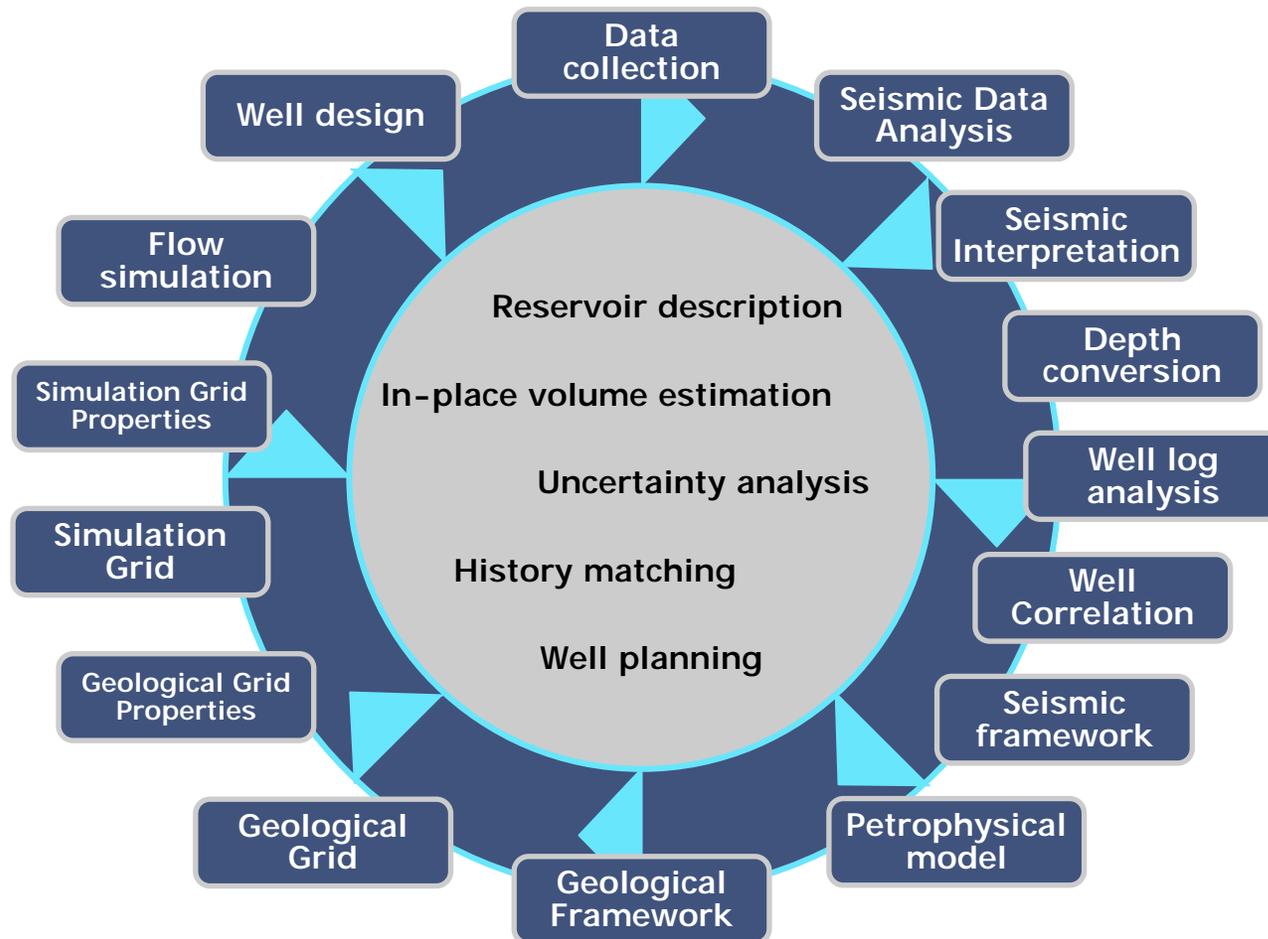


# Introduction to the information overflow challenge as it appears in a Statoil asset.

TNE SST POPT - Lars Olav Grøvik

# The Petrotechnical wheel...



# How does the Business units apprehend data requirements?

DBR

