

Better ways to include well data in subsurface interpretation

Digital Energy Journal Event: Doing more with subsurface data
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Milagro Rodriguez

Schlumberger

About myself

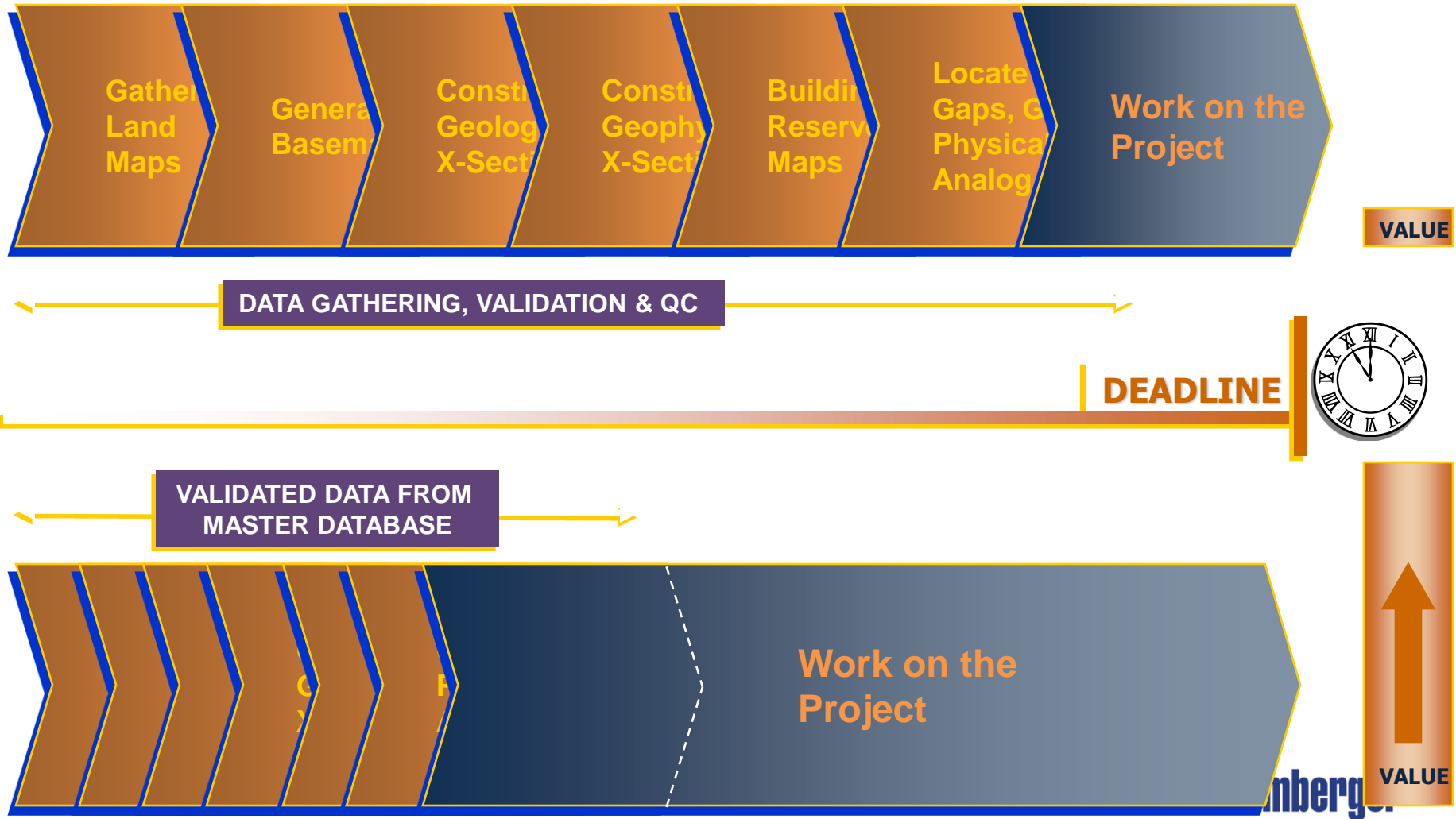
BSc. In Geological Eng. from Butte, Montana USA, Minor in Petroleum Engineering

- Worked in PDVSA, Venezuela since graduation until June 1997: Started as Petrophysicist in PDVSA-Research Institute (Intevep); then moved to a PDVSA-Operator as Production Geologist.
- As a Software User within interpretation studies, received a DataBase with graphical interface for Geological interpretation that under the circumstances originated the decision for career change.
- Have worked now close to 18 years with Schlumberger in different activities and countries: as Information Management Software Specialist, legacy and new technology; have done Software Quality Assurance and testing, Software deployment, Internal and Client training and Client direct services and Consultancy in over a dozen countries, within North, South, Central America, Asia, Australia and Europe.

