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SECRETARY OF THE AIR FORCE**

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***Special Management***

**AIR FORCE STUDIES MANAGEMENT AND  
REGISTRATION**



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This publication implements Air Force Policy Directive (AFPD) 90-16, *Air Force Studies, Analyses, Assessments, and Lessons Learned* (to be retitled *Air Force Studies, Analyses and Assessments*). It provides guidance and procedures on the management and registration of studies throughout the Air Force (AF) and is consistent with the SAF/FM, SAF/AQ, and AF/A9 Memorandum, *Supplemental Studies Registry Program (SRP) Registration Requirements*, 18 August 2015. It applies to individuals at all levels conducting and managing studies to support AF decision-making processes, including the Air Force Reserve and Air National Guard (ANG), except where noted otherwise. This publication may be supplemented at any level, but all supplements must be routed to the Office of Primary Responsibility (OPR) listed above for coordination prior to certification and approval. Refer recommended changes and questions about this publication to the OPR listed above using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate chain of command. The authorities to waive wing/unit level requirements in this publication are identified with a Tier (“T-0, T-1, T-2, T-3”) number following the compliance statement. See Air Force Instruction (AFI) 33-360, *Publications and Forms Management*, Table 1.1 for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the Publication OPR for non-tiered compliance items. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW the Air Force Records Disposition Schedule (RDS) in the Air Force Records Information Management System (AFRIMS). The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the AF.

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## Chapter 1

### OVERVIEW

**1.1. Purpose.** AF studies are conducted to gain insights into complex issues and to inform leadership decisions. This instruction provides guidance on the management and registration of AF studies in accordance with the Studies Registry Program (SRP). The SRP provides a standardized process to identify, register, track, and share AF study efforts. The objective of the SRP is to increase visibility, transparency, and sharing of study efforts across the AF. This instruction defines the term study and describes contracted and non-contracted studies. This instruction then provides guidance on the management and registration of AF studies. Templates are provided to assist study leads in creating study plans and following a logical and rigorous study process.

**1.2. Study Definition.** For the purposes of this instruction, a study is defined as “A deliverable to decision makers and stakeholders resulting from organized analyses, assessments, or evaluations conducted in support of policy development, decision making, management, or administration.” Not all analysis and assessment efforts constitute a study. This definition implies a process, with a defined start and end date that involves creating a deliverable in response to, or in anticipation of, a decision maker’s request for analytical decision support. This definition also implies a more involved process and product development than what is required for typical staff work (e.g., data queries, requests for information, staff packages).

**1.3. Study Examples.** Types of AF analysis and assessment efforts that constitute a study, or inform a study, include, but are not limited to: Strategic Analysis, Force Structure Analysis, Resources, Recapitalization, Modernization, and Investment Analysis, Strategic and Operational Assessments, Capabilities-Based Assessments (CBA), Analysis of Alternatives (AoA), Business Case Analysis (BCA), and Manpower Studies, in addition to many unnamed type of analysis and assessment efforts.

**1.4. Contracted Studies.** For the purposes of this instruction, contracted studies are funded and coded using one of the following designated Advisory and Assistance Services (A&AS) Studies, Analyses and Evaluations (SAE) Element of Expense/Investment Codes (EEICs): 50610, 50611, 50620, 50621, 50670, 50671, 50672, and 50673. **Note:** Contracted Studies obligated in the Defense Enterprise Accounting and Management System (DEAMS) must use the following Object Class Codes (OCC): 2511101, 2511102, 2511111, 2511112, 2511103, 2511104, 2511113, and 2511114.

**1.4.1. Exemptions.** This instruction is not intended to include contracted engineering and system architecture and design efforts as part of weapon systems management and oversight A&AS Engineering and Technical Services EEICs: 50650, 50651, 50660, 50661, 50662, 50678, 50679, 50680 and 50681. **Note:** These EEICs correspond to the following OCCs respectively: 2513101, 2513102, 2513111, 2513112, 2513113, 2513103, 2513104, 2513115, and 2513114. Also, this instruction is not intended to include contracted efforts coded with existing EEICs/OCCs required by other policy or legislation (e.g., contract engineering services EEIC 532XX, or contract environmental services EEIC 534XX).

**1.5. Non-Contracted Studies.** Non-contracted studies, also referred to as organic studies, are accomplished with in-house AF military and civilian resources.

