Problem
John Deere needs the technical specifications of all headers to feeder house interface functions to attach a Deere header to competitive combines.

Background
Traditionally equipment manufacturers have built combine harvesters and front-end equipment to support these machines. Proprietary couplers and mounting devices accomplished the task of attaching the equipment. John Deere is requesting the technical requirements to attach a 645FD to competitive combines which will be leveraged to evaluate future designs.

Purpose
To design a process for collecting technical specifications of original equipment manufacturers header interface connections including:
- Physical dimensions
- Latching mechanism
- Hydraulic specifications

The final solution will provide the company with a process to gather the information for design purposes.

Design Criteria
- Availability of technical documents
- Availability of machines for data collection
- Ease to add additional models to template
- Process should reduce engineering hours

Constraints
- Data must represent multiple machine brands accurately:
  - CaseIH 9240
  - Claas Lexion 780
  - New Holland CR9.90

Solution Process

<table>
<thead>
<tr>
<th>Multi-coupler Configurations</th>
<th>CNH</th>
<th>John Deere</th>
<th>Claas Lexion</th>
</tr>
</thead>
</table>

Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost ($)</th>
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<tbody>
<tr>
<td>CNH Service Manual 9240</td>
<td>2,654.34</td>
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<tr>
<td>NH Service Manual CR9.90</td>
<td>1,927.11</td>
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<td>Claas Service Manual 780</td>
<td>363.78</td>
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<tr>
<td>Mileage @ $0.535/mi 250 Miles</td>
<td>133.75</td>
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<tr>
<td>Labor – Not included in estimate</td>
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<td>Total</td>
<td>5,078.98</td>
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</tbody>
</table>

Impact & Sustainability
Having the ability to attach a Deere header to any combine in the market will provide Deere with a competitive advantage in the marketplace and allow them to capture more market share. With a streamlined data collection process, a design team will have the ability to more efficiently and accurately collect the needed specifications that will inform design decisions. Using the component nomenclature across all machines will reduce time deciphering differences in configurations.

Conclusion
Limited compatibility between header and feeder house interfaces will require substantial amounts of time and resources to design and build adapters. Standardizing components will provide the end-user with the ability to adapt the best combination of front-end equipment and combine harvesters to best suit the field conditions or economic constraints of the customer.

Recommendation
Deere & Company should propose a standard to ASABE similar to ANSI/ASABE AD730:2009 Agricultural wheeled tractors – Rear-mounted three-point linkage – Categories 1N, 1, 2N, 2, 3N, 3, 4N, and 4 Standard for combine harvester header attachment interfaces.