Well Data and Oilfield Life Cycle



Two Views of the Same Project



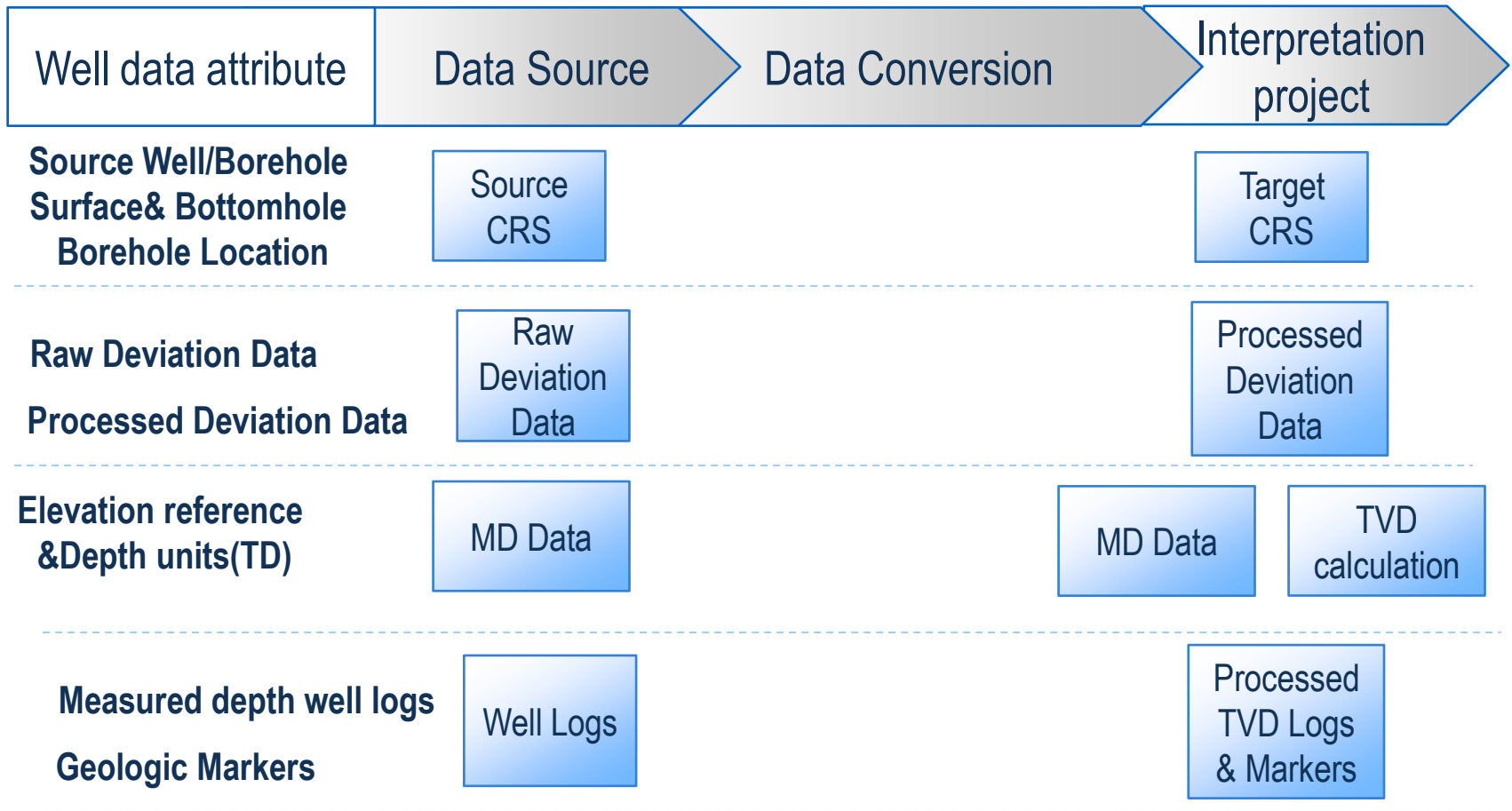
Considering Subsurface Interpretation

and data quality

Important attributes

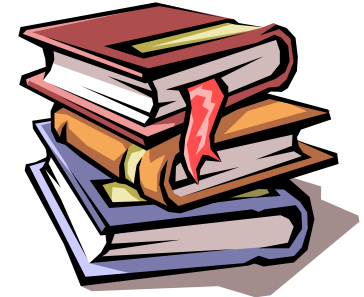