## Chapter 2

### ROLES AND RESPONSIBILITIES

#### **2.1. Director, Air Force Studies, Analyses and Assessments (AF/A9) will:**

2.1.1. Provide policy guidance, procedures, compliance items, and directed actions for study-related functions across the AF.

2.1.2. Lead or partner with appropriate organizations, as required, to provide quality, independent, objective, and relevant studies to inform AF decisions.

2.1.3. Lead or partner with appropriate organizations across the AF, as required, to establish and enforce policies, processes, and protocols for the capture of, retention of, and access to data needed to conduct studies.

2.1.4. Coordinate, review, and advise on studies forwarded to the SecAF, USecAF, CSAF, VCSAF, and external to the AF (e.g., Office of the Secretary of Defense, Congress), as required.

2.1.5. Serve as Executive Agent for RAND Project Air Force contract studies.

2.1.6. Coordinate participation in externally-directed studies (e.g., Resource Management Directive (RMD)) assigned to Headquarters Air Force (HAF) by identifying appropriate HAF leads and monitoring study completion.

2.1.7. Manage the AF SRP and its supporting processes through the SRP Support Team.

#### **2.2. SRP Support Team will:**

2.2.1. Provide customer assistance on SRP issues and questions.

2.2.2. Ensure that training and instructional materials are current and available to SRP users via the SRP functional area website: <https://www.my.af.mil/gcss-af/USAF/site/SRP>.

2.2.3. Ensure SRP database entries are accurate, up-to-date, and available to SRP users.

**2.3. Assistant Secretary of the Air Force for Financial Management and Comptroller (SAF/FM) will:** Assist requesting organizations with the completion of the Study Registration Verification form (See paragraph 3.8) and all other required documentation necessary to process a funding request or Military Interdepartmental Purchase Request (MIPR) when using one of the designated EEICs/OCCs.

**2.4. HAF Two-Letter organizations, Major Commands (MAJCOM), and Direct Reporting Units (DRU).** Each organization must implement process controls to ensure that studies sponsored by their organization are identified and registered. (T-1). Each organization is also responsible for:

2.4.1. **Certification Authority (CA).** Each HAF two-letter, MAJCOM vice commander, and DRU commander is designated as their organizational Certification Authority. The CA for Field Operating Agencies (FOA) is the CA of their parent organization. Each CA is authorized to delegate their CA authority and actions within their organization as they determine most beneficial, efficient, and effective. The CAs are accountable for the SRP

compliance, but day-to-day execution of those assigned tasks can be delegated as the CAs see fit. Each CA or their delegated representative will:

2.4.1.1. Review all contract study proposals to ensure registration and due diligence requirements are met. (T-1).

2.4.1.2. Approve all contracted study efforts. (T-1).

2.4.2. **SRP Point of Contact (POC).** Each HAF two-letter organization, MAJCOM, and DRU will identify and assign a primary SRP POC for SRP administrative activities on behalf of the organization. (T-1). SRP POC will:

2.4.2.1. Ensure timely and accurate registration of studies for their organization. (T-1). SRP POCs can elect to register all study information for each study or designate another individual directly associated with the specific study (e.g., study director, study lead) to accomplish the registration.

2.4.2.2. Coordinate with the CA to record the CA verification and approval of the contracted study in the SRP database. (T-1).

2.4.2.3. Work with requesting organization and unit FM to ensure the correct EEIC/OCC for funding A&AS SAE contracted studies is used. (T-1).

2.4.2.4. Review their organization's study entries to ensure they are updated and accurate. (T-1).

2.4.2.5. Coordinate with study director to finalize study registration for completed studies (See paragraph 3.9). (T-1).

2.4.3. **Unit FM will:** Ensure requesting organizations submit a completed Study Registration Verification form (See paragraph 3.8) with all other required documentation necessary and use one of the designated EEIC/OCCs to process a funding request or MIPR for A&AS SAE contracted studies. (T-1). Should unit-level FM personnel detect the use of an EEIC/OCC not listed above to fund a study, they should have the requesting organization confirm use of the correct EEIC/OCC before certifying funding. If a study task is funded through an existing contract that is appropriately using a different EEIC/OCC, then a second line of accounting must be added using the appropriate designated study EEIC/OCC for the study task. (T-1).

