define consensus among critical stakeholders on integrated priorities. The development process will produce a living, working action plan to focus resources of the enterprise on a manageable solution path. The strategies within will be built as business plans and include strategy definition, mapping to an execution plan, and an execution timeline. The SIP will provide a strategic plan and top-level investment portfolio – integrating capability advancements with a sound business plan. The approach will develop joint priorities for digital manufacturing gaps and solutions at a level of detail that provides:

- Enterprise consensus on digital manufacturing capability gaps, solution priorities and barrier mitigation strategies based on end-user requirements
- A common taxonomy among industry, government and academia
- A clear problem definition/common framework for parallel, distributed solution development projects
- A transition path for ensuring appropriate R&D is implemented in DoD programs
- A collaboration infrastructure tailored to the specific demands of digital manufacturing – including the scientific research, tool development, interoperability standards and the business case under which stakeholders in government, industry and academia will function as a committed team

The development process is designed to build a sense of mutual ownership by members and stakeholders who then must cooperate in subsequent project execution to meet the prescribed expectations.

With the SIP concluded and the initial research projects in progress, the *Digital Lab* will focus on rapidly launching the next phase of the research agenda - leveraging member capabilities, facilities, and personnel while building a lean research institute with in-house expertise focused on rapid commercialization of technology from TRL 4-7.

In the first and primary business line, the *Digital Lab* will conduct DoD and industry-relevant **Applied Research** projects. "Enterprise-wide projects" involve developing and transitioning technology to meet needs of multiple members, while "corporate interest projects" support company-specific needs. Both types of projects will be evaluated and selected for success potential against clear performance criteria set forth in the SIP, and then conducted on behalf of the entire consortium and on contract for specific members. The *Digital Lab* will manage the solicitation, selection, and award process for projects with final approval authority resting with the Government Program Manager. Upon attaining all levels of approval, projects are executed using in-house, contracted, and in-kind-provided researchers. Successful projects will be transitioned to the commercial business lines to transfer technology to the market.

To commercialize the results/products of the Applied Research projects, the *Digital Lab* will offer two additional business lines to translate ideas and capabilities from applied research into revenue-generating products and services. These include the:

- The **Digital Manufacturing Commons (DMC)** is an industrial commons and online marketplace for workflow collaboration and business transactions, bringing together thousands of SMEs, manufacturing companies, software providers, research institutes, and universities to collaborate on manufacturing and to accelerate technologies that integrate the elements of the digital thread. The DMC is a unique approach to digital design and manufacturing that will integrate the manufacturing ecosystem for real-time product, process, and performance data sharing from the engineer's desk to the shop floor manager to machine data and part maintenance. The *Digital Lab* approach is unique in offering an open source solution as an honest broker third party. This approach has been proven successful in parallel industries and can revolutionize manufacturing and design by unlocking the digital thread. The DMC will allow transactions and collaboration to occur around the design and manufacture of a part or assembly, integrating a comprehensive 3D technical data package (TDP) across the product lifecycle. The growth of this platform will build on existing DARPA federal investment into collaboration software. The *Digital Lab*'s Director of the DMC (a second tier leadership position, as listed in Section 6.c.(2)) will ensure the growth and viability of the DMC community.
- **Technology Transition** provides fee-for-service manufacturing services projects (e.g., digitizing a factory, modeling and simulation), support for licensing and new venture formation, and education and workforce development programming to enhance manufacturing company capabilities and integrate products and processes resulting from applied research projects into the marketplace. To manage these services, the *Digital Lab* will employ a business development team and project managers. When appropriate, it will contract to members to execute services within their core competency (e.g., connection to NCSA and other vendor members). The Director of Technology Transition (again, a second tier leadership position, as listed in Section 6.c.(2)) will identify priority services that would be easily replicable as a solution to translate research to multiple members.

Additionally, licensing and venture activities allow capitalization and external commercialization of promising research and innovation. The *Digital Lab* commercialization activities will rely heavily on the distinctiveness of the consortium's research and the ability to connect research projects to opportunities for technology transition through licensing and spinoffs. The *Digital Lab* will create an industry-driven manufacturing career framework that builds the workforce needed to mobilize applied research outcomes onto the factory floor by: building digital manufacturing awareness and competency, defining the digital manufacturing skill set, re-tooling and retraining incumbent workers, strengthening the future supply chain, and fostering future digital

innovators.

c. Intellectual Property Management

To sustain robust participation and recruit new and innovative companies to the Institute, the *Digital Lab* must capably manage the Institute's and members' intellectual property (IP). The *Digital Lab* has developed a robust concept of operations for managing IP. These IP principles have been derived and consolidated from the best practices of its prospective member entities regarding the treatment and protection of IP within federally funded and cost-share supplemented consortia. These principles have driven the framework for the *Digital Lab*'s IP Management Plan. From this framework, the plan will be finalized in the first 100 days and will encompass the IP requirements outlined within the Cooperative Agreement. If there are any conflicts in the Cooperative Agreement and the Governance Plan, the Cooperative Agreement guidelines will take precedence. The plan is not a one-size-fits-all approach, but is flexible to accommodate the different relationships and technologies within the consortium.

Representatives from prospective members (both industry and academic) reached consensus on the basic tenants of the IP Management Plan prior to submission of the *Digital Lab*'s response to BAA-13-01DMDI. Policies and Procedures with regard to Intellectual Property are described in the Intellectual Property Plan. This framework will inform the detailed IP Management Plan to be developed during the first 100 days after award and for review by each member's legal counsel to ensure that the plan appropriately incentivizes membership. The established IP policy will be vetted by an IP Advisory Panel and approved at the Executive Board level. An approved Plan is anticipated within 9 months of award.

