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Take Your Forensic Schedule Analysis a Step Further with Half Step

Presented by: Denise Russell, Sr Principal Solutions Engineer, Deltek

NASA Cost and Scheduling Symposium 2026

August 25-27, 2026 Cleveland, OH

Speaker Bio

Sr Principal Solutions Engineer

PPM Solutions Engineering Team Lead

20+ years in scheduling and project controls across government and commercial sectors

Passionate about making EVM work in the real world, not just in policy documents

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Introduction

- How confident are you in knowing what details have changed in your schedule as you have been executing your project?
- Most people are fairly confident they know how things have generally changed, like Critical and Driving Paths, how much work they've accomplished, or what milestones they've met.
- But do you know if previously reported Actuals have changed? Can you easily identify how your logic has changed? Can you identify if your Critical/Driving Path changes are due to performance or was it just logic updates?

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Agenda

- Introduction
- Objectives
- Forensic Schedule Analysis
- Acumen Fuse Forensics
- Half-Step Analysis
- Q & A

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Objectives

- **Explain the value of Forensic Schedule Analysis** and how it can be woven into everyday schedule management to give you genuine "under the hood" visibility - not just surface-level awareness
- **Define and apply Half-Step Analysis** to identify the full impact(s) of delays on your project schedule or isolate root causes of changes to your critical path or project completion



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Forensic Schedule Analysis

- Forensic Schedule Analysis (FSA) identifies when and how the details in your schedule have changed
- Some industries have been keyed into the use of FSA for a long time and they use it on all aspects of their projects
    - Construction: extensively used in claims to demonstrate changes, delays, extensions, impact of a change order on a critical path
    - Government Contracting: Varies widely depending on customer, level of government oversight, size of contract, maturity of project management systems
- As government oversight has expanded and been automated to an extent, FSA is more vital than ever

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Acumen Suite

- Acumen Fuse
- Acumen Risk
- Acumen 360

- Acumen Touchstone

Acumen Touchstone

Automated schedule review, approval, rejection, and change control



Deltek. Project Maturity Framework

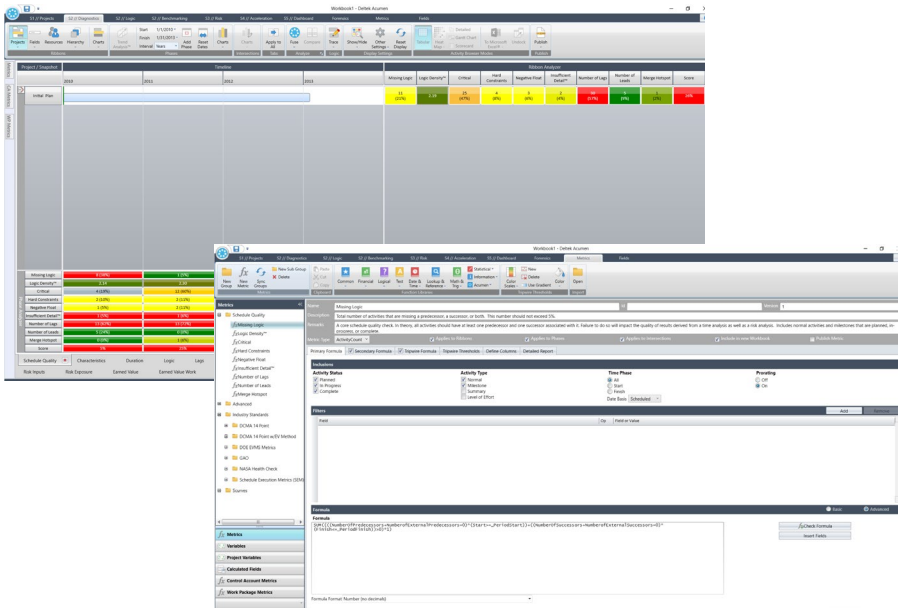


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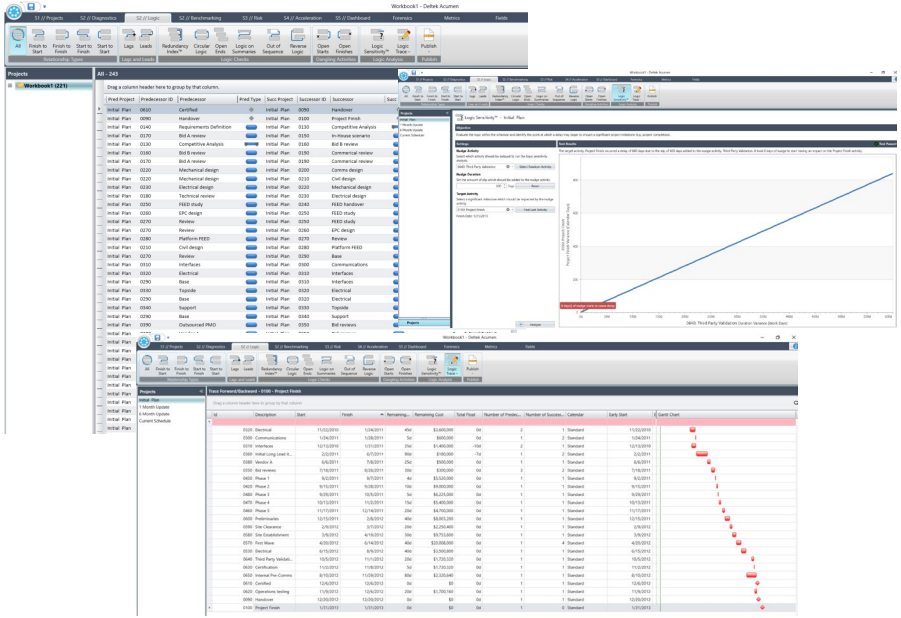
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Acumen Fuse

