

GAO's Schedule Assessment Guide

Presentation to the 2023 Construction
CPM Conference

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Presentation Overview

- About GAO
- Overview of the GAO Best Practice Guides
- GAO's Schedule Assessment Guide and the 10 schedule best practices
- How is the government performing?

About GAO

About GAO

The U.S. Government Accountability Office (GAO) is an independent, nonpartisan agency that works for Congress.

Often called the "congressional watchdog," GAO examines how taxpayer dollars are spent and provides Congress and federal agencies with objective, reliable information to help the government save money and work more efficiently.



About GAO

GAO's work yielded \$55.6 billion in financial benefits for the federal government in 2022. That's a return of \$74 for every dollar of our budget. We did it by recommending ways to improve the efficiency and effectiveness of federal programs and more.

We also identified 1,262 other benefits—things that improve programs and operations but can't be measured in dollars.



Source: GAO. | GAO-23-900398

About GAO

GAO assists Congress in its oversight of the federal government including agencies' stewardship of public funds

Legislators, government officials, and the public want to know

- Whether government programs are achieving their goals
- What these programs are expected to cost and when they will be finished

Developing reliable program cost and schedule estimates are critical to

- Effectively using public funds
- Meeting OMB's capital programming process
- Avoiding cost overruns, missed deadlines, and performance shortfalls

Overview of GAO's Best Practices Guides

Cost, Schedule, Technology, and
Agile

GAO Guides and Best Practices

Purpose of these documents is two-fold:

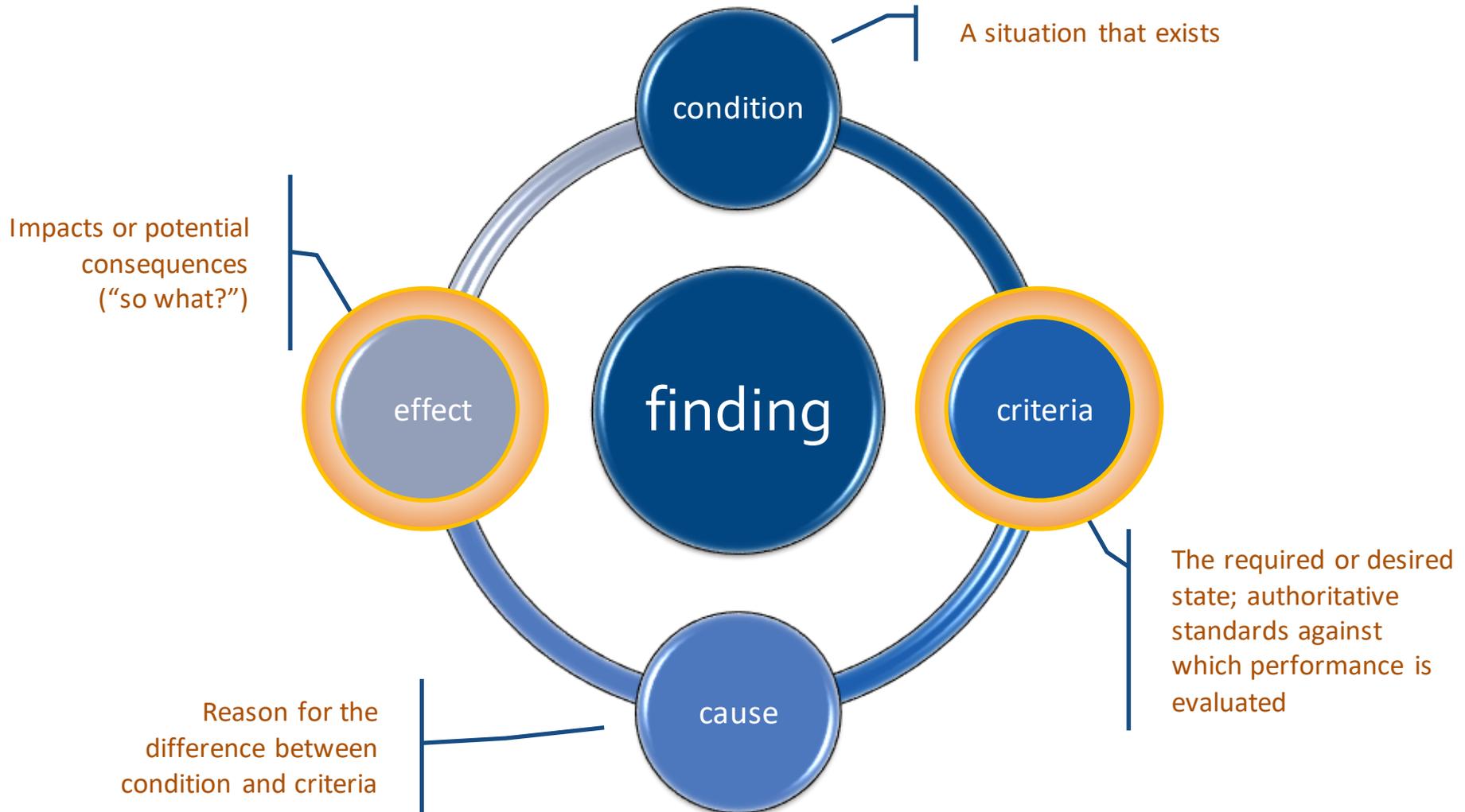
- Provide criteria for GAO to compare when performing audits
- Provide guidance for agencies
- **Cost Estimating and Assessment Guide** (Mar 2020, GAO-20-195G)
- **Schedule Assessment Guide** (Dec 2015, GAO-16-89G)
- **Technology Readiness Assessment Guide** (Jan 2020, GAO-20-48G)
- **Federal Agile Software Guide** (Sep 2020 GAO-20-590G)