The IP Manager, reporting to the Business Operations Director, implements the IP Management Plan and will receive support from the IP Advisory Panel that offers IP advice for the *Digital Lab*, meets semiannually, and reports to the Executive Board.

The *Digital Lab* IP management goal is to have sufficient access to IP to survive, sustain, and grow, as well as provide members appropriate access to rights to develop products for their competitive advantage. In order to obtain this goal, and based on the members' considerable experience within IP management, the *Digital Lab* will institute an IP Management Plan with these overarching highlights:

- Commercialization rights for partners, with a portion of the revenue from commercialization of project-generated IP directed to the *Digital Lab* to be applied to funding of future research projects.
- All prospective consortium members have agreed to contribute (by license or otherwise) background IP on projects where relevant and appropriate.
- IP created through the *Digital Lab* is free and accessible for members for internal use depending on their membership tier level.

d. Consortium Management

The *Digital Lab* has executed a Management Services Agreement with a professional

consortium management firm to serve as the Consortium Manager for this program. Employing a professional consortium management firm with extensive DoD consortia establishment and management experience from the outset is a key differentiator that will ensure the *Digital Lab* execution readiness. The consortium manager will support the *Digital Lab* leadership in the following ways:

- Interface with the Government contracting organization under supervision of Executive Board
- Support the Executive Director as the principle point of contact of the *Digital Lab* to the Government
- Award projects in accordance with Government/*Digital Lab* Executive Board direction
- Provide financial, accounting, audit and other administrative services
- Provide a funding mechanism for *Digital Lab* member reimbursement for authorized expenses and payment of vendors for goods and services received
- Establish, as needed, experienced teams to conduct SIP and Annual Research Plan development and document results for dissemination to members and the Government client
- Establish protocol/procedures for technical and other consortium information dissemination to meet the requirements of the Executive Board and at the same time maintain confidentiality for member technical and business data
- Support consortium operations by providing source selection services, contracting services, purchasing and auditing services, IP Protection & Ownership Issue Handling services
- Serve as the trusted, objective agent representing both the consortium members and the Government interests
- Provide status updates through Executive Board meetings and correspondence, general member meetings, periodic business and technical reports, presentations, website hosting and other means
- Provide project cost accounting to support Government audit requirements
- Support, as needed, the Executive Board, Executive Director, Chief Technology Officer, Business Operations Director, and Advisory Committee Chairs
- Assist the *Digital Lab* in recruiting SMEs and other industry and academia participants in the *Digital Lab*
- Assist proposal teams in submitting compliant proposals to technical reviews and minimize associated award delays and costly rework

The *Digital Lab* has selected Advanced Technology International, doing business as SCRA Applied R&D (hereafter “SCRA”), as the Consortium Manager. SCRA has significant R&D consortia management experience and their federally-approved procurement, contracting and accounting systems are designed specifically for managing multi-member geographically-distributed programs. Further, SCRA’s experience managing consortia offers DoD, UI LABS, and *Digital Lab* consortium members the confidence and assurance that these functions will be carried out in complete compliance with federal regulations and procedures. Each program structure is tailored to track budgets by Work Breakdown Structure (WBS) element (e.g., task, subtask) and cost account (e.g., labor, materials, and other direct costs). This structure

provides easily-auditable transparency of costs and clarity of how all funds are budgeted, obligated and expended.

e. Project Development, Funding and Execution

The *Digital Lab* operations focus on commercialization through the launch of three core business lines and supporting functions. Initially, the *Digital Lab* will focus on rapidly launching its research agenda leveraging member capabilities, facilities, and personnel while building a lean research institute with in-house expertise focused on rapid commercialization of technology from TRL 4-7. In the first and primary business line, we will conduct DoD and industry-relevant applied research projects. Enterprise-wide projects develop and transition technology to meet needs of multiple stakeholders, while corporate interest projects support company-specific needs.

The *Digital Lab* business development and technology policies, procedures, and infrastructure are flexible to support agile business lines designed to respond to industry and DoD needs over time and facilitate transition of innovation into manufacturing products and services. The *Digital Lab* will employ competitive processes to act as an object agent for project solicitation and review, balancing potential for commercialization with investment risk and alignment with objectives.

