Funding Opportunity Announcement (FOA)
FOA-RQKM-2015-0014

Overview Information

NAICS Code: 541712

Federal Agency Name: Air Force Research Laboratory, Materials and Manufacturing Directorate, on behalf of the Office of the Secretary of Defense (OSD), Office of the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (MIBP) via its Defense Manufacturing Science and Technology Program.

Program Name: DoD-Led Institutes for Manufacturing Innovation

Funding Opportunity Announcement Title: Flexible Hybrid Electronics - Manufacturing Innovation Institute (FHE-MII). This solicitation seeks proposals from non-profit organizations interested in entering into a Cooperative Agreement for the purpose of establishing a state-of-the-art, end-to-end, sustainable Institute for Manufacturing Innovation (IMI) in support of flexible hybrid electronics manufacturing technology.

Funding Opportunity Announcement Type: This document supersedes all previously released information about this program.

Funding Opportunity Announcement Number: FOA-RQKM-2015-0014

Appendices for Funding Opportunities Announcement: Attached to this document are Appendices that are provided for informational guidance only. If there are any discrepancies between the FOA and the Appendices, the FOA takes precedence.

Catalog of Federal Domestic Assistance (CFDA) Number(s): 12.800 AIR FORCE DEFENSE RESEARCH SCIENCES

Proposers' Days: The Government will hold a Proposers' Day (www.proposersday.org) on both the East Coast and West Coast for this solicitation:

EAST COAST: Thursday, February 19, 2015 from 0830-1630 EST
Artisphere Spectrum Theater, 1611 Kent Street, Arlington VA 22215;

WEST COAST: Thursday, February 26, 2015, at 1300-1700 PST
Monterey Conference Center, 1 Portola Plaza, Monterey, CA 9394

The purpose of the Proposers' Day is to familiarize potential proposers with the concept and vision for the Flexible Hybrid Electronics Manufacturing Innovation Institute (FHEMII) and the associated technology needs. These Proposers' Days are for informational purposes only and attendance is not a prerequisite for submitting a proposal. It will provide, however, a valuable opportunity for potential proposers to ask questions and receive answers regarding the solicitation. Participation is voluntary. There is no fee to attend. The Government will not reimburse the attendees for any cost associated with participation. In addition, the Government is under no obligation to award any related contract/agreement associated with this event. Further details on this event (including registration information) can be found on www.manufacturing.gov. Questions and Answers from Proposers' Day will be posted via an amended version of this FOA and will also be posted on www.manufacturing.gov.

THIS WILL BE A TWO—STEP SOLICITATION:

First Step: **Concept Paper Due Date and Time:** The deadline for receipt of concept papers is no later than 2:00 PM Eastern Time (ET) on 27 March 2015. See Section IV for further information.

Second Step: Full Proposal Due Date and Time: Offerors whose concept papers meet the needs of the Government will receive invitations to submit full proposals, which must be received no later than 2:00 PM ET on 15 June 2015. Invitations for full proposals are expected to be sent by 28 April 2015. See Section IV for further information. Full Proposals received after the due date and time shall be governed by FAR 52.215-1(c) (3).

> ***NOTE: Concept Paper/Proposal receipt after the due date and time shall be governed by the provisions of FAR 52.215-1(c)(3).*** *It should be noted that this installation observes strict security procedures to enter the facility. These security procedures are NOT considered an interruption of normal Government processes, and proposals received after the above stated date and time as a result of security delays will be considered "late." Furthermore, note that if offerors utilize commercial carriers in the delivery of proposals, they may not honor time-of-day delivery guarantees on military installations.* ***Be advised, if the U.S. Postal Service is used, this building only receives U.S. Postal Mail twice a week and delivery by that means may not meet the proposal due date and time established herein. Early concept paper and proposal submission is encouraged.***

Solicitation Request: This publication constitutes a special competition as contemplated in 2 C.F.R. 200, Appendix IC.1. There will be no other solicitation issued in regard to this requirement. Offerors should be alert to any FOA amendments.

Air Force Research Laboratory, AFRL/RQK, Wright Research Site will not issue paper copies of this announcement. AFRL provides no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this announcement will not be returned. It is the policy of the AFRL to treat all proposals as sensitive competitive information and to disclose their contents only for the purposes of evaluation.

AFRL is soliciting concept papers, and then subsequent full technical and cost proposals, on the endeavor described herein. This is a restricted solicitation limited to independent, U.S. non-profit organizations to serve as the award recipient to lead a Flexible Hybrid Electronics Manufacturing Innovation Institute. The Government encourages small and large businesses as well as academia to participate through teaming arrangements with the lead non-profit organization. The NAICS Code for this effort is 541712 (for Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)). Proposals submitted shall be in accordance with this announcement. Offerors should be alert for any amendments to this announcement that may adjust submission dates or other submission requirements.

System for Award Management (SAM) Registration: FAR 52.204-7, System for Award Management (SAM) (JUL 2013), and DFARS 252.204-7004, Alternate A, System for Award

Management (SAM) (FEB 2014) are included by reference. SAM is the primary Government repository for prospective federal awardee information and the centralized Government system for certain contracting, grants, and other assistance related processes. It replaces CCR/FedReg, On-line Representations and Certifications (ORCA) and the Excluded Parties Lists System (EPLS). By submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the SAM database prior to award, during performance, and through final payment of any agreement resulting from this solicitation. Offerors may obtain information on registration and annual confirmation requirements via the SAM accessed through https://www.acquisition.gov or by calling 866-606-8220.

Type of Contract/Instrument: The Government intends to award a 2 C.F.R. 200 based Cooperative Agreement. The Government reserves the right to award other assistance instruments, if deemed in the best interests of the Government.

Estimated Program Funding: The Federal Government (DoD) anticipates funding $75 million ($75M) for this Institute, distributed across five fiscal years (FY). It is anticipated that other government agencies will provide additional funds, particularly for the case of basic research support and targeted support projects in support of the Flexible Hybrid Electronics Manufacturing Innovation Institute after award. Additionally, the Institute has potential for individual industry funded projects that are not subject to cost share requirements. The recipient must provide a minimum of $75M of industry or other non-federal government funding to meet the required minimum 1:1 cost share. This sets the minimum total program funding at $150M. Cost share significantly more than 1:1 offered by industry or other non-federal government funding in order to increase the capability of a Flexible Hybrid Electronics MII will be considered favorably. The anticipated minimum federal program funding, broken out by Fiscal Year (FY), is:

Table 1: Minimum Federal Program Funding ($ in millions)

Fiscal Year	FY15	FY16	FY17	FY18	FY19	Total
Federal Govt Funding	$7.9	$27.1	$20	$15	$5	$75M
Industry/Non-Federal Government Cost Share (Minimum)						$75M
Total Program (Minimum)						$150M

Anticipated Number of Awards: The Air Force, in consultation with the OSD MIBP Manufacturing Technology Program, reserves the right to make a single or no award as a result of this FOA. The award will be comprised of a 60 month period for activities associated with the Institute. Only one (1) award is anticipated.

Brief Program Summary: This announcement is to solicit proposals to initiate and sustain a Flexible Hybrid Electronics Manufacturing Innovation Institute (FHE-MII) as part of the National Network for Manufacturing Innovation (NNMI). On March 9, 2012, President Obama announced the NNMI initiative, which proposes establishing up to fifteen institutes for manufacturing innovation around the country (http://www.whitehouse.gov/blog/2012/03/09/president-obama-talks-about-how-boost-innovation-manufacturing). During the 2013 State of the Union Address, President Obama announced, as part of a "We Can't Wait" initiative, that the DoD and DoE would stand up a total of three Institutes in 2013 using existing funding and authorities. This led to the DOE establishing a Power Electronics Institute in January 2014 and the DoD announcing both the Lightweight and Modern Metals Manufacturing and Digital Manufacturing and Design Innovation Institutes in February 2014. These three Institutes build upon the first pilot IMI, the DoD-led "America Makes – National Additive Manufacturing Innovation Institute" awarded by the DoD in 2012. During his 2014 State of the Union Address, the President once again announced that DoD would establish two additional Institutes, and this FOA is intended to establish and support an FY15 DoD-led institute focused on flexible hybrid electronics manufacturing innovation. The FHE-MII represents the fifth DoD-led Institute for Manufacturing Innovation and the second of two Institutes to be established in FY15 (the first FY15 Institute focused on Integrated Photonics). In December, 2014, Congress passed the *Revitalize American Manufacturing and Innovation Act*, which establishes the Network for Manufacturing Innovation Program; the FHE-MII and all other DoD and DOE Institutes will be considered a part of this network.