Guide Development

- Best practices are developed and validated in consultation with a committee of specialists
- Participants from government agencies, private companies, independent consultant groups, trade industry groups, and academia
- A public exposure draft of the guide is released for a period of 1 to 2 years, during which time input and feedback is sought from all interested parties
- Comments are vetted on whether they are actionable, within scope, technically correct, and feasible

The Guides and Criteria



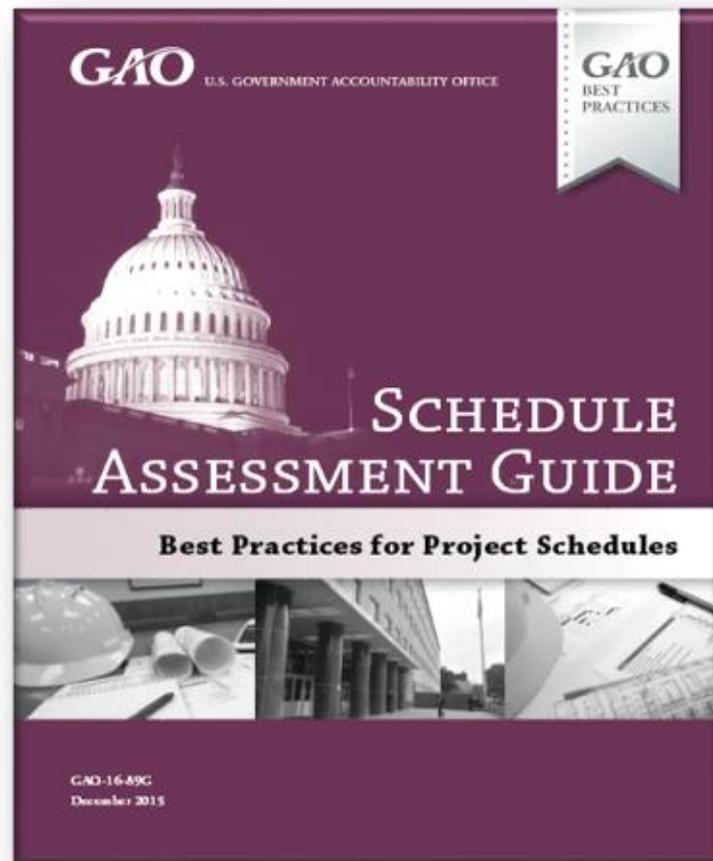
GAO Schedule Assessment Guide



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Schedule Assessment Guide

- Public exposure draft released May 2012, final version released December 2015
- Expands on schedule best practices introduced in GAO's *Cost Estimating and Assessment Guide*
- Outlines GAO's criteria for assessing master schedules
- Contains chapters for each of the 10 best practices plus supporting appendixes
- Provides case studies of prior GAO audits to show typical findings related to the scheduling process