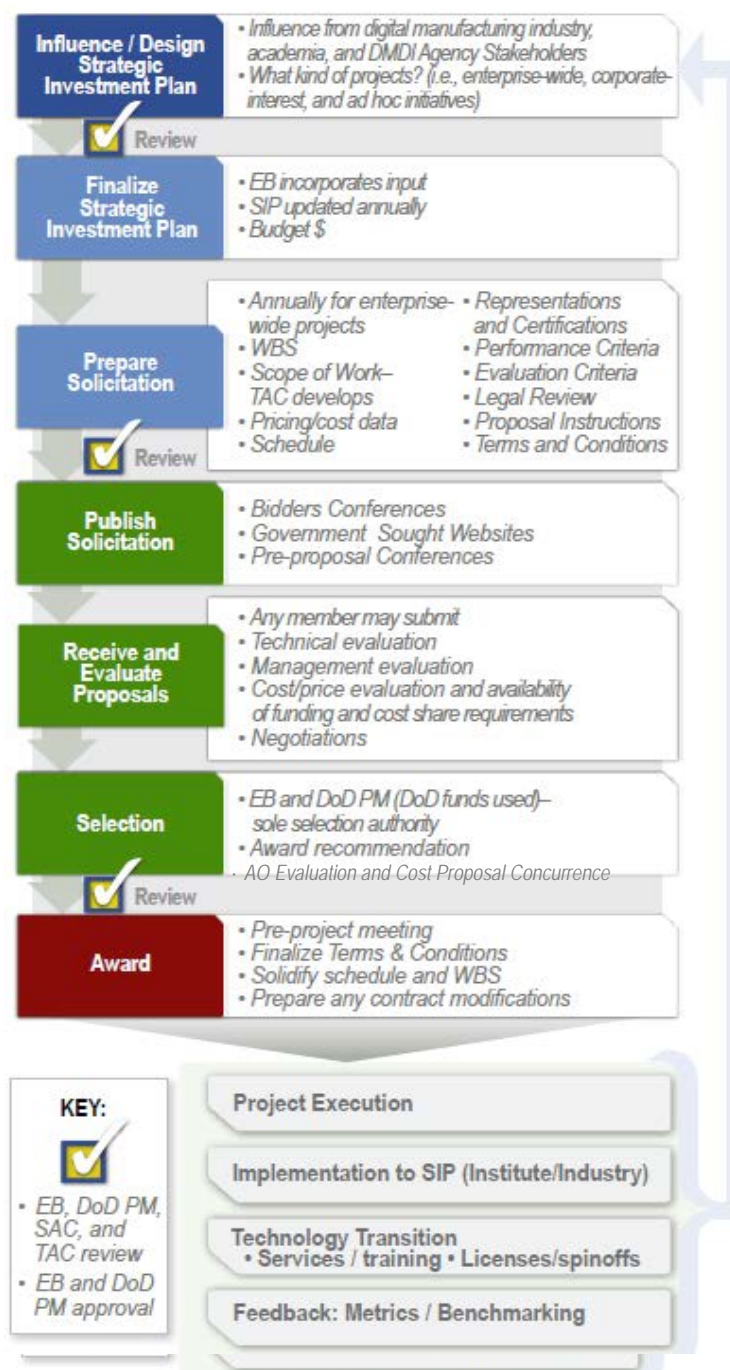


Figure 1. The *Digital Lab* Process for Project Selection.

(1) Influence/Design Strategic Investment Plan

The Digital Lab model is based on a concept of operations that is a proven, successful

method for soliciting, selecting, and awarding cost-shared applied R&D projects, by managing and focusing digital thread applied R&D funding on technologies that will reduce time and cost of the product development cycle. This public-private partnership approach provides a collaborative framework to improve digital thread-related technical and business processes and speed implementation into the marketplace.

The greatest portion of industry and government funding for this Program is invested in applied R&D projects. A key design aspect of the Digital Lab is the collaborative framework and proactive distribution of knowledge gained through projects and studies throughout the industry. Teams consisting of multiple industrial partners, suppliers, academia, and other supporting organizations are encouraged. Periodically, at the request of DoD or industry, ad hoc groups may be established to focus efforts on specific target areas in the digital design and innovation arena. These ad hoc groups are quickly instituted to include key stakeholders of the focus area, carry out their task and are disbanded when required actions are complete.

Program operations originate with DoD and DMDI stakeholders (through the Management Working Group, initially and then through the Technical Advisory Committee) providing recommendations on consensus priority issues as related to the Digital Lab's mission and objectives. These consensus priority issues will be developed during a planned road mapping activity at the onset of the Digital Lab to catalog and prioritize digital design and innovation challenges at a level sufficient to define capability gaps, identify barriers to rapid progress, articulate key use cases and develop an integrated, prioritized action plan to focus the resources of the Digital Lab enterprise. The outcome of the roadmap will inform and provide the basis for the Strategic Investment Plan (SIP). We anticipate the road mapping effort will conclude within the first few months and the first SIP to be finalized within the first 6 months. During this time, projects beyond the first 3 proposed will be reviewed and decisions will be made regarding solicitation and award. This will allow the Digital Lab to continue to invest in projects during the road mapping and SIP process. The initial design of the SIP will be reviewed by the Executive Board (EB) and other key stakeholders to ensure it meets the intent of the Digital Lab and DMDI constructs.

(2) Execution and Oversight

(a) Finalize Strategic Investment Plan

Upon approval of the SIP design, the EB will incorporate all input and create the final SIP. Budget considerations are also taken into account and incorporated into the SIP to notionally place investment dollars against defined SIP initiatives.

The SIP then directs the project selection process for enterprise-wide projects and defines relevant ad hoc initiatives, corporate interest projects and lab-generated projects (services, etc.). These projects and initiatives are carried out within industry/academia through the execution of projects, panel meetings and conferences, dissemination of project results and the implementation of technologies and processes. Lab-generated products also form the basis for service lines that become revenue

sources for the Lab. This output is then relayed to DoD and industry stakeholders, who incorporate the results with their recommendations.

It is envisioned that the SIP be reviewed annually at a minimum and updated accordingly. The EB will approve all versions of the SIP. The EB, consisting of senior management representation from the members, governs the solicitation, selection, and award process. Technical projects, enterprise-wide, ad-hoc, corporate interest or others will be brought before the EB by the Technical Advisory Committee for EB review, association to the SIP and ultimate approval. Additionally, any project utilizing government funding will require government approval. The Executive Director is responsible for the overall management of the Digital Lab consortium.

(b) Prepare Solicitation

It is envisioned that the Digital Lab will annually solicit proposals for applied research and technology development to meet the goals outlined in the Strategic Investment Plan. The Digital Lab will initiate and coordinate development of a draft project planning document (PPD) by engaging teaming partners, DoD points of contact, and other stakeholder parties. The PPD will include: executive summary; background and need; goals and objectives; expected benefits; technical scope/approach and plans; statement of work; schedules, milestones and completion criteria; deliverables; risk assessments; quality plans; detailed cost and budget proposals; investment cost sharing plans and cost leveraging summaries; and technology/solution transition, deployment strategies and implementation plans.

The Digital Lab will obtain review and buy-in from critical stakeholders to ensure they concur in the approaches and modify as necessary. Each PPD will be reviewed and approved by the TAC, DoD program office and necessary technical authorities to ensure the project aligns with DMDI needs and requirements.