These Institutes bring together industry, academia (universities, community colleges, technical institutes, etc.), federal laboratories and federal and state agencies to accelerate innovation by investing in industrially relevant manufacturing technologies with broad applications. The Institutes will provide support to help bridge the gap between basic/applied research and early product development by accelerating the demonstration of critical manufacturing technologies of at least Manufacturing Readiness Level (MRL) 4 and achieve a Manufacturing Readiness Level of 7 within the 5 year Institute core funding scope. These Institutes will provide shared assets to help companies, academia, government and federal laboratories access cutting-edge capabilities and equipment while creating an unparalleled environment to educate and train students and workers, provide access for workforce re-training in new manufacturing industries to achieve advanced manufacturing skills. Each Institute will have a specific technical or market focus and will serve as a regional hub of manufacturing excellence in that focus area, providing the critical infrastructure necessary to create a dynamic, highly collaborative environment spurring manufacturing technology innovations and technology transfer leading to production scale-up and commercialization. When established, each Institute for Manufacturing Innovation (IMI) will be a public–private partnership and a key part of the Network for Manufacturing Innovation. Key design tenets of the network are captured within National Network for Manufacturing Innovation: A Preliminary Design, a report issued by the White House National Science and Technology Council on Jan. 16, 2013. These tenets are captured in the Advanced Manufacturing Partnership 2.0
(http://www.whitehouse.gov/sites/default/files/microsites/ostp/PCAST/amp20_report_final.pdf)

The Government intends for this solicitation to support the establishment of a Flexible Hybrid Electronics Manufacturing Innovation Institute (FHE-MII) that will advance the state-of-the-art in the design, manufacturing hybrid integration of electronics and sensors, assembly and test automation through technology platform demonstrations of complex flexible hybrid electronics on non-traditional conformal, bendable, stretchable, and foldable substrates. The FHE-MII is intended to advance the flexible hybrid electronics eco-system across small to large businesses (spanning supply chain, manufacturers, and end-users), academic institutions (to include 4-year institutions and community colleges, and K-12), and government laboratories and government mission programs. For the purpose of this program, flexible hybrid electronics implies:

- “Flexible”: final technology demonstrators, and to the extent necessary the integrated components, are mechanically compliant, such that the systems can conform, bend, stretch, or fold.
- “Hybrid”: disparate component electronic technologies not traditionally available for flexible systems (such as thinned dies processed from traditional foundries, foundry-based or processed passives, foundry-based or processed sensors, and power) are integrated through innovation of established processes (such as pick and place, printing, lithography) into single and multilayer flexible architectures.
- “Electronics”: performance of the final technology platform demonstration derives from the integrated functionality of the various electronic components, including logic, communication, sensing, power, and memory.

Within the constraints of the 5-year scope, available core DoD funding, leveraging additional government funded programs along with the expected State, local, and private cost-share, the FHE Institute will be structured to allow government, industry and academia to come together with the goal of organizing the currently fragmented U.S. capabilities into a coherent ecosystem and better position the U.S. relative to global competition. The principal goal is to develop and scale critical manufacturing processes for flexible hybrid electronics applications from a manufacturing readiness level (MRL) 4 to 7. The planned institute’s innovation ecosystem is also anticipated to provide guidance and serve as a transition partner to accelerate lower MRL level process for Technology Readiness Level (TRL) 1-3. The core FHE-MII funds ($75M) will not be used to support process development for MRL less than 4. As well, the FHE Institute can provide domestic research activities, supported by, for example, government research laboratories, National Science Foundation (NSF), DARPA, DOE, NASA and other commercial, private equity funds, to assess scalability and manufacturability of their concepts and designs. Partnerships with educational outreach programs integrated with the FHE Institute is expected to enable workforce training including providing students and visiting engineers access to the state of the art equipment and experienced personnel needed to familiarize them with cutting technologies needed by the US industries.

The Government seeks proposals to this announcement that describes the proposed business plan for the Institute execution, partnership model to include intellectual property, project calls, infrastructure, technical scope to include demonstrating manufacturability through technology platform demonstrations, and a workforce education strategy supporting workforce training and re-training, academic, and internships for government and commercial applications.

The Office of the Secretary of Defense (OSD) is overseeing this initiative via the Office of Manufacturing and Industrial Base Policy (MIBP), and its Defense Manufacturing Science and Technology Program. This particular solicitation, as well as the anticipated award and the management of the Flexible Hybrid Electronics Manufacturing Innovation Institute, is a cross-agency effort, with the Air Force Research Laboratory having lead responsibilities to execute the solicitation and award management functions.

Proposals Point of Contact (POC): AFRL/RQKM, ATTN: Charlotte Chumack, 2130 Eighth Street, Building 45, Area B, WPAFB, OH 45433, (937) 713-9876, Charlotte.Chumack@us.af.mil

Full Text Announcement

I. PROGRAM DESCRIPTION

Air Force Research Laboratory, Materials and Manufacturing Directorate, AFRL/RX, on behalf of the OSD Manufacturing Technology Program, is soliciting concept papers (and later full technical and cost proposals) on the following research effort:

A. STATEMENT OF OBJECTIVE/NEEDS:

1) Overview/Background:

Flexible hybrid electronics are enabled through innovative manufacturing processes adapted from traditional industry approaches that preserve the full operation of traditional electronic circuits in flexible architectures. The technology demonstrators for manufacturability are intended to exhibit novel flexible form factors that are conformal, bending, stretching, or folding. These highly functional devices can be attached to curved, irregular and often stretched objects and humans. The technology platform demonstrations that provide a framework to demonstrate manufacturability through innovation development include, but are not strictly limited to; medical and human performance technology, ubiquitous sensing (e.g., Internet of Things), and wearable technology. Within these technology platform demonstrations, example commercial and DoD technologies to demonstrate manufacturability may include, but are not limited to: medical devices and sensors, sensors to monitor structural or vehicle performance, sensors interoperating through the internet or as sensor clusters to monitor physical positions, wearable performance or information devices, robotics, human-robotic interface devices, and light weight human portable electronic systems. These examples are intended to highlight the unique mechanical attributes enabled by flexible hybrid electronics. These commercial-focused technology platform demonstrations have direct military or security applications where reduced weight and volume for military systems can be achieved with flexible electronics that can bend or fold into the tight spaces of our personal devices, or even be stuck on or into bodies as smart medical bandages or devices. The institute is not expected to specifically support manufacturing process development for flexible photovoltaics (PV), flexible solid state lighting, or flexible displays or related display-specific technology. However, the Institute could potentially support the integration of these technologies onto FHE platforms.

2) Scope:

This IMI will be expected to support an end-to-end 'ecosystem' in the U.S. for flexible hybrid electronics manufacturing and include domestic manufacturing development facility(ies) to scale-up manufacturing processes for flexible hybrid electronics. The Institute will provide unprecedented technology platform demonstrations based on validated computational design tools, automated robotic component-level integration, integrated computational materials engineering (ICME), assembly, and in-situ process development and test. These FHE manufacturing processes will be integrated to establish FHE standards, metrology, quality systems, and in-situ functional testing capabilities. The FHE-MII public-private partnership will be used to train a new workforce through educational outreach programs as well as workforce re-training to enable this new manufacturing sector of the US economy.

Printed electronics specifically defined as devices with non-linear charge-voltage dependence, i.e., digital or charge amplified as a function of voltage –analog have a significant non-US manufacturing presence. Establishing a strong U.S. manufacturing presence in this area would likely require resources exceeding those of the FHE-MII. Furthermore, printed electronics and their associated manufacturing processes are currently considered to be at MRL <4 with technologies that are less than TRL 4 and therefore not currently suited for the technology platform demonstrators to meet commercial and DoD needs. Likewise ultra-high volume commodity focused commercial products enabled by manufacturing approaches such as roll-to-roll electronic manufacturing services (EMS) industries are well established outside the U.S. Concepts for an FHE-MII with <u>significant</u> focus on printed electronics (per the definition in this paragraph)and/or roll-to-roll manufacturing need to be justified with sound technological and business analysis with respect to established technologies and emerging flexible hybrid electronic alternatives, as well as demonstrating significant US manufacturing and business unit (non-research units) industry support for the core tenets of an Institute, including meeting an initial MRL 4 (TRL 4), supporting a US industry base, and having relevant DoD applications. A proposed Institute that develops processes and technologies applicable within the current U.S. industrial base but which could subsequently transition to a future printed electronics or roll-to-roll commercial activity would meet the FHE-MII tenets.