Scheduling Best Practices

Our research has identified ten best practices associated with developing and maintaining a reliable schedule

1. Capturing all activities
2. Sequencing all activities
3. Assigning resources to all activities
4. Establishing the duration of all activities
5. Verifying that the schedule can be traced horizontally and vertically
6. Confirming that the critical path is valid
7. Ensuring reasonable total float
8. Conducting a schedule risk analysis
9. Updating the schedule using actual progress and logic
10. Maintaining a Baseline Schedule

Four Characteristics of a Reliable Schedule

Is all effort included?

Comprehensive

- Capture all activities
- Assign resources to all activities
- Establish durations for all activities

Is the network logical?

Well Constructed

- Sequence all activities
- Confirm the critical path
- Confirm reasonable float (slack)

What is the uncertainty?

Credible

- Confirm vertical and horizontal traceability
- Conduct a schedule risk analysis

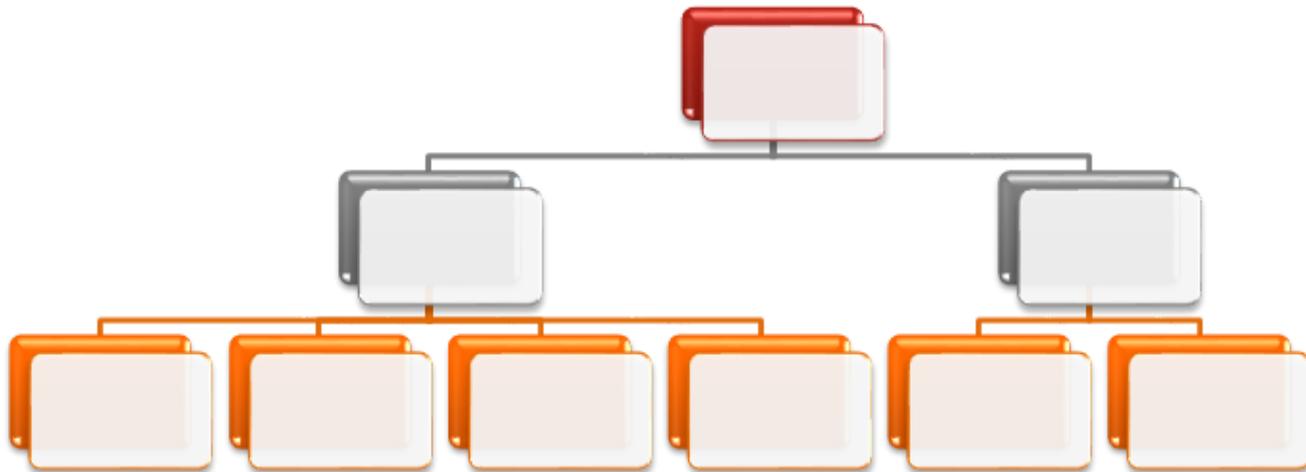
Is progress measured?

Controlled

- Update the schedule with progress
- Maintain a schedule baseline

1. Capturing All Activities

The schedule should reflect all activities as defined in the program's work breakdown structure (WBS), which defines in detail the work necessary to accomplish a project's objectives, including activities both the owner and contractor are to perform.