Additionally, other necessary documentation for proposers will be contained in a Proposal Preparation Kit – Representations and Certifications, Performance Criteria, Evaluation Criteria, Legal Review requirements, Proposal Instructions and Terms and Conditions.

(c) Publish Solicitation

Digital Lab solicitations will invite specific proposals to implement new or improved digital manufacturing processes, methods, techniques, or equipment into the DMDI domain, with a firm requirement that projects must directly address the DoD program office priorities consistent with the approved PPD and SIP. Proposals will be solicited by direct electronic delivery to the Digital Lab members. The solicitations might be single or multi-topic Request For Proposals (RFP) as appropriate for the solution set sought.

Solicitations will be announced on the Digital Lab website. To the degree necessary, bidders' conferences and pre-proposal conferences may be conducted. Specifics on

technical and cost proposal requirements will be available in the Proposal Preparation Kit, and the Consortium Manager has a full submission and selection process for projects already in place (proposal screening, technical evaluation panels, EB decision, proposal team notification, final cost analysis and award) and which will be amended as necessary to adhere to the Digital Lab program requirements.

Given the detail predefined in the PPD, a 30-day response time is anticipated but can be extended if the nature of the problem and scope of the RFP dictates.

(d) Receive and Evaluate Proposals

Any Digital Lab consortium member may submit individually or as a team to solicitations.

The Digital Lab will organize, facilitate, and execute a rapid, flexible process to solicit, evaluate and recommend project proposals to the EB and DoD PM. The selection process for proposals received in response to the solicitations will emphasize digital thread (AM, IM and AME) and life cycle cost reduction and the reduction of risk inherent in transition from research and development to production as a primary consideration for each project.

Proposals will be evaluated against standard technical and cost evaluation factors following the Consortium Manager's established source selection processes. The best value decision will permit appropriate tradeoff of technical and cost factors. Since project planning documents have already been reviewed and approved by the Technical Advisory Committee, the technical evaluation performed during the source selection will be abbreviated.

The evaluation factors proposed include Qualification Factors (i.e., for the initial screening process), Critical Technical Factors, Discriminating Factors, Cost Factors and Transition Plan. Cost Factors will be in part based on funding availability and cost-share requirements.

Discriminating factors will be of less importance than the critical factors. Discriminating factors will include adequacy of addressing human resource issues, cost share (quality & quantity), and breadth of applicability.

A comprehensive cost analysis (including cost reasonableness and cost realism) will be performed by the Consortium Manager team that performs these functions for several other SCRA Applied R&D manufacturing technology programs, including shipbuilding. This staff is very familiar with labor rates and government procurement requirements and will provide filtered information to the technical evaluators to facilitate a cost reasonableness/realism input from people who understand the technology and its implementation.

(e) Selection

While DoD will be invited to participate directly, the results of the selection process will be submitted to DoD for final approval. Selection, as indicated above, will be at the sole discretion of the EB and ultimately the DoD Program Manager (PM).

The Digital Lab will prepare and deliver in a timely manner a detailed Project Plan to the DoD PM for each project approved by the Digital Lab team and EB. Contained in this package is a robust spectrum of perspectives, to include:

- Project Plan/Technical Proposal,
- Technology Transition Plan (TTP),
- Subcontractor Cost Proposal,
- UI LABS Cost Proposal,
- Consortium Manager Technical Analysis of the proposed effort (including reviews/negotiation points),
- Consortium Manager Cost Analysis (including appropriate backup documentation), and
- Consortium Manager Travel Analysis of per diem rates, car rental, and airfare.

The DoD PM will review the technical content, cost, schedule, and deliverables and recommend modifications, as appropriate.

(f) Government Approval Process

There are three scenarios for evaluation and selection of applied research projects. First, there are the normal project calls that the Institute will undertake as a part of the normal business of the organization. Second, there are project calls from external government customers who come to the Institute with technology and funding for the purpose of having the Institute host a call for projects to mature and transition that technology. Third, the Institute will host commercial project calls. It is envisioned that these projects will be evaluated and awarded in accordance with the provisions stated below.

The DoD Program Manager (PM) will have final approval authority on projects involving government funds. The PM will have a seat on the institute's Executive Board and government subject matter experts will have seats on the Technical Advisory Committee.

- Institute Project Calls

In order for the government to ensure the cost of these project calls is fair and reasonable, each project will need to be authorized by the Agreements Officer through a modification to the Cooperative Agreement before work commences.

The projects will be selected by the Institute. Once a project is selected, the Institute will provide a SOW, cost proposal and supporting cost documentation to the PM. The PM will perform a technical evaluation of the project's SOW and provide concurrence for the funding of the project to the Agreements Officer.

The Agreements Officer will evaluate the proposed cost and supporting cost documentation similar to the criteria outlined at Exhibit A (Request for Project Approval) for the project and document these costs in a Business Clearance Memorandum (BCM). Approval for the cost of the project and authorization will be provided through a modification to the Cooperative Agreement. Digital Lab's Executive Director will serve as the point of contact for questions/clarifications. The modification will address the following:

- Authorization for the Institute to perform the identified project
- Total cost of project
- Total Government share amount of project
- Total Institute's share amount of project
- Remaining amount of the Government ceiling available for other projects
- Remaining amount of the Institute's share available for other projects
- Period of Performance of the project
- Incorporation of the SOW for the project by attachment to the Cooperative Agreement

- Project Calls from External Government Customers

The project calls and funding from external Government customers may constitute an increase to the Cooperative Agreement ceiling amount. The cost of these projects will be evaluated by the Agreements Officer.