Over 500 metrics OOTB,
plus ability to edit or make new ones



Separate area dedicated specifically
to Logic analysis



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Acumen Forensics: How it Works

Forensics is part of the Acumen Fuse module

You can compare:

- Updated revisions of schedules
- Differences between contractual baseline schedules and as-builts during dispute resolution or lessons learned exercises
- Differences (or lack thereof) in the same schedule developed on different platforms

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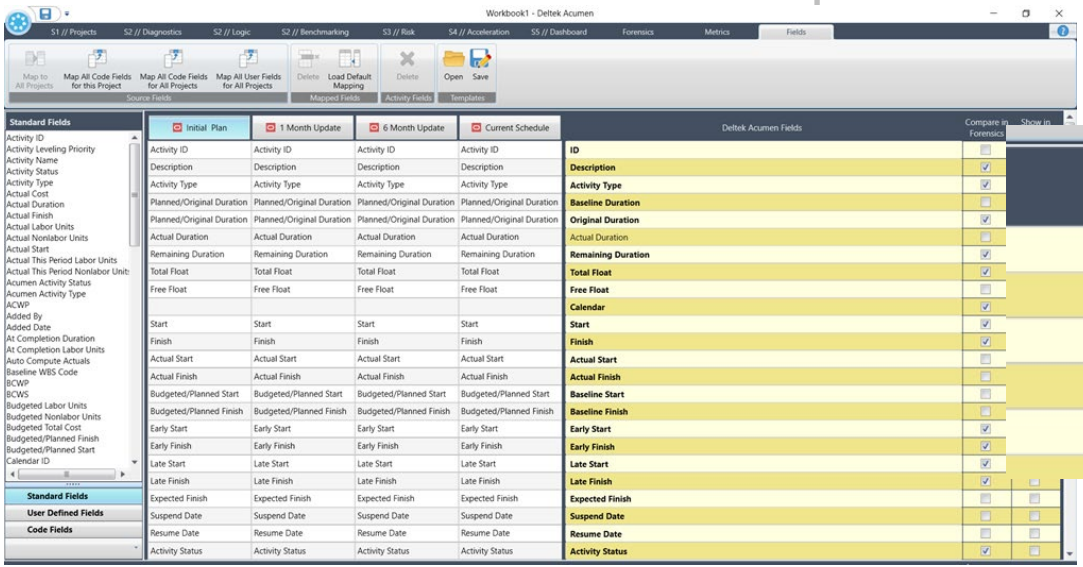
Acumen Forensics: Fields

