**Acquisition & Contracting Framework**

1. Introduction
   1. DoD Policy
2. Purpose of Guide
3. General AM Information
   1. Benefits of AM
   2. Limitations of AM
4. AM Acquisition Strategy
   1. Acquisition Strategy Decision Tree. Decision-making on issues such as manufacturing method, IP rights, vendor selection, design trades (e.g. cost vs lightweighting), and other issues is at times ad hoc. A clear and structured decision-making process is required to guide decision-making in the AM space.
   2. Acquisition and Contracting Considerations
      1. Open and Standing Purchase Order Models AM may allow for a wider range of producers, with reduced prevalence of the current model where production is often restricted to OEMs. Tooling produced via AM may be producible at a number of vendors, and removal of the tooling barrier to entry may enable smaller vendors to aid in production. To best leverage this opportunity, flexible contracting that allows for immediate use of an AM producer to produce tooling or, in some cases, end-use parts without contracting each SKU would be beneficial to timelines, flexibility, vendor stability, and potentially cost. The same is true of machine shop contracting for cases where tooling is produced as its own SKU.
      2. Use of AM in Exigent Conditions Restrictions on use of SAM must be balanced against circumstance; in exigent conditions desired standards for material and quality control might not be appropriate (e.g. good enough to limp home). User should seek guidance from organization. This may include concerns such as risk acceptance, IP considerations, and other elements.
   3. Acquisition of Data
      1. Topic 3d: Seek Data Rights in a Strategic Manner The OEM will want to provide USG data rights in a manner that supports its business strategy. On the other hand, the USG customer may seek data rights that promote healthy competition among contractor bidders. These two drivers need to be balanced.
   4. ID Data & Determine if already exists
   5. Licensing CAD Model vs AM TDP Topic 3e: Licensing Only CAD Model A USG customer may be interested in licensing a 3D model of a component, rather than a complete AM TDP. Guidance for licensing 3D models is needed.
   6. Negotiate with OEM / “NETFLIX?”
      1. Direct Licensing from OEM to 3rd Party Guidance is needed for direct licensing of OEM data to contractors supporting the USG customer.
   7. Develop the Data
      1. Reverse Engineer / Organic vs Contracting with OEM / vs Contracting with 3rd Party
   8. Mark the Data
      1. Distribution Statement
      2. Export Control
5. AM Sustainment Strategy
   1. Effective Obsolescence mitigation requires planning during Acquisition Strategy development, and likely negotiation with OEM of contract terms by which data and rights are delivered upon discontinuity of sustainment support. The government should recognize that it is well-known that often the residual IP, e.g., AM TDPs, is the sole valuable asset of a bankrupt business entity.
6. Risk Management
7. AM in Weapon Systems Design
   1. AM Impact on Weapons System Design: As AM becomes a fabrication method of choice in many instances, impact on future weapon system designs should be considered. Specific designs for AM, where allowable and cost effective, should be incorporated into weapon system design.
   2. ID of AM Part Candidates:
      1. **Not every part is suitable to be produced via Additive Manufacturing**.Therefore, DOD needs a standardized process/mechanism to assess if (1) the part be made additively and (2) should it be made additively. Final decision rests with the cognizant engineer. If a part can be produced additively, then DOD needs to consider if the part can be produced quicker, if the part can be produced cheaper, if critical requirements of the part can be met, if demand can be met, and if ample technical data is available to print the part. This assessment should identify whether additive manufacturing is an option sourcing method.
   3. Buy / Make Decision Process:
      1. The language in some contracts to procure parts is too stringent and limits a vendor to provide the part via a specific manufacturing method. It would be a benefit to DOD to draft contract language that would allow the vendor to provide a part to the government in the most cost effective manner provided that the part can meet all performance requirements. If a vendor has capabilities to provide a part via a manufacturing method that reduces lead time or cost while meeting performance requirements, it would be in the government’s best interest to allow for a variety of manufacturing methods.
8. AM in Reverse Engineering
   1. Reverse Engineering (AM in Reverse Engineering) There are opportunities for RE, consider distinctions between patent and trade secret protection of IP. Seek guidance from legal as appropriate.
9. AM in Tooling
   1. Tooling & Tooling Data Purchase Tooling is a particularly appealing option for AM as it generally does not require certification and involves customized low-volume production. As such, the DoD should investigate mechanisms where tooling is produced either internally or externally and then used internally or by a third party. There may be questions of licensing, purchasing models, IP, and vendor selection.