**2.5. MAJCOM and Numbered Air Force (NAF) A9s may provide study-related functions that include, but are not limited to the following items:**

2.5.1. Lead or partner with appropriate organizations, as required, to provide quality, independent, objective, and relevant studies to inform their commander's decisions.

2.5.2. Lead or partner with appropriate organizations across the command, as required, to establish and enforce policies, processes, and protocols for the capture of, retention of, and access to data needed to produce studies.

2.5.3. Coordinate, review, and advise on studies forwarded to the Commander, Vice Commander, and external to the organization, as required.

2.5.4. Provide support for the analytic aspects of this instruction, as requested. For example, advise study leads across the command on following a study process (Attachment 2), creating

study plans (Attachments 3), and ensuring analytical rigor (Attachment 4) of their study efforts.

**2.6. Study Director.** The study director is responsible for providing study direction, oversight, and review for contracted and non-contracted AF studies. The study director will:

2.6.1. Work with the SRP POC to ensure SRP registration, including initial study registration to final registration at study completion. (T-1). For non-contracted studies, the study director may delegate this responsibility to the study lead.

2.6.2. Work with SRP POC to obtain CA review and approval for contracted studies. (T-1).

2.6.3. Provide study direction, oversight, and guidance to the study lead, as required. (T-1).

**2.7. Study Lead.** Study lead is the individual tasked to lead or conduct a non-contracted study. In some cases, the study director may also fulfill the role of study lead. The study lead should:

2.7.1. Lead or conduct a study by following a logical study process (Attachments 2).

2.7.2. Create a study plan prior to conducting the study (Attachment 3).

2.7.3. Ensure the study is conducted with analytical rigor (Attachment 4).

## Chapter 3

### STUDIES MANAGEMENT AND REGISTRATION

**3.1. Studies Management and Registration.** The SRP provides a management and oversight structure for AF studies, including a standardized process to identify, register, track, and share AF study efforts. The process starts with a requirement for a study and ends when the decision maker and stakeholders receive the results and the study is documented and closed out in the SRP database.

**3.2. SRP Database.** The SRP provides a studies registry database. The system provides all registered users with the capability to search the database for information on proposed, on-going, and completed studies. The SRP database is available on an unclassified website and cannot accommodate classified material. Normally, sufficient unclassified information is available on a proposed study to permit registration in the SRP database. The study director will enter as much study detail as possible for classified studies. (T-1). However, the SRP POC or study director should contact the SRP Support Team for guidance in the event that study registration cannot be accomplished due to security classification issues. The SRP database is located at: <https://cs1.eis.af.mil/sites/CSRP/>.

**3.3. SRP Implementation Process.** Each HAF two-letter organization, MAJCOM, and DRU will establish, document, and implement CA-approved, internal processes suited to their mission in order to ensure compliance with the SRP guidance. (T-1). These processes should facilitate the earliest possible identification of study requirements, the establishment of study priorities and approval, and an evaluation of funding sources and availability. The processes should include descriptions of how the following SRP requirements are met for each study effort: Study Justification, Due Diligence, Study Registration, CA Approval, Study Registration Verification, and Study Completion.

**3.4. Study Justification.** Study directors should identify and confirm the source of the study proposal or directive and document this in the SRP database. Some common sources directing studies are Congressional, Department of Defense (DoD), and AF policy documents. These sources may include, but are not limited to: National Defense Authorization Act (NDAA), Defense Planning Guidance (DPG), Resource Management Directives (RMD), Quadrennial Defense Review (QDR), and AF Strategic Planning Guidance (SPG).

**3.5. Due Diligence.** Due diligence is the action taken prior to embarking upon a new study effort to understand if the study is duplicative of previously completed or ongoing studies. Existing study efforts may help to limit the scope or completely eliminate the need for a proposed study. Study directors and study leads must perform, and document in the SRP database, the findings from a thorough search for related studies by searching available sources to include, but not limited to Defense Technical Information Center (DTIC), the SRP database, and other Federally Funded Research and Development Center (FFRDC) and think-tank databases (e.g., RAND). (T-1). Study directors and study leads should also contact appropriate Subject-Matter Experts (SME) to gain additional information related to the study. **Note:** The effort required is what satisfies the CA that a thorough search was conducted prior to study approval. See SRP SharePoint for resources to assist with due diligence search: <https://cs1.eis.af.mil/sites/CSRP/>.

