

GUIDELINES FOR THE PREPARATION AND MAINTENANCE OF THE  
COST ANALYSIS REQUIREMENTS DESCRIPTION (CARD)/ CARD-LIKE NARRATIVE

**Tailored for the Software Acquisition Pathway (SWP)**

*DRAFT as of 09/28/2023*

1. GENERAL

a. The Cost Analysis Requirements Description (CARD) is a complete, detailed description of a DoD program for use in preparing an independent cost estimate (ICE), program office estimate (POE), DoD Component cost estimate (CCE), DoD Component cost position (CCP), or an estimate of costs for pathway decisions. This document provides guidance for preparing CARDS or CARD-like documents specifically for programs pursuing the SWP. For the purposes of this document, the term “CARD” will be used interchangeably with “CARD-like” document, however a CARD-like document may be subject to additional tailoring, which should be coordinated with the Component cost agency and the CAPE.

b. The foundation of a sound cost estimate is a well-defined program, and the CARD is used to articulate details about the program. The primary objective of the CARD is to succinctly describe the key technical, programmatic, and operational characteristics of a program, which, along with supporting data sources, provides all of the program information necessary to develop a cost estimate. By using the CARD, different organizations preparing cost estimates can develop their estimates based on the same documented program requirements. As a program evolves, the CARD, as a living document, evolves with it.

2. CARD REQUIREMENTS

a. The CARD is composed of a narrative and a workbook. The use of the tabular CARD format is required for data that lends itself to the tabular format (software licenses, metrics by release/iteration, PMO time-phased staffing, etc.). Liberal use of simple tables, figures, and diagrams to reduce narrative descriptions and to provide important summary-level context is encouraged. If a data element will be captured in one of the many Excel table fields, it is not required to be duplicated in the narrative unless it provides important context.

b. The CARD narrative should make liberal references to other current program documents (e.g., the acquisition strategy, test and evaluation master plan, Capability Needs Statement (CNS), Program Roadmap, or systems engineering plan), to eliminate any disconnects between the CARD and other documents and streamline the CARD preparation process. For example, for a program with a formal acquisition strategy, the CARD need only provide a brief synopsis of the acquisition strategy and a reference to the most current source document. All program documents referenced in the narrative should be submitted to CAPE with the CARD. Including hyperlinks or embedding source documents is not recommended and should be avoided. The preparation of the CARD should be synchronized with the preparation of the source documents so that the final CARD is consistent with other final program documents. The CARD must also be consistent with any contractual solicitations, such as a request for proposal (RFP) or any

related document.

c. The CARD narrative outline may be tailored to add or remove elements to accommodate specific program circumstances. As an example, certain sections may only be applicable to programs pursuing the embedded SWP vs the application SWP. For programs following the embedded SWP or SWP programs that are dependent on a separate acquisition program(s), specific scope and tailoring should be coordinated with CAPE and the Component cost agency.

d. The CARD for the SWP must be prepared to support the Execution Phase (EP) decision. The CARD must be prepared by the program management office (PMO) or other DoD Component-designated organization and signed by the program manager and program executive officer (PEO) to support the EP decision. Following the EP decision, the CARD narrative and tables will be updated according to individual Service policy.

e. For joint programs, the CARD must include the common program agreed to by all participating DoD Components, as well as any unique program requirements of the participating DoD Components. The requirements common to all DoD Components should be identified as such and the requirements unique to a specific DoD Component should have a clearly identified Component of responsibility.

f. The program manager must submit the CARD with the appropriate security classification reflective of the consolidated program data. Unless the entire program is classified, classified sections should be submitted as an annex to the unclassified CARD. Program Offices that need to submit a classified CARD or classified annex shall contact CAPE to determine the appropriate document transfer process.

g. The level of detail of the information in the CARD prepared for the EP decision must be approved by the DoD Component cost agency and CAPE. If the level of information is insufficient, the CARD may be rejected.

### 3. CARD NARRATIVE CONTENT

(1) System Overview. This section provides concise background information about the system, including a system description, an explanation of the missions that the system will perform and the threats that it is expected to encounter, details about the operational environment and user base, and a summary of the system program history. This section should outline the problem statement that drove the initiation of the program. Was the program initiated to improve timeliness of decision-making using data analytics? Was it to improve the usability of the legacy system? Was it to move capabilities to the cloud and reduce the hardware footprint? A diagram or picture of the system should be included, if applicable. It should also include a discussion of any internal research and development activities performed by the contractor(s), if applicable with sufficient information to identify the associated cost(s) of the completed effort.

