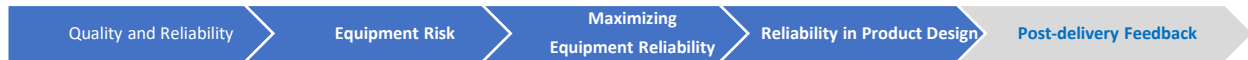


The Importance of Post-delivery Feedback

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This is the 5th in a series of five articles on risk and reliability in downhole applications.



In the article [Reliability in Equipment Design](#) it was stated that a project team can set reliability target(s) for new equipment using historical reliability data. One option OEMs have for capturing historical reliability data is a **F**ailure **R**eporting **A**nd **C**orrective **A**ction **S**ystem, or FRACAS. The data captured can provide a comprehensive view of how the equipment is performing. This data can be used to improve legacy equipment and drive decision-making on new equipment.

Figure 1 shows where FRACAS fits into the new product process. But how is historical reliability used for selecting the reliability target?

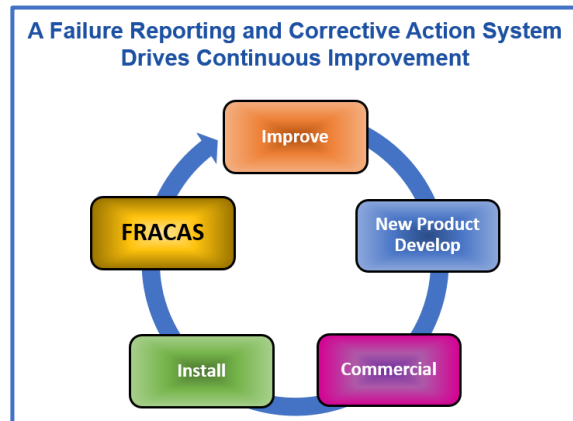


Figure 1 New product tracking using FRACAS

When new equipment is developed, a configuration is selected using historical reliability data as well as institutional knowledge of interfaces, applications, regulatory requirements, environment, and user expectations. *With this information, the reliability target is chosen.* The equipment is then refined through modelling, further de-risking (FMEA), and performance is verified through laboratory testing. The use of trusted modelling and laboratory tests establishes the product's *intrinsic reliability*, which essentially means that it operates as advertised under controlled conditions and within known limits (see [Maximizing Oilfield Equipment Reliability](#)).

Conversely, *historical reliability* tells us how new equipment has performed in-service, and accounts for other variables such as handling, installation, and human inputs. Comparison of historical reliability to the target may indicate the need for improvements in new equipment.

In practice, few oilfield products are sold in volumes that enable classical statistical analysis of reliability, and sometimes OEM collection of data may be hindered by data ownership rights. Thus, measurable targets other than hazard rate or “% reliability” may be more appropriate. However, a FRACAS or similar system can still provide valuable information on post-delivery performance. OEMs that have an API Q1 certificate use a system such as this to drive continuous improvement in their products and services.

TRUTH: FRACAS drives continuous improvement in new and legacy products.

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