Schedule Execution Analysis

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How it Started…

- Ground Systems Development & Operations is a complex program looking to see the value of operationalizing JCLs on a recurring basis

- The GSDO IMS matches complexity of program
  - Multiple Programs with various interdependencies
  - IMS of over 40k lines

- JCL required an analysis schedule to be updated on a regular basis
  - Insight needed on changing activities / flow
  - Insight needed on volatility of duration to support uncertainty analysis
  - Monthly update of IMS makes this a complicated venture

Bringing Analysis to the Schedule

- Developed an Analysis Schedule for PDR analysis
  - Updated monthly with IMS
  - Used for Confidence Level and Risk Analysis
- Process of analysis schedule updated generated deep insight
  - Viewed monthly duration changes
  - Tracked changes to items that were important to assessment team
  - Analytics (drift, shift, compression, etc) were developed to assess the changes, support update, and verify tracking to the underlying IMS
- However, limitations existed
  - Nature of an Analysis Schedule provided high-level insight
  - Although high level analytics, inadequate for deep-dive analysis
  - Turn around time from update to analysis didn't provide enough leeway to inform the following month's schedule

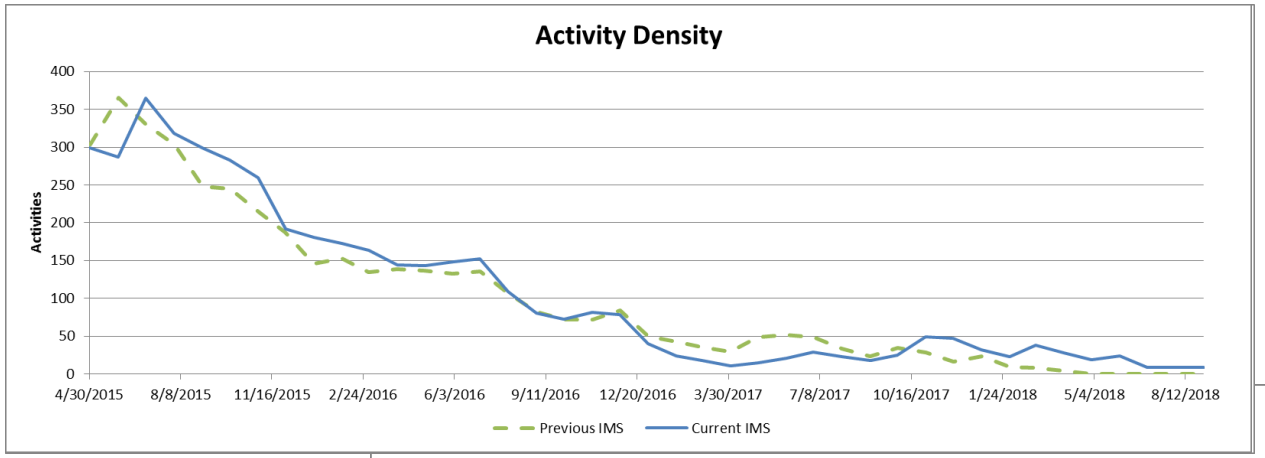
Schedule Analytics vs. Goliath

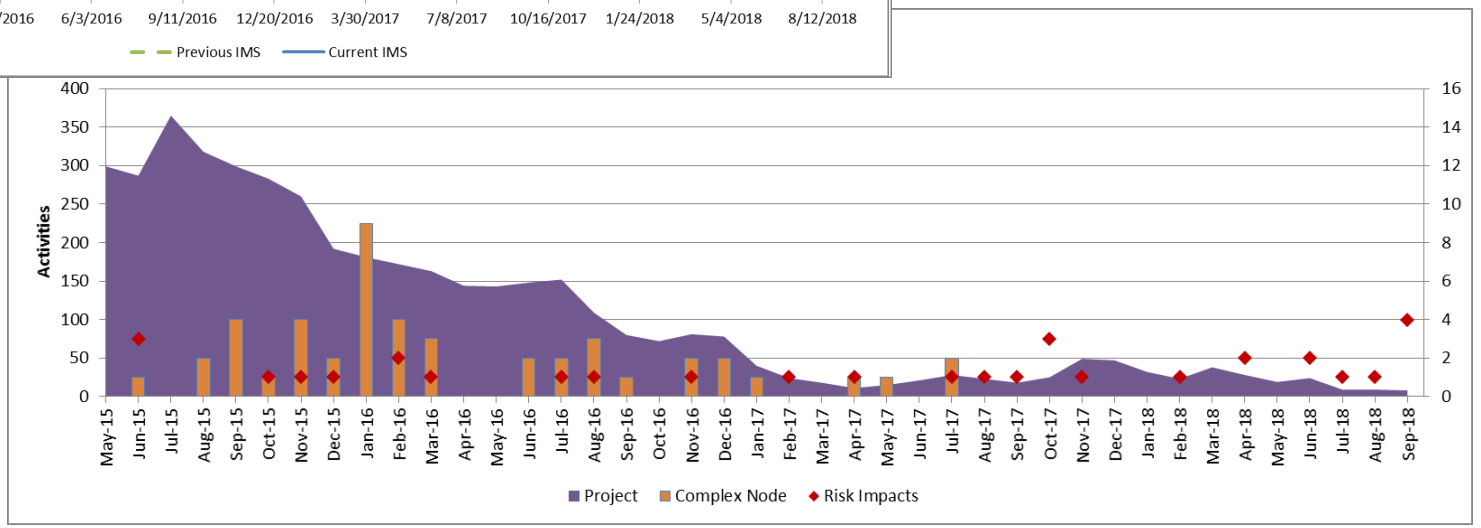
- Only logical solution was running schedule analytics on IMS
- What started as a Schedule Compare tool evolved into a Schedule Execution Analysis tool
  - Analyze IMS against a previous iteration or against a baseline
  - Insight into intricacies and differences of current IMS
  - Short assessment turnaround time
- Used to inform the Analysis Schedule
  - Identify high areas of volatility
  - Guide formation of schedule distributions
- Enhanced to include assessment of
  - Schedule Topology
  - Work Identification
  - Duration Changes & Finish Date Shifts

All data included in presentation is notional and representative of GSDO results

Schedule Topology

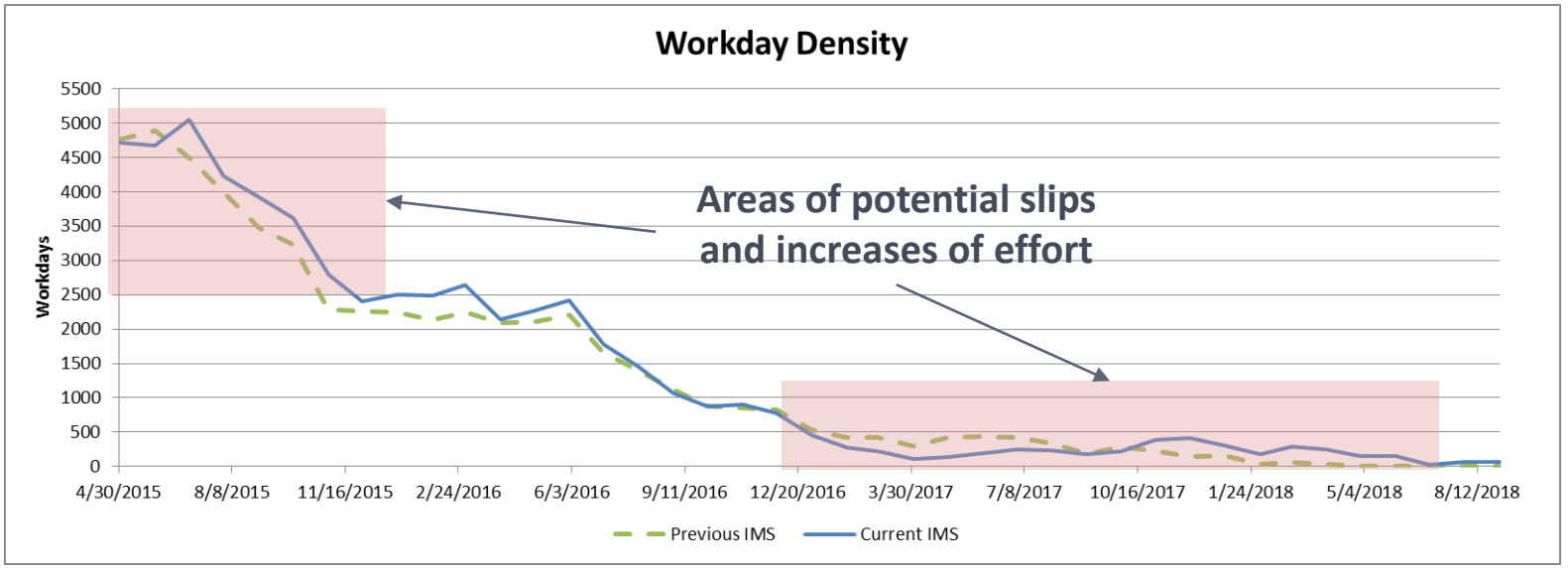
- Overall view of schedule structure complexity
- Identify changes in schedule structure
- Location of bottlenecks and risks





