

# Schedule Execution Analysis

Antonio Rippe – Tecolote Research, Inc.

Darren Elliott – Tecolote Research, Inc.

James Reilly – NASA KSC

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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

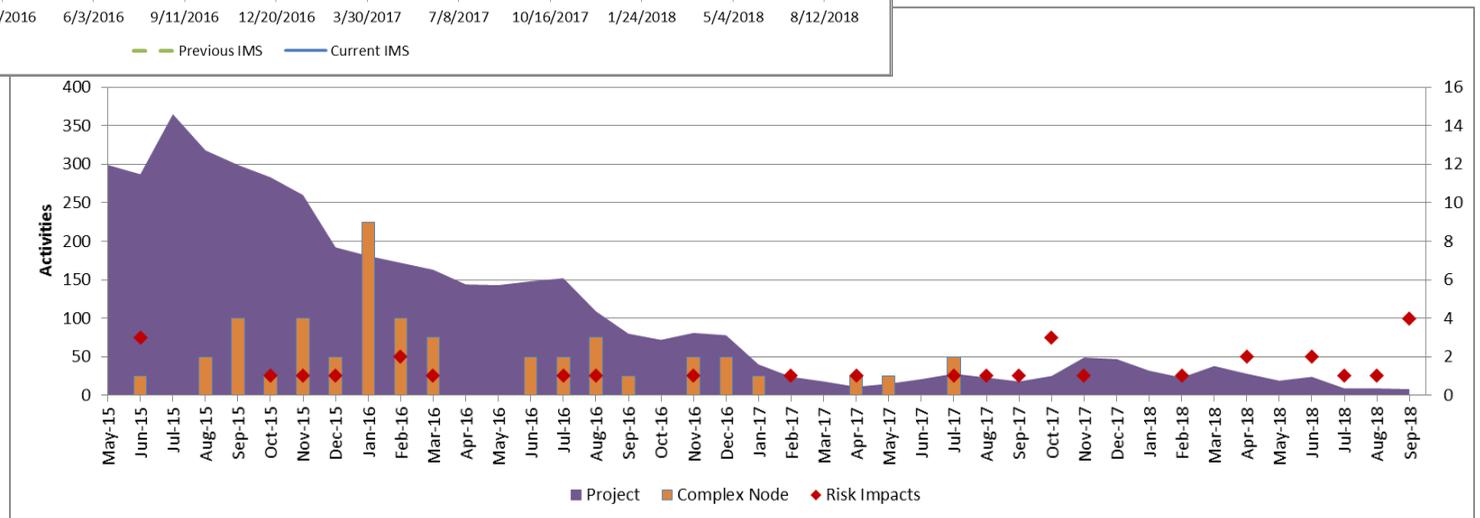
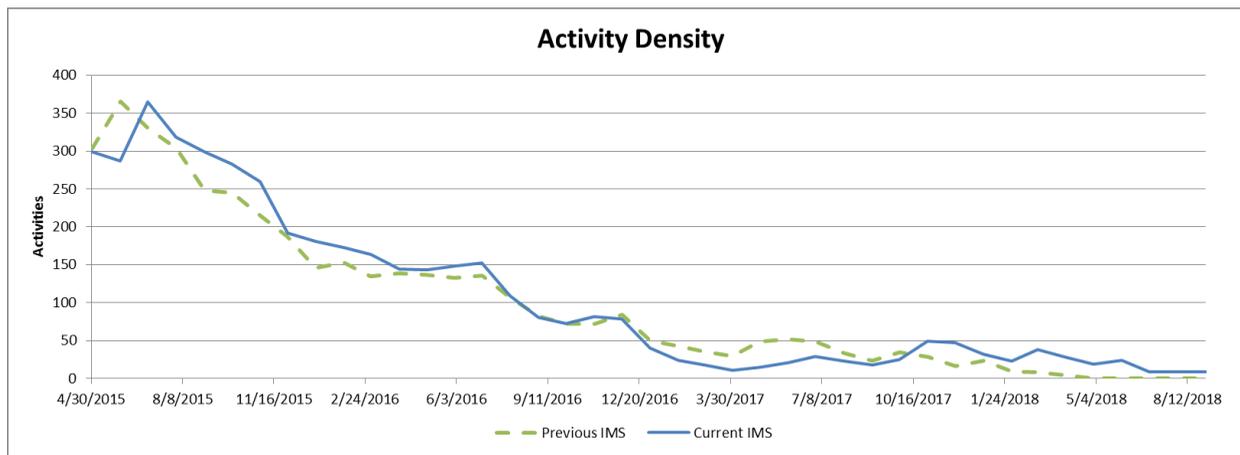
# Schedule Analytics vs. Goliath