R5000

G-drive  
Unix drive

**Petrobank**

Teamsite /  
Documentum /  
Meridio

EPDS

Energy Components

OpenWorks

Spotfire

GeoChemDB

CoreDB

Cleopatra

**Recall**

Geolog

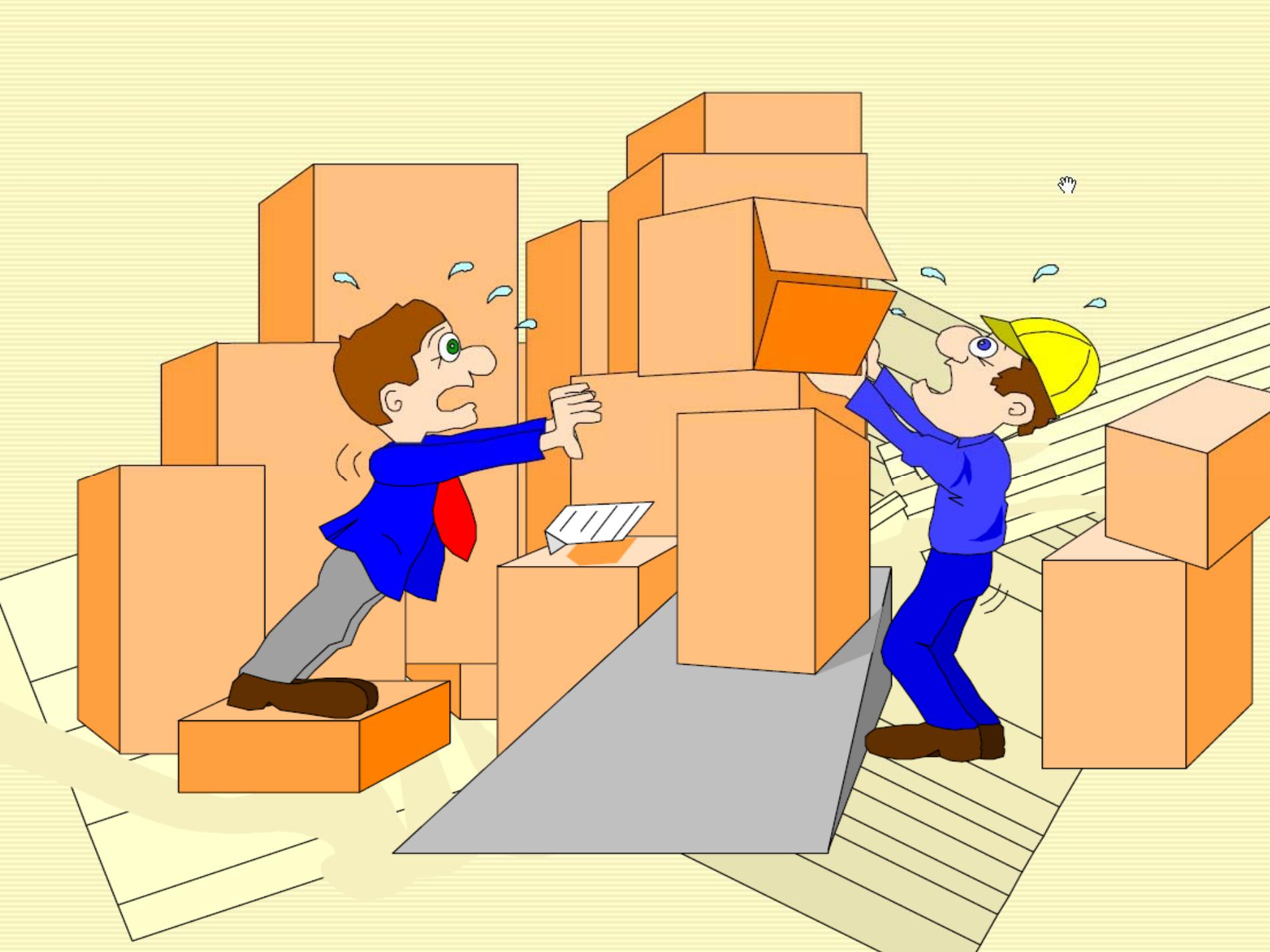
EDM /  
Compass

