

Flexible Hybrid Electronics Manufacturing Innovation Institute

Questions and Answers

**Proposers Day, 26 Feb 15
Monterey, CA**

- 1) Q: What are the benefits and limitations for private sector investors? (Ex. Do they get privileges in IP rights?)
 - A: The IMI concept, including benefits to the government, academia, and the industrial base, is detailed in both the FOA and Appendix A. Guidance on IP rights is provided as Appendix G. A plan for IP should be included as part of the submitted business plan.
- 2) Q: Can any foreign organization(s) join the proposal team as a participant?
 - A: Page 16 of the FOA discusses five (5) key criteria for foreign entity participation as members in the Institute.
- 3) Q: Does DoD assume target application areas for this Institute? (Example, defense)
 - A: Example Technology Platform Demonstrations are provided in Appendix A, Section 3.2. They include both defense and commercial applications.
- 4) Q: Often times advanced technologies are pioneered by small companies and startups. How does the government encourage the participation of small business?
 - A: The FOA is not prescriptive. The FOA asks proposers to describe their vision of a public private partnership which encourages the engagement and participation of small business along with a partnership structure (FOA page 8) that executes that vision.
- 5) Q: Many “pieces” of the FHE technology exist right now, developed/commercialized by companies and universities. How should the existing knowledge be integrated in the proposal?
 - A: The business plan is intended to lay out how the Institute will integrate technologies, and the technical plan (FOA page 11) calls for explaining how to integrate and advance manufacturing technologies and scale up for those technologies.

6) Q: Industry involvement is clearly important. What are some examples of successful industry involvement with America Makes, DMDI, or LIFT during their early stages thus far?

- A: The DoD will not comment on examples from existing institutes such that a preference might be expressed. Each concept paper is asked to describe their management and operations, which should describe their business integration strategy. Each Institute is unique with different constraints and industry drivers and thus each institute will engage with industry in a unique fashion.

7) Q: Workforce development is important to provide advance degree people to industry. Since a lot of Defense jobs require US citizenship, is there a requirement or incentive to support US citizen grad students? (E.g., report number of US grad students being supported.)

- A: Participation of foreign nationals will be prohibited on any projects that involve export-controlled (ITAR) technology. This will be assessed on a project-by-project basis.

8) Q: How does DoD/DoE envision facilitating communication between the Institutes to develop case of best practices? For example: Intellectual Property.

- A: Offerors should address how the FHE-MII would interact with government agencies to include other IMIs.

9) Q: Will a successful IMI bid address all or every aspect of the conceptual FHE IMI structure?

- A: The FOA Appendix Figure 1 provides a conceptual FHE-MII structure, intended to guide offerors in their responses, but it DOES NOT represent a required technical approach. The concept paper and full proposals will be evaluated against the evaluation criteria [V. EVALUATION INFORMATION] on page 27 and the eligibility [III. ELIGIBILITY INFORMATION] on page 15 based on the statement of objectives outlined in the FOA.

10) Q: You have listed quite a few end use applications. Will the IMI be expected to address all of those applications or some subset? Is there a minimum or preferred number of end use apps?

- A: End use applications have been provided as example capabilities to demonstrate FHE manufacturability. There are not a minimum or preferred number of applications.

CONTRACTING QUESTIONS

11) Q: The funding profile appears to be 4 year, not 5. Since Year 1 is 2 weeks, might the funding be extended into FY 20?

- A: The funding for institutes is subject to appropriations. The program period of performance is five full years, with funding in five fiscal years (FY15-FY19).

12) Q: Is the \$75M the total cost? Is the indirect cost part of cost share?

- A: The Federal Government funding for the program is \$75M, with the requirement of at least \$75M of cost share from Institute Members. Indirect costs are not the same as cost share. Cost sharing includes cash and third-party in-kind contributions 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.

13) Q: Do you anticipate that the majority of government funding (\$75M) will be spent at the Institute's physical location(s) OR will it mostly be spent on project calls? What would be the funding split between the two?

- A: The business and technical plan should provide rationale for the proposed allocation of resources.

14) Q: How did OSD arrive at \$75M for FHE MII? Why does OSD feel that \$75M is enough to create the needed ecosystem for FHE MII?

- A: DoD conducted an extensive RFI process with broad industry response that included assessments by government SMEs. The funding level reflects the challenges identified in that process.
- A: The NNMI Preliminary Design Document, referenced in the FOA, also provided tenets for the institutes, one of which was the minimum level of investment funding required to create an innovation ecosystem that would be sustainable.

15) Q: Your thoughts on hub vs. node concept as opposed to regional focus?

- A: The FOA addresses the need to address sufficiency of geographic concentrations for the overall institute, as well as for each of the technical teams to attain critical mass of capability and thus foster innovation.
 - A: If a technically superior institute can be created which is geographically diverse, (Hub / Node), this would still constitute a viable institute. Such a proposal should address how
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any drawbacks of such a spread-out institute are more than compensated for by the advantages of the proposed structure.

16) Q: Focus is on TRL 4-7. However, what is TRL 1-3 today will be ready for TRL 4-7 in three to four years from now? This provides continued ideas/technology. Thus, some TRL 1-3 is okay as cost share?