3) Project Needs/Requirements:

<u>A.) Business Plan</u>:

a) Management and Operations: At a minimum, three elements of management and operations required to enable a robust public-private partnership to advance flexible hybrid electronics manufacturing include Institute Director and management leadership, operations structure, and partnership agreement.

a.1) Institute Director and management leadership: Effective leadership through the Institute Director and management is considered essential to the success of the Institute and creating a robust public-private partnership.

i. Provide a vision as well as the roles and responsibilities for the Institute Director and management structure that executes the Institute operations and the Institute relationships to the government management team. Identify the Director selection-criteria and anticipated Director and management qualifications relative to FHE.
ii. Provide a Vision for the FHE Program as well as required guidance to make the Vision attainable.
iii. Detail the execution of the Institute to achieve the focused Vision, the technical execution for the Institute direction, project call selection (described below), innovation manufacturing centers (described below) and other related technical decisions. Address how the technical direction shall engage the FHE Institute

partnership to achieve the focused Vision, including; government (federal, state and local), industry, academic stakeholders, and industry societies.

iv. Provide a management vision that engages the government, industry and academia stakeholders beyond the core program.

v. Establish the financial program management that will execute, track, and report against the obligation and disbursement rates set forth by DOD Budget Office (see Appendix A for obligation and execution targets).

vi. Establish an institute vision and corresponding roadmaps with industry partners' input for the FHE technical strategy with increasing process complexity and a roadmap for the devices anticipated to demonstrate pre-competitive FHE manufacturability capabilities.

a.2) <u>Operations structure</u>: Project calls and the Innovation Manufacturing Center(s) are considered an important element of the FHE-MII operations structure to facilitate flexible hybrid electronics pre-commercial manufacturing development starting at MRL 4 to MRL 7 for technology demonstrations starting at TRL 4/5.

i. Provide the operational structure for selection and execution of Project Calls and Innovation Manufacturing Center(s) IMCs (as described below).

ii. Address a vision for the operation structure to integrate pre-MRL 4/TRL 4 programs into the Institute but not funded by the core DoD Institute investments.

a.3) <u>Partnership structure</u>:

i. Provide a vision for the industry partnership model including the level and role of multiple tiers of industry partners, end users, academic institutions, other existing and future DoD and DOE IMI networked institutes, anonymous partners, and federal and non-federal government participation as appropriate.

ii. Provide a Business Integration Strategy which describes plans for integrating all aspects of the FHE-MII ecosystem, including; project calls (described in B below), Innovation manufacturing centers (described in C, below), industry, academic and Government institute members, external customers, technology transition opportunities, and market requirements to accomplish the objectives of the FHE-MII, specifically addressing any contingencies associated with cost share.

iii. Establish within the partnership model the Intellectual Property (IP) management. Identify how the Partnership structure and IP management section will incentivize the private and government sector involvement while addressing how background IP and other related issues will be handled.

iv. Provide a summary of unique State-laws pertaining to partnerships and IP ownership, where it may pertain such as conducting development at a State-owned facility or institution.

v. Provide evidence that proposed institute partners will sign a draft partnership agreement.

B) Project Calls Project Calls are the mechanism by which the Institute will solicit Projects that fund development at the Innovation Manufacturing Center(s) (IMCs) and Projects that fund Institute members that address the core technical areas. These Project Calls in context with Projects illustrate the offeror's knowledge of industry's technical needs and market priorities as well as provide a framework for responders to initiate how the Institute with the partners and IMCs will develop and execute projects prior to award.

i. Explain the vision for Project Calls and how Project Calls will engage the partnership structure to execute the FHE-MII overall Vision including; envisioned funding allocations anticipated between projects that fund development at the Innovation Manufacturing Center(s), projects that fund Institute members, and the relationship between these two.
ii. Address plans for the creation, assessment, and completion of technical projects the Institute undertakes, along with the various educational and training programs.
iii. Provide (2) example Project Calls in context with projects and include them in the Example Annual Program Plan [described in G) below with an example format provided in Appendix B] that will be developed as part of the response that exemplify how FHE manufacturability will be advanced through the Institute.

Areas to be consider for a Project to be responsive to a Project Call:

- Technical approach and justification
- Relevance and Knowledge of project importance (extent of understanding of industry needs)
- Project schedule and milestones
- Products
- Management approach

C) **Physical Infrastructure (Innovation Manufacturing Center(s)) IMC(s)**: The Federal Government funds for the FHE-MII Cooperative Agreement will not be used to pay for physical infrastructure nor general tools to enable the Center manufacturing capabilities. Some Federal government funds for the FHE-MII Cooperative Agreement may be used for specialty tools.

i. Explain the vision to establish or leverage physical location(s) for the Innovation Manufacturing Centers (IMCs) and the integration of Project Calls with partners. One example might be a foundry-model for flexible hybrid electronics. Provide in the vision the extent to which IMC(s) will have permanent engineering and technician staff for the process development and how the staff will work with and support the partnership.
ii. Provide a scope for the IMC(s) to develop pre-competitive manufacturing processes that address: advancement of flexible hybrid electronics, availability to partners for process development, integration of partner tools, output for partners to test and evaluate for internal products development based on a manufacturable process, and demonstrations to support DoD transition evaluations and early adoption.
iii. Provide a vision for integrating with the process development: testing, metrology, quality systems, in-situ functional testing and integration; space for offices, collaboration, and management execution (at the IMC or a different location are equally acceptable).
iv. Explain any intellectual property considerations.
v. Identify how IMC(s) envision supporting visiting engineers, education, and work-force re-training.

vi. Explain and provide details if cost share will be used for physical infrastructure and general tools.
vii. Provide an IMC vision and how the IMC(s) will be stood up within the first year of the Institute award.

D) Cost share: The Manufacturing Innovation Institutes are expected to have a minimum of 1:1 cost share. Other Federal Funding cannot be considered for cost share. Additional cost share beyond 1:1 is encouraged in order to support a more robust FHE-MII.

i. Explain the makeup, quality and extent of the cost share in terms of the amount, source of the cost share, and the quality/applicability of any cost share.
ii. To achieve the minimum 1:1 cost share on the core $75M DoD FHE-MII funding, provide an anticipated cost share on Project Calls and initial partner acceptance, cost share to integrate the IMC(s), and how cost share will be achieved for the education and workforce outreach expected from core FHE-MII funding and any other Institute components that must be funded but may not be cost-shared.

E) Attaining self-sufficiency:
i. Explain how the institute will engage the partnership model and State and local governments to lead to a self-sustaining operating after the 5 year core funding.
ii. Identify mechanisms to leverage other federal funding resources, for example, engaging pre-MRL 4/TRL 4 technology development programs and other opportunities and individual government and industry funded projects.
iii. Articulate a vision for FHE Institute scope and structure after the 5 year base federal funding for the Cooperative Agreement has concluded to include viability for each aspect of the Institute to include continuing the partnership consortium, the IMC(s), society involvement, and industry market segment support for the Institute to achieve financial self-sufficiency.

F) Defense and economic impact:
i. Explain the impact envisioned for the Defense needs in a pre-commercial manufacturing environment.
ii. Identify ways envisioned to work with DoD agencies and support technology transitions to DoD Program Offices.
iii. Provide FHE-MII impact on the regional and national flexible hybrid electronics economy segment, which may include expanding existing manufacturing industries and creating new manufacturing industries.

G) Example Annual Program Plan

i. Provide an example annual program plan (APP) based on the outline in Appendix B for guidance to include an estimated cost allocation. The APP should include a scope to meet the funding guidelines towards technical projects and IMC(s) against the FY15 and FY16 funding by 4QFY16 per the execution guidelines, (see obligation and execution guidelines Appendix A).
ii. Provide a vision and readiness for the institute to execute and obligate the resources under an envision APP.

4) Technical Plan

a) Technical Strategy:

i. Establish an Institute that will use the Business Plan to integrate, at a minimum, the four (4) manufacturing thrusts 4.a.ii, below to demonstrate Flexible Hybrid Electronics manufacturing innovation.

ii. Explain how the Project Calls and the Innovation Manufacturing Center(s) are envisioned to integrate and advance the manufacturing thrusts. *Additional detailed descriptions are provided in Appendix A.*

1. Manufacturing Assembly/Integration of Disparate Components and sensors, to include methods towards robotic and advanced assembly capabilities.
2. Thin Device & Print Process Development and Flex-Hybrid Materials Scale-Up (substrates, printable materials (traditional lead/lead-free solders, inks, dielectrics, printed resistive materials), adhesives, sensing materials to include bio-sensors, as examples).
3. System integration demonstrations, to include mechanical packaging and demonstration software.
4. Testing, Metrology, development of Models and Design Rules / Common standards, Functional Testing, Quality Systems.

iii. Explain any additional manufacturing thrusts.

b) Technology Platform Demonstration (TPD): The envisioned FHE Technology Platform Demonstrations (TPDs) could include, (not listed by priority); medical and human performance technology, ubiquitous sensing (i.e., Internet of Things), and wearable technology. The technology platforms are not intended to demonstrate state of the art technology performance nor solve specific technical challenges or products.

i. If other TPD(s) are included, provide a vision for these additional TPDs will be used to demonstrate FHE manufacturability.

ii. Explain how FHE manufacturability will be demonstrated through the TPD. Explain how the FHE technology platform demonstrations will be integrated to system concepts with unique FHE attributes.

c) Technical Personnel:

i. Applicants should discuss the qualifications, capabilities and experience of the technical personnel and to assess their ability to effectively manage and perform the research and development activities of the Institute, as well as manage the facilities and provide valuable workforce training.

ii. Applicants should provide a summary of their plan for the technical staffing and structure of the Institute. Include short biographies for the proposed key technical personnel if they have been identified.