- 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

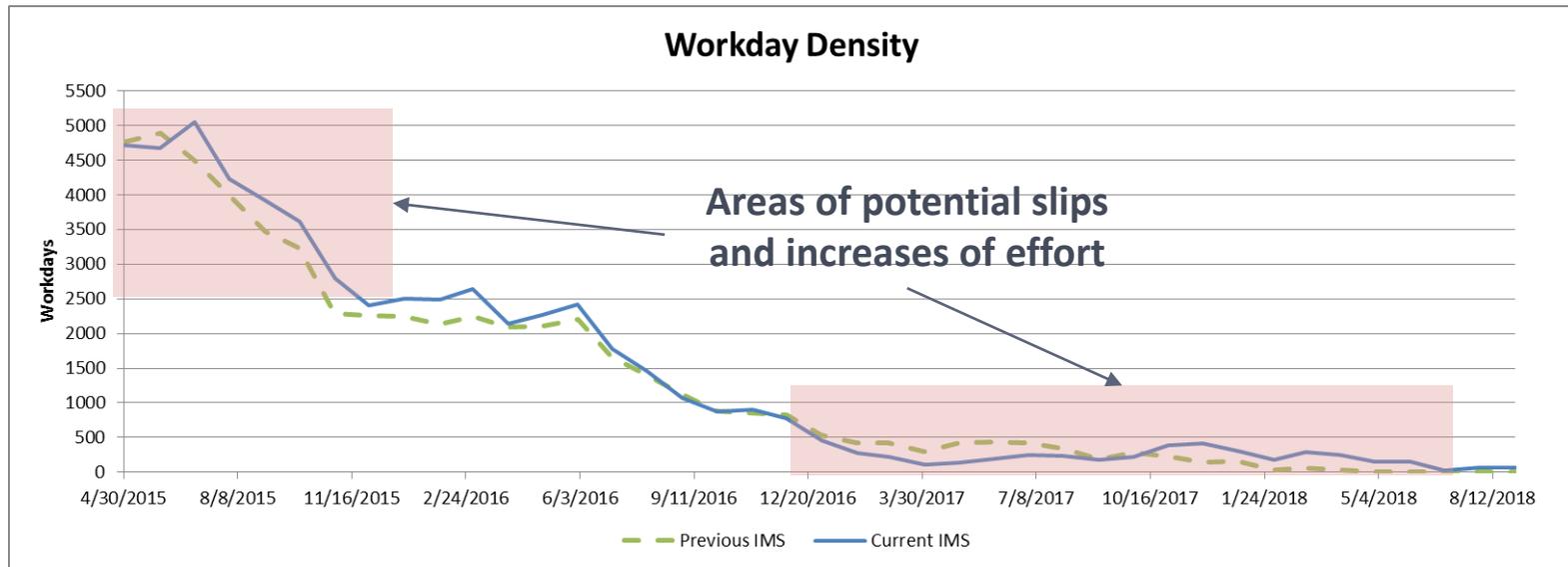
- Overall view of schedule structure complexity
- Identify changes in schedule structure
- Location of bottlenecks and risks



# Effort Topology

## ■ Show work structure of schedule

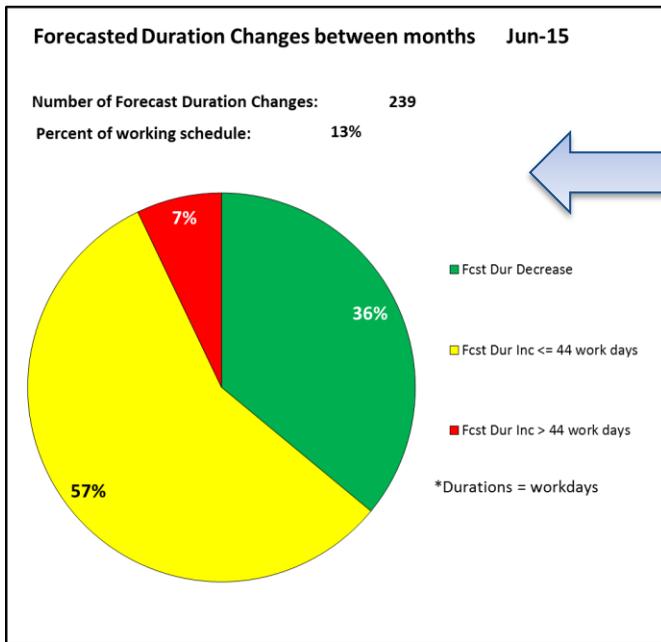
- Is the effort growing, compressing or shifting?