2. Sequencing All Activities

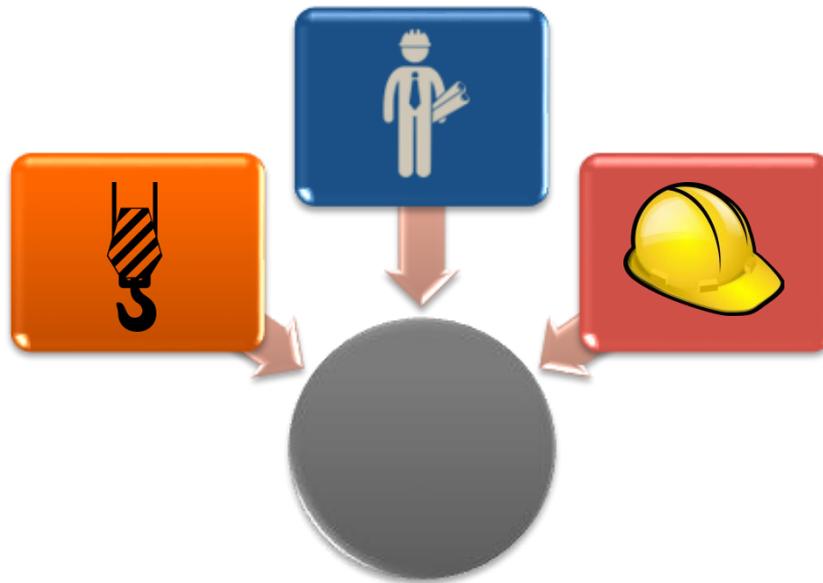
The schedule should be planned so that critical project dates can be met. To do this,

- Activities need to be logically sequenced—that is, predecessor and successor activities should be identified.
- Logic anomalies such as date constraints and lags should be minimized and justified.



3. Assigning Resources to All Activities

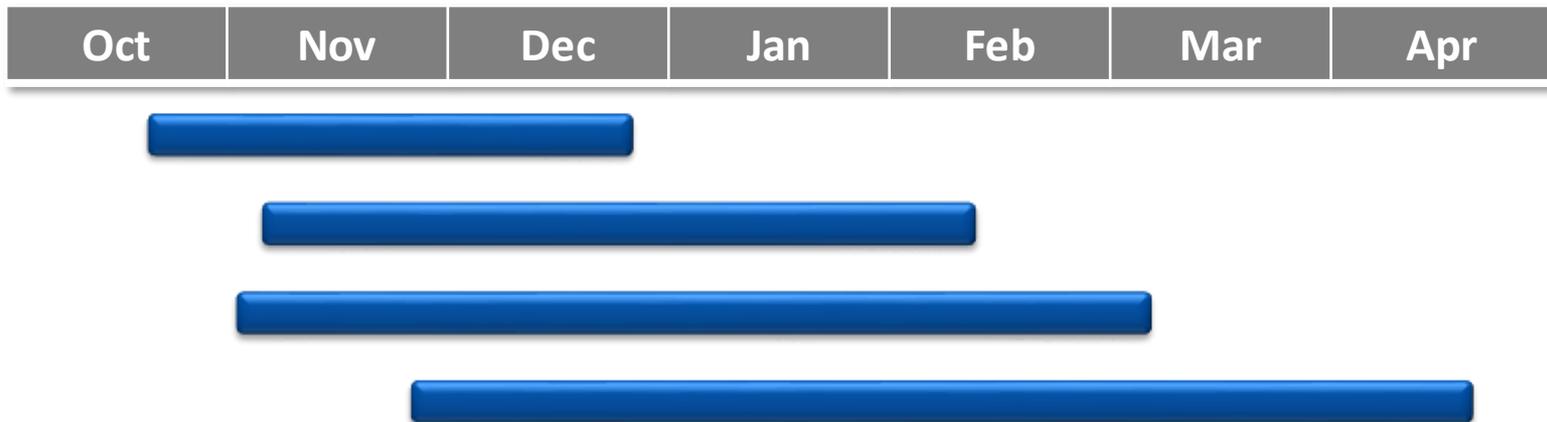
The schedule should reflect the resources (labor, materials, overhead) needed to do the work, whether they will be available when needed, and any funding or time constraints.



4. Establishing the Durations of All Activities

The schedule should realistically reflect how long each activity will take. Durations should be reasonably short and meaningful and allow for discrete progress measurement.

When the duration of each activity is determined, the same rationale, historical data, and assumptions for cost estimating should be used.