Pressworks

GeoFrame

Petrell reference





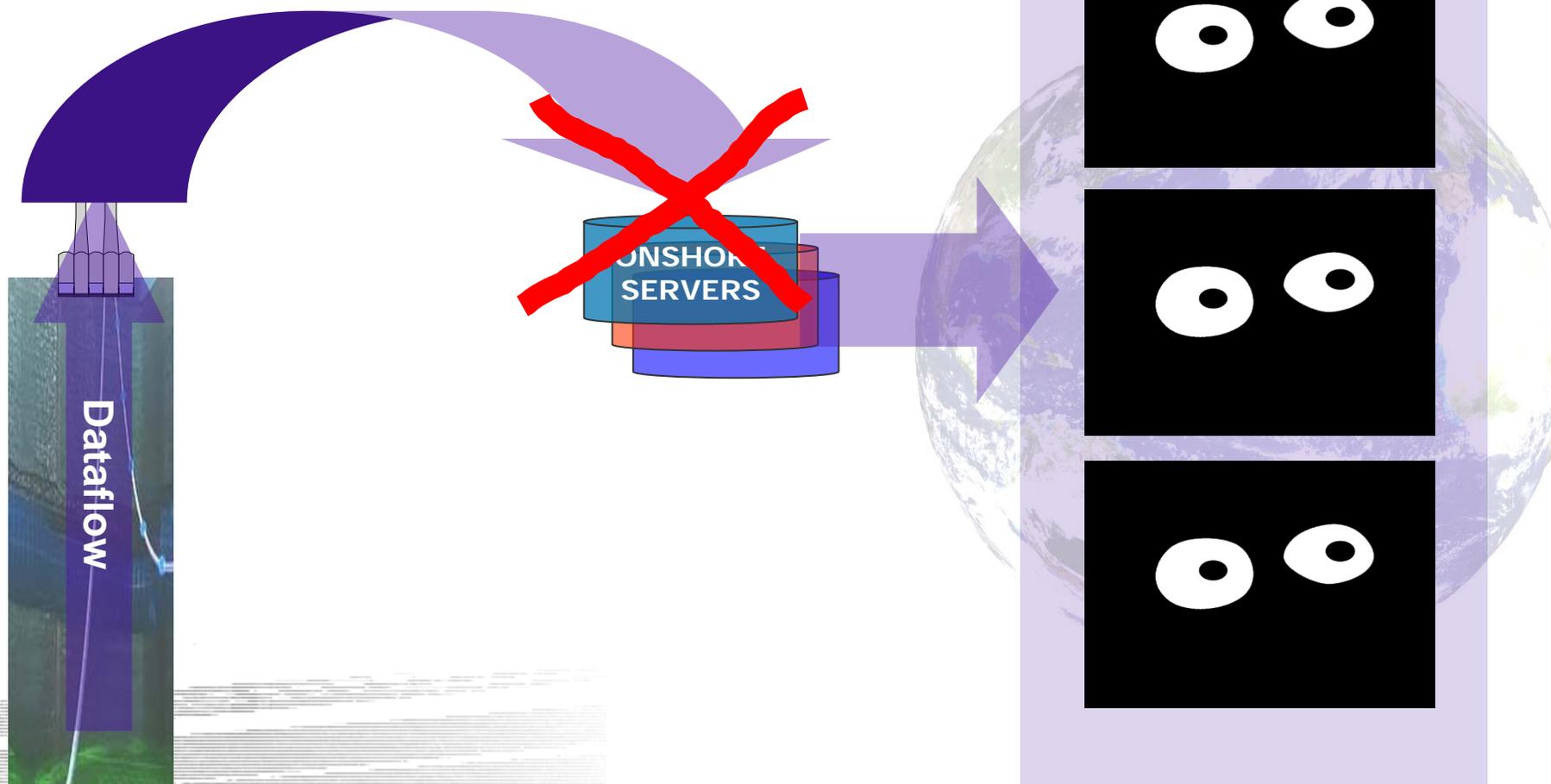
# Onshore Operation Centers

## An important part of Integrated Operations



# Real - time drilling data to onshore

What is a onshore centre without real-time data ?