10. AM Data Requirements
    1. Product & process certification requirements: (Under AM Data Requirements) Due to the current level of variability in AM, certifying the AM process holds as much importance as certifying the final product.
    2. Contract Data Requirements List (CDRL): “Some Contract Data Requirements List (CDRL) items address the technical aspects of AM and government requirements to accomplish its goals. Such CDRLs are discussed here to facilitate ensuring what is delivered under a contract is sufficient for the government’s purposes.” (from the Draft AM A&C Guidebook, Section 3.0 Scope, p. 5; also refer to C.5 Other Deliverables, p. 53).
11. Tech Data and Data Rights Access
    1. AM Sustainment Data and Rights (Tech data and Data Rights) AM provides options not previously available which can play an important role in ensuring long term sustainment of a weapon system and access to AM relevant data, and associated data rights, must be considered and negotiated as early as possible.
12. TDP
    1. Defining TDP content: Adequate AM TDPs will define requirements not found in conventional manufacturing.
13. IP
    1. IP Rights in Contract Language (Under IP) A comprehensive contract should include a clear statement on USG rights to use Contractor IP. Such rights should be sufficient to enable USG to accomplish program objectives e.g., operation and sustainment.
14. Obsolescence
15. Legal Hurdles & Pitfalls
    1. The principal (IP) legal concerns for the government in Additive Manufacturing are Data Rights and to a lesser degree, Patent Infringement. Mishandling Contractor Limited Right technical data exposes the government to liability and exposes the government employee to sever criminal penalties under 18 USC 1905 (Trades Secrets Act), including fines, imprisonment and loss of employment. Similarly, patent infringement subjects the government to both liability and considerable time, effort and expenses for defending the litigation.
    2. The government must respect the regulatory prohibition against government use of Limited Rights (LR) technical data for manufacturing and against distribution of LR data to third parties (except in emergency). If a patent infringement occurs from making a part, an event expected to be rare, the Government can use its statutory compulsory license right (28 USC Sec. 1498) to use a patent, but will owe “reasonable and entire” compensation to the patent owner. Copyright (also subject to 28 USC 1498 compulsory license) and Trademark considerations are slight, so long as no trademark is copied.
    3. Use of Contractor Proprietary Information. Similarly, misuse of Contractor proprietary information other than Limited Rights information also exposes the government and its employee to the penalties of the Trade Secrets Act (18 USC 1905).
    4. Warranties and Liabilities: OEM warranties for use of an AM TDP for organic manufacture will need to be negotiated, both for the part individually and for any subsystem in which the AM part is installed. Liability for failure of an AM part may be complex and should be addressed in negotiations with the OEM.
16. Deliverable vs Non-Deliverable Data
    1. Licensing Non-deliverable Data (Tech Data and Data Rights Access, sub deliverable vs. non-deliverable) A USG customer may benefit from OEM data that is not a specified contract deliverable. Guidance on licensing such data would facilitate granting customer access to such data.
17. Unavailable Tech Data
18. Data Security (incl Counterfeit)
    1. Cybersecurity Data Protection (DFARS 252.204-7012): To Ensure contract has language that refers to contractor requirements per DFARS 252.204-7012 re: CDI (Covered Defense Information) or as prescribed in the Controlled Unclassified Information (CUI) Registry.
19. Data Repository
    1. Centralized AM Policies and Procedures Repository (e.g. contractor command media, DoD instructions, etc.) In the absence of adequate industry AM standards, a manufacturing entity’s Centralized AM Policies and Procedures Repository is the definitive source for AM production control. An adequate Centralized AM Policies and Procedures Repository contains the following nine items: Policy Governance, Materials, Operational Processes, Training and Personnel Certification, Non-Destructive Inspection (NDI) Methods, Test Procedures, Calibration and Maintenance, Accept/Reject Criteria, Records Retention.
20. Sustainment of AM
    1. Training for contractor and government personnel is mandatory to ensure they (he/she) is properly qualified to operate an AM machine.
21. Contract Administration and Monitoring
    1. Contract Administration. For contracts administered by DCMA, refer to the DCMA AM document. "Surveillance of Additive Manufacturing Processes Guidebook for Contract Administrators, Manufacturing and Quality Specialists, and Engineers." For contracts administered by SUPSHIP or where Program Offices and Buying Commands retain contract administration, refer to those commands' AM-specific contract administration requirements.

Appendix:

-Sample Contract Schedules