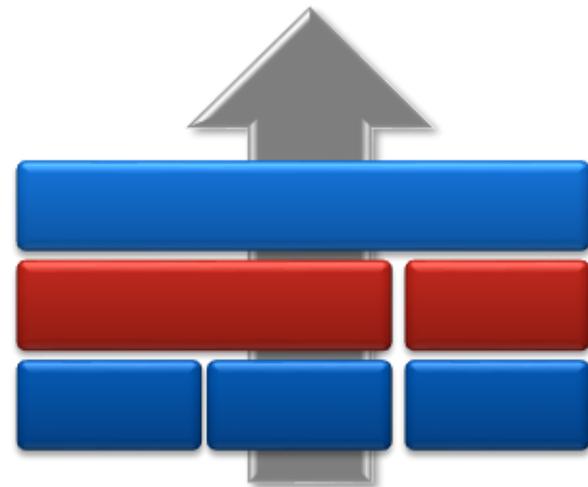


5. Verifying that the Schedule is Traceable

The schedule should be *horizontally* traceable, meaning that it should link products and outcomes associated with other sequenced activities.



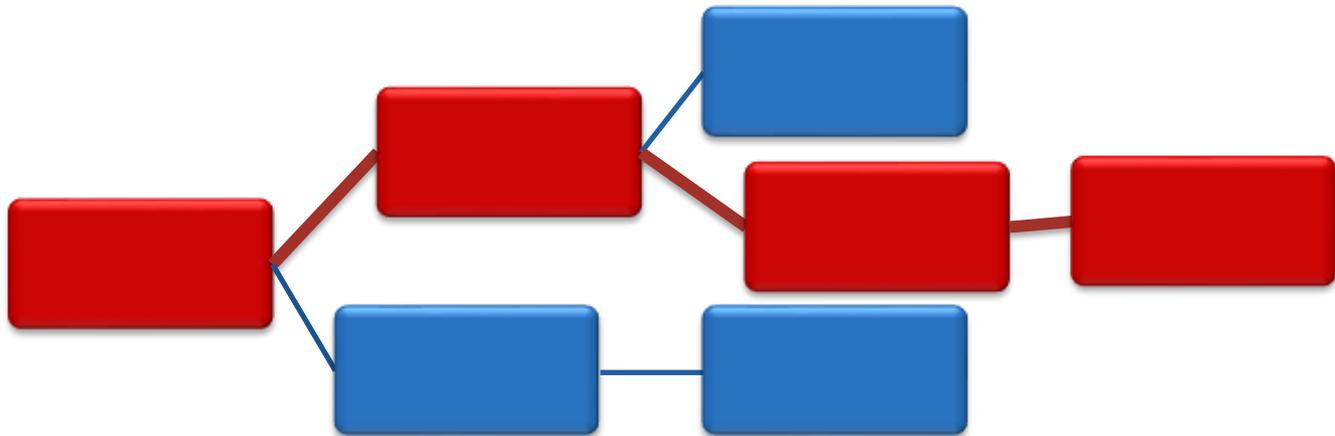
The schedule should also be *vertically* traceable—that is, varying levels of activities and supporting sub-activities can be traced.