5) Education and Workforce Training Plan: The FHE-MII will be a uniquely skilled, equipped and accessible shared national resource for training a world-class technical workforce for FHE.

i. Articulate a clear strategy for implementing an innovative, capable and highly accessible educational and research environment that is well integrated with, but not disruptive to, the ongoing technology development and demonstration activities of the FHE-MII.
ii. Provide a vision for a management structure and clear procedures and protocols by which the external community can gain easy access to education, training, internships, process data, equipment and skilled practitioners in a manner that does not interfere with core technical activities.
iii. Provide a vision for how educational institutions and workforce training may access FHE tools, capabilities, design tools, and modeling software, for example, through scholarships for education and internships. These may involve virtual methods, such as the provision of anonymized process data streams for educational and research purposes.
iv. The education and workforce plan is expected to be supported under the core institute activities. Outline a plan for how ongoing programs and additional funding from other agencies may be leveraged to expand the core education plan and management strategy for the agency funding.

6) Schedule

i. Provide a clear example for Project Calls (including schedule) and industry partner interest at the outset of the award.
ii. Provide a first implementation of the annual program plan (APP) that includes FY15 and FY16 against the obligation and expenditure guidelines (Appendix A) to be obligated onto Project calls and the Innovation Manufacturing Centers (IMCs). The Project Calls and Innovation Manufacturing Center resourcing should be captured in the APP.
iii. Under the cooperative agreement, the APP and Projects contained therein are expected to be updated in the first 1 to 6 months after award. The Cooperative Agreement allows flexibility to change the APP by mutual agreement between Cooperative Agreement Manager and the awardee.
iv. Provide a schedule to develop plans for long-term financial self-sufficiency, without any additional core IMI federal funding for management and operation, beyond five years.

B. REPORTING ITEMS

1) Funds and Man-hour Expenditure Report (Quarterly)
2) Recipient Progress, Status, and Management Report (Quarterly)
3) Presentations from Program Reviews (Semi-annually)
4) Strategic Business and Marketing Plan to include self-sufficiency (Six months after award, then annually)
5) Technical Projects Reports (quarterly, and final)
6) Quarterly Status Report
7) Technical Roadmap (Six months after award)
8) Final Report (at the conclusion of the agreement)

C. OTHER REQUIREMENTS

1. Program security classification: Unclassified

2. Program Protection Plan. The Government will address any critical program information (CPI) with a potential requirement for a program protection plan (PPP) generated as part of this effort as needed.

3. Operations Security (OPSEC): The awardee shall participate in the organization's OPSEC program, following appropriate OPSEC measures during the performance of this Cooperative Agreement. OPSEC requirements are required in an effort to reduce program vulnerability from successful adversary collection and exploitation of critical information. The awardee shall ensure that research projects conform as required to the OPSEC and marking requirements as necessary, based on the project sensitivity level.

4. Export Control: Export Control (International Traffic In Arms Regulation (ITAR) 22 CFR 120-131, or Export Administration Regulations (EAR) 15 CFR 710-774) do not apply to the overall Institute. However, Export Control may apply to individual applied research projects, depending on the nature of the research tasks.

D. GOVERNMENT FURNISHED PROPERTY (GFP) AVAILABILITY

Availability will be determined for each award. No GFP is identified to be provided at this time.

E. RIGHTS IN TECHNICAL DATA AND COMPUTER SOFTWARE

The Rights in Technical Data and Computer Software for any resulting award will be in accordance with Article 8 of the attached Model Cooperative Agreement (Appendix E). Given the cost sharing requirements for this agreement, the mixed funding for the projects developed under this agreement will provide for the following rights in technical data and computer software:

1. Technical Data: Government Purpose Rights
2. Non-Commercial Software (NCS): Government Purpose Rights
3. NCS Documentation: Government Purpose Rights
4. Commercial Computer Software Rights: Customary License

The Air Force Research Laboratory is engaged in the discovery, development, and integration of warfighting technologies for our air, space, and cyberspace forces. As such, rights in technical data and NCS developed or delivered under this agreement are of significant concern to the government. The Government will therefore carefully consider any restrictions on the use of technical data, NCS, and NCS documentation which could result in transition difficulty or less-than full-and-open competition for subsequent development of this technology.

Technical data, NCS, and NCS documentation developed with mixed funding are expected to be delivered with at least Government Purpose Rights. Offers that propose delivery of technical data, NCS, or NCS documentation subject to Government Purpose Rights should fully explain what technical data, NCS, or NCS documentation developed with costs charged to indirect cost pools and/or costs not allocated to a Government contract will be incorporated, how the incorporation will benefit the program, and address whether those portions or processes are segregable. The Government expects that delivery of technical data, NCS, and NCS documentation subject to Government Purpose Rights will fully meet program needs.

Offers that propose delivery of technical data, NCS, or NCS documentation subject to Limited Rights, Restricted Rights, or Specifically Negotiated License Rights will be considered. Proposals should fully explain what technical data, NCS, or NCS documentation developed with costs charged to indirect cost pools and/or costs not allocated to a government contract will be incorporated and how the incorporation will benefit the program.

II. AWARD INFORMATION

The Government intends to award a Cooperative Agreement based on the Department of Defense Grant and Agreement Regulations (DoDGARS), under 10 USC 2358. The complete version of the DoDGARS can be found online at the link below:

Under the Electronic Code of Federal Regulations website, use "DoDGARS" as simple search under: http://www.ecfr.gov/cgi-bin/ECFR?SID=7b38076abacd8f09ed443505ec854eac&page=simple

A. ANTICIPATED AWARD DATE
On or about September 2015. Offerors may be ineligible for award if they do not meet all requirements of this announcement by the award date.

B. ANTICIPATED FUNDING FOR THE PROGRAM
FY15/$7.9M; FY16/$27.1M; FY17/$20M; FY18/$15M; FY19/$5M; Federal Total: $75M, with additional industry/non-federal government cost share applied at a minimum ratio of 1:1 for a minimum total of $150M. Additional cost share beyond 1:1 is encouraged in order to support a more robust FHE-MII. This funding profile is an estimate only, and is subject to change due to Government discretion and the availability of funds.

C. NUMBER OF AWARDS ANTICIPATED
The Government anticipates making a single award and reserves the right to make no awards, resulting from this announcement.

D. Non-government Technical Advisors: All proposals submitted in response to this FOA may be subject to access by non-government personnel. Contractors employing these individuals are identified below. The role of these non-governmental personnel will be to function as technical advisors to the Government technical evaluators. These support contracts include nondisclosure agreements prohibiting contractor employees from disclosing any information submitted by other firms or using such information for any purpose other than that for which it was furnished. Only Government employees will participate in the actual decision or selection of proposals for award.

CONTRACTOR SUPPORT COMPANIES

Analytic Services Inc.(ANSER)
5275 Leesburg Pike
Suite N-5000
Falls Church, Virginia 22041

Engility
3750 Centerview Drive
Chantilly, VA 20151

Booz Allen Hamilton, Inc.
Acquisition Support to PEO C4
Enterprise Networks Division
HQ, USSOCOM
8283 Greensboro Drive
McLean, Virginia 22102

III. ELIGIBILITY INFORMATION

A. ELIGIBLE OFFERORS

This is a restricted solicitation limited to independent U.S. non-profit organizations. If a university is the proposed recipient, a partnership shall also be proposed with a cluster of manufacturing firms and associated institutes. If a non-profit industry consortium is proposed, a partnership shall be proposed to engage universities for applied research. Small businesses are encouraged to propose on all or any part of this solicitation, as part of a teaming arrangement.

B. COST SHARING OR MATCHING

The Government requires at least a 1:1 recipient cost share. The Government will consider state and local funding (not originating from Federal funds), as well as private-sector investment provided in support of an Institute as qualifying cost sharing. Cost sharing includes cash and third-party in-kind such as equipment, facilities, and manpower. For more detailed information on cost sharing, refer to 2 C.F.R 200.306 and Appendix IC.2.