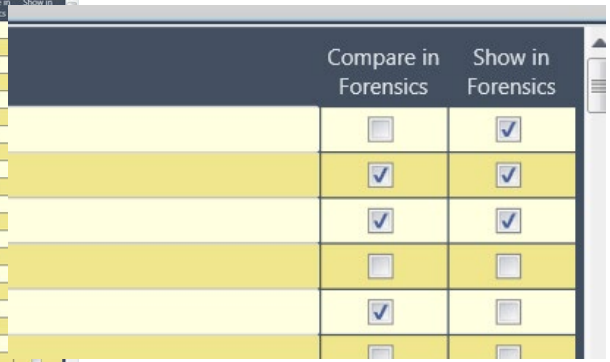
Compare in Forensics

- Makes this a default field for Forensic analysis

Show in Forensics

- Adds field to the list of selectable fields in Forensics



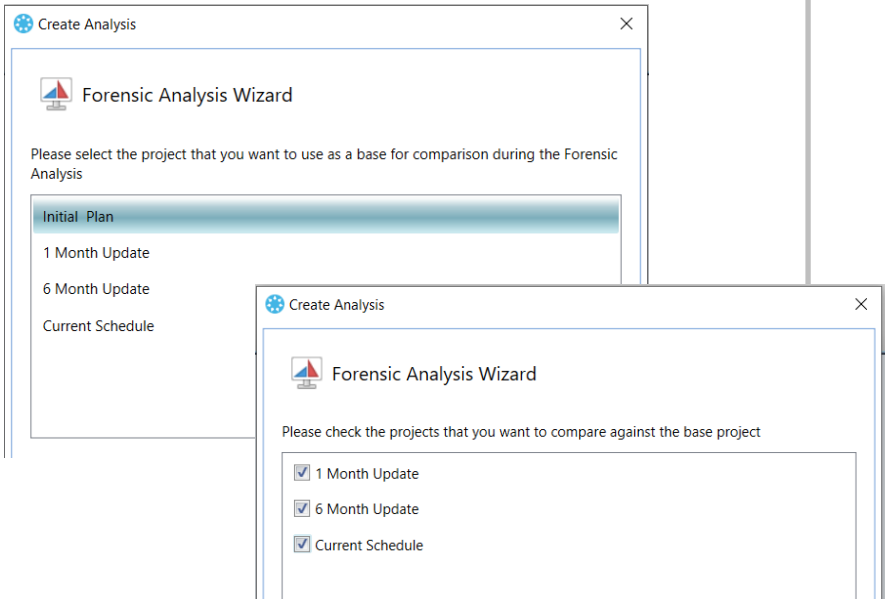


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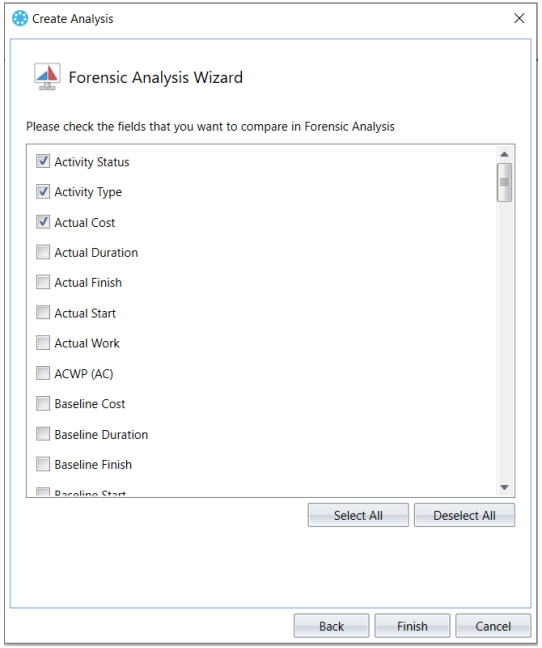
Acumen Forensics: Walk Thru