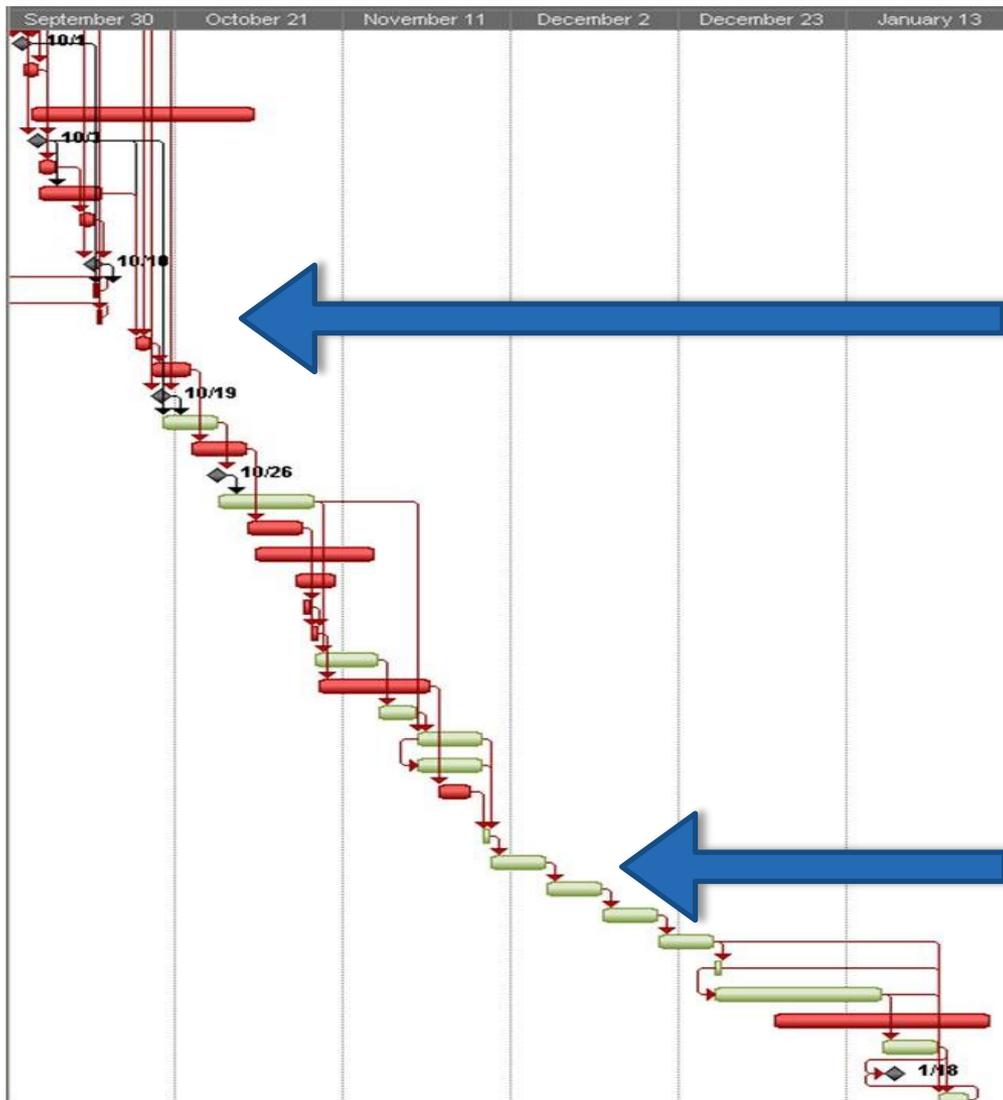
6. Confirming that the Critical Path is Valid

The schedule should have a valid critical path—this path defines the minimum duration of the project.

The critical path should be the driving (or longest) path through the network. It will begin at the status date and continue to the key finish milestone(s).



Confirming a Valid Critical Path – Air Force ERP



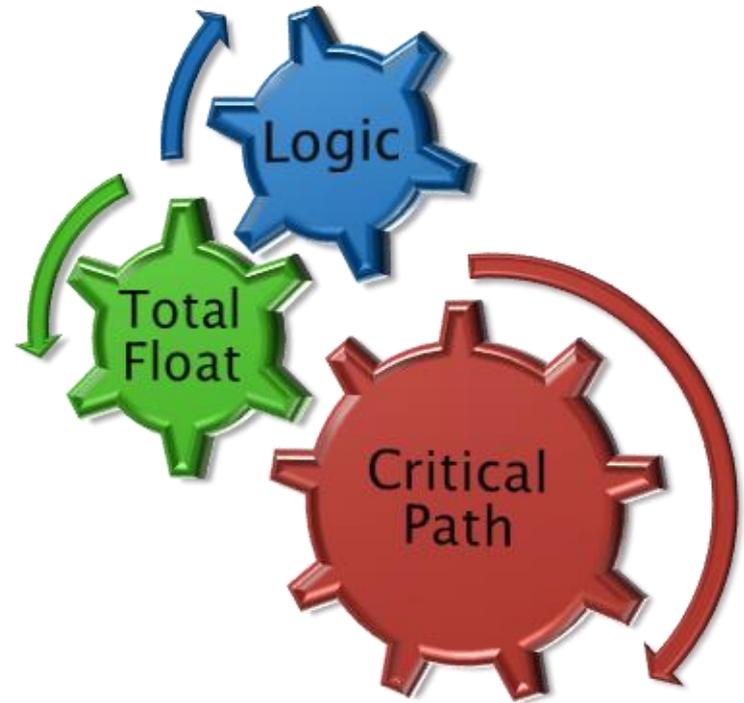
Critical path (red activities) – as defined by 0 total float, a discontinuous sequence of **115** activities that contains 53 date constraints (including 13 MFO and 19 MSO).

