Why Oil & Gas IT systems have failed – and how to fix it

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Goal for Today

All views expressed are mine 😊
It’s a bit of a mess (if we are honest)
For example...

**How Standards Proliferate:**

(See: A/C chargers, character encodings, instant messaging, etc)

**Situation:**

There are 14 competing standards.

**14?! Ridiculous! WE NEED TO DEVELOP ONE UNIVERSAL STANDARD THAT COVERS EVERYONE’S USE CASES. YEAH!**

**Soon:**

**Situation:**

There are 15 competing standards.

Source: XKCD
Buzzword bingo...
Consumer experience at work
Remote monitoring
How did we get here?
Where there is a gap…
Leading to a world dictated by salespeople
What is needed?

Better insight
More fact-based decisions
New workflows
What is needed?

<table>
<thead>
<tr>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>STAGE 3</th>
<th>STAGE 4</th>
<th>STAGE 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>REPORTING</td>
<td>ANALYZING</td>
<td>PREDICTING</td>
<td>OPERATIONALIZING</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>WHAT happened?</td>
<td>WHY did it happen?</td>
<td>WHAT will happen?</td>
<td>What IS happening?</td>
<td>What do I WANT to happen?</td>
</tr>
</tbody>
</table>

Primarily Batch with Pre-defined Queries
Increase in Ad Hoc Queries
Analytical Modeling Grows
Continuous Update and Time-Sensitive Queries Gain Importance
Event-based Triggering Takes Hold

Batch Analytics
Ad Hoc Event-based Triggering
Continuous Update/Short Queries

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What is needed?

Data Centric Approach
What is needed?

Communication
Sharing
Trust
What is needed?

Technology as an enabler

- The economic crisis and its aftermath
- Green
- Global Now
- Digitization
- Competitiveness

Cloud
Available
Sensors
Storage
Apps
Retention Security Usage
Big Data
Pervasive Access
CEP
Mobile
Size can matter - eBay Analytics

**2009 Figures**

- >100k data elements
- >100 Trillion pairs of information
- >50k chains of logic
- >7500 business users & analysts
- >100k data elements
- >50 TB/day new data
- >100 PB/day Processed
- 24x7x52 Always online
- 99.98+% Availability
- Millions of queries/day
- Near-Real-time
- 24x7x52
- Active/Active
- turning over a TB every second
What is available today?

Integration Layer

- Decision support
- Predictive analytics
- Active execution
- Integrated/Relational

- Investigative analytics
- Pattern discovery
- Knowledge generation
- Rule creation

- Fast filtering
- ELT/ETL
- Data discovery
- Online archival

- Workflow oversight
- Dictionary creation
- Seismic modelling
- Geological modelling
- Model building
- Geological inversion
- Well planning
- Risk analysis
- Production forecasting
- Operational control

Data Managers
Geoscientists
Reservoir Engineers
Operations Analysts

Web Portal

- Seismic processing and imaging platform
- Reservoir modelling platform
- Enterprise asset data
- Online archiving platform
- Seismic data
- Wellfield sensor data

Hadoop
Teradata Aster
Teradata

Multi-format
Multi-structured
Structured

- = Load/Unload processes
- = Data interaction

Teradata
"...this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning..."

Winston Churchill (1874-1965)