There are two kinds of reporting

• **Trip matched**: Matching is done after the trip is complete.

• **Integrated**: All trip data goes to a single report. No matching is required.
Trip matched reporting

- Four separate reports are generated for each trip.
- Analysts need data combined at the trip level, so…
- Individual reports of trip are matched after the trip.
Integrated reporting

- All entities contribute to a single report.
- Or the logical equivalent.
Distinguishing between incorrect trip identifiers (permit #, date, trip ID) and missing reports is unsolvable.

<table>
<thead>
<tr>
<th>VMS Data</th>
<th>Vessel Logs</th>
<th>Observer Reports</th>
<th>Dealer Reports</th>
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<tbody>
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<td>VL1</td>
<td>OR1</td>
<td>DR1</td>
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Note: '?' indicates missing or incorrect data.
QA vs. QC

• Fuzzy matching and imputation matching are examples of QC.
• QC detects and fixes errors.
  ▪ Guesswork is involved.
  ▪ Catch is overestimated or underestimated.
  ▪ An unknown number of errors remain.
• QA prevents errors
  ▪ A prevented error is equivalent to a perfect QC fix.
  ▪ More efficient
Two Other Important Principles of Integrated Reporting

1. Detect invalid entries upon input and give meaningful feedback. Ask for corrected entry.
2. If data can be machine generated, do not collect it from humans.
   - Trip ID
   - Today’s date
   - Vessel permit number
   - Dealer permit number
Arguments for Not Implementing Integrated Reporting

1. It was invented at Headquarters.
2. We don’t have the resources to implement it.
1. Actually, it wasn’t invented at Headquarters.
2. There is a version called Logical Equivalent.
   - Breaks development into tiny steps
   - Each step results in a fully functional system.