Configuration

Select your Files



Select your Fields

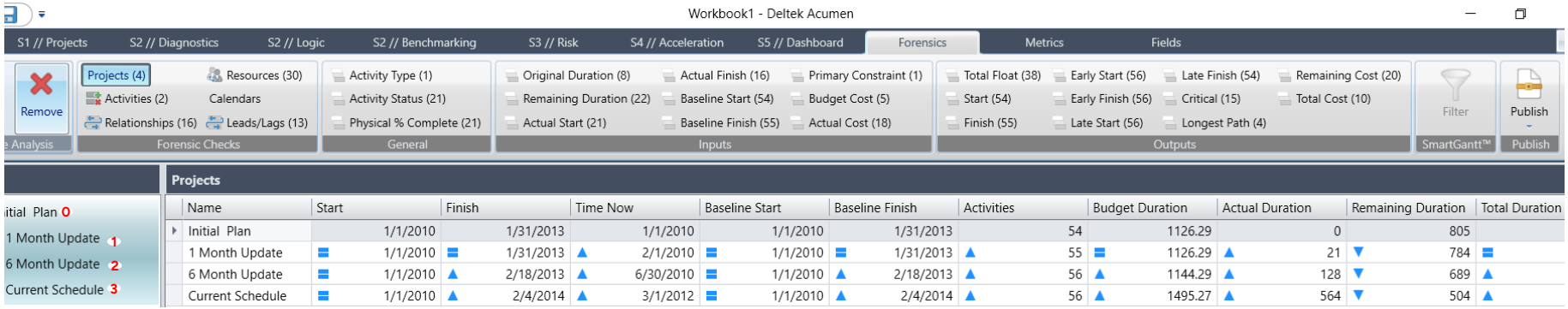


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Acumen Forensics: Walk Thru

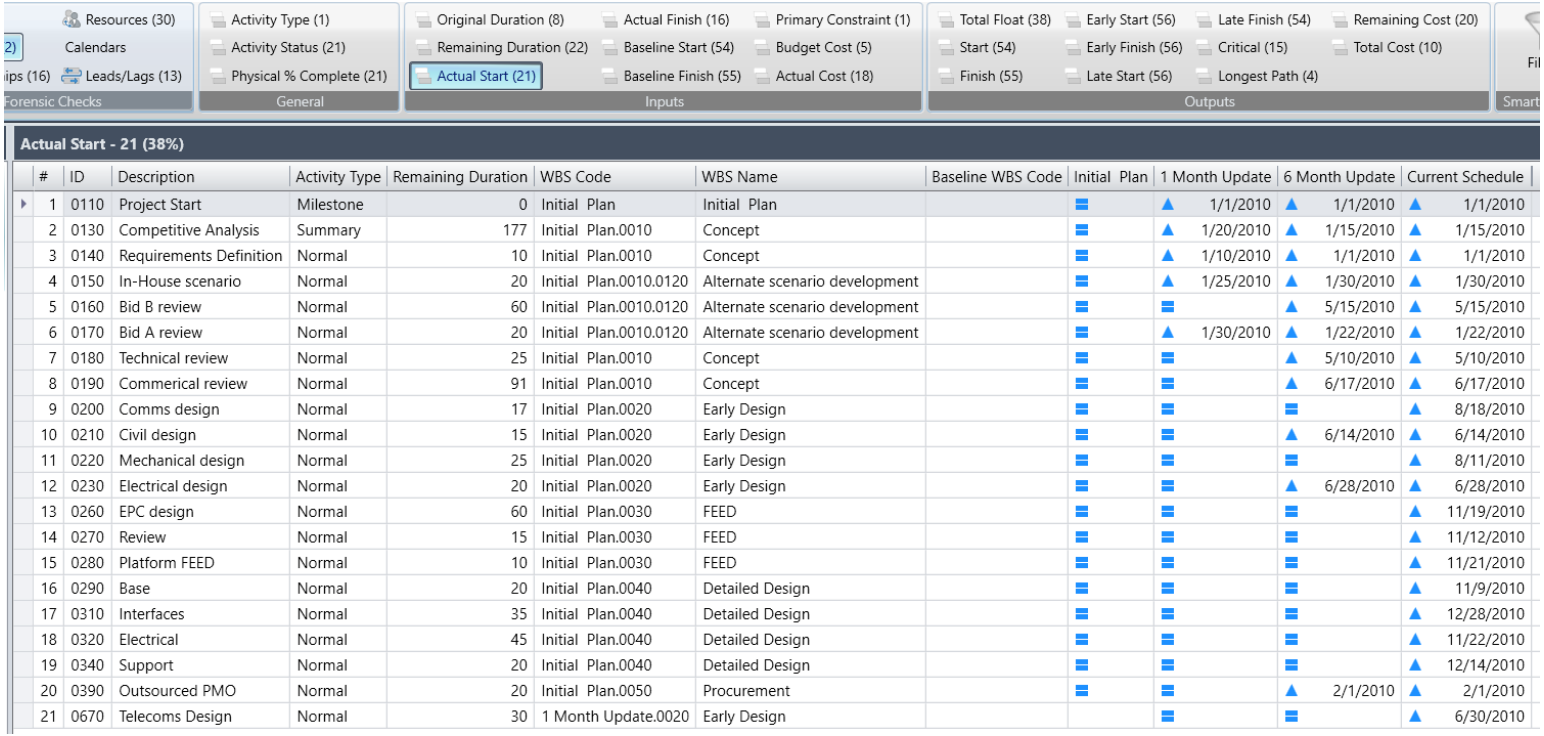
Summary Output



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Acumen Forensics: Walk Thru

Detailed Output (Dates)



Actual Start - 21 (38%)

#	ID	Description	Activity Type	Remaining Duration	WBS Code	WBS Name	Baseline WBS Code	Initial Plan	1 Month Update	6 Month Update	Current Schedule
1	0110	Project Start	Milestone	0	Initial Plan	Initial Plan			1/1/2010	1/1/2010	1/1/2010
2	0130	Competitive Analysis	Summary	177	Initial Plan.0010	Concept			1/20/2010	1/15/2010	1/15/2010
3	0140	Requirements Definition	Normal	10	Initial Plan.0010	Concept			1/10/2010	1/1/2010	1/1/2010
4	0150	In-House scenario	Normal	20	Initial Plan.0010.0120	Alternate scenario development			1/25/2010	1/30/2010	1/30/2010
5	0160	Bid B review	Normal	60	Initial Plan.0010.0120	Alternate scenario development				5/15/2010	5/15/2010
6	0170	Bid A review	Normal	20	Initial Plan.0010.0120	Alternate scenario development			1/30/2010	1/22/2010	1/22/2010
7	0180	Technical review	Normal	25	Initial Plan.0010	Concept				5/10/2010	5/10/2010
8	0190	Commerical review	Normal	91	Initial Plan.0010	Concept				6/17/2010	6/17/2010
9	0200	Comms design	Normal	17	Initial Plan.0020	Early Design					8/18/2010
10	0210	Civil design	Normal	15	Initial Plan.0020	Early Design				6/14/2010	6/14/2010
11	0220	Mechanical design	Normal	25	Initial Plan.0020	Early Design					8/11/2010
12	0230	Electrical design	Normal	20	Initial Plan.0020	Early Design				6/28/2010	6/28/2010
13	0260	EPC design	Normal	60	Initial Plan.0030	FEED					11/19/2010
14	0270	Review	Normal	15	Initial Plan.0030	FEED					11/12/2010
15	0280	Platform FEED	Normal	10	Initial Plan.0030	FEED					11/21/2010
16	0290	Base	Normal	20	Initial Plan.0040	Detailed Design					11/9/2010
17	0310	Interfaces	Normal	35	Initial Plan.0040	Detailed Design					12/28/2010
18	0320	Electrical	Normal	45	Initial Plan.0040	Detailed Design					11/22/2010
19	0340	Support	Normal	20	Initial Plan.0040	Detailed Design					12/14/2010
20	0390	Outsourced PMO	Normal	20	Initial Plan.0050	Procurement				2/1/2010	2/1/2010
21	0670	Telecoms Design	Normal	30	1 Month Update.0020	Early Design					6/30/2010