**3.6. Study Registration.** The study director or sponsoring organization's SRP POC will begin initial study registration by entering information into as many of the registry fields as possible. (T-1). Over time, as additional information becomes available, more of the registry fields should be entered. Study directors, in conjunction with the SRP POC, will ensure registration of contracted and non-contracted studies according to the following guidance. (T-1).

**3.6.1. Contracted Studies Registration.** All contracted studies must be registered in the SRP database and coded using one of the following designated A&AS SAE EEICs: 50610, 50611, 50620, 50621, 50670, 50671, 50672, and 50673. (T-1). **Note:** Contracted Studies obligated in DEAMS must use the following OCCs: 2511101, 2511102, 2511111, 2511112, 2511103, 2511104, 2511113, and 2511114. In the event that one of the eight, designated EEIC/OCCs above is used for a contracted effort that does not meet the study definition it must still be registered in the SRP database. (T-1). However, the SRP registry allows for the entry to be designated as a "non-study" effort. These cases may warrant a closer review by the study director and a discussion with the SRP Support Team to ensure that the most appropriate EEIC/OCC is used. If a study task is funded through an existing contract that is appropriately using a different EEIC/OCC, then unit FM must add a second line of accounting using the appropriate designated study EEIC/OCC for the study task. (T-1).

**3.6.1.1. Exemptions.** This instruction is not intended to include contracted engineering and system architecture and design efforts as part of weapon systems management and oversight A&AS Engineering and Technical Services EEICs: 50650, 50651, 50660, 50661, 50662, 50678, 50679, 50680 and 50681. **Note:** These EEICs correspond to the following OCCs respectively: 2513101, 2513102, 2513111, 2513112, 2513113, 2513103, 2513104, 2513115, and 2513114. Also, this instruction is not intended to include contracted efforts coded with existing EEICs/OCCs required by other policy or legislation (e.g., contract engineering services EEIC 532XX, or contract environmental services EEIC 534XX).

**3.6.2. Non-Contracted Studies Registration.** Non-contracted studies, also referred to as organic studies, are accomplished with in-house AF military and civilian resources. Study directors, study leads, and SRP POCs are encouraged to register non-contracted studies in the SRP database to help reduce duplication of effort and increase awareness of AF studies. Additionally, analysts may register an analysis or assessment effort that may not be deemed a study, as defined in this instruction, in order to increase awareness to the broader AF.

**3.7. CA Approval.** The study director will work with the SRP POC to obtain CA review and approval for contracted studies. (T-1). The organization's SRP POC will document the CA approval by entering the CA's name in Certifying Authority Name field in the SRP database (T-1).

**3.8. Study Registration Verification.** A unit's FM will ensure a completed Study Registration Verification form accompanies all requests for the funding of A&AS SAE contract studies. (T-1). SRP POCs will generate the Study Registration Verification form from each SRP entry's main page. (T-1). The completion of all data fields on the verification form is mandatory. The verification form is automatically populated from the SRP data entry fields. The verification form can be downloaded or electronically transferred as appropriate.

**3.9. Study Completion.** At the conclusion of a study, the study director, in coordination with the SRP POC, completes study registration, provides actual costs, and archives the study, as required.

3.9.1. **Finalize SRP Registration.** Upon study completion, the study director will work with the SRP POC to ensure the remaining SRP database fields are completed. (T-1). Studies crossing multiple years do not require subsequent registration and CA approval. However, when registering a contracted study, an estimate of the per year study cost should be allocated across the active years of the study. The entry should be updated with actual costs annually and at study completion.

3.9.2. **Provide Cost Estimates.** The study director will ensure cost estimates are included on the front cover of each study that meets the DoD cost guidance criteria listed on the DoD Cost Guidance Portal: <https://www.cape.osd.mil/CostGuidance/>. (T-0).

3.9.3. **Archive Study.** Study director will ensure studies are archived with DTIC, as required, per Department of Defense Manual (DoDM) 3200.14, Volume 1, *Principles and Operational Parameters of the DoD Scientific and Technical Information Program (STIP)*, 14 March 2014. (<http://www.dtic.mil/dtic>). (T-1). **Note:** Study directors will also ensure studies are archived in service specific or joint repositories, as required, per existing policy and legislation governing those study types. (T-1).