C. FEDERALLY FUNDED RESEARCH AND DEVELOPMENT CENTERS

Federally Funded Research & Development Centers (FFRDCs) are not eligible to receive awards under this solicitation or exclusively team with an offeror prior to award of the cooperative agreement. However, FFRDCs are encouraged to collaborate with all offerors during solicitation and may enter into teaming arrangements with the Institute following the award of the cooperative agreement, provided they are permitted to do so by charter, statute, and their Government sponsor. Several FFRDCs under DOE, NASA, and DOD possess unique research and development capabilities that have demonstrated a TRL 4 to 5 for transition into the

Manufacturing Institute. Once launched, the Institute is encouraged to seek collaborations to transition technology from FFRDC research laboratories to manufacturing process scales, in particular in the areas of flexible battery technology and sensors. In addition, DOE FFRDCs have metrology capabilities that can provide baseline processes for the inline manufacturing metrology anticipated as a result from the FHE MII program.

D. FEDERAL GOVERNMENT ORGANIZATIONS

The Air Force recognizes that the participation of federal government organizations may be very valuable in the planning and execution of the product design and demonstration process. In cases where there are unique facilities, capabilities, and expertise, federal organizations may partner with the Institute on specific technical projects. Federal Government laboratory personnel may not, however, participate in any proposal prior to award or may not serve as technical project leads, or be involved in the management or administration of the Institute. After award, the Institute is anticipated to interact with federal government organizations in a manner compatible with their respective purposes/missions. These interactions will include membership on Executive and Technical Advisory Boards, potential technical project leads with industry, and technical collaborators when appropriate for a projects. The Institute is encouraged to leverage federal government laboratories to support the program goals. The Institute is anticipated to work with DOD organizations to support pre-commercial technology transitions to DOD Program Offices from early Institute results.

E. FOREIGN PARTICIPATION:

The recipient of the award shall be registered as a U.S. organization. U.S. incorporated companies that are wholly owned subsidiaries of foreign companies 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 Flexible Hybrid Electronics Manufacturing Innovation Institute and the DoD that: 1) their participation is in the best interest of the 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.

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 Institute 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.

F. OTHER:

1) You may be ineligible for award if all requirements of this solicitation are not met on the concept paper (and later proposal) due date as identified above.
2) Offerors are advised that one and only one proposal may be submitted, but proposed subrecipients or formal collaborators may team on multiple proposals. **Non-selectees for a full proposal are encouraged to attempt to re-team with those offerors who have been invited to submit a full proposal.**

IV. APPLICATION AND SUBMISSION INFORMATION

A. OVERVIEW

The proposal submission process includes concept papers and written full proposals, and also may include site visits. Proposals submitted shall be in accordance with this announcement. There will be no other solicitation issued in regard to this requirement.

The purpose of the concept paper phase is to minimize the labor and cost associated with the production of detailed full proposals that are unlikely to be selected for funding. Based on an assessment of the concept papers by the evaluation team, offerors whose concept papers are deemed to meet the needs of the Government will be sent invitations to submit a full proposal on or about 28 April 2015 that unless this FOA is amended, will be due no later than 2:00 PM ET 19 June 2015. However, any such request does not assure a subsequent award. Any offeror whose concept paper was not deemed to meet the needs of the Government will not be invited to submit a full proposal under this announcement. Offerors whose concept papers are not selected to submit a full proposal will be notified by mail so they can work out a teaming arrangement if desired.

After submission of the proposals, the Government may elect to perform site visits. The Government reserves the right to not conduct site visits if in the best interests of the Government.

B. GENERAL INSTRUCTIONS FOR WRITTEN DOCUMENTS

Concept papers and full proposals submitted shall be in accordance with this announcement. Offerors may submit only one concept paper and, if invited, one full proposal. Proposed sub-recipients or formal collaborators may, however, team on multiple proposals. The proposal must be valid for at least 180 days. All proposals must reference this announcement number. Offerors should be alert for any amendments to this solicitation that may adjust submission dates or other submission requirements. All submissions must be unclassified. The Government will not reimburse any cost associated with participation in the proposal process.

The Government reminds offerors that only warranted Grants Officers could bind or otherwise commit contractually the Government. The cost of preparing proposals in response to this announcement is not an allowable direct charge to any resulting agreement (or any other federal award/contract).

C. FORMAT AND SUBMISSION REQUIREMENTS

1. General Format (for concept papers and proposals)

All offerors should note that these submission instructions require the use of Microsoft Office, version 2007 or later, and/or Adobe Acrobat, version 8.1.3 or later – or their fully compatible equivalents. At this time, the Government knows of no fully compatible equivalents. The file name must have the form IPI_Concept_Paper_*orgname*.doc (or .docx) or IPI_Concept_Paper_*orgname*.pdf, where *orgname* is replaced to provide a unique identifier for the submission.

Also, .ZIP files, other compressed archive files, or password-protected files will not be accepted. Concept papers received after the due date and time shall NOT be evaluated or considered for an award by the Government.

The format requirements for all documents are as follows:

• Page Size – 8.5 x 11 inch paper
• Margins – 1 inch
• Spacing – double spaced
• Font –Times New Roman in 12 point

These requirements are to ensure the readability of the document by the evaluation team. If the offeror does not follow these guidelines, and the evaluation team determines that the document is unreadable, then the Government will consider the concept paper or full proposal non-responsive. The offeror is also responsible for performing a virus check on each concept paper and/or full proposal before emailing or uploading it electronically. The detection of a virus or other malware in any submission is cause for rejection.

The concept paper and full proposal should not contain any hyperlink references to circumvent the page restrictions called out below. The offerors may not password-protect the documents included in the concept paper or full proposal.

Page Count Guidance

The Funding Opportunity Announcement (FOA) imposes strict limitations on page counts for the Concept Papers and Full Proposals. To assist offerors in complying with the page limitations while providing adequate detail on each topic, a "notional page count" is provided for each section of the outline in the table below. The two volumes are NOT required to comply with the notional page counts *for each section*. Each volume *is required* to comply with the limitation for *total page count*.

The government will check the proposal for conformance to the stated requirements. Any pages in excess of the stated page limitation after the format check will not be considered.

2. First Step (Concept Paper) Instructions:

a. <u>General</u>: The *FIRST STEP* requests a concept paper and a rough order of magnitude (ROM) cost. The concept paper shall include a discussion of the nature and scope of the research and the offeror's proposed technical approach. The Government will evaluate the concept papers in accordance with the evaluation criteria, set forth in

Section V. below. It is recognized that the Concept Paper will not be at the level of the Full Proposal but will describe the vision and outline of the final proposal plan. Based on this evaluation, the Government will determine which concept papers have the potential to best meet DoD needs. Offerors will be notified of the disposition of their concept paper. It is anticipated that Government review of the concept papers submitted will take approximately **21** working days. Those offerors submitting concept papers assessed as meeting DoD needs will be asked to submit a technical and cost proposal. The government may provide feedback to the concept papers to enhance the full proposal. Those offerors not requested to submit a technical and cost proposal will be notified. An offeror submitting a proposal without first submitting a concept paper **will not** be eligible for an award. The cost of preparing concept papers in response to this Solicitation is not considered an allowable direct charge to any resulting or any other contract; however, it may be an allowable expense to the normal bid and proposal indirect cost.

b. Page Limitation: The Concept Paper shall be limited to **45** pages, prepared and submitted in Microsoft Word or Adobe format. Font shall be standard 12-point business font Times New Roman. Character spacing must be "normal," not condensed in any manner. Pages shall be double-spaced (must use standard double-space function in Microsoft Word), double-sided (each side counts as one page), 8.5 by 11 inches, with at least one-inch margins on both sides, top and bottom. All text, including text in tables and charts, must adhere to all font size and line spacing requirements listed herein. Font and line spacing requirements do not have to be followed for illustrations, flowcharts, drawings, and diagrams. These exceptions shall not be used to circumvent formatting requirements and page count limitations by including lengthy narratives in such items. Pages shall be numbered starting with the first page of the paper being Page 1, and the last page being no greater than Page **45**. The page limitation covers all information excluding cover page, appendices, quad chart, and biographies. **Note: The Government will check the proposal and SOW for conformance to the stated requirements. Any pages in excess of the stated page limitation after the format check will not be considered.**

c. Submission Process for Concept Papers: Offerors should submit three (3) hard copies and one (1) digital copy on CD or DVD of the Concept Paper via mail to the Contracting POC, identified in the Submission Requirements below. **NOTE: CONCEPT PAPERS CANNOT BE SUBMITTED ONLINE.**

d. Format: The concept paper will be formatted as set forth below in Table 1. Note that Section 1 must include; FOA Number, Title of Program, Name of Company, Business Size, Company's Commercial and Government Entity (CAGE) number, Dun & Bradstreet (D&B) Data Universal Numbering System (DUNS) number, Contracting POC and Technical POC with appropriate telephone numbers, fax numbers, and email addresses for the POCs.

e. Technical Portion: The Concept Paper consists of a summary (or initial layout) of the Business Plan for the Institute; the Technical Plan to include a technical strategy, a plan for Technology Platform Demonstrators, and an example annual program plan (APP,), with an example provided in Appendix B. The example APP highlights how the responder envisions executing the Institute projects and milestones. The concept paper must also include a draft Education and Workforce Development Plan. The organization and content requirements for the Concept Paper are summarized in Table 2. A proposed Statement of Work is not required at this point.

f. Cost Portion: The cost portion of the concept paper shall include a ROM cost estimate. No detailed price or cost support information should be forwarded; only a time-phased bottom line figure should be provided.

g. Concept Paper/Proposal Content Summary: You may be ineligible for award if all requirements of this solicitation are not met on the proposal due date. Reference Section VI for a Checklist of the requirements.