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Acumen Forensics: Walk Thru

Detailed Output (Status – grouped)

Activity Status - 21 (38%)

Current Schedule

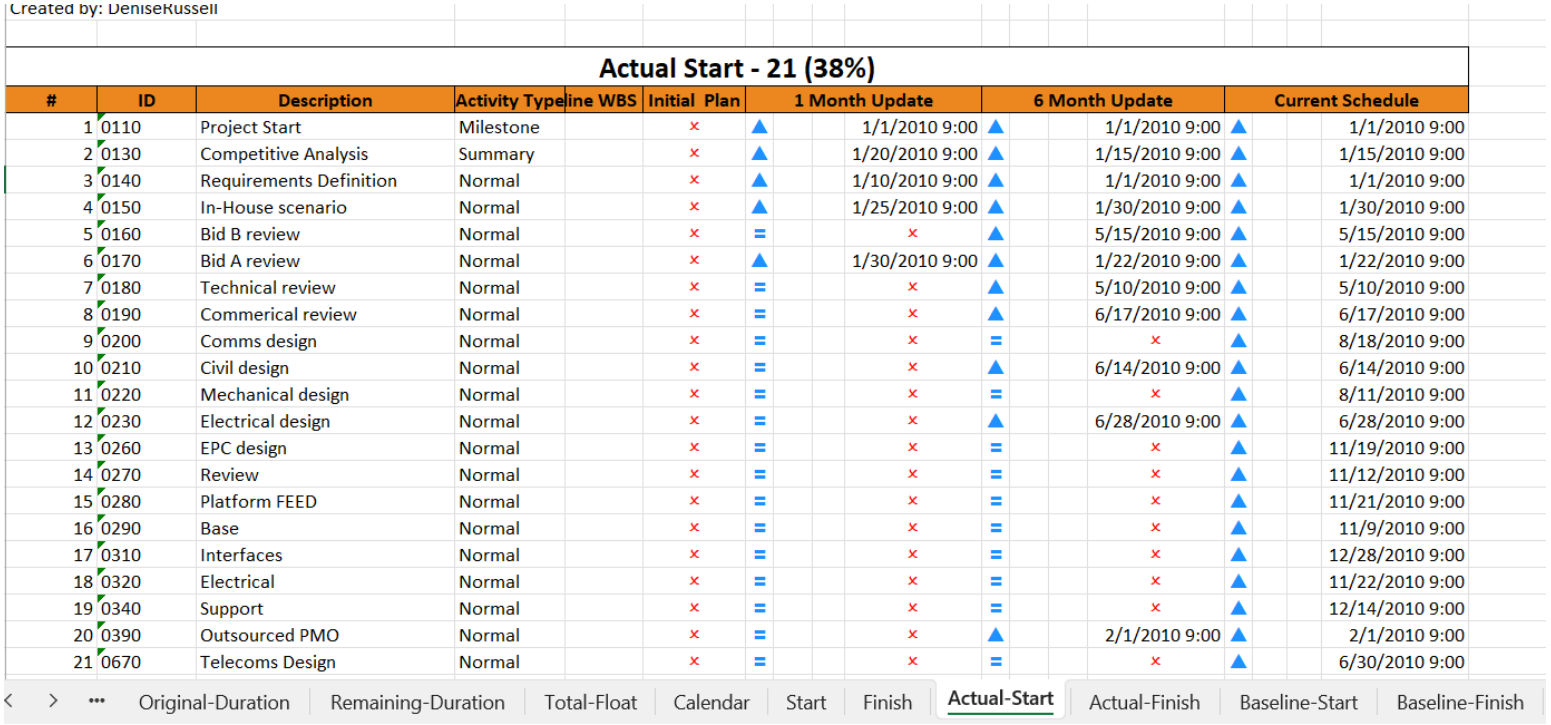
#	ID	Description	Activity Type	Remaining Duration	WBS Code	WBS Name	Baseline WBS Code	Initial Plan	1 Month Update	6 Month Update
Current Schedule: Complete										
1	0110	Project Start	Milestone	0	Initial Plan	Initial Plan		Planned	Complete	Complete
2	0130	Competitive	Summary	177	Initial Plan	Concept		Planned	Complete	Complete
3	0140	Requiremen	Normal	10	Initial Plan	Concept		Planned	Complete	Complete
4	0150	In-House sc	Normal	20	Initial Plan	Alternate s		Planned	InProgress	Complete
5	0160	Bid B review	Normal	60	Initial Plan	Alternate s		Planned	Planned	Complete
6	0170	Bid A review	Normal	20	Initial Plan	Alternate s		Planned	InProgress	Complete
8	0190	Commerical	Normal	91	Initial Plan	Concept		Planned	Planned	Complete
9	0200	Comms desi	Normal	17	Initial Plan	Early Desig		Planned	Planned	Planned
0	0210	Civil design	Normal	15	Initial Plan	Early Desig		Planned	Planned	InProgress
1	0220	Mechanical	Normal	25	Initial Plan	Early Desig		Planned	Planned	Planned
2	0230	Electrical de	Normal	20	Initial Plan	Early Desig		Planned	Planned	InProgress
4	0270	Review	Normal	15	Initial Plan	FEED		Planned	Planned	Planned
5	0280	Platform FEE	Normal	10	Initial Plan	FEED		Planned	Planned	Planned
6	0290	Base	Normal	20	Initial Plan	Detailed De		Planned	Planned	Planned
1	0670	Telecoms De	Normal	30	1 Month U	Early Desig			Planned	Planned
Current Schedule: InProgress										
7	0180	Technical rev	Normal	25	Initial Plan	Concept		Planned	Planned	Complete
3	0260	EPC design	Normal	60	Initial Plan	FEED		Planned	Planned	Planned
7	0310	Interfaces	Normal	35	Initial Plan	Detailed De		Planned	Planned	Planned
8	0320	Electrical	Normal	45	Initial Plan	Detailed De		Planned	Planned	Planned
9	0340	Support	Normal	20	Initial Plan	Detailed De		Planned	Planned	Planned
0	0390	Outsourced	Normal	20	Initial Plan	Procureme		Planned	Planned	InProgress