Once a project is selected, the Institute will provide a SOW, cost proposal and supporting cost documentation to the PM. The PM will perform a technical evaluation of the project's SOW and provide concurrence for the funding of the project in a requirements package to the Agreements Officer.

The Agreements Officer will evaluate the proposed cost and supporting cost documentation for the project and document these costs in a BCM. Approval for the cost of the project and authorization will be provided through a modification to the Cooperative Agreement. Digital Lab's Executive Director will serve as the point of contact for questions/clarifications. The modification will address the following:

- Authorization for the Institute to perform the identified project
- Increase in Government ceiling and funding amount
- Total cost of project
- Total Government share amount of project
- Total Institute's share amount of project
- Remaining amount of the Government ceiling available for other projects
- Remaining amount of the Institute's share available for other projects
- Period of Performance of the project

- Incorporation of the SOW for the project by attachment to the cooperative agreement

- Commercial Project Calls - “Corporate Interest Projects”

The cost of the commercial projects will not include government funding and will not require authorization from the Agreements Officer. However, the PM will have input on the commercial projects to ensure that these projects are within the scope of the DMDI program.

The commercial project calls, “corporate interest projects” are separate transactions and are not included into the total cost share calculations.

(g) Award

Funds are distributed to Digital Lab participants through subcontract awards managed by the Consortium Manager. Subcontract awards are made to those activities submitting the best value proposals that meet the evaluation criteria, emphasizing benefits to the industry and conformance with the strategic direction of the industry and SIP.

Following notification of project approval, the Digital Lab will negotiate and award subcontracts as necessary with the designated project team members. The Digital Lab’s Consortium Manager has a dedicated and experienced staff that efficiently and effectively negotiates and awards subcontracts consistent with the approved project plan. Upon approval by DoD PM, the Digital Lab (via the Consortium Manager) issues individual Task Orders against pre-negotiated agreements with the identified project team authorizing commencement of work. Task Order agreements that clearly define technical deliverables are a central element of each project's contract. Along with the SOW, deliverables are used to measure progress, to justify payments and to determine how successfully a project is progressing. As with the SOW, the Consortium Manager Contracts team (working with the Digital Lab technical staff) must negotiate and incorporate the contract deliverables schedule, the associated Completion Criteria and, for multi-phase projects, a metric for the Go/No-Go decision prior to proceeding to the next phase of the project.

(3) Technical Performance Monitoring

The Director of Project Management and Integration will monitor technical performance of each Project Agreement issued by the Consortium Manager. Project recipients will submit Quarterly Technical and Business Status Reports to the Consortium Manager; they will be provided to the CTO, Business Operations Director and Government Program Manager, if applicable. The CTO will monitor technology advancements and conduct technology reviews with the business line managers at least annually. Technology advancements will be summarized annually by the CTO for reporting to the *Digital Lab* Executive Board.

(4) Member Payment

The Consortium Manager will make NET 30 payments to consortium members against invoices submitted for work performed in support of the *Digital Lab* based on the member's preferred payment method (e.g., electronic funds transfer, check, etc.) selected during its application process. It is anticipated that invoices will be submitted by consortium members on a monthly basis to facilitate maintenance of up to date cost and expenditure data. Member's invoices will be processed by:

- Evaluating the invoice to verify compliance with the applicable terms and conditions of the member's sub-agreement (e.g., is the project name, number, etc., properly identified on the invoice to assure accurate segregation of Institute expenditures, are the costs incurred within the contracted period of performance, are there sufficient funds for payment, is appropriate backup documentation included, etc.)
- Routing the invoice for reviews to be completed by the appropriate Institute representatives for technical, financial, and contractual matters. This is done to ensure payment for acceptable services/goods provided in direct support of the member's Statement of Work (SOW), and to provide these parties real-time information regarding funding expenditures
- Providing payment to the consortium member for the charges deemed acceptable through the above process using industry-standard NET 30 payment terms.

The Institute's expenditures will be captured in a monthly invoice to be submitted to the Government by the Consortium Manager. Invoice submissions are captured within the requirements of the Cooperative agreement.

(5) Cost Sharing

Cost share contributions will be reported on a calendar quarterly basis using a SF 425 "Federal Financial Report". The Consortium Manager, with support from the appropriate technical representative, will receive and review each cost share report for accuracy and if allowed in accordance with DODGARS' cost share provisions. In doing so, the Consortium Manager will make determinations regarding the cost share item's compliance with DODGARS, while the technical representative will confirm that the cost share item directly supports the Institute's objectives. Cost share contributions will be tracked separately from federal funding expenditures to ensure accurate reporting and compliance with regards to the prime agreement's cost share requirements.

For Institute projects, member sub-agreements will include cost share requirements based on the type and degree of cost share committed by the member in its accepted proposal, and acceptance of their invoice for costs incurred will be contingent upon the invoice including an associated cost share report.

For Institute operations requiring cost share, the Institute will rely upon the cost share commitment letter provided by the member as part of UI LABS' original proposal submission to the Government. The Consortium Manager will use the same general

approach described above to ensure the cost share provided is allowable and directly supports the Institute's objectives.

Members that do not comply with cost share requirements may be subject to payment garnishment commensurate with their cost share deficit. For instance, if a member's cost share requirement is 1:1 and their current invoice reflects a cumulative total of \$10,000 federal funds incurred, their cumulative cost share contribution to-date must meet or exceed \$10,000. To continue this example, if the cost share contribution to-date were only \$7,500, then the payment from the Institute would also be \$7,500 even though \$10,000 in federal funds were incurred. Cost share contributions in excess of the ratio required by the member's sub-agreement are not grounds for additional payment using federal funds. Members will only be reimbursed for actual costs incurred, provided the sub-agreement's funded amount has not been exceeded and cost share requirements have been met.

