

# Developing Framing Assumptions (FAs) Job Support Tool (JST)

Studies of root cause analysis of programs that incurred significant cost and schedule growth, often point to inception issues when a program starts out. One example of an inception issue is a framing assumption. A framing assumption is a fundamental belief about program conditions that we expect to be true in the future. If these assumptions prove to be wrong, then the program's cost, schedule, and performance expectations could also be invalid, creating significant execution and expectation management problems. For example, if the team believes that significant use of COTS equipment will help satisfy the requirement, this belief then drives cost, schedule, and performance expectations. If it turns out that very little COTS can be used, then cost estimates and schedule durations will be significantly different.

Framing Assumptions (FAs) are fairly new to the acquisition lexicon. The concept was introduced by the Program Assessment and Root Cause analysis Office (PARCA) in USD AT&L in 2012. PARCA analyzes root causes of Nunn-McCurdy program breaches and identified false assumptions as a cause of significant cost growth in some programs. Program management failed to recognize the invalid assumptions early and did not take actively address the disconnect until it was too late to avoid further issues. FAs are now recognized as a source of risk that must be managed. PMs are expected to document FAs early in the program lifecycle and to gather knowledge to validate and/or address changes needed.

This JST is organized as follows: Section 1 – Policy, Section 2 – Definition and Evaluation, and Section 3 – Best Practices.

## Section 1 – Policy

A. DoDI 5000.02: PM is required to present framing assumptions at Milestone A, Development RFP Release Decision, Milestone B, and in acquisition strategies.
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## Section 2 – Definition and Evaluation

### A. Definition

A FA is any supposition (explicit or implicit) that is central in shaping cost, schedule, or performance expectations of an acquisition program. Programs will typically have a small number of FAs (3 to 5). FAs are fundamental beliefs about program conditions that we expect to be true in the future.
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## B. FA Traits

Critical: FAs significantly affect future program expectations.
No work-arounds: The consequences of incorrect FAs cannot be easily mitigated.
Foundational: FAs are not derivative of other assumptions.
Program specific: FAs are not generically applicable to all programs.

## C. Example

The government program office has sufficient knowledge, data, expertise, and resources to successfully execute as the overall system integrator for the multi-sensor upgrade program on the XX-51 armored vehicle program.
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## D. Developing FAs

A good starting point is to review the unique aspects of your planned program:

- Operational environment and interfaces
- System dependencies and inter-relationships of other programs
- Industrial capabilities
- Technology Maturity
- Organizational landscape
- Deliverables needed for program success
- Existing plans and documents
- Commercial item and NDI availability to meet needs

## Section 3 – Best Practices

The following are a few practices that may be helpful in developing and monitoring FAs.

- Use of questions to identify possible FAs: The following are some seed questions that examine beliefs we may already have formed about the program. The questions are grouped into different areas. If the answer is yes to that question, then this could be an area that relates to a FA.

Technical:

- o Have the technologies planned been demonstrated successfully in a similar application or environment?

- Is there commercial technology that is being used for the first time in a military application? Who has the data rights?
- Has the technology worked successfully under the same operating conditions?
- Does the system depend on COTS solutions or other commercial technologies and services?
- Is this a novel integration of standard systems?
- Will these systems require modification for the environment?
- How long might the manufacturer support such an item?
- Is the commercial availability stable? Have all the technologies been demonstrated or successfully operated at the scale planned (e.g., power density, number of sensors, bandwidth)?

### Management

- Novel management structures
  - Is the government acting as system integrator?
  - Are multiple PEOs/PMs involved?
  - Do industry partners participate through new commercial partnerships or JVs?
  - Is the program dependent on the progress of other programs?
- Are there unique legal, diplomatic, or security issues?
- Does the program have an experienced workforce? Will there be issues retaining this workforce?

### Requirements

- Is there joint/foreign involvement?
  - Are the program requirements compatible between the stakeholders?
  - Does each participant require a customized version?
  - Is there uncertainty with respect to quantities for partners?
- Are the requirements stable, well defined, and unambiguous?
- Will capability be met through an evolving design or series of upgrades?
- Are there unknown major areas of scope, e.g., facilities locations, operational availability, support equipment/infrastructure?
- Could another system substitute for this one?
- Can some of the requirements be deferred or met at a lower level?

### Cost and Schedule

- Does the program rely on sole source(s)? Are there known cost drivers?
- Have the intellectual property and data rights been resolved?
- Are there workforce supply or demand issues? Are key workforce skills/ trades in short supply? Can we hire at the rate based in our plans?
- Is the stability of the supplier base understood? Are there key suppliers who are at risk?
- Has the prime contractor executed a similar program (either in complexity or system/commodity type) before?

- Testing and monitoring the validity of FAs. In order to ensure you have good FAs that are valid, you can examine them based on the following criteria:
  - o Does existing or new information exist that:
    - Is contradictory or inconsistent to the FA?
    - Was previously dismissed but might now be relevant?
    - Could change the FA in some way? Has it been properly adjusted?
  - o How accurate and reliable is the information upon which the FA is based?
    - Was incomplete, imprecise, or ambiguous information used?
    - Are the sources of information current and relevant?
  - o Could external circumstances (e.g., social, technological, economic, environmental, political, organizational) affect the FA?
    - Does the FA account for these circumstances? How sensitive is it to these circumstances?
    - Could circumstances proceed differently than previously expected?
    - Under what circumstances would the FA be dismissed?
    - Have all potential but unpredictable circumstances been considered?
  
- Mapping FA to Criteria. After developing a FA, use the following table to analyze it and assess its overall importance to the program (priority). Developing some metrics that can be used to confirm its validity over time can also be helpful in monitoring the FA.

Candidate Assumption	Program Specific?	Any Work-arounds?	Foundational?	Priority	Metrics to Monitor
FA 1					
FA 2					
FA 3					
FA 4					
FA 5					

## References:

- Information Paper on Framing Assumptions, Dr. Mark Husband, OSD/AT&L/PARCA, 13 Sep 2013
- Management Perspectives Pertaining to Root Cause Analyses of Nunn-McCurdy Breaches, Vol 4; Rand Corp; ISBN: 978-0-8330-8205-3
- AN: 112599 ; Dewar, James A.; Assumption-Based Planning: A Tool for Reducing Avoidable Surprises