Effort Topology

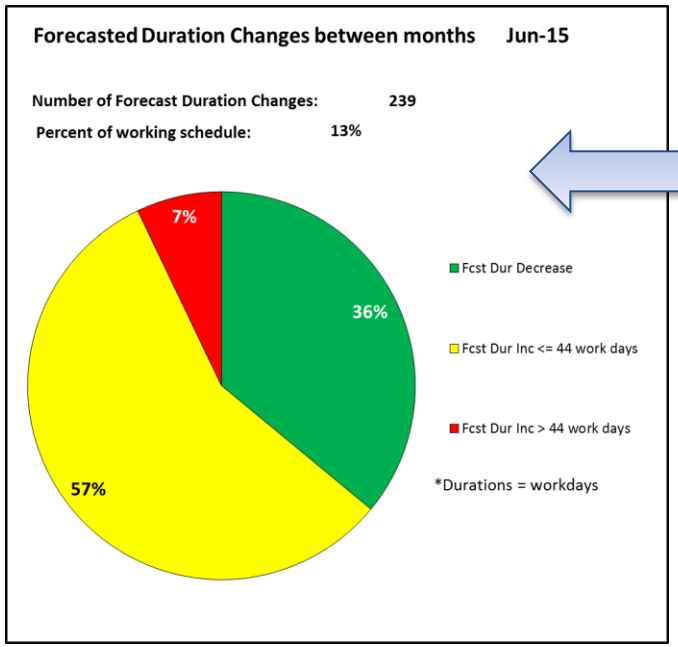
- Show work structure of schedule
  - Is the effort growing, compressing or shifting?



- Able to determine that only 30% of activities scheduled to complete during schedule update actually completed

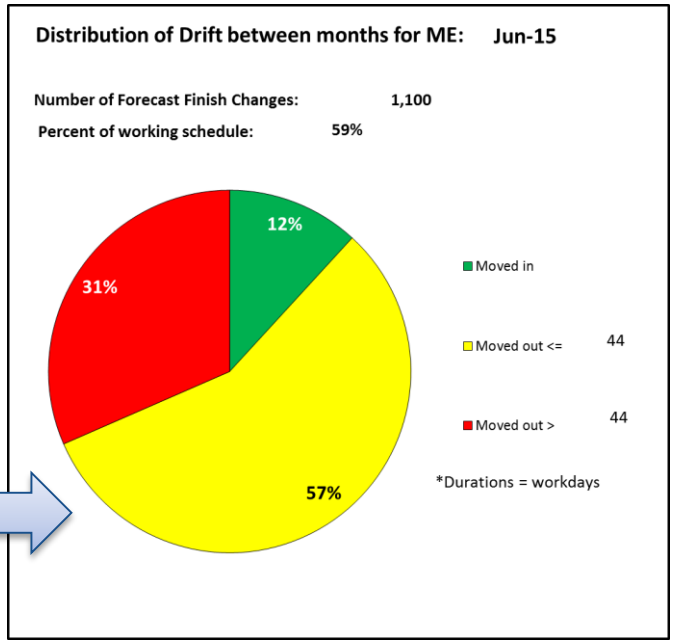
Changes in Schedule Activities

- Changes in schedule structure and effort driven by changes in finish dates, potentially driven by duration changes
- Identify which activities are **Aggressors** vs. activities that are **Victims**



