Metric Commonality and its Application in Aircraft Engines

Alissa Friedman, SM Candidate in Aero/Astro (May 2010)
Advisor: Professor Deborah Nightingale

Motivation
Business case: there is a significant need to obtain and understand fleet information from all aircraft engine customers.

Aircraft Engine Program Leaders
Note the Lack of Metric Standardization:

“Engine programs should be based on metrics. Much … long range planning is based on conclusions and assumptions rather than facts [and not] centered on all customer issues.”

“Everyone measures things, but not necessarily in the same way.”

“Different customers track different metrics; there is no standardization.”

Research Questions
Does metric commonality exist across aircraft engine families?
How do engine customer values drive engine metrics?
How are engine metrics created during the development phase of an engine program?
How are the proper metrics chosen for a given engine platform?

Does aircraft engine metric commonality exist?
How can it be applied to other aerospace products?

Expected Contributions
Business case study: current state of metrics and proposed enabling infrastructure to properly store metric data
Methodology in choosing the proper metrics for a given engine platform
Proposed metrics for development engine products
Observations in creating and choosing metrics to use for other aerospace products