# What can go wrong ?

## Examples of errors

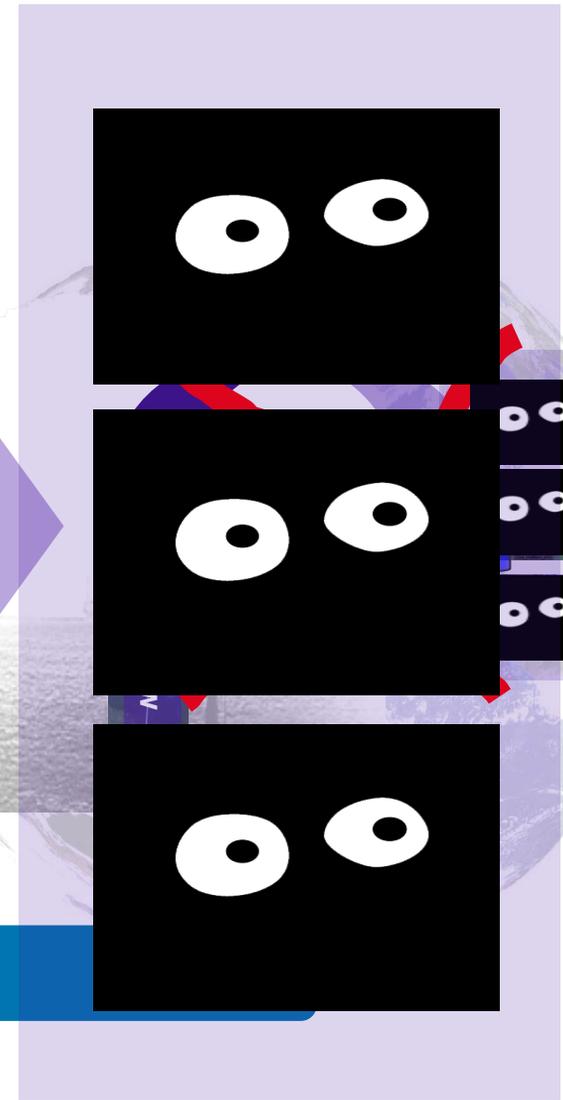
Technical problems initiating stream

Errors when programming the tool

Manual error setting up data stream

Problem with software / servers

Unstable connectivity







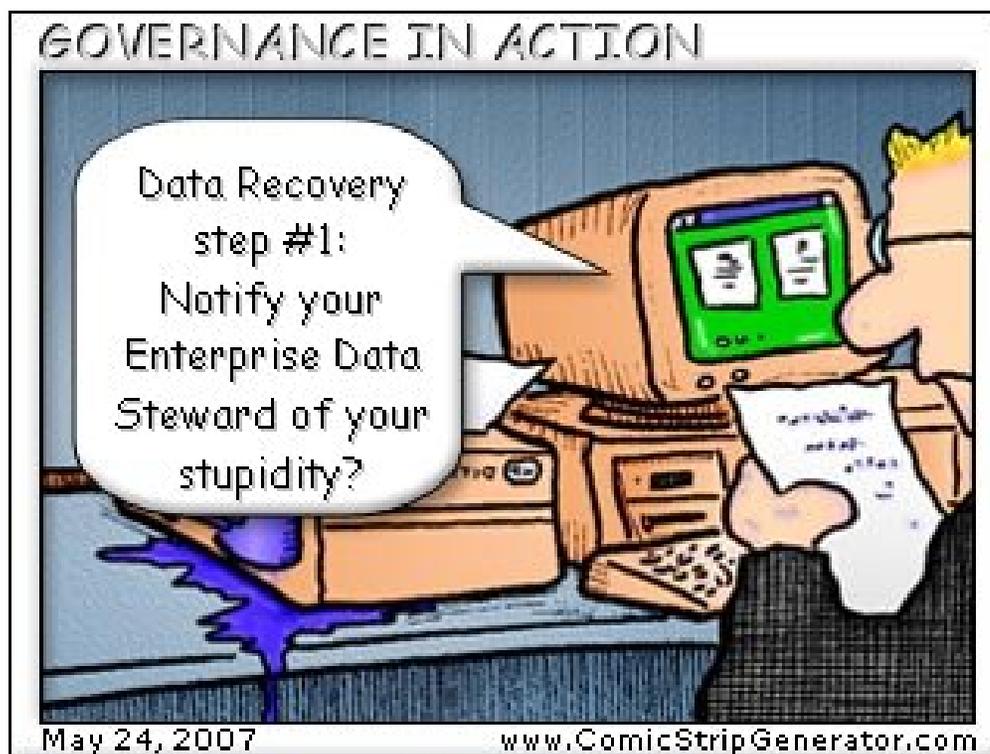
# Your presentation

- Without data

# Your map

- With no data management.....

# Data management in practice



# WHY ????????????

- Information Value
  - Expensive information
  - Future business value
- Security
  - Business value
  - HMS
- Documentation
  - SEC / SOX (Enron, Shell, etc)
  - CVP / DG
- Legislation / Requirements
  - Internal: Statoil book, FR01, etc
  - External: NPD, etc

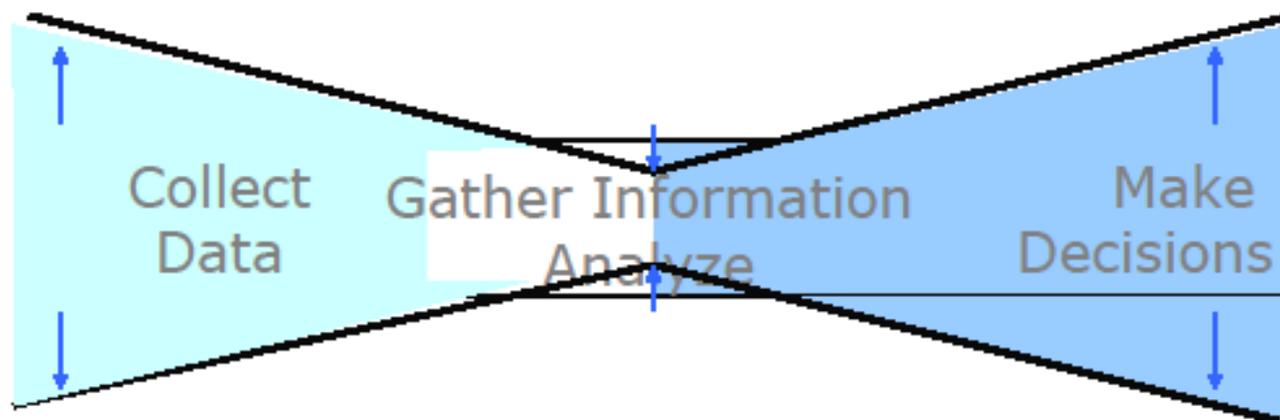
# WHY ??????????? Part 2.

- Work Process
  - Integrated work process
- Effectivity
  - “Garbage in – garbage out”
  - Wrong or delayed decisions
  - Repeated work (not aware of previous work)
  - “Frustrations” due to ineffectivity.
- Business progress
  - Delays due to lack of data etc.
- The Right data, to the Right people, at the Right time, with the Right quality.





# The Information Pipeline



## Oil Field Automation

- Further process digitization
- Real Time data collection
- Sensors: downhole, surface facilities, transportation & logistics
  - Intelligent controls
- Automated Well Tests

## Information Overload

- Data Access, formatting, quality control
  - Lack of consistent master data
  - Lack of standards in information exchange
    - Shadow systems
    - Usability Concerns
- Complexity of systems