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Acumen Forensics: Reporting

Excel Workbooks



Created by: DeniseRussell

Actual Start - 21 (38%)

#	ID	Description	Activity Type	Baseline WBS	Initial Plan	1 Month Update	6 Month Update	Current Schedule
1	0110	Project Start	Milestone		×	1/1/2010 9:00	1/1/2010 9:00	1/1/2010 9:00
2	0130	Competitive Analysis	Summary		×	1/20/2010 9:00	1/15/2010 9:00	1/15/2010 9:00
3	0140	Requirements Definition	Normal		×	1/10/2010 9:00	1/1/2010 9:00	1/1/2010 9:00
4	0150	In-House scenario	Normal		×	1/25/2010 9:00	1/30/2010 9:00	1/30/2010 9:00
5	0160	Bid B review	Normal		×	×	5/15/2010 9:00	5/15/2010 9:00
6	0170	Bid A review	Normal		×	1/30/2010 9:00	1/22/2010 9:00	1/22/2010 9:00
7	0180	Technical review	Normal		×	×	5/10/2010 9:00	5/10/2010 9:00
8	0190	Commerical review	Normal		×	×	6/17/2010 9:00	6/17/2010 9:00
9	0200	Comms design	Normal		×	×	×	8/18/2010 9:00
10	0210	Civil design	Normal		×	×	6/14/2010 9:00	6/14/2010 9:00
11	0220	Mechanical design	Normal		×	×	×	8/11/2010 9:00
12	0230	Electrical design	Normal		×	×	6/28/2010 9:00	6/28/2010 9:00
13	0260	EPC design	Normal		×	×	×	11/19/2010 9:00
14	0270	Review	Normal		×	×	×	11/12/2010 9:00
15	0280	Platform FEED	Normal		×	×	×	11/21/2010 9:00
16	0290	Base	Normal		×	×	×	11/9/2010 9:00
17	0310	Interfaces	Normal		×	×	×	12/28/2010 9:00
18	0320	Electrical	Normal		×	×	×	11/22/2010 9:00
19	0340	Support	Normal		×	×	×	12/14/2010 9:00
20	0390	Outsourced PMO	Normal		×	×	2/1/2010 9:00	2/1/2010 9:00
21	0670	Telecoms Design	Normal		×	×	×	6/30/2010 9:00

Original-Duration | Remaining-Duration | Total-Float | Calendar | Start | Finish | Actual-Start | Actual-Finish | Baseline-Start | Baseline-Finish

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Half Step Analysis

What is a Half Step?

- In a Half Step Schedule, Bifurcation (a.k.a. half-stepping, two-stepping, progress-only update) is a procedure to segregate progress reporting from various non-progress revisions inherent in the updating process.

- Allows schedulers to see whether a finish date (or any date) slipped due to actual work delays or manual changes made to the network plan. Additionally, identifies if shifts in Driving and/or Critical Paths were due to progress updates (delays) or logic changes.

Association for the Advancement of Cost Engineering (AACE) requested it be added to Acumen as it is a recommended best practice (29R-03) for their members

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Half Step Analysis

What are non-progress revisions?

- Addition or deletion of activities
- Split or combined activities, using new activity IDs
- Addition or deletion of logic links
- Changes to lag value of logic links
- Addition, deletion or changes to constraints
- Changes to Original Durations (OD)

- Increase in Remaining Durations (RD) such that RD becomes greater than OD
- Changes to RD not accompanied by changes to Percent Complete
- Increase in RD of activities that have not started
- Changes to calendar assignments
- Changes to holiday assignments within a pre-existing calendar

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Half Step Scenarios

It can’t be that hard, right?

