



SPE 100275

New Work Processes and Operation Forms: Efficient Data Utilisation and Online Collaboration

P. Millette, Honeywell

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This paper was prepared for presentation at the 2006 SPE Intelligent Energy Conference and Exhibition held in Amsterdam, The Netherlands, 11–13 April 2006.

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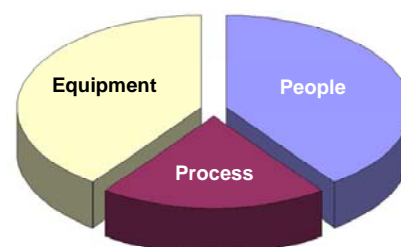
Abstract

Although producing oil is a complex activity, the support of the total operation of any producing asset is hampered by several factors – remote locations, limited data access, low bandwidth data connections, distributed specialists and fragmented support teams. At the same time pressures of less personnel in-situ at the production and support centres is increasingly evident.

Challenges also exist of trying to ensure the optimisation of Production and operate with zero accidents, safety compliance, additionally in a ever-changing world we face increasing environmental monitoring and compliance regulations

Increasingly industry is turning to the people factors to try and assist the Oil & Gas Industry achieve the above objectives. Industry shows that people factors account for 35%-45% of abnormal situations in the process industry however the team resolving these situations are effectively individuals

working on a common problem, rather than a team working together. Predominantly, this is because the team cannot see the same thing or look at issues together in real-time.



ASM Consortium Industry Research
The average percentages shown had the following ranges:

- People and Work Context Factors: 35% - 45%
- Equipment Factors: 30%-45%
- Process Factors: 3%-35%



In essence, the collaboration of people is key to solving the problem and giving them the necessary toolset which will aid that collaboration and the communication of individuals for key areas in any format, as requested and at multiple points of delivery in an organisation, is based on user roles and links to workflow tools that most importantly enables sharing of data and common workspaces which links people and equipment conditions to support safety, reliability and efficiency drives all around their own team's common work processes.

Faster and efficient communication is needed between Offshore/Remote operational sites and onshore, as we face the well known demographic problem of less and less subject matter experts on hand and no longer being in the same physical location as the problem. There is also a trend of increased reliance of Operating Companies on third-party access to data to foresee incidents or at the very least diagnose the root cause as economics mean the luxury of having personnel in attendance 'just in case' is no longer a reality.

In the modern age, it is becoming increasingly important to be able to respond quickly to process and market changes, but to do this requires real-time visibility on the process capability. The reconciliation of data is an extremely important process - how much material was produced, where did this material come from and why was the plan exceeded or not met? Closing the loop on the production cycle is as important as planning the production in the first place.

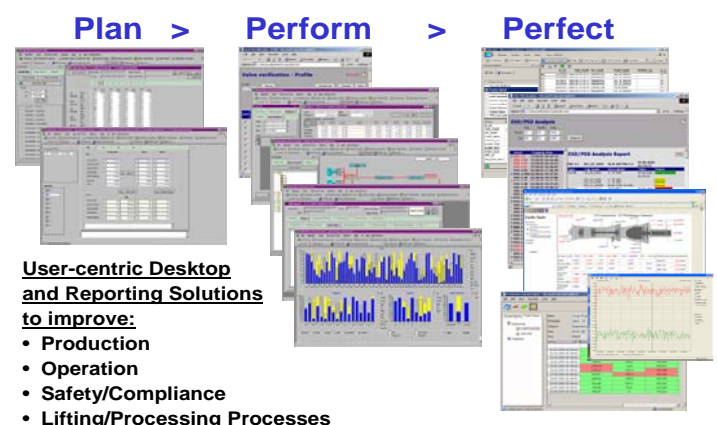
Honeywell's Production Control Centre (PCC) provides real-time company wide access to not only the raw data, but more importantly, PCC turns that raw data into vital information such as operational reports, key performance indicators and environmental, health and safety metrics. This enables the operations and support no matter where they are in the world to make the correct decision through having, first the ability to all agree on the problem description, and second the right people having the same view of information and a common process.

PCC has demonstrated a means of driving consistent top-class performance whilst

enabling the most effective use of resource – providing operational excellence and enabling true collaborative working.

In the four years since PCC's inception it has:

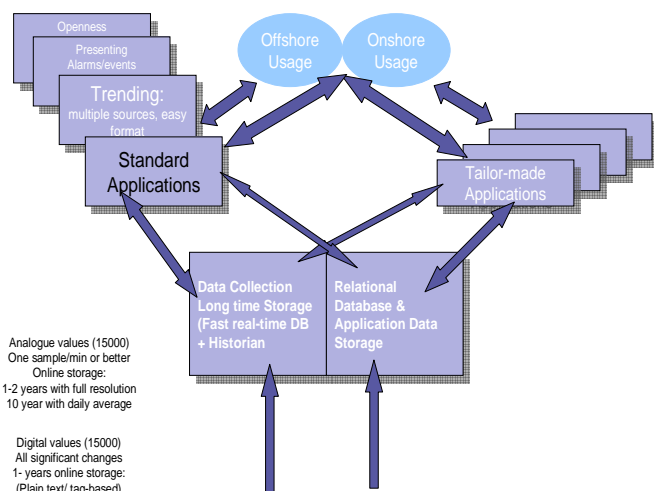
- Improved availability/production hours through faster trip analysis
- Improved Safety Performance with increased confidence in fail-safe systems
- Improved environmental performance through better monitoring
- Freed up people on offshore assets, enabling more valuable activities.
- Extended life of equipment through better diagnosis
- Reduced maintenance costs by target maintenance



The two major areas of improvement have been in Asset Efficiency and Operator Efficiency, in both efficiency areas the KPI can be defined and owned by various named functions and/or individuals giving greater accountability. These KPIs are defined by the operator as part of their own work process and can provide a detailed historical record of where the biggest problems reside. For example, if production targets have been missed on a number of days in the previous month then what is the real reason? Is it Well performance, Asset performance/availability, Maintenance activities or Process problems?

It is usual for site operator only to concentrate on the immediate process and with changes in workforce every few weeks because of the shift systems this makes a true picture of past performance very difficult to determine without the necessary tools which make this information easy and timely to access.

A real example of PCC exists on the Norsk Hydro Troll B platform. The Troll platform integrates a number data sources in the Troll Production Information System (TPIS), these include amongst others SAP, Fiscal Metering, Environmental and real-time systems.



Once the data is collected then it divides into two main databases, one real-time and the other relational, both databases are available for onshore and offshore use. Security is an important consideration, with logon security enabling access to different forms and applications on a user basis all through the necessary supporting IT architecture with firewalls and routers.

The PCC applications are the key value piece of the systems with applications in trending allowing easy access to information relating to environmental data and well tests, both current and past. In the Safety applications area valve verification allows users to view individual and group valve performance over a selectable time period, and an application for shutdown analysis is used to demonstrate regulatory compliance as well as simplified ESD/PSD reporting.

The benefits realised by Norsk Hydro have been :

- Greater On-line onshore support
- Reduced workload
- Improved safety
- Better data quality for the ERP-systems (vertical integration)
- Better control with emissions
- Data available to all relevant
- Framework eases integration of new applications

The new work processes and operation forms that PCC has enabled have resulted in more efficient data utilisation and on-line collaboration between Onshore Support,

Offshore Operation and various partners/service companiesall giving a greater and unique **Global Perspective** to Norsk Hydro's operation.

