Ways you can use drilling data to improve productivity

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by Dr. Carlos Damski - CEO
Today’s industry scenario

Oil prices are low
Today’s industry scenario

People

Process

Technology
Today’s industry scenario

1. Do not buy new equipment
2. Do not contract new work force
3. Maximize operational efficiency

Let’s do it in a better way
Data is the key for Performance Improvement
The value of Data

• Data by itself has no intrinsic value

• The value comes from the utilization of the data in a Business Function.

   and

• Value of Analytics based on this data

If we have data, let’s look at data
If all we have are opinions, let’s go with mine
Jim Barksdale, former Netscape CEO
"Before I write my name on the board, I’ll need to know how you’re planning to use that data."
What you can do NOW

Assist your company to **reduce** the operational **time and cost** in drilling **without** additional resources.

*Business Engineering*
How to do it

Existing data

Drilling reports

Extracting

Data Modelling & Analyses Methodology

Feedback to managers and engineers where to reduce time and costs

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Seeing is Understanding.

Two steps to get meaningful plots:
• Data Quality Control (QC)
• Data Aggregation and classification
DM & BI in Nutshell

DM

- Data Acquisition
- Data Storage
- Data Quality Control
- Data Retrieval

BI

- Data Aggregation
- Data Visibility
- Data Plot
- Data Refresh
Data Acquisition

• Manual
• Sensor - multimedia
• Big Data (3Vs)
Data Storage

YOU’RE PRETTY NEW TO CLOUD STORAGE, AREN’T YOU?

Lynch
Data Storage

• It is just a media
• Data “silos” propagate to different medium
• “bad” data also
• Most important:

How to retrieve.
Data QC
Data QC

- What to clean?
- When to clean?
- How to clean?
- Who is cleaning?
- Where to keep cleaned data?

Why cleaning?
Data Retrieval

• ETL – Extract, Transform and Load
  – Multiple data sources
  – Manipulate data on-the-fly
  – Available for consumption
• Security – who can see what
• Refresh
Benchmarking

STEPS

1. Decide what to benchmark
2. Understand where you are
3. Collect benchmarking data
4. Interpret the findings
5. Create an action plan to rectify bad performance and adopt best practices
Where to optimize drilling time?

Average Well Duration

Industry Normal Well Time

PERFECT WELL TIME  INVISIBLE LOST TIME  CONVENTIONAL NPT

Removable Time

Technical Limit
Some Drilling Data Analyses

- Productive time analysis;
- Process control analysis;
- Non-productive time (NPT) analysis;
- Best composite time (BCT) analytical tech. limit;
- Bit performance analysis;
- Learning curve analysis;
- Benchmark analysis.
Data Visualization

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How the results looks like

Process Control

![Chart showing process control data]
Where the results are applicable

Enterprise Solution

Developing and controlling many fields

Single well or Rig Solution

KPI at operations level
Case Study - Petrobras

- Genesis provides solutions to plan and follow up execution of pre-salt wells.
- Genesis manages hundreds of deep-water interventions.

Participation on this result:

Petrobras reduces pre-salt well drilling time by 55%

1 July 2014

Petrobras has been drilling wells in the pre-salt in ever shorter times, leveraging its acquired experience and the introduction of new technologies. The average well drilling time in the pre-salt layer of Lula and Sápinhoã fields has declined by 55%, from 126 days in 2010 to 60 days in 2013. In these areas, the company has already achieved durations of close to 30 days between the first and last meter drilled (“dry hole”).

http://brazilbusiness.einnews.com/article/211932552/Ex8kJ9bLks_AENH
Case Study - Anadarko Canada

Improving Drilling Performance Through Systematic Analysis of Historical Data: Case Study of a Canadian Field
A.R Adeleye, SPE, B.K Virginillo, SPE, A.W Iyoho, SPE, K Parenteau, SPE and Henry Licis, Anadarko Canada Corporation;

Abstract
Drilling operations daily generate large amounts of data but surprisingly, a significant proportion of these data are not utilized in a manner that shortens the learning curve and promotes drilling efficiency. The authors, through this paper, demonstrate how drilling analysis methodology helped identify performance gaps in a West Central Canadian field.

The above is captured under the much espoused philosophy characterized by the questions:

- Where are we now?
- What is possible?
- How do we get there?

By applying this tool, significant cost savings to the tune of CAD$7.3 mln have been achieved as at the time of preparing this paper.

Saved US$6M
Doing better than before

Thank you