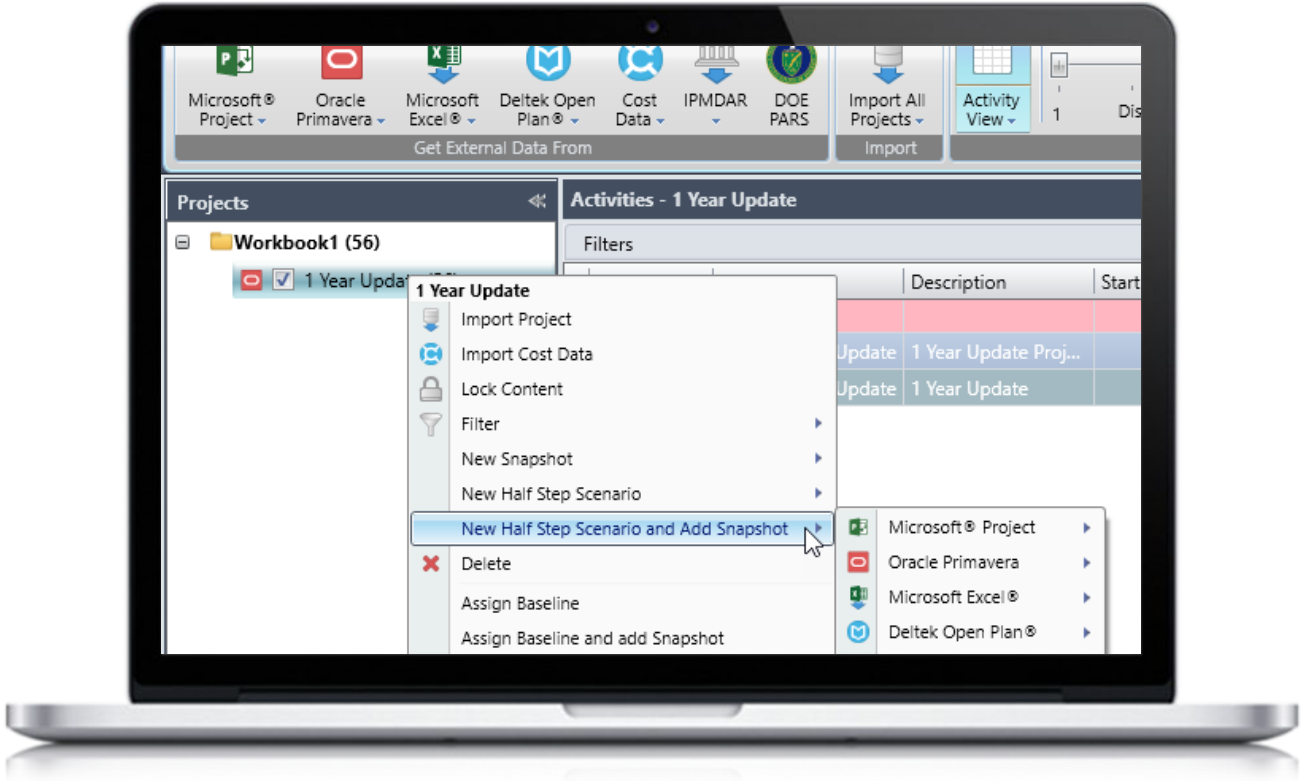
To conduct a half step delay analysis manually, you would:

1. Compare two schedule updates (Schedule A and B) and separate the list of changes into two groups: progress-related and non-progress revisions
2. Apply only the progress-related changes to Schedule A and recalculate the Critical Path using Schedule B’s status date to create an intermediate or half step schedule (Schedule A½).
3. Compare Schedule A to Schedule A½ to identify the variances related to pure progress and determine how much they impacted the finish date.
4. Compare Schedule A½ to Schedule B to identify the variances related to schedule revisions and assess their impact.