(6) Technology Transfer

The *Digital Lab* strategy for transferring innovative technologies developed in applied research focuses on three areas: research project selection and execution to maximize potential technology dissemination; quick deployment of research products among a broad member base through IP sharing and participation in projects; and targeted business lines and functions, including education and workforce development, to bring technology and innovation to market. These channels lower cost of technology transfer, reduce the startup risk, and ensure rapid deployment of technology across the U.S.

8. Membership

There are three (3) fee-bearing tiers for Industry Membership of the *Digital Lab* for Manufacturing Consortium and another tier that does not require payment:

- Tier 1 Industry Member – requires \$400,000/year membership fee and commitment to five year membership and at least \$3 million in matching project commitment
- Tier 2 Industry Member – requires \$200,000/year membership fee and commitment to five year membership
- Tier 3 Industry Member – requires membership fee OR in-kind contribution OR provide cost-share for projects (at 1:1) and commit to capacity building
- Other/SME Member (Free Tier) - requires registration and participation in the Digital Manufacturing Commons

Membership Level	Benefits	Commitment
Tier 1 Industry Member	<ul style="list-style-type: none"> Executive Board Seat <ul style="list-style-type: none"> Provide input to SIP Set research priorities / select enterprise- wide projects (based on TAC recommendation) IP Rights per IP Management Plan One representative on the TAC Attendance at all events Networking 	<ul style="list-style-type: none"> \$400,000/yr. 5 yr. Commitment Minimum \$3MM in matching project commitment over 5 years
Tier 2 Industry Member	<ul style="list-style-type: none"> Executive Board Representation (at least 1 seat to represent all Tier 2 Members) <ul style="list-style-type: none"> Provide input to SIP Set research priorities / select enterprise-wide projects (based on TAC recommendation) IP Rights per IP Management Plan One representative on the TAC Attendance at all events Networking 	<ul style="list-style-type: none"> \$200,000/yr. 5 yr. Commitment
Tier 3 Industry Member	<ul style="list-style-type: none"> Executive Board Representation (at least 1 seat to represent all Tier 3 Members) <ul style="list-style-type: none"> Provide input to SIP Set research priorities / select enterprise-wide projects (based on TAC recommendation) IP Rights per IP Management Plan Attendance at all events Networking 	<ul style="list-style-type: none"> Nominal membership fee OR in-kind contributions OR provide cost share for projects (at least 1:1) Commit to Capacity Building

Community Member	<ul style="list-style-type: none"> • Access to a network of customers and vendors • Opportunity to get first look at latest digital manufacturing technologies • Access to unique service offerings at <i>Digital Lab</i>, including workforce training opportunities 	<ul style="list-style-type: none"> • Free to any entity (i.e., SMEs, non-profits, universities/ colleges, chambers of commerce) that wants to participate
Academic Member	<ul style="list-style-type: none"> • Executive Board Representation (at least 1 seat to represent all Academic Members contributing at least \$10M overall qualified match) • One representative on the TAC • IP Rights per IP Management Plan • Attendance at all events • Networking 	<ul style="list-style-type: none"> • No minimum • Award of project funding requires at least 1:1 cost-share commitment
Government Member (Non-Federal)	<ul style="list-style-type: none"> • Executive Board Representation (at least 1 seat to represent all Government Members contributing at least \$20M in overall qualified match) • Attendance at all events • Propose/participate in enterprise-wide research • Networking 	<ul style="list-style-type: none"> • No minimum
Federal Government Member	<ul style="list-style-type: none"> • Attendance at all events • Executive Board representation • Strategic Advisory Committee representation • Subject Matter Experts representation on TAC 	<ul style="list-style-type: none"> • n/a

9. Governance

Although not formally incorporated, the *Digital Lab* will be governed using the guiding principles and sound business practices of major U.S. companies. Members of the *Digital Lab* consortium will agree to Articles of Collaboration that will set forth rules by which the consortium will be governed. These Articles are intended to protect the common interests of consortium members while providing maximum flexibility to carry out the intended purpose of the consortium. The *Digital Lab* combined Articles of Collaboration/Consortium Membership Agreement establish a governance structure that

meets the needs of its members while allowing it to meet the mission, vision and goals of the organization.

Exhibit A Request for Project Approval

DATE

ADDRESS

Attention:

Subject: Request for Project Approval for XXX Proposal

Dear _____:

As requested by the Government, UI LABS has performed a detailed cost/price analysis of Contractor's cost proposal. UI LABS has deemed Contractor's costs reasonable. Enclosed are the following: the basis of selection, statement of work, Contractor cost proposal, UI LABS' Cost Summary, and Notification of participation of any foreign firm or institution. Based on the information provided, UI LABS respectfully requests that the Government provide a project approval for the subject proposal.

If you have any questions, please do not hesitate to contact me at e-mail or phone number. Thank you.

Sincerely,

Enclosures: 1) Basis of Selection
2) Statement of Work
3) Contractor Cost Proposal
4) UI LABS' Cost Analysis Summary
5) Notification of Participation of Any Foreign Firm or Institution
6) Notification of Data Rights Assertions List

Enclosure 1 – Basis of Selection

Basis of Selection For Solicitation XXXX

1. Description of what was solicited

2. Summary:

Proposals submitted in response to *Solicitation XXXX* were evaluated using the evaluation factors listed in decreasing order of importance.