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Assessments

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

**AFGM 2015-90-01**, *Air Force Guidance Memorandum on the Studies Registry Program (SRP)*, 12 March 2015

**AFPD 90-16**, *Studies and Analyses, Assessments and Lessons Learned*, 31 August 2011

**SAF/FM, SAF/AQ, and AF/A9 Memorandum**, *Supplemental Studies Registry Program (SRP) Registration Requirements*, 18 August 2015

**AFI 33-360**, *Publications and Forms Management*, 25 September 2013

**AFMAN 33-363**, *Management of Records*, 1 March 2008

**DoDM 3200.14, Volume 1**, *Principles and Operational Parameters of the DoD Scientific and Technical Information Program (STIP)*, 14 March 2014

***Prescribed Forms***

No forms are prescribed by this publication.

***Adopted Forms***

**AF Form 847**, *Recommendation for Change of Publication*

***Abbreviations and Acronyms***

**A&AS**—Advisory and Assistance Services

**AF**—Air Force

**AFEEIC**—Air Force Element of Expense/Investment Code – (also called EEIC)

**AFMAN**—Air Force Manual

**AFPD**—Air Force Policy Directive

**AFRIMS**—Air Force Records Information Management System

**ANG**—Air National Guard

**AoA**—Analysis of Alternatives

**BCA**—Business Case Analysis

**CA**—Certification Authority

**CBA**—Capabilities Based Assessment

**COA**—Course of Action

**CSAF**—Chief of Staff of the Air Force

**DAF**—Department of the Air Force

**DEAMS**—Defense Enterprise Accounting and Management System

**DoD**—Department of Defense

**DoDM**—Department of Defense Manual  
**DPG**—Defense Planning Guidance  
**DRU**—Direct Reporting Unit  
**DTIC**—Defense Technical Information Center  
**EEIC**—Element of Expense/Investment Code  
**FFRDC**—Federally Funded Research and Development Center  
**FM**—Financial Management  
**FOA**—Field Operating Agency  
**HAF**—Headquarters Air Force  
**HQ**—Headquarters  
**MAJCOM**—Major Command  
**MIPR**—Military Interdepartmental Purchase Request  
**NDAA**—National Defense Authorization Act  
**NAF**—Numbered Air Force  
**OCC**—Object Class Codes  
**OPR**—Office of Primary Responsibility  
**POC**—Point of Contact  
**QDR**—Quadrennial Defense Review  
**RDS**—Records Disposition Schedule  
**RMD**—Resource Management Directive  
**SAE**—Studies, Analyses and Evaluations  
**SAF**—Secretary of the Air Force  
**SecAF**—Secretary of the Air Force  
**SES**—Senior Executive Service  
**SME**—Subject-Matter Expert  
**SPG**—Strategic Planning Guidance  
**SRP**—Studies Registry Program  
**TDY**—Temporary Duty  
**USecAF**—Under Secretary of the Air Force  
**VCSAF**—Vice Chief of Staff of the Air Force  
**VV&A**—Verification, Validation, and Accreditation

### *Terms*

**Analysis**— At the most basic level, analysis is the careful study of a topic to learn about its parts and how they are interrelated. However, for the purposes of this instruction, analysis is defined as “A process of defining and scoping problems, synthesizing information, and applying qualitative and quantitative (e.g., mathematical, statistical, data-driven) methods with the purpose of informing leadership decisions.”

**Assessment**— For the purposes of this instruction, assessment is defined as “A process that supports decision making by measuring the ability to accomplish a task, create a condition, or achieve an objective.” Said another way, the assessment process seeks evidence to reach a conclusion about some characteristic of an entity (e.g., AF members conducting operational assessments seek to collect data (evidence) to understand the success (characteristic) towards achieving military objectives (entity)).

**Certification Authority (CA)**— The designated position within an organization responsible for reviewing and approving study proposals to ensure full compliance with SRP requirements. Current SRP guidance identifies the MAJCOM Vice Commander, the DRU Commanders and the HAF two-letters as the designated CA for their respective organizations to include reporting Field Operating Agencies.