- A: Per FOA business plan operational structure: “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”. Some technologies may reach this threshold after the inception of the Institute and then be included in Institute projects at that time. However, cost share must be directly related to the objectives of the institute, deemed of value, and not associated with peripheral activities. Consult DoDGARS for more information. Also, Federal Government funds cannot be used for cost share.

17) Q: Is there a role for institutional funding (VCs, CVCs) in the Institute? If so, what do you envision as their role?

- A: The conceptual FHE MII ecosystem is shown in Appendix A, Figure 1. Funding from other sources, which could include institutional funding, is part of the FHE MII concept, primarily through member’s cost share or fee-for-service industry-driven R&D. Venture Capital companies may choose to fund institute members directly; these members would then be able to participate with cost share.
- A: The FOA includes a section on partnership structure on page 8 (a.3) which requires a vision and strategy for engaging all manner of stakeholders in the ecosystem, but is not prescriptive in how industry, academia, and government will participate in the FHE-MII, to include VC and CVCs. The institutes are intended to stimulate job growth and manufacturing. VC and CVC participation in created US commerce is vital.

18) Q: Indirect costs: Is \$75M the total cost?

- A: Yes. The Federal Government funding for the program is \$75M, with the requirement of at least \$75M of cost share from Institute Members. Indirect costs are not the same as cost share.

19) Q: IP Structural – The Appendix has an example IP structure. Is there a typical example of other institutes and how is this structured?

- A: The DoD will not comment on examples from existing institutes such that a preference might be expressed. Each concept paper is asked to describe their partnership

structure (FOA pg 8) which includes intellectual property management. Guidance on IP rights is provided in Appendix G of the FOA.

20) Q: Can an organization be included in several concept proposals?

- A: Yes.

21) Q: Project Calls – is there a grant submission process and a review board?

- A: FOA asks proposers to define a management and governance model, which includes how projects will be submitted, reviewed, and selected.

22) Q: How does an academic who is developing some potentially common knowledge team with (possible) competing proposals?

- A: Partnering opportunities can be found in several locations: Proposers' Day participants can be found on www.manufacturing.gov, you may use the FHEMII group on LinkedIn.com, and you may add a business card to the board outside, which will be also provided on www.manufacturing.gov within 10 days.

23) Q: Not including the networking session today, are there other forums or means to reach out to industry and academia to enquire their interest in collaborating on a specific project?

- A: www.manufacturing.gov and the FHEMII group on the LinkedIn.com site.

TECHNICAL QUESTIONS

24) Q: FHE TRLs and MRLs vary widely. How will TRL and MRL be assessed (for eligibility) and evaluated (for progression/maturity)? Clarification – Will a specific tool or criteria be used to evaluate TRL/MRL?

- A: The FOA Appendix A provides links to TRL and MRL definitions. The Concept Paper and Technical Proposal should provide support that the proposal approach is at TRL/MRL 4-7. Additional references, tools and a Deskbook reference can be found at dodmrl.org

25) Q: It seems that FHE-MII focus is on applied research and integration. Does this mean that Research I universities like Stanford and Berkeley are not the main parts of the MII?

- A: Universities are expected to play an important role in FHE-MII. Core institute funding will address FHE manufacturing challenges at MRL 4-7 in context with technology demonstrations.

26) Q: What is the government's expectation vis-à-vis Roll-to-Roll manufacturing of FHE for this institute at the end of 5 years?

- A: While use of RTR process for entire flexible electronics system processing are viewed as at low TRL/MRL, certain aspects of RTR processing can be considered as a part of manufacturing approach, if these are at corresponding MRL and within overall scope of the technical approach with intent of integration with other manufacturing technologies.
- A: From the FOA: "A proposed Institute that develops processes and technologies applicable within the current U.S. industrial base but which could subsequently transition to a future roll-to-roll commercial activity would meet the FHE-MII tenets."

27) Q: Is flexible energy storage such as flexible lithium ion batteries and super capacitors appropriate for this institute?

- A: Power integration is expected to be a part of the Institute. However, the Institute will not necessarily have a substantial flexible power development focus, rather the focus would be on manufacturing integration.

28) Q: Substrate materials – you mentioned plastics, textiles. How about flexible glass, metals, papers?

- A: Yes, all non-traditional substrates.

29) Q: Unlike DMDI, LM3I or America Makes, has FHE core regions throughout the US?

- A: Each of the existing DoD institutes (America Makes, DMDI, LIFT) resulted from a competitive solicitation process where many proposals were submitted, each with a regional core. Based upon industry RFI responses, Flexible Hybrid Electronics Manufacturing could have a core regional focus in multiple areas of the US.

30) Q: I understand flexible display is excluded. Would you clarify whether flexible back-panel electronics (i.e., thin film transistors) for displays is excluded?

- A: Flexible displays and display-related technology is excluded. TFT back-panels specifically for displays are excluded as demonstrator project.
- A: TFTs of TRL 4 can be part of a demonstrator; i.e., read-out for a sensor. TFT arrays at TRL 4 may be used for other applications as needed; i.e. chem/bio/health sensors.