- a. Eval Factor 1
- b. Eval Factor 2
 - (1) Subfactor 1
 - (2) Subfactor 2
- c. Eval Factor 3

The proposal's strengths, weaknesses, and deficiencies were evaluated with respect to the Eval Factors and subfactors. Each evaluation factor could receive a technical evaluation of *insert rating scale as defined in solicitation*. The offeror's cost proposal was evaluated for completeness, reasonableness, and realism in terms of labor categories, labor hours, materials, travel, and subcontractors and consultants. An overall merit rating of *insert rating scale as defined in solicitation* was assigned to each proposal. Based on the overall rating, the proposals were ranked in desired priority of award. If more than one proposal received the same merit rating, the priority was based on the individual evaluations and the specific strengths, weaknesses and deficiencies identified.

proposals were received and rated based on the evaluation criteria stated in the Solicitation, including the specific technical effort proposed and the resulting benefits/results. The offerors in this are ranked in the following order:

Rank	Selection Intent	Consensus Rating	Proposal Number	Contractor Name	Proposed Cost	Period of Performance
1						
2						

3. **Rationale:** Specific rationale supporting this decision is as follows:

#1 **Contractor #1:**

Title:

Proposal Number:

(1) Eval Factor 1

Contractor proposal received an evaluation rating of _____ for Eval Factor 1.

- *Describe rationale for rating.*

(2) Eval Factor 2

(a) Eval Factor 2 Subfactor 1:

Contractor's proposal received an evaluation rating of _____ for Subfactor 1. *Describe rationale for rating.*

Contractor's proposal has the following strengths and weaknesses:

Strengths:

- X
- X

Weaknesses:

- X

(b) Eval Factor 2 Subfactor 2:

Contractor's proposal received an evaluation rating of _____ for Subfactor 2. *Describe rationale for rating.*

Contractor's proposal has the following strengths and weaknesses:

Strengths:

- X
- X

Weaknesses:

- X

(3) Eval Factor 3 *(Example is a cost factor)*

The contractor's Cost proposal was evaluated for completeness, reasonableness, and realism. Contractor proposed a total of \$_____ for this effort.

#2 **Contractor #2:**

Title:

Proposal Number:

(1) Eval Factor 1

Contractor proposal received an evaluation rating of _____ for Eval Factor 1.

- *Describe rationale for rating.*

(2) Eval Factor 2

(a) Eval Factor 2 Subfactor 1:

Contractor's proposal received an evaluation rating of _____ for Subfactor 1. *Describe rationale for rating.*

Contractor's proposal has the following strengths and weaknesses:

Strengths:

- X
- X

Weaknesses:

- X

(b) Eval Factor 2 Subfactor 2:

Contractor's proposal received an evaluation rating of _____ for Subfactor 2. *Describe rationale for rating.*

Contractor's proposal has the following strengths and weaknesses:

Strengths:

- X
- X

Weaknesses:

- X

(3) Eval Factor 3 *(Example is a cost factor)*

The contractor's Cost proposal was evaluated for completeness, reasonableness, and realism. Contractor proposed a total of \$_____ for this effort.

Enclosure 2 - Statement of Work

Insert Statement of Work

Enclosure 3 – Contractor Cost Proposal

Insert Contractor Cost Proposal

Enclosure 4 – UI LABS’ Cost Analysis Summary

UI LABS’ Cost Analysis Summary

Contract Number:

Proposal Reference Number:

Project Title:

Contractor Name:

Period of Performance:

Date:

Summary:

UI LABS believes that Contractor has substantiated the proposed effort adequately, providing sufficient and complete cost data. The analysis performed by UI LABS indicates that the proposed costs are allocable and reasonable based on the information made available to UI LABS. As a result of this analysis, UI LABS considers this proposal as discussed in its cost analysis and as summarized below to be adequate as a basis for award. Therefore, UI LABS will award Contractor a *type of agreement*, contingent upon the Government's review and approval of the proposal and as directed in the modification to the Cooperative Agreement.

Copies of Contractor’s original cost proposal and final cost proposal will be at UI LABS with copies of the associated cost analysis information. Contractor’s original proposal totaled \$. The final cost proposed is \$. *Document any negotiation.* Below is a summary by cost element for the proposed effort.

Cost Element	Total
Labor	\$
Travel	\$
Subcontractors	\$
Consultants	\$
Material/Equipment	\$
Other Direct Costs	\$
Indirect Costs	\$
Total	\$

Enclosure 4 – UI LABS’ Cost Analysis Summary

Analysis of Individual Cost Elements:

1. Labor

Contractor has proposed \$ for labor, which is approximately XX hours of labor.

Labor Category Name	Hourly Rate	Hours	Total Cost
Total			

There were no specific solicitation requirements regarding labor classes and wage levels. The proposed labor rates are considered reasonable when compared to similar labor categories and RATE TYPE labor rates from other organizations utilized by UI LABS on current and past efforts. Additionally, the *Technical Evaluator/Project Manager* has deemed the proposed labor hours and categories realistic, appropriate, and acceptable for the technical effort.

2. Travel

Contractor proposed a total of \$ for travel, which includes X trips from Departure City, State to Destination City, State for XYZ Purpose. For comparison purposes, UI LABS obtained airfare quotes for mid-week travel with a seven-day advance from the Orbitz (<http://www.orbitz.com/>) website. 2014 domestic per diem rates were used to compare costs estimated for lodging and meals and incidentals. On file with UI LABS’ cost analysis is a detailed analysis of the travel costs, which shows variances in the costs per trip. However, the overall total cost proposed by Contractor is less than the cost estimated by UI LABS following Federal Travel Regulations. Therefore, the proposed travel cost of \$ is deemed acceptable. Additionally, the *Technical Evaluator/Project Manager* has deemed the proposed travel costs realistic, appropriate, and acceptable for the technical effort.