TABLE 1 – CONCEPT PAPER FORMAT
(Maximum = 45 Pages)
SECTION 1 – Cover Page, Table of Contents (Excluded from the page count)
SECTION 2 - Quad chart (format in Appendix B) (Excluded from page count)
SECTION 3 – Business Plan including period of performance and task objectives
SECTION 4 – Technical Plan
SECTION 5 – Educational & Workforce Development Plan (approximately 3 pgs)
SECTION 6 – Example Annual Program Plan (Excluded from page count) (Example provided in Appendix B)
SECTION 7 – (2) Example Project Calls (Excluded from page count)
SECTION 8 – Technical References (Excluded from the Page Count)
SECTION 9 – Biographies of key personnel (Two page each max, excluded from page count)
SECTION 10 – Rough order of magnitude cost

ONLY CONCEPT PAPERS ARE BEING SOLICITED AT THIS TIME

3. **Second Step- Proposals for Cooperative Agreements**:

   a. General:

      i. The *SECOND STEP* consists of offerors submitting a technical and cost proposal upon invitation. After receipt, proposals will be evaluated in accordance with the award criteria in Section V. below. Proposals will be categorized and subsequently selected for negotiations.

      ii. Offerors should apply the restrictive notice prescribed in the provision of FAR 52.215-1(e) Instructions to Offerors—Competitive Acquisition. Offerors should consider proposal instructions contained in the **Broad Agency Announcement (BAA) Guide for Industry** , which can be accessed on line at http://www.wpafb.af.mil/shared/media/document/AFD-120614-075.pdf. This guide is specifically designed to assist the offeror in understanding the BAA/FOA proposal process.

      Offerors should provide a completed quad chart using format in Appendix B. The quad chart is not included in the page limit.

iii. Technical/management and cost volumes should be submitted in separate volumes, and must be valid for 180 days.

iv. Proposals must reference the announcement number FOA-RQKM-2015-0014.

v. Offerors may submit their proposal via Grants.gov and must submit three hard copies of their proposals to the Contracting POC, identified in the Submission Requirements below. Offerors must include one (1) CD in Microsoft WORD Format containing all electronic versions of required submittals (Technical/Management Proposal/SOW/Cost/Business Proposal). All electronic versions must match the hard copies. CDs should be labeled with offeror name and proposal title.

vi. Offerors are advised that only Grants officers are legally authorized to contractually bind or otherwise commit the government.

vii. The cost of preparing proposals in response to the Request for Proposals is not considered an allowable direct charge to any resulting or any other contract; however, it may be an allowable expense to the normal bid and proposal indirect cost as specified in FAR 31.205-18.

b. Grant Opportunity: Go to http://Grants.Gov to find the grant opportunity. The initial screen will provide the synopsis for that specific grant opportunity. To view the entire opportunity open the "Full Announcement" box in the upper center of the synopsis page and select from the documents available under "Announcement Group." NOTE: http://Grants.Gov has tools and guiding documents in the left margin under "Applicant Resources" to help you find and apply for grant opportunities. Grants.gov requires Adobe Reader version 8.13 to open, download, save, and submit an application electronically. Adobe Reader version 8.13 is available for free from Grants.gov under "Applicant Resources," "Download Software."

c. Proposal Cover Page – SF 424 (R&R) Form: All proposals for grants or assistance, whether submitted electronically or in hard copy must include an SF 424 (R&R) as the cover page. The SF 424 (R&R) should be downloaded from the "Application" box in the upper right hand corner of the synopsis page. Click on "download" under the column "Instructions and Application." Select "Download Application Package" and complete the SF 424 (R & R).

d. Certifications: To access the requisite Certifications, select the "Application" box in upper right hand corner of the synopsis page. Click on "Instructions and Application" and select "Download Application Instructions" to view the Certifications. To complete the Certifications you must check Block 18 of the SF 424 (R&R), and by signing it (either by pressing the "submit" button for Grants.gov or by hand if submitting it in hard copy), you are certifying that you have read and agree to abide by the terms in the Certifications. You do not need to submit any additional documentation unless you have lobbying activities to disclose on an SF –LLL.

e. Proposals for Grants or Assistance Instruments: Proposals for grants or assistance instruments must be submitted (1) directly with a hard copy to the AFRL contracting

POC listed in this announcement or (2) electronically through the Grants.gov government-wide electronic portal. **You must notify your contracting POC before the stated proposal due date and time of this notice if you decide to submit your proposal electronically or your proposal will not be considered**.

f. For Hard Copy Submission: The original proposal and the number of copies specified in this announcement must be delivered directly to the contracting POC in AFRL at the time and date specified in this announcement.

g. For Electronic Submission:

i. Advance Preparation: Electronic proposals must be submitted through Grants.gov. There are several one-time actions your organization must have completed. Long before the proposal submission deadline, you should verify that the persons authorized to submit proposals for your organization have completed these actions. If not, it may take them up to **21 days** to complete the actions before they will be able to submit proposals. **NOTE: Concept papers cannot be submitted online**. The Concept Paper must be submitted via mail to the Contracting POC, identified in the Submission Requirements below

ii. Electronic Submission Process: The process your organization must complete includes obtaining a Dun and Bradstreet Data Universal Numbering System (DUNS) number, registering with SAM, registering with the credential provider, and registering with Grants.gov. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called MPIN are important steps in the registration process. Go to http://www.grants.gov/applicants/get_registered.jsp.

iii. Your organization's E-Business POC, identified during CCR Registration, must authorize someone to become an Authorized Organization Representative (AOR). This safeguards your organization from individuals who may attempt to submit proposals without permission. *Note: In some organizations, a person may serve as both an E-Business POC and an AOR.*

iv. The Grants.gov Organization Registration Checklist is located at http://www.grants.gov/assets/OrganizationRegCheck.pdf to guide you through the process.

v. If a proposal is submitted through Grants.gov, Adobe Reader version 8.13 or later will need to be downloaded. This small, free program will allow you to access, complete, and submit applications electronically and securely. Reference IV. 4.a. above for instructions on how to obtain a free version of the software.

vi. Should you have questions relating to the registration process, system requirements, how an application form works or the submittal process, call Grants.gov at 1-800-518-4726 or support@Grants.gov <mailto:support@Grants.gov>.

h. Submitting the Electronic Proposal

i. Application forms and instructions are available at Grants.gov. To access these materials, go to http://grants.gov <http://grants.gov> Select "Apply for Grant", and then select "Download Application Package". Enter the CFDA number (typically 12.800). You should also enter the BAA number, and then follow the prompts to download the application package.

ii. The applicant will receive a confirmation page upon completing the submission to Grants.gov. This confirmation page is a record of the time and date stamp that is used to determine whether the proposal was submitted by the deadline. A proposal received after the deadline is "late" and will not be considered for an award.

Technical Proposal

The attachments that make up the content of the full proposal consist of the following parts. The first or lead part is the Business Plan, which describes the proposed Institute as an operating entity. The second part consists of the Technical Plan, including Example Annual Program Plan (an example format is in Appendix C) that exemplify the vision and mission of the proposed Institute. The third part shall describe the Educational and Workforce Development section, which describes the proposed approaches for education, training, and workforce development. The third part is the budget spreadsheet and the cost proposal/budget. The Compliance Matrix should be attached at the end of the proposal. The organization and content requirements for the Full Proposal are summarized in Table 2.

Include a SOW detailing the technical tasks proposed to be accomplished under the proposed effort and suitable for incorporation in the agreement. ***Do not include any proprietary information in the SOW.*** Refer to the BAA Guide for Industry referenced above to assist in SOW preparation. Although not anticipated to be provided, if Government Furnished Property is requested you are required to submit the following information with your offer—

i. A list or description of all Government property that the offeror or its subcontractors propose to use on a rent-free basis. The list shall identify the accountable contract under which the property is held and the authorization for its use (from the contracting officer having cognizance of the property);

ii. The dates during which the property will be available for use (including the first, last, and all intervening months) and, for any property that will be used concurrently in performing two or more contracts, the amounts of the respective uses in sufficient detail to support prorating the rent;

iii. The amount of rent that would otherwise be charged in accordance with FAR 52.245-9, Use and Charges; and

iv. The voluntary consensus standard or industry leading practices and standards to be used in the management of Government property, or existing property management plans, methods, practices, or procedures for accounting for property.

v. Any questions concerning the technical proposal or SOW preparation shall be referred to the Technical or Contracting *(pick one)* POC cited in Section VII.