## Improved Capability for Modeling & Simulations

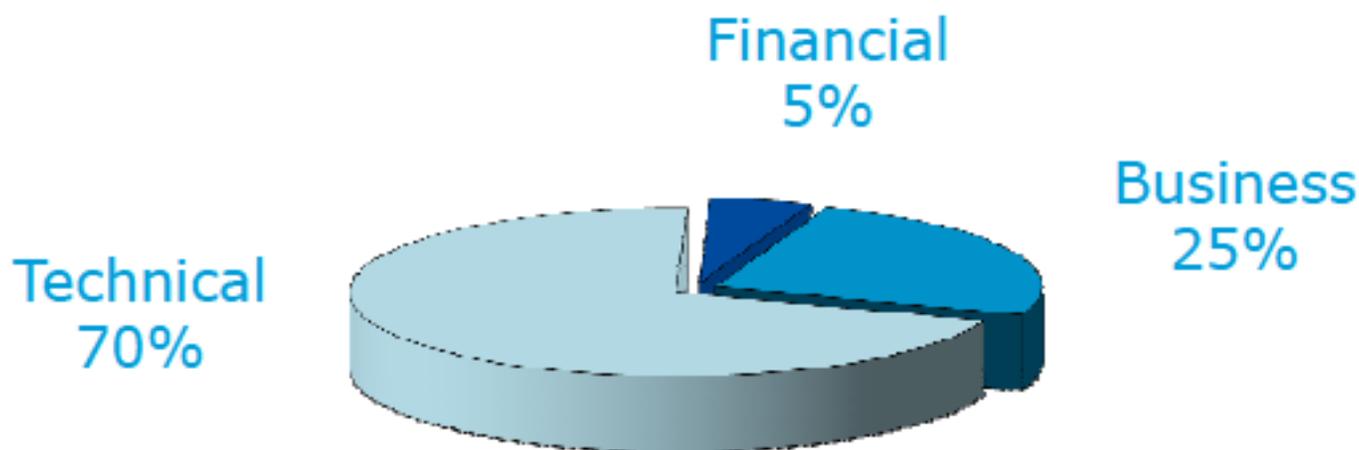
- Increased processing capabilities for simulation, modeling, visualization
- More detailed models (earth model, reservoir models, facilities model, economic models, full asset simulation)
  - More capability to run multiple scenarios / what ifs



# Chevron Has over 6,000 Terabytes of Data and growing



## Categories of Data



- 80% annual growth rate of technical data last year (2007)
- 60% compound annual growth rate of business (unstructured) data for the last two years. This means we will have 10x the data in 5 years, 100x in 10 years and 1000x in 15 years
- Nearly 300 million office documents

## W3C Semantic Web in Oil and Gas Workshop, Houston (January 2009)

Jim Crompton on data, integration and semweb's promise (January 2009)

**Chevron's iField guru thinks the data pipeline is kinked. Will semantics straighten it out?** In the keynote address to the World Wide Web Consortium's (W3C) Semantic Web in Oil and Gas Workshop (page 6) Chevron's iField program advisor Jim Crompton recalled the bygone days of the well organized paper file room saying, 'Life has never been that good since.' **Companies 'lost control' of data in the passage to the digital world. Surveys show that even today, 30-70% of our time is spent finding data.** Knowledge workers may only have access to a small fraction of the information they need—so, 'they give up looking and go with a best guess.' Unfortunately, as the collective experience of the workforce diminishes, the quality of 'best guesses' is declining.

The information age has given us Google-type full text search. This is all very well, but for accurate search, you still need to tag documents and you need to know if you have found everything. The reality is that we can still only search accurately within a given environment. Chevron's intranet search is OK, but does not include email and many databases. **Search has become siloed.**

# Postulate from a large oil company

- 50 % of the data used in 5 years are not collected.
- In 5 years 75 % of the new data collected will never be opened.



# The well lifecycle challenge

- What is a well?
- What is the lifecycle?
- Is the well «reused» ?
- How many versions of data?
- New data appended to old data?
- Is the well in a safe condition?
- What is the well status?
- Where are the data stored?
- Do we have all the data?

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Nirvana:

The Right data,  
to the Right people,  
at the Right time,  
with the Right quality.

# Thank you for your attention and patience...

Technology is dominated by two types of people:  
those who understand what they do not manage,  
and those who manage what they do not understand.



Putt's Law-