3. Team Members / Subcontractors

Contractor proposed a total of \$ in subcontractor costs. Contractor provided quotes for each of the subcontractors proposed, which are on file at UI LABS. Contractor also provided an affirmative statement that a cost and price analysis has been performed on all team members/subcontractors and their proposed costs have been found to be fair and reasonable. The *Technical Evaluator/Project Manager* has deemed that the proposed subcontractor costs are realistic, appropriate, and acceptable based on the subcontractor’s role in the technical work effort. UI LABS has deemed the proposed subcontractor cost reasonable based on the information provided by Contractor, UI LABS’ analysis, and the *Technical Evaluator/Project Manager* verification. The costs associated with the proposed subcontractor can be found below.

Enclosure 4 – UI LABS’ Cost Analysis Summary

Subcontractor XYZ

\$ was proposed for Subcontractor XYZ, which consists of labor, travel, material/equipment, and indirect costs.

Labor

Subcontractor XYZ estimated \$ in labor consisting of X hours (see table below). The proposed labor rates are considered reasonable when compared to fully burdened labor rates from other organizations utilized by UI LABS on current and past efforts.

Labor Category Name	Hourly Rate	Hours	Total Cost
Total			

Travel

Subcontractor XYZ proposed a total of \$ for travel, which includes X trips from Departure City, State to Destination City, State for XYZ Purpose. For comparison purposes, UI LABS obtained airfare quotes for mid-week travel with a seven-day advance from the Orbitz (<http://www.orbitz.com/>) website. 2014 domestic per diem rates were used to compare costs estimated for lodging and meals and incidentals. On file with UI LABS’ cost analysis is a detailed analysis of the travel costs, which shows variances in the costs per trip. However, the overall total cost proposed by Subcontractor XYZ is less than the cost estimated by UI LABS following Federal Travel Regulations. Therefore, the proposed travel cost of \$ is deemed acceptable.

Material/Equipment

Subcontractor XYZ proposed \$ for material/equipment, which is detailed in the table below. For comparison purposes, UI LABS performed a sample analysis on the material/equipment proposed. Based on UI LABS’ analysis and the *Technical Evaluator/Project Manager* verification, the proposed material/equipment is deemed reasonable.

Enclosure 4 – UI LABS’ Cost Analysis Summary

Proposed Cost				UI LABS’ Analysis	
Description (e.g. Type, Model #, Features, etc.)	Unit Cost	Quantity	Total Cost	Unit Cost	Justification
Total Proposed Cost					

Subcontractors

Subcontractor XYZ proposed \$ in subcontractor costs, which includes labor consisting of X hours (see table below). The proposed labor rates are considered reasonable when compared to fully burdened labor rates from other organizations utilized by UI LABS on current and past efforts.

Labor Category Name	Hourly Rate	Hours	Total Cost
Total			

Indirect Costs

Subcontractor XYZ proposed \$ for indirect costs, which include labor overhead and G&A.

4. Consultants

Contractor proposed \$ in consultant costs. The *Technical Evaluator/Project Manager* has deemed that the proposed consultant costs are realistic, appropriate, and acceptable based on the consultant’s role in the technical work effort. UI LABS has deemed the proposed consultant cost reasonable based on the information provided by Contractor, UI LABS’ analysis, and the *Technical Evaluator/Project Manager* verification. The costs associated with the proposed consultant can be found below.

Labor

Consultant XYZ proposed \$ in labor costs for approximately X man-hours (see table below). The proposed labor rates are considered reasonable when compared to similar labor categories and fully burdened labor rates from other organizations utilized by UI LABS on current and past efforts.

Labor Category Name	Hourly Rate	Hours	Total Cost
Total			

Enclosure 4 – UI LABS’ Cost Analysis Summary

5. Material/Equipment

Contractor has proposed \$ in material/equipment costs as detailed in the table below. Contractor’s proposed material/equipment costs are based on prior purchases and quotes. Contractor provided quotes for some of the material/equipment items, which are on file at UI LABS. Additionally, the *Technical Evaluator/Project Manager* has deemed the proposed material and quantities realistic, appropriate, and acceptable for the technical effort. Based on the information provided by Contractor and the *Technical Evaluator/Project Manager’s* assessment, the material/equipment proposed is deemed reasonable.

Proposed Cost				UI LABS’ Analysis	
Description (e.g. Type, Model #, Features, etc.)	Unit Cost	Quantity	Total Cost	Unit Cost	Justification
Total Proposed Cost					

6. Other Direct Costs

Contractor has proposed \$ in other direct costs as detailed in the table below. Contractor’s proposed other direct costs are based on prior purchases and quotes. Contractor provided quotes for some of the other direct costs, which are on file at UI LABS. Additionally, the *Technical Evaluator/Project Manager* has deemed the proposed other direct costs and quantities realistic, appropriate, and acceptable for the technical effort. Based on the information provided by Contractor and the *Technical Evaluator/Project Manager’s* assessment, the other direct costs proposed are deemed reasonable.

Proposed Cost				UI LABS’ Analysis	
Description (e.g. Type, Model #, Features, etc.)	Unit Cost	Quantity	Total Cost	Unit Cost	Justification
Total Proposed Cost					

Enclosure 4 – UI LABS’ Cost Analysis Summary

7. Indirect Costs

Contractor proposed \$ for indirect costs, which include labor overhead and G&A. Contractor does not have Government approved indirect rates. However, they provided its indirect rate cost pools, and these pools were reviewed by UI LABS’ Financial Manager. He found no issues with Contractor’s accounting methodology. Detailed below are the indirect rates and factors used in this proposal. UI LABS has verified that Contractor applied their indirect rates in accordance with the information provided.

Description	Rate	Allocation Base

Enclosure 5 - Notification of Participation of Any Foreign Firm or Institution

Notification of Participation of Any Foreign Firm or Institution

_____ There is NO Foreign Firm or Institution participating on this effort.

_____ The following Foreign Firm or Institution participating on this effort:

Contact Info for Foreign Firm or Institution	Date Notification Was Submitted	Comments

Notification of Data Rights Assertions List