TABLE 2 – FULL PROPOSAL FORMAT
VOLUME I/TECHNICAL (Maximum = 80 Pages)
SECTION 1 – Cover Page, Table of Contents (Excluded from the Page Count)
SECTION 2 – Executive Summary
SECTION 3 – Compliance Matrix (Excluded from Page Count).
Final QUAD Chart (Appendix B example) (Excluded from the Page Count)
SECTION 4 – Business Plan
SUB SECTION A – Management & Operations
SUB SECTION B – Physical Infrastructure (Innovation Manufacturing Centers)
SUB SECTION C – Attaining Self-Sufficiency
SUBSECTION D -- Cost Share Plan, including Proposed Budget and Letters of Commitment for cost share (Two page max each, Excluded from page count)
SUB SECTION E – Defense & Economic Impact
SECTION 5 – Technical Plan
SUB SECTION A – Technical Strategy
SUB SECTION B – Technology Platform Demonstration
SUBSECTION C -- Technical personnel Qualifications
SECTION 6 – Workforce & Education Development Plan (Five pages max)
SECTION 7 – Annual Program Plan Example for FY15 and FY16 (including Project Calls and Innovation Manufacturing Center(s) (Excluded from the Page Count)
SECTION 8 – (2) Example Project Calls (Excluded from the Page Count)
SECTION 8 – Statement of Work (Excluded from page count)
SECTION 9 – Technical References (Excluded from the Page Count)
SECTION 10 – Biographies of key personnel (Two page each max, Excluded from page count)
VOLUME II/COST (No Page Count Limitation)
SECTION 1 – Cover Page, Table of Contents
SECTION 2 – Detailed Cost by Cost Element
SECTION 3 – Acronym Listing

Cost Proposal Spreadsheet
The cost proposal spreadsheet is required, and details of the costs (including cost share portion) associated with the entire proposed Institute. The budget should be in the offeror's fiscal year. The cost proposal should assume an agreement start date of September 2015. The electronic submission of the Excel spreadsheet associated with the Cost Proposal should be in a "useable

condition" to aid the Government with its evaluation. The term "useable condition" indicates that the spreadsheet should visibly include and separately identify within each appropriate cell any and all inputs, formulas, calculations, etc. The offeror should not provide "value only spreadsheets". If AFRL cannot manipulate the spreadsheets in a manner sufficient for evaluation, then AFRL will consider the proposal non-responsive and discard it. As described above, offerors can find the Cost Proposal Spreadsheet in Appendix C. Click on the "Cost Proposal Spreadsheet" link and save a copy of the spreadsheet. The form/spreadsheet has embedded instructions for completion. For proposed subawards or inter-organizational transfers over $150,000, offerors must provide a separate Statement of Work and fully completed Cost Proposal Spreadsheet in support of the proposed costs – along with supporting documentation. **Note:** Fee/profit is unallowable under assistance agreements at either the prime or for subawardees and subcontractors performing research.

Cost Proposal

This volume, including the Cost Proposal spreadsheet, has no page limits, and applicants may include as appendices any other information they feel pertinent to the proposal package. They should note, however, that they cannot use these appendices to circumvent the page limitations in the technical sections of the proposal – that is, any information included that is not relevant to the cost proposal will be discarded. The following information must be included in this volume:

a.) In addition to the cost proposal spreadsheet above, the offeror should also include as part of the cost proposal detailed information on the sources (by organization), timing, and extent (in dollars) of the required cost sharing, and the plans to ensure the financial sustainment of the Institute. This information shall include a schedule of cost sharing that shows when the proposed cost share will be available to the agreement so that the Government can evaluate the proposed equity when sharing costs, e.g., the extent to which overall cost sharing ratio is applied to each invoice versus front loading the Government's contribution.

b.) Cooperative Agreement Terms and Conditions: In this section of the cost proposal, if the offeror takes exception to any terms and conditions in the Model Cooperative Agreement (found at Appendix E), it must describe the exceptions and indicate its desired mark-ups of the Agreement Language. If an offeror is selected for award and does not fully disclose their exceptions during the proposal process, the Government reserves the right to award to another offeror.

c.) Offerors should familiarize themselves with the new subaward reporting requirements set forth in the article entitled "Reporting Requirements for Subaward and Executive Compensation" Article 7.050 of the model cooperative agreement (Appendix E). The related information should also be provided with the Cost Proposal.

d.) The offeror shall also state in this section whether its accounting/financial systems have previously been audited by a government agency or if the offeror has a completed or in-process audit in accordance with the OMB Circular A-133, which is the Single Audit Act. If the offeror has been audited by a government agency, the following information shall be provided: audit agency name; auditor name, telephone number, and email; type of audit: and audit report number and/or date of audit report (if known). If an audit in accordance with OMB Circular A-133 has been completed, provide the date of its completion and the fiscal year for which it was completed. Also, report any in-process A-133 audits and their expected completion date. Note effective 26 Dec 2014, referenced OMB Circulars became obsolete and are replaced by 2 CFR 200.

e.) The information required regarding Organizational Conflict of Interest in Section VI.B.8 shall be included in this volume.

f.) The attachment with the Offeror's representations in Section VI.B.2 entitled "Representation Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction under any Federal Law - DoD Appropriations"

g.) The Cost Proposal must confirm that the offeror's proposal is valid for at least 180 days.

Compliance Matrix
Offerors shall provide a "Compliance Matrix" in table format (separate and exempt from total page count) that details how the offeror's proposal addresses all the Evaluation Criteria across each of the eight Institute Requirements that are described in Section I, Subsection B (paragraphs 1 through 8).

Compliance Matrix **Evaluation Criteria x Proposal Outline**	Proposal Outline
I. TECHNICAL	
1) Business Plan	
Management and Operations to include APP and (2) Example Project Calls	
Physical Infrastructure	
Attaining Self-Sufficiency	
Cost Share	
Defense and Economic Impact	
2) Technical Plan/Scope	
Technical Strategy	
Technology Platform Demonstrations	
Technical Personnel Qualifications	
3) Workforce & Education Development Plan	
II. COST/PRICE	

4. Submission Instructions: Go to http://grants.gov. The initial screen will provide the synopsis for that specific opportunity. To view the entire opportunity, open the "full Announcement" box in the upper center of the synopsis page and select from the documents available under "Announcement Group." NOTE: Http://grants.gov has tools and guiding documents in the left margin under "applicant Resources" to help you find and apply for grant opportunities. Grants.gov requires Adobe Reader version 8.13 to open, download and save and submit an application electronically. Adobe Reader version 8.13 is available for free from Grants.gov under "Applicant Resources," "Download Software." **NOTE: Concept papers**

cannot be submitted online. The Concept Paper must be submitted via mail to the Contracting POC, identified in the Submission Requirements below. One hard copy of the proposal should be submitted to the AFRL/RQKM Contracting POC, Charlotte Chumack, 2130 Eighth Street, Building 45, Area B, WPAFB, OH 45433.

5. Additional Instructions

Proposals received after the due date and time shall NOT be evaluated or considered for an award by the Government.

Any proposal, modification, or revision that is received at the designated Government office after the exact time specified for receipt of proposals is "late" and will not be considered unless it is received before award is made, the agreements officer determines that accepting the late proposal would not unduly delay the award and:

a. If it was transmitted through an electronic commerce method authorized by the announcement, it was received at the initial point of entry to the Government infrastructure not later than 5:00 P.M. one working day prior to the date specified for receipt of proposals; or

b. There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government's control prior to the time set for receipt of proposals; or

c. It was the only proposal received.

However, a late modification of an otherwise timely and successful proposal that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

Acceptable evidence to establish the time or receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the Government office designated for receipt of proposals by the exact time specified in the announcement, and urgent Government requirements preclude amendment of the announcement closing date, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the announcement on the first work day on which normal Government processes resume.

The Grants officer must promptly notify any offeror if its proposal, modifications, or revision was received late and must inform the offeror whether its proposal will be considered.

V. EVALUATION INFORMATION

The selection of a source for the Flexible Hybrid Electronics Institute will be based on an evaluation for each proposal to determine the overall merit of the proposal in response to the announcement, as well as on Agency need and funding availability.

The following criteria are listed below, and segregated as Technical Criteria and Cost/Price Criteria. Cost/price is a substantial factor, but ranked as the second order of priority after technical. Within the Technical Criteria section, the criteria are listed in a ranked order of descending priority. For example, 1) Business Plan is most important, followed closely by 2) Technical Plan/Scope. All criteria need to be addressed within the proposal. Bullets further describing each criterion are of equivalent importance.

