FedFleet 2024: Fleet Data Quality - Understanding and Improving Your Agency's FAST Fleet Data Quality Metric?

January 2024

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Prepared for the
U.S. Department of Energy
Under DOE Idaho Operations Office
Contract DE-AC07-05ID14517, DE-AC07-05ID14517
Fleet Data Quality
Understanding and Improving Your Agency’s FAST Fleet Data Quality Metric

www.gsa.gov/FedFleet
We are...

Ron Stewart / Sharath Kallaje
FAST Support Team
Idaho National Laboratory
We’ll cover…

● Thinking about fleet data quality
  ○ … from a fleet manager’s perspective
  ○ … from FAST program’s perspective
● Understanding FAST’s review process
● Understanding FAST’s data quality metric
● Improving fleet data quality
  ○ … including FAST’s data quality metric
● Q & A
Thinking about data quality

**Fleet manager’s perspective**
- Complete?
- Correct?
- Current?
- Available?

**FAST program’s perspective**
- Validation
- Review & feedback
- Quality metric

... all provide *some* insight into *some* those same aspects of quality
Understanding FAST’s review process (1)

- Data is validated as it is loaded in FAST
  - Blocks data which can’t be complete or correct
  - Flags data which may be suspect

- Key points
  - Understand the validation rules
  - Understand how to access validation results
Understanding FAST’s review process (2)

- **FAST team reviews agency submission when complete**
  - High-level measures for year-to-year consistency
  - Vehicle-level measures for specific types of quality issues
  - Written feedback and detail provided to agencies
  - Opportunity for agency to respond and update submission

- **Key points**
  - Understand intent of review and feedback
  - Understand role of agency response to review
Understanding FAST’s review process (3)

● FAST team assembles “concerns per vehicle” metric
  ○ Metric based on subset of validation flags and review measures
  ○ ... adjusted based on agency response to feedback
  ○ ... and divided by number of vehicles reported

● Key points
  ○ Understand what each included measure is looking at
  ○ Understand role of agency response to feedback
Understanding FAST’s review process (4)

● FAST team communicates metric to agency
  ○ Provided to fleet POCs and agency leadership
  ○ Includes indication of improvement / regression
  ○ Includes comparison to overall federal fleet
  ○ Includes priority areas for agency improvement

● Key points
  ○ Is agency’s submission getting better?
  ○ What are the key areas for improvement?
FAST’s data quality metric (1)

- Which validation warnings go into FAST’s quality metric?
  - OC-1.5: Vehicle acquisition cost inconsistencies
  - F-2-2: Fuel consumption inconsistent with vehicle fuel type/configuration
  - F-2.3: Vehicles consuming B100 w/o reporting diesel consumption
  - F-2.4: PHEVs reported w/o electricity consumption
  - F-4.6: Vehicles with questionable fuel efficiency (also review measure M6)
  - F-5.5: Vehicles with questionable high per-unit fuel cost
Which review measures go into FAST’s quality metric?

- M-6: Vehicles with questionable fuel efficiency (validation warning F-4.6)
- M7: Year-to-year consistency of vehicle reporting
  - a) Vehicles with current-year acquisition dates also present in prior year submission (validation warning OW-1.3)
  - b) Vehicles with prior-year acquisition dates missing from prior year submission (validation warning OW-1.4)
  - c) Vehicles in current-year submission reported as disposals in prior-year submission (validation warning OW-4.4)
  - d) Vehicles in prior-year submission w/o disposal information missing in current-year submission
  - e) Vehicles in prior and current submissions with changes to static attributes (validation warning A-1.5)
- M8: Vehicles with placeholder attributes
FAST’s data quality metric (example)

<table>
<thead>
<tr>
<th>Measure</th>
<th>FY 2020</th>
<th>FY 2021</th>
<th>FY 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Measure 7(a)</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Review Measure 7(b)</td>
<td>144</td>
<td>54</td>
<td>111</td>
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<tr>
<td>Review Measure 7(c)</td>
<td>118</td>
<td>189</td>
<td>222</td>
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<tr>
<td>Review Measure 7(d)</td>
<td>83</td>
<td>102</td>
<td>35</td>
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<tr>
<td>Review Measure 7(e)</td>
<td>646</td>
<td>346</td>
<td>459</td>
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<tr>
<td>Review Measure 8</td>
<td>1,321</td>
<td>1,812</td>
<td>2,131</td>
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<tr>
<td>Validation warning OC-1.5</td>
<td>259</td>
<td>5</td>
<td>36</td>
</tr>
<tr>
<td>Validation warning F-2.2</td>
<td>414</td>
<td>399</td>
<td>326</td>
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<tr>
<td>Validation warning F-2.3</td>
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<tr>
<td>Validation warning F-2.4</td>
<td>53</td>
<td>57</td>
<td>53</td>
</tr>
<tr>
<td>Validation warning F-4.6</td>
<td>636</td>
<td>424</td>
<td>266</td>
</tr>
<tr>
<td>Validation warning F-5.5</td>
<td>400</td>
<td>1</td>
<td>172</td>
</tr>
<tr>
<td><strong>Total Concerns</strong></td>
<td>4,080</td>
<td>3,391</td>
<td>3,813</td>
</tr>
<tr>
<td><strong>Vehicles Reported</strong></td>
<td>8,139</td>
<td>8,370</td>
<td>8,549</td>
</tr>
<tr>
<td><strong>Concerns per Vehicle (CpV)</strong></td>
<td>0.50</td>
<td>0.41</td>
<td>0.45</td>
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<tr>
<td><strong>Year-to-year Change in CpV</strong></td>
<td>n/a</td>
<td>-0.09</td>
<td>+0.04</td>
</tr>
</tbody>
</table>

**Overall metric**
- Getting better or worse?

**Where are the concerns?**
- Getting better or worse?

FAST Fleet Data Quality Metric Detail - Example Agency
FAST’s data quality metric (more)

- FAQ in FAST’s Help
  - How is the metric intended to be used?
  - What goes into the metric?
  - How is the metric calculated?
  - Which measures are included in the metric?
  - An example
  - How was the federal fleet scored in recent years?

Improving fleet data quality (1)

- **Prioritize improving data quality**
  - What’s feasible?
  - What’s most important?
  - Where are the biggest gains?

- **Measure it**
  - How can you tell if it is getting better?
  - Start measuring / monitoring early
Improving fleet data quality (2)

- Find and fix problems at / close to the source
  - Fix the cause of the problem
  - Start finding / fixing early

- Participate in the post-submission review
  - Ensure metric is representative
  - Use review to inform improvement priorities
Improving fleet data quality (3)

- Prioritize / Measure / Find & Fix
  - On-going / continuous activity
  - These (should) form a feedback loop

- Primary intent: Better data to manage your fleet
  - By-products: simpler EOY reporting, improved quality metric
Q & A
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FAST Sandbox
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FAST Help
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