(2) Interfaces with Other Systems. This section describes the relationships between the system and other systems, including the nature and number of any interfaces that will be

required. It must also describe any associated modifications to the hardware or software of the other systems. It must clearly identify the interface boundaries to other systems, programs, and subprograms.

(3) System Performance Characteristics and Performance Metrics. This section provides a summary of the requirements established through the CNS or Initial Capabilities Document (ICD). This section should capture the key software capabilities needed to achieve the operational requirements. These should be high-level groupings of enduring needs which will be met over a series of software releases. If replacing a legacy system, provide any available details on expected additional functionality, any legacy retirement timelines, and alignment with other system(s), or support to upcoming operations. The requirements must be expressed in terms of threshold and objective values where available and, where appropriate, include current estimates of capability or performance. In addition, this section must provide other important performance parameters or attributes, with emphasis on those that would be of interest to cost estimators. The discussion must explain the sources of the data (e.g., contract specifications, current engineering estimates, or actual values supported by test results). This section must also describe the minimum set of high-level metrics planned for the operational program. Metrics should be able to address the frequency with which quality software is delivered into operation, user satisfaction with that software, and delivered quality, among other areas. Metrics should measure key elements that would impose risks on the program to help the cost estimator understand which risk factors have the potential to impact cost in future updates.

(4) Program Master Schedule and Product Roadmap. The master schedule section provides a summary of the most recent integrated master schedule including a figure or diagram that displays when major work efforts will support tasks and events. Typically schedule charts include identification of major program reviews, software builds or iterations, testing and cybersecurity events, major contractual events (e.g., source selections or contract awards), and fielding activities, as applicable. The project roadmap is a high-level visual summary used to describe what will be delivered and when. The roadmap section should describe the goals and features of each planned software iteration with the expectation that it will be dynamically updated as user needs change and priorities are adjusted. Where possible, the description of the goals and features of the planned software release or iteration should reference the CNS and the capability described within.

(5) Acquisition Strategy. This section provides a summary of the program acquisition strategy, including identification of government roles and responsibilities (including memorandums of agreement, memorandums of understanding, identifying if a government-owned SW factory will be used, and if the government will act as the lead system integrator), the contracting strategy (single vs multiple vendors) as well as the prime and major sub-contractors, if known. The section must also explain the nature and degree of competition throughout the program and an explanation of what contractual terms or conditions the government requires to sustain the system. A discussion of the contract type(s) (e.g., cost plus, fixed-price incentive, or firm-fixed price) that will be used in each phase of the program must be provided, along with an explanation of the use of contract incentives such as award fees. If applicable, this section should address the use of an event-driven program structure and approach; use of Agile acquisition or software development; use of a hosting environment (e.g., cloud, Software as a Service,

Infrastructure as a Service, Platform as a Service); use of software (commercial-off-the-shelf (COTS) / government-off-the shelf (GOTS) applications); and the use of a modular open systems approach or architecture.

(6) Time-Phased System Quantity Requirements. If the SWP program includes hardware, this section provides a summary of the hardware procurement requirement. Detailed time-phased hardware procurement quantities are to be identified in the Excel workbook.

(7) Design Description. This section provides the top-level description of the system design. Summary tabular presentation of data is highly encouraged. The section should include software, information technology, or business system architecture designs, highlighting the use of COTS/GOTS hardware and software, or the potential to tailor COTS/GOTS hardware and software. This section should also explain the implications of implementing an open systems architecture.

(8) Software Description, and Sizing Information. This section identifies information for both the mission application software and the platform software. Where possible, the section should differentiate between the two and specifically identify requirements and sizing associated with the minimum viable product (MVP) vs subsequent capability releases.

- a. Software Description: This section identifies capabilities and/or computer software configuration items that are required to satisfy an end user required function. The software should be described in enough detail to understand what functions will be accomplished by COTS, GOTS, developed software, or open-source software.
- b. Software Processes: This section identifies software development processes as well as the program deployment frequency goal, and details how release development will be tracked to ensure that all planned features are delivered, or deferred ones are captured for replanning. The section shall also identify the process that will be used to correlate individual releases to meeting higher-level objectives as detailed in the CNS/SW-ICD.
- c. Software Sizing and Development Metrics: This section provides quantitative and qualitative sizing information to inform the scope of the software effort broken out by release, if applicable. This section includes details on the software development metrics to be tracked and the systems used to track those metrics. Detailed sizing to provide the capabilities described in the CNS and roadmap must be provided for near-term releases (within three years) and updated sizing information should be incorporated in coordination with the update of the CARD and the program office cost estimate.

(9) COTS/GOTS/Tools: For COTS/GOTS items being purchased for development or operations, this section includes a list/count of the items, identification if the item supports the mission application or platform, development environment or operational environment, and associated technical data to help size the integration of the COTS/GOTS item. These items

include, for example: technology stacks to run the system on a host; operating systems SW, test SW, monitoring SW; development tools; and functional application SW. This section should include any tools used for DevSecOps and the CI/CD pipeline. Detailed software license requirements should be identified in the excel workbook.

(10) System Hosting/Infrastructure. This section describes the hosting requirements for both the development and production environments. The hosting environments should be readily identifiable in the system work breakdown structure (WBS). This section should identify the type of hosting infrastructure (e.g., cloud vs data center) and services that are required from the infrastructure provider. In addition, core services that make up service level agreements/letter estimates for infrastructure support (i.e., system administration, database administration, enterprise service bus support, performance monitoring, performance tuning) for host system support should be outlined in this section as well as any additional cloud or data center tool requirements.

(11) Assessment of Program Risks and Risk Mitigation Measures. This section describes the anticipated risk and uncertainty areas that have the most likely potential to cause a significant deviation in cost, schedule, or performance from the planned program. The risk assessment should consider such factors as technology development, design concepts, stringency of test requirements, program dependencies, funding availability, program stability, and schedule sufficiency. A risk cube should be included. This section also summarizes the program's risk mitigation strategies and risk monitoring approaches.

(12) Program Protection Features and Embedded Security. This section describes any design features associated with the protection of program technology, components, or information from compromise or disclosure. In particular, any hardware or software associated with embedded security should be noted. This section includes a summary of the program's cybersecurity strategy as driven by the program protection plan for the system.

(13) Government-Furnished Equipment. This section identifies, in a summary manner, the subsystems, components, or other items that will be furnished by the government to the system contractor(s). Any government-furnished software, either COTS or GOTS, will be included in the discussion. The section must identify sources of the government furnished equipment, property, and software.

(14) Intelligence Mission Data (IMD). This section describes the IMD used for programming platform mission systems in development, testing, operations, and sustainment including the functional areas of signatures, electronic warfare integrated reprogramming, order of battle, characteristics and performance, and geospatial intelligence. Programs that require IMD for such activities as combat identification; intelligence, surveillance, and reconnaissance; and targeting must include a description of the IMD requirements.

(15) Test and Evaluation. This section summarizes all developmental, operational, and live fire testing. It also includes requirements for user assessment, feedback events, and planned touch points. The number and type of the tests or touch points should be identified, along with the organizations that will conduct the events. This section must also describe cybersecurity test

and evaluation requirements. A list of statements of capabilities and memorandums of understanding between the program and the test communities should be identified.

(16) Facilities Requirements. This section describes the facilities and equipment required to support the program at both the contractor site and government facilities during all phases of the system’s life cycle, such as software labs or integration labs. The description must identify facilities associated with development, production, test and evaluation, operations, training, and sustainment by appropriate facility category and geographic locations as well as any requirements for special communications. The description must make the distinction between government versus contractor owned, new construction versus existing facilities that will be modified, and program-unique versus shared facilities. In cases where facility costs are shared between programs, sources of funding must be identified. Any unique infrastructure requirements must be explained. Any requirements for land acquisition must also be noted. Detailed facilities information and parameters (quantities, square footage, etc.) will be captured in the “Construction” CARD Excel table.

(17) Data Management. This section describes the activities associated with data cleansing, migration, or conversion process, and the data archiving requirement. The cleansing, migration, or conversion process discussion must explain the steps and assets required to identify, clean, extract/build, transport, transform, load, and validate data from the legacy system to the new system. Explain the archiving requirement, including parameters and assets required for online, near-line, and offline storage, as well as data retrieval.

(18) Training. This section describes the activities and assets required for preparing the workforce to properly understand and use the software. The discussion must include the training audience, delivery channels (e.g., classroom, webinar, web-based, on-the-job), materials, training duration, travel requirements, and the deployment timeline (e.g., end user training will begin 30 days prior to Go-Live).

(19) System Operations This section describes the fielding and operations and support concept. Depending on the scope of the SWP program, this section may require additional tailoring, which must be coordinated with the Component cost agency and CAPE. This section should include the fielding plan and detail any requirements for fielded logistics support to sustain the software. Elements might include manpower, help desk, facilities, fielded hosting infrastructure, and any initial/interim contractor logistics support.

(20) Cost and Software Data Reporting Plan. The CARD must contain a copy of the approved cost and software data reporting plan. Both the Program and Contractor Plans must be included. If the plan has yet to be approved, then the proposed plan must be included.

(21) Abbreviations and Acronyms List. The CARD must include an Annex containing a list of abbreviations and acronyms used in the document.