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Half Step Scenarios

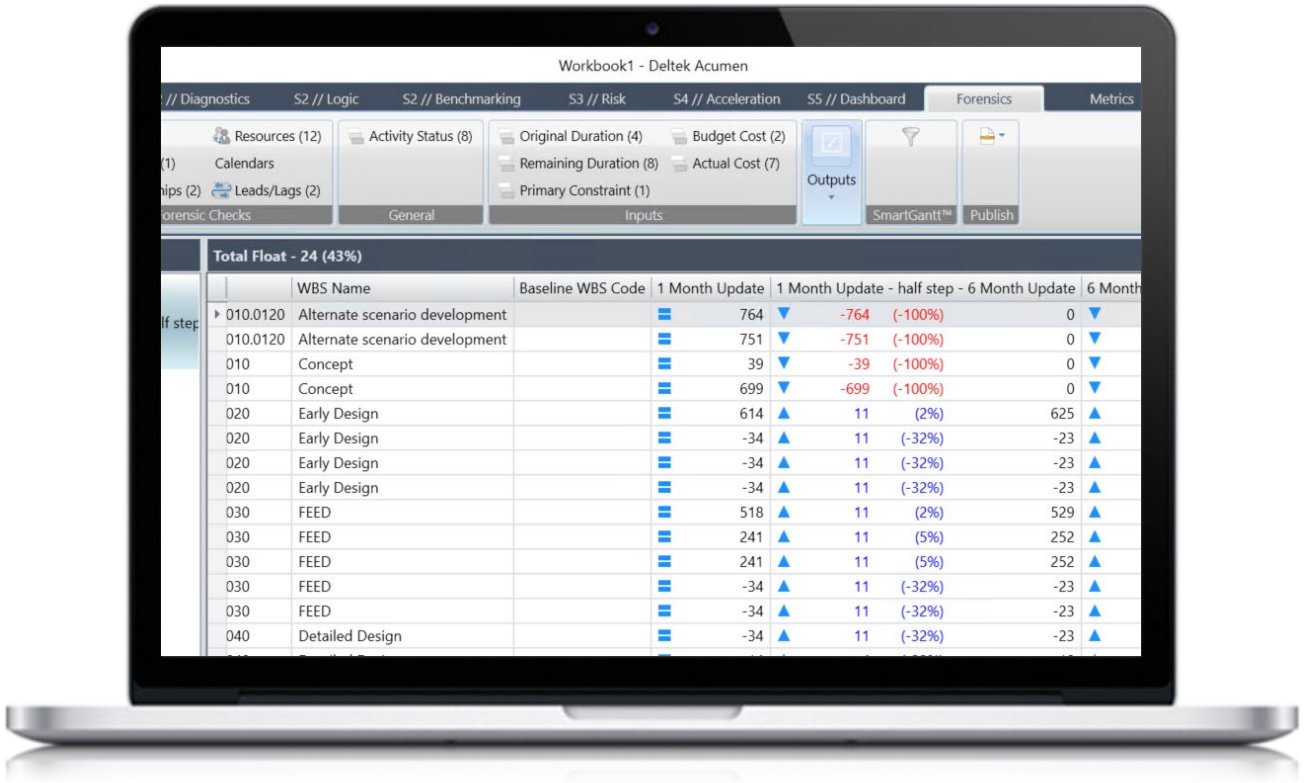
Or you can let Acumen do all that work for you and focus on getting the information you learn out to your project team quickly



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Half Step Analysis Forensics

Use Forensics to compare Schedules A, A½, and B to look for those non-progress revisions

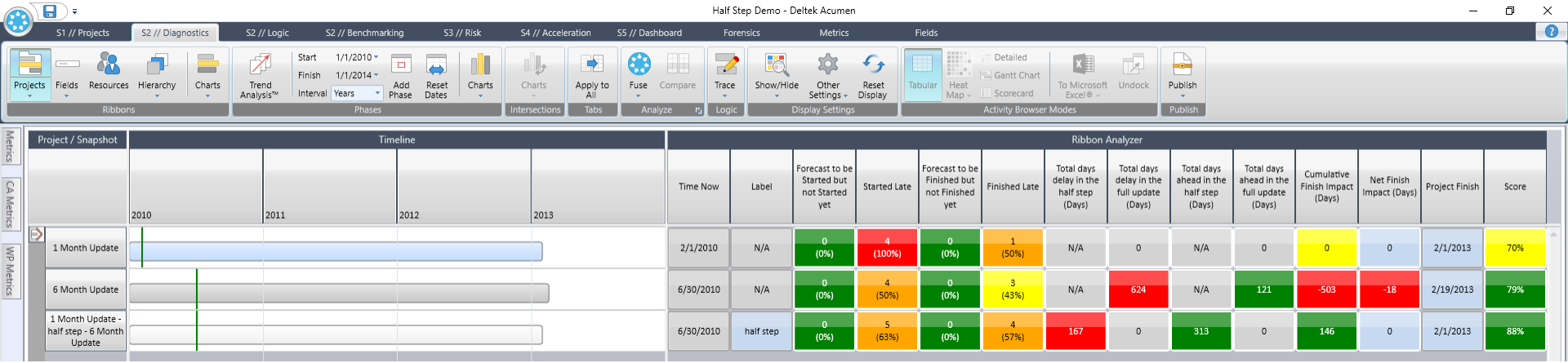


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Half Step Analysis Metrics

New Metrics specifically for Half Step Analysis

- Forecast to be Started but not Started, Started Late
- Forecast to be Finished but not Finished, Finished Late
- Days Ahead and Days Delayed, and MORE



Project / Snapshot	Time Now	Label	Forecast to be Started but not Started yet	Started Late	Forecast to be Finished but not Finished yet	Finished Late	Total days delay in the half step (Days)	Total days delay in the full update (Days)	Total days ahead in the half step (Days)	Total days ahead in the full update (Days)	Cumulative Finish Impact (Days)	Net Finish Impact (Days)	Project Finish	Score
1 Month Update	2/1/2010	N/A	0 (0%)	4 (100%)	0 (0%)	1 (50%)	N/A	0	N/A	0	0	0	2/1/2013	70%
6 Month Update	6/30/2010	N/A	0 (0%)	4 (50%)	0 (0%)	3 (43%)	N/A	624	N/A	121	-503	-18	2/19/2013	79%
1 Month Update - half step - 6 Month Update	6/30/2010	half step	0 (0%)	5 (63%)	0 (0%)	4 (57%)	167	0	313	0	146	0	2/1/2013	88%

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