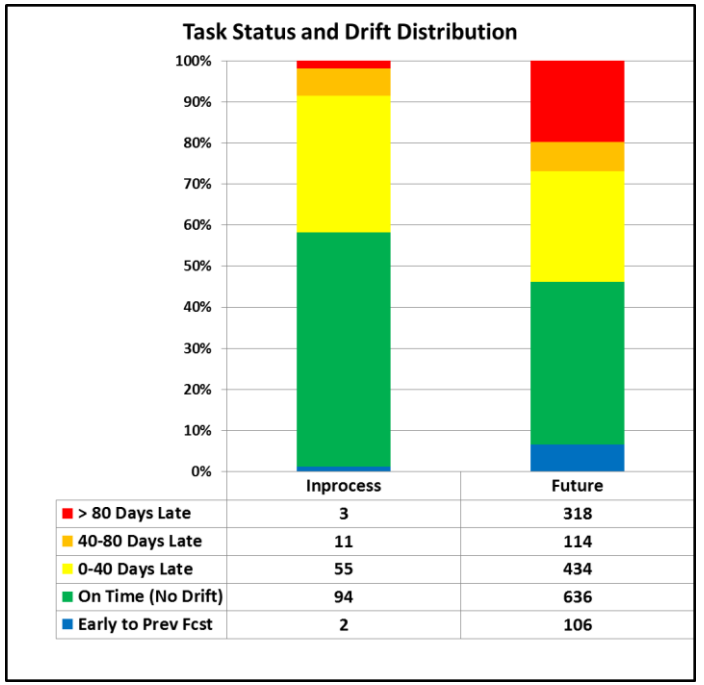
A relatively small amount of activities with duration change…

Results with almost **5 times** the activities with finish date change

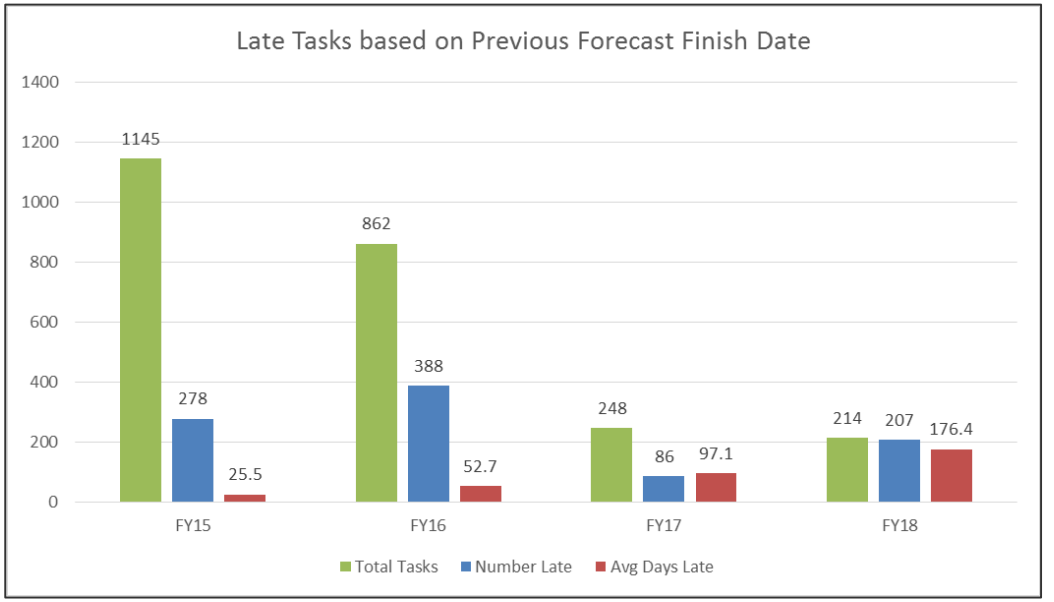


Impact of Schedule Activity Changes

- Approximately equal amount of activities with duration growth occurring on in-process and future activities
- However, over 90% of activities with a finish date slip are occurring in future activities
  - Results with over 50% of future activities having a finish date slip



	Inprocess	Future
> 80 Days Late	3	318
40-80 Days Late	11	114
0-40 Days Late	55	434
On Time (No Drift)	94	636
Early to Prev Fcst	2	106



Conclusion

- Analysis allows for basic project control by delivering qualitative and quantitative schedule analysis information for all levels of management decision making
- Tecolote proprietary tool that runs on MS-Project server files, P6 files, and regular MPP files
- Provides insight into several areas as a part of the monthly schedule assessment
  1. **What is the overall schedule topology?** - Where are risks, where are bottlenecks, where are large work efforts, etc.
  2. **Is the Work Shifting?** - Is work growing, are periods becoming more or less intense
  3. **Are Dates drifting?** - Are schedule dates being pushed out, are they moving in
  4. **Are Durations changing?** - Are durations growing/compressing
  5. **Did the Critical Path change?** - What activities moved off/on
  6. **Did activities on Critical Path slip?** - What critical path activities moved in/out
  7. **Did activity durations on Critical Path change?** - Are durations growing/compressing