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

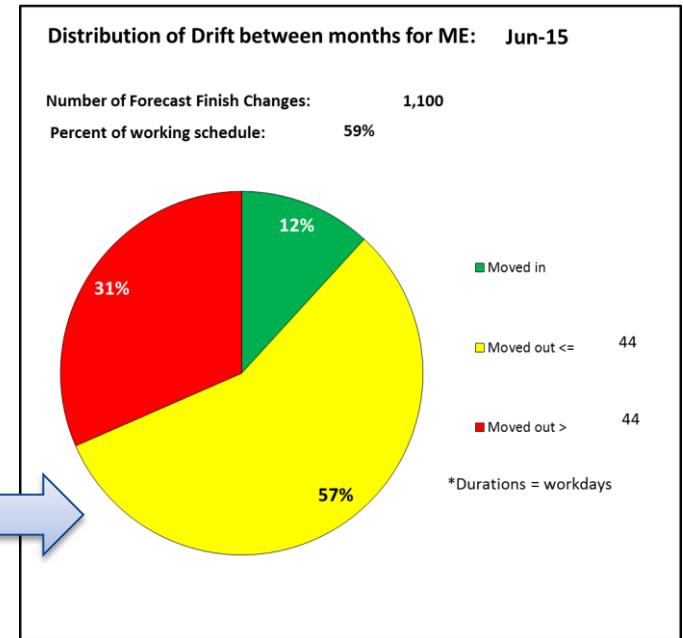
# Changes in Schedule Activities

- 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



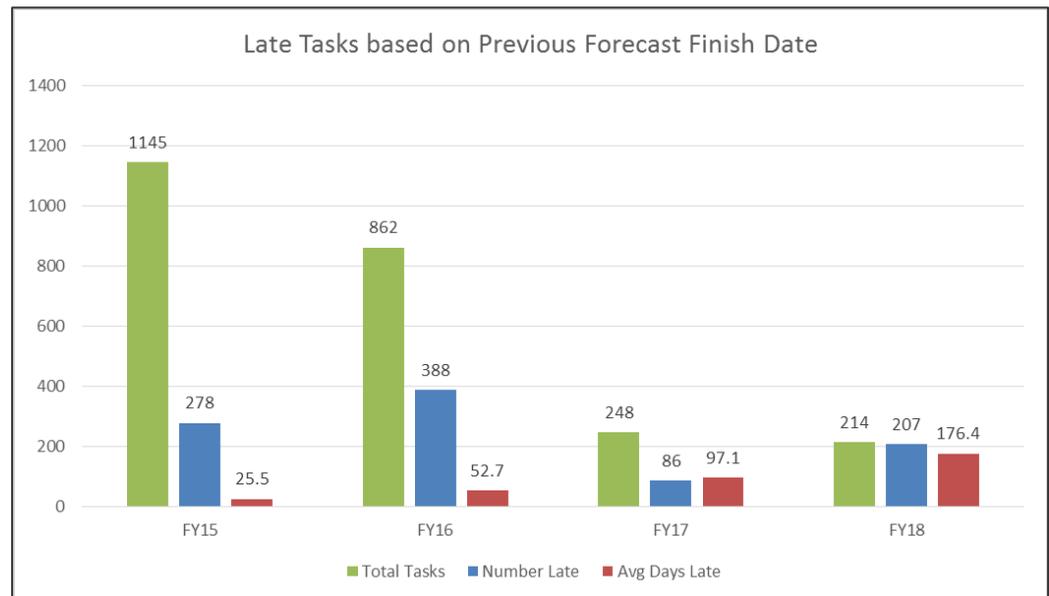
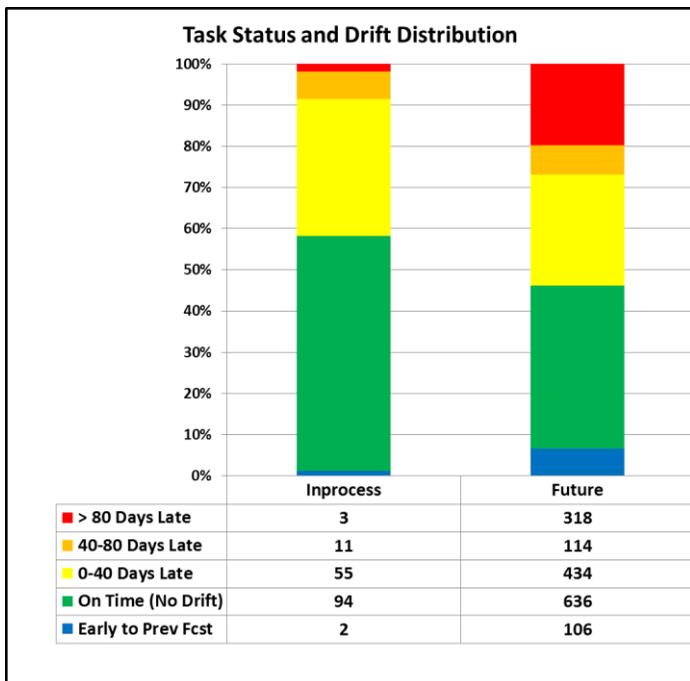
A relatively small amount of activities with duration change...

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



# 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