The Government will make an award to an offeror under this solicitation based on the evaluation criteria listed below. The Government reserves the right to remove proposers from award consideration should the parties fail to reach agreement on award terms, conditions, and cost/price within a reasonable time, or the proposer fails to timely provide requested additional information.

Concept papers will be evaluated with the same criteria as full proposals.

A. EVALUATION CRITERIA

I. TECHNICAL:

1) <u>**Business Plan**</u>

   a) **Management and Operations**: Responses shall be evaluated on the vision and plan for the proposed Director Leadership, organization and operation of the Institute to include: the availability, qualifications, and experience of the proposed management personnel; intellectual property management; the level and role of academic institutions, multiple tiers of industry, end users, networked institutes, and federal and non-federal government participation as appropriate. Responses will also be evaluated on the quality of their Business Integration Strategy

   b) **Physical Infrastructure (Innovation Manufacturing Center(s))**: Responses shall be evaluated on the infrastructure concept in context with the overall program. (If more than one IMC is envisioned, the infrastructure concept will be evaluated on how the different IMCs will interact and be resourced.)

   c) **Attaining self-sufficiency**: The management and operation requirement shall be evaluated on the anticipated Institute structure after the 5 year base federal funding and concepts for achieving self-sufficiency.

   d) **Cost Share**: Quality and extent of the desired 50/50 cost share in terms of the source of the cost share, and the quality/applicability of any in-kind cost share to the operation of the Institute.

e) **Defense and Economic Impact**: The Institute shall be evaluated on the U.S. economic impact (job creation, spin-off companies, etc.) of technology transition for commercial applications as well as the business plan and technical vision to establish mechanisms for working with DOD agencies to support technology transitions to Program Offices.

2) **<u>Technical Plan/Scope</u>**

a) **Technical Strategy**: The response shall be evaluated on how the Institute operations will integrate technical strategies to demonstrate Flexible Hybrid Electronics manufacturing innovation.

b) **Technology Platform Demonstration**: Relevance and potential impact of technology platform demonstrations to defense systems and other government/commercial applications. The response shall be evaluated on how the technology platform demonstrations shall be used to demonstrate manufacturing capabilities that will advance the industry and military base in the respective technology focus. The application focus for the two example projects in the project calls are the Technology Platform Demonstrations.

c) **Technical Personnel Qualifications:** The qualifications, capabilities and experience of the proposed technical personnel.

3) **<u>Workforce & Education Development Plan</u>**: The responses shall be evaluated on the degree of integration of educational and workforce/professional development and training integral to the Institute business and technical plan.

II. <u>COST/PRICE</u>: Realism of the proposed cost and consideration of proposed budgets and funding profiles will be evaluated.

B. Review and Selection Process

1. **Categories**: The technical and cost proposals will be evaluated at the same time and categorized as follows:
   i. **Category I**: Demonstrates technical merit, is important to agency programs. The offeror presents relevant experience and access to adequate resources. Risk is acceptable. The cost/price is reasonable and realistic. Proposals in Category I are recommended for acceptance (subject to availability of funds) and normally are displaced only by other Category I proposals.
   ii. **Category II**: Demonstrates technical merit; is important to agency programs; and presents relevant experience and access to adequate resources; but requires further development. Risk is acceptable. The cost/price is reasonable and realistic.

Category II proposals are recommended for acceptance, but at a lower priority than Category I.

iii. **Category III**: Does not demonstrate technical merit; does not meet agency needs; does not present adequate experience or resources; the risk level is unacceptable; or the cost/price is not reasonable or realistic.

2. No other evaluation criteria will be used. The technical and cost proposals will be evaluated at the same time. The Air Force reserves the right to select for award any, all, part or none of the proposal received.

VI. AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES

The Government will notify all offerors when an award has been made, by letter or e-mail, and anticipates an award on or about September 2015.

B. ADMINISTRATIVE REQUIREMENTS:

1. Support contractors: Offerors are advised that employees of commercial firms under contract to the Government may be used to administratively process proposals, monitor contract performance, or perform other administrative duties requiring access to other firms' proprietary information. These support contracts include nondisclosure agreements prohibiting their contractor employees from disclosing any information submitted by other contractors or using such information for any purpose other than that for which it was furnished.

2. Wide Area Work Flow: NOTICE: Any cooperative agreement resulting from this solicitation will contain the article 4.024 or 4.025 – Payment Reimbursement, which allows electronic submission of all payment requests. The Department of Defense is adopting Wide Area Work Flow-Receipt and Acceptance (WAWF-RA). Any agreement resulting from this solicitation will allow use of WAWF-RA for invoicing and receipt/acceptance and provide coding instructions applicable to this agreement. Offerors are encouraged to take advantage of available training (both web-based and through your local DCMA office), and to register in the WAWF-RA system. Information regarding WAWF-RA, including the web-based training and registration, can be found at https://wawf.eb.mil. Note: This WAWF-RA requirement does not apply to Universities that are audited by an agency other than DCAA.

3. Reporting Executive Compensation and First-Tier Sub-Contract/Sub-recipient Awards: Any agreement award resulting from this announcement may contain the award term set forth in 2 CFR, Appendix A to Part 25.

http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=c55a4687d6faa13b137a26d0eb436edb&rgn=div5&view=text&node=2:1.1.1.4.1&idno=2" \l "2:1.1.1.4.1.2.1.1

4. Updates of Publicly Available Information Regarding Responsibility Matters: Any award that exceeds $500,000.00; and when an offeror has current active Federal contracts and grants with total value greater than $10,000,000 shall contain the Article 8.050 Updates of Information Regarding Responsibility Matters.

5. Ombudsman: The Ombudsman Article 5.020 entitled "Ombudsman" shall be contained in the agreement resulting from this Solicitation. The AFRL Ombudsman is Barbara G. Gehrs, Director of Contracting, AFRL/PK, (937) 904-4407, email: Barbara.Gehrs@us.af.mil.

6. Standards for Financial Management Systems: IAW DoDGARS, Section 32.21 is hereby incorporated by reference.

7. Department of Defense High Performance Computing Program
The DoD High Performance Computing Program (HPCMP) furnishes the DoD RDT&E communities with use-access to very powerful high performance computing systems. Awardees of assistance instruments may be eligible to use HPCMP assets in support of their funded activities if Program Officer approval is obtained and if security/screening requirements are favorably completed. Additional information and an application may be found at http://www.hpcmo.hpc.mil/.

8. Organizational Conflicts of Interest
All offerors and proposed partners, subawardees and subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any Government technical office(s) or Office of the Secretary of Defense (OSD) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval, a contractor cannot simultaneously be a SETA and a research and development performer. Proposals that fail to fully disclose potential conflicts of interests will be rejected without technical evaluation and withdrawn from further consideration for award. If a prospective offeror believes that any conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with the Government by sending his/her contact information and a summary of the potential conflict by e-mail to the Contracting Point of Contact in Section VII below, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Grants Officer after full consideration of the circumstances, any conflict situation cannot be effectively avoided, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this solicitation.

9. Proposal Content Checklist: You may be ineligible for award if all requirements of this solicitation are not met on the proposal due date.

- **A.** Proposals are due no later than the due date and time specified in this announcement.
- **B.** Proposal page limits are strictly enforced. The government will check the proposal for conformance to the stated requirements. Any pages in excess of the stated page limitation after the format check will not be considered.
- **C.** Completed Representations and Certifications are due with the proposal. Representations and Certifications can be found in Appendix D. In the interests of transformation and streamlining and in order to be in position to award within days of completion of the technical evaluation, it is imperative that you review the model

agreement appropriate for your business type and include in the proposal any exceptions to terms and conditions.

D. The Cost Proposal must contain all information specified.

E. For any subagreements proposed, the Cost Proposal must contain a subrecipient quote/analysis.

F. The Cost Proposal must contain any exceptions to the sample Model Cooperative Agreement (Appendix E) Terms and Conditions. However, be advised that the document awarded may include articles in addition to those in the model, and/or some of the articles in the model may be deleted, depending on the specific circumstances of the individual program. Any additions or deletions will be discussed with the offeror prior to award of the document.

G. Proposals must be submitted in the format specified.

H. Offerors who have Forward Pricing Rate Agreements (FPRA's) and Forward Pricing Rate Recommendations (FPRR's) should submit them with their proposal.

VII. AGENCY CONTACTS

Address contracting or technical questions to: Charlotte.Chumack@us.af.mil

Contracting POC: AFRL/RQKM, ATTN: Charlotte Chumack, 2130 Eighth Street, Building 45, Area B, WPAFB, OH 45433, (937) 713-9876, Charlotte.Chumack@us.af.mil