**Contracted Study**— Contracted studies are funded and coded using one of the following designated A&AS SAE EEICs: 50610, 50611, 50620, 50621, 50670, 50671, 50672, and 50673. **Note:** Contracted Studies obligated in the Defense Enterprise Accounting and Management System (DEAMS) must use the following Object Class Codes (OCC): 2511101, 2511102, 2511111, 2511112, 2511103, 2511104, 2511113, and 2511114.

**Due Diligence**— A systematic search for existing information related to the proposed study, to include a literature search of data repositories and inquiries with Subject-Matter Experts (SME) which could, in whole or in part, satisfy the proposed study objectives.

**Element of Expense/Investment Code (EEIC)**— A five-digit alphanumeric code consisting of two parts: a three-digit account code followed by a two-digit subaccount code to provide a further shred-out. The codes are designed for use in budget preparations and accounting systems to identify the nature of services and items acquired for immediate consumption (expense) or capitalization (investment). EEICs are used as part of the accounting classification in accounting for commitment, obligation, disbursement, collection, and international balance of payment transactions. EEICs identify the nature of services and items acquired for immediate consumption or capitalization. (Also known as an Air Force Element of Expense/Investment Code (AFEEIC)). Source data on EEICs can be found at the Financial Management Data Quality Service (FMDQS): <https://fmdd.affsc.af.mil/data-elements/home>

**Non-Contracted Study**— Non-contracted studies, also referred to as organic studies, are accomplished with in-house AF military and civilian resources.

**Object Class Code (OCC)**— Object classes are categories that represent obligations by the items or services purchased by the Federal Government. An OCC is a seven-digit alphanumeric consisting of two parts: a three-digit object class followed by a four-digit sub account code to provide a further shred-out. Source data on OCCs can be found at the Financial Management Data Quality Service (FMDQS): <https://fmdd.affsc.af.mil/data-elements/home>

**Studies Registry Program (SRP)**— Program that provides management, oversight, and visibility over AF study efforts.

**Study**— A deliverable to decision makers and stakeholders resulting from organized analyses, assessments, or evaluations conducted in support of policy development, decision making, management, or administration.

**Study Director**— The individual directly responsible for providing study direction, oversight, and review for contracted and non-contracted AF studies.

**Study Lead**—The individual tasked to lead or conduct a non-contracted study. Study leads should create study plans, follow a logical study process, and ensure study results are analytically rigorous.

## Attachment 2

### STUDY PROCESS

**A2.1. Study Process.** Quality studies require the skill, knowledge, experience, and creativity of the study lead to thoughtfully apply the scientific method and critical thinking to the decision problem. This framework serves to guide the study lead to conduct a study. While the activities are presented in a logical order, it may be necessary to perform steps in parallel or redo prior steps multiple times as the study progresses. This template is not directive, and where no other study guidance exists, organizations and analysts are encouraged to tailor this template to meet the needs of their organization and analytic effort.

**A2.2. Understand the Requirement.** What decision is being supported? When is the information needed? What questions are being answered? Know who is asking and who will receive the results. Know their desires in the broader context and what is being tasked. Ask questions until these areas become clear enough to confidently move forward to document the problem in a study plan.

**A2.3. Develop a Study Plan.** A major benefit of the study plan is that it helps the analyst to focus and critically think about the problem and how the study will be conducted before data collection and analysis efforts begin. The study plan provides common agreement on the problem, the approach to solve the problem, and the expected deliverable, milestones, and resources needed to accomplish the study effort. See Attachment 3 for Study Plan template.

**A2.4. Collect and Process Data.** Data requirements are determined after framing and scoping the decision problem. Data is often costly and time consuming to locate, obtain, process, and fully understand. Determine best sources and ensure data is current. In cases where data doesn't exist, it may need to be collected through surveys or experimentation using sampling or Design of Experiments techniques. After collecting the data, the analyst processes the data by examining it, scrutinizing its quality, cleansing it (e.g., identifying and correcting or removing inaccurate, incomplete, or duplicated data), and organizing it into a useable format. Use exploratory data analysis techniques (e.g., summary statistics, graphical analysis) to fully understand the data. After the data is processed and understood, it is then ready to be further analyzed or used in modeling efforts.

**A2.5. Perform Analysis.** The analyst needs to thoughtfully apply the scientific method and critical thinking. This includes determining the appropriate analysis tools, techniques, and rigor that will be applied after the problem has been well-defined and the data has been organized. This step is where the majority of the study plan is executed (e.g., run models, analyze results, conduct excursions). After the initial results are produced, the analyst is encouraged to understand and quantify the uncertainty and sensitivity of the results where appropriate. This includes calculating interval estimates (e.g., confidence interval around an average), exploring outputs visually (e.g., histograms, box plots), understanding the underlying probability distributions, and exploring sensitivity of the results and assumptions (e.g., scenario analysis, break-even analysis, tornado charts).

**A2.6. Peer Review.** It is highly recommended that analysts and SMEs peer review the study plan and results early and periodically throughout the study. The benefits of this review process are to ensure the analytical rigor of the results, to foster collaboration, to protect the findings

from political agendas, and to promote growth in the analyst by learning from peers. See Attachment 4 on Analytical Rigor for the kinds of questions to be considered during peer-review.

**A2.7. Interpret and Present Analysis Results.** A final step, which is a critical part of the process, is interpreting and presenting insights relevant to the supported decision. Outstanding analysis is often ignored if poorly presented. An analyst needs to understand the audience and the best way to convey the key concepts of the analysis to the audience. The analyst should convey the “so what?” of the research and also “tell the story” of what it means to the overall effort.

**A2.8. Document and Archive Data, Methodology, and Study.** A gold-standard documentation and archival process allows reproducible results. Include all documentation and data to support follow-on questions and future research. The study plan serves as a great starting point to document the final results. This documentation should also include a maintenance plan to maintain software, data, and models. Complete data archival includes the raw data, the processed data, a data dictionary describing the variables and their values, and the documentation describing how the raw data was processed. This step also includes finalizing SRP registration and archiving the study (e.g., DTIC) as required.

### Attachment 3

## STUDY PLAN

**A3.1. Study Plan.** The goal of a study plan (or project plan, analysis plan, etc.) is to help the study lead think through the decision problem prior to processing data and starting analytic efforts. Clearly defining the problem is the most important step of conducting a study and thoughtful effort here helps ensure analysts provide insights that decision makers need in an open and transparent way. This template is not directive, and where no other study guidance exists, organizations and analysts are encouraged to tailor this template to meet the needs of their organization and analytic effort.

**A3.2. Background.** Provide sufficient background knowledge. Why is this study being done? What are the key issues and concerns? Who asked the question? Who are the stakeholders and what are their needs? What decision does this analysis support? Who would make the decision? When and in what forum would they make the decision?

**A3.3. Define Problem, Study Objectives/Questions, and Metrics.** Problem definition is the most critical step in any study. It should be as specific and concrete as possible. Consider the decision problem various ways and from multiple perspectives before settling on final wording, and then expect to revise it. Once the decision problem is initially understood, provide a clear statement of the problem and any supporting study objectives, questions, and metrics.

**A3.4. Scope.** Describe what will be studied and what will not. Consider what can be done in the timeframe provided.

**A3.5. Facts, Assumptions, Constraints, and Limitations.** List the facts, assumptions, constraints, and limitations affecting study design and results. If known, be explicit about biases or second-order effects that result from study constraints and limitations.

**A3.6. Review and Document Previous Findings.** A due diligence search may have been performed prior to starting the study to understand if the study is duplicative of previously completed or ongoing studies. After the decision was made to start a new study, the analyst may need to conduct a more thorough literature review to research other study efforts and analytical methods that address this or similar problems. How is this problem similar and different? Document any relevant findings and references. **Note:** If this step will take significant time to complete, it can be accomplished as a step in the study process after the study plan is approved.

**A3.7. Study Design and Modeling Approach.** Detail how any hypotheses will be evaluated, what experiments will be performed, and what models, algorithms, and analytical techniques will be used to model the problem.

**A3.8. Data Collection and Processing.** Detail what data is needed. Detail how data will be collected and processed.

**A3.9. Expected End Product and Final Results.** This section illustrates the expected end product and final results. This section allows the analyst and decision maker to create a vision for any deliverables. What does a successful end product look like? What form does the product take (e.g., report, dashboard)? Does this deliverable answer the defined problem?

**A3.10. Milestones and Deliverables.** Detail the phases of the study effort (e.g., Gantt chart). What events mark progress in this effort? Follow a logical study process (Attachment 2) to think

through these steps. Who needs the results and by when? Is there coordination that must occur during or after the study?

**A3.11. Study Team.** List study team participants (e.g., analysts, stakeholders, SME), and detail their roles. Detail how the team will work together to accomplish the study.

**A3.12. Resource Requirements.** Identify other resources needed to accomplish the study (e.g., other personnel, money, computers, software). What Temporary Duties (TDY) are required? Are there any security requirements to account for (e.g., security clearances, access to classified hardware/infrastructure)? Due to their critical and time-consuming nature, security requirements must be identified and worked early in the study process.

**A3.13. Terms and Definitions.** List relevant terms and definitions.

## Attachment 4

### ANALYTICAL RIGOR

**A4.1. Overview.** Study leads may use these criteria and questions to assist them in producing an analytically rigorous study, which will usually be accomplished by following a logical study process (Attachment 2) and creating a study plan (Attachment 3). However, study directors, supervisors, and decision makers may also use these criteria and questions to assist them in reviewing or coordinating on a study. The intent of evaluating a study for analytical rigor is to gain insights into the study process and to evaluate that the results reflect an honest attempt to deliver unbiased, analytically sound insights to the decision maker. Reviewing a completed study for analytical rigor after the fact is the least desirable option. Analytical rigor is best achieved when a study is designed with these principles and reviewed periodically throughout the process. This template is not directive, and where no other guidance exists, organizations and analysts are encouraged to tailor these criteria to meet the needs of the analytic effort in development or under review.

**A4.2. Problem Statement Properly Scoped and Well-Defined.** The purpose and objectives of the analytic effort should be clearly stated. What is the purpose of this study? What decision does it inform? How are the results to be used? What are the goals and objectives? Do the study results answer the study questions and objectives?

**A4.3. Key Stakeholders Participated.** The level of participation may give an indication of the completeness of the study. Who is the target audience? Who are the stakeholders affected by this analysis? Were the appropriate organizations and stakeholders included in the study? What other agencies and organizations were involved? Was this an AF-only study or a Joint effort? Which organizations contributed to which parts of the effort?

**A4.4. Problem Researched.** What kind of literature search (and/or due diligence search) was performed prior to conducting analysis? Was previous analysis done in this area? How did this research influence the study design or chosen methodology?

**A4.5. Facts, Assumptions, Constraints, and Limitations Explicitly Stated.** Most analytical methodologies require assumptions when facts are not known. These assumptions need to be explicit and justified. What were some of the major facts, assumptions, constraints, and limitations that influenced the study design and results? What weaknesses, biases, or second-order effects resulted from any assumptions, constraints, and limitations and how were they overcome?

**A4.6. Available Data Collected and Processed.** Where did the data come from? How good is it? How current is it? What kind of processing was needed to get the data useable? How was missing data handled? How were outliers handled?

**A4.7. Appropriate Analytical Methodologies and Tools Chosen.** There are often multiple approaches to solve a problem, each with their own strengths and weaknesses. What analytical methodology and/or tools were used to answer the problem? Why was this method and/or tool chosen? Has the analyst used it before? What are the strengths and weaknesses of this methodology and/or tool? How did the analyst overcome the weakness of the methodology and/or tool? What is pedigree of the model and does it have appropriate Verification, Validation, and Accreditation (VV&A)?

**A4.8. Alternatives Evaluated Objectively.** Were various alternatives, or Courses of Action (COA), considered? What alternatives were discarded and why? What criteria were used to distinguish among the alternatives? If the status quo was the chosen alternative, does it best meet the objectives and values of the decision problem?

**A4.9. Uncertainty Quantified.** Was uncertainty quantified? Were data distributions created? Do the results include confidence intervals in addition to the point estimates? How variable is the input and output data?

**A4.10. Sensitivity Analysis Performed.** Was sensitivity analysis conducted on the results and assumptions? Which factors drive the output of the process and model the most and least?

**A4.11. Results Peer-Reviewed.** Peer review is an important part of ensuring analytical rigor of the study process and results. Were the results peer reviewed? What was the feedback from the peer review? What changes were made as a result of the peer review?

**A4.12. Data, Methodology, and Study Documented and Archived.** Have the data, methodology, and study been documented and archived in a way that an independent organization or analyst would be able to reproduce the study results?