Driving path (light green) – a continuous sequence of **22** activities determining the minimum length of the project.

7. Ensuring Reasonable Total Float

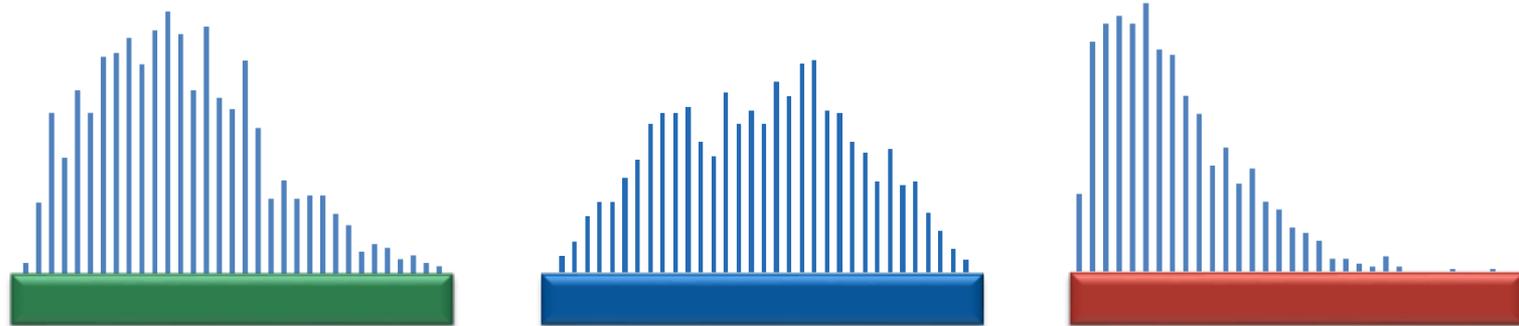
The schedule should identify reasonable float (or slack), which represents an estimate of the overall flexibility of the project.

The sequencing of logic, reasonableness of total float, and the validity of the critical path are all interrelated.



8. Conducting a Schedule Risk Analysis

A schedule risk analysis (SRA) uses a good critical path method schedule and data about project schedule threats and opportunities to predict the level of confidence in meeting a program's completion date.



9. Updating Using Actual Progress and Logic

Progress updates and logic provide a realistic forecast of start and completion dates for program activities.

Maintaining the integrity of the schedule logic at regular intervals is necessary to reflect the true status of the program.



10. Maintaining a Baseline Schedule

A baseline schedule is the basis for managing the project scope, the time period for accomplishing it, and the required resources. The baseline schedule is designated the target schedule.

A corresponding schedule basis document details ground rules and assumptions used in developing the schedule.



How is the government performing?



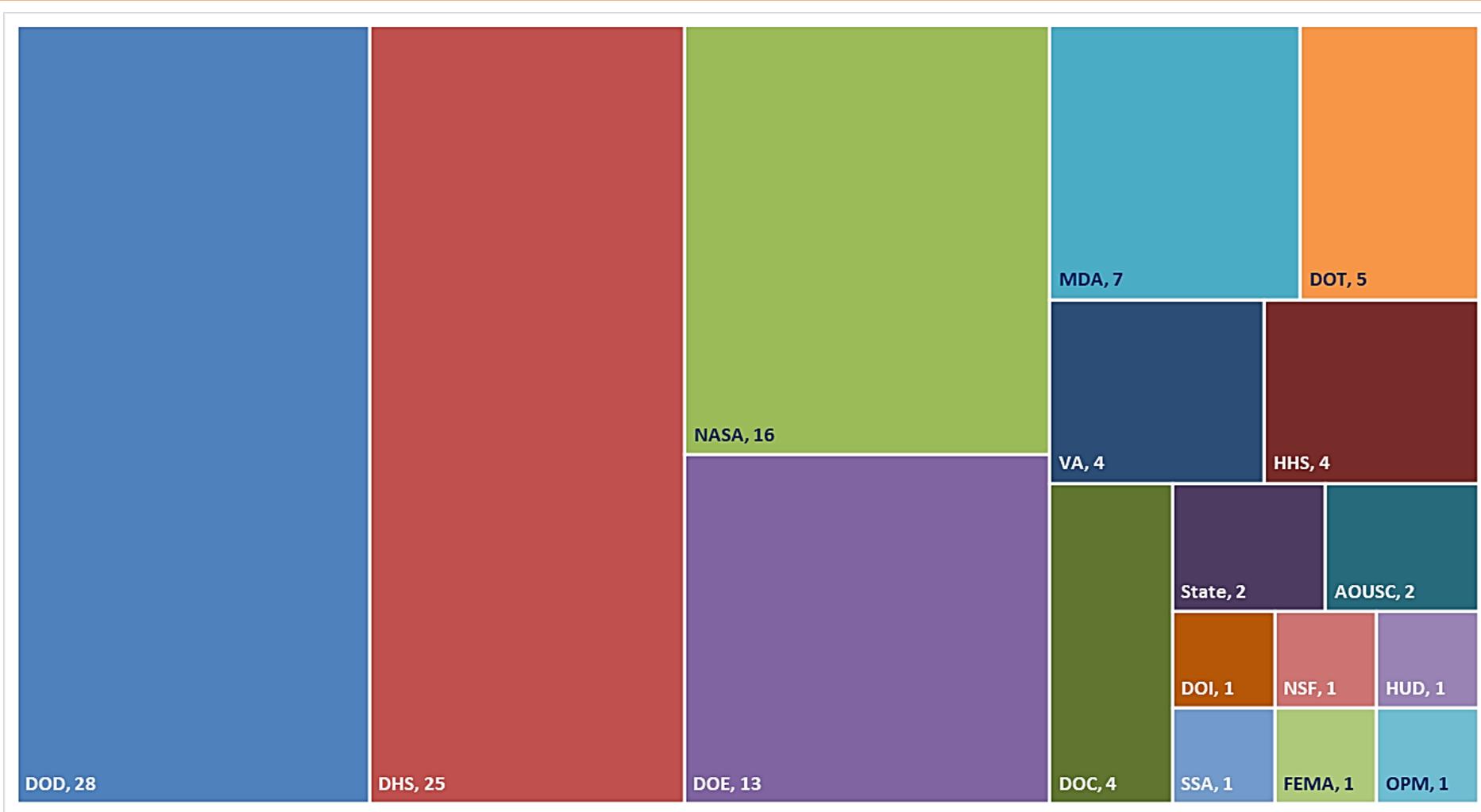
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Application of Schedule Guide Criteria

Since 2009, we have assessed the quality of 116 government schedules

- Findings are published in 62 public reports and testimonies
- Does not include policy reviews or sensitive reports
- Mix of integrated master, program, and (sub-)project schedule assessments

Number of Schedule Reliability Assessments



How is the Government Performing?

Agency	BP1	BP2	BP3	BP4	BP5	BP6	BP7	BP8	BP9	BP10
DOD	Partially met	Not met	Partially met	Partially met						
DHS	Partially met	Partially met	Not met	Partially met	Partially met	Partially met	Partially met	Not met	Partially met	Not met
NASA	Partially met									
DOE	Partially met									
MDA	Partially met	No data								
DOT	Partially met	Not met	Partially met	No data						
VA	Partially met	Not met	Partially met	No data						
HHS	No data	Partially met	No data	No data	No data	Partially met	Partially met	No data	No data	No data
DOC	Partially met	Partially met	Not met	Partially met	Partially met	Partially met	Partially met	Not met	Partially met	Partially met

■ Fully met
 ■ Partially met
 ■ Not met
 No data
 Includes agencies with three or more schedule assessments.

- DOD: Department of Defense
- DHS: Department of Homeland Security
- NASA: National Aeronautics and Space Administration
- DOE: Department of Energy
- MDA: Missile Defense Agency (DOD)
- DOT: Department of Transportation
- VA: Department of Veterans Affairs
- HHS: Department of Health and Human Services
- DOC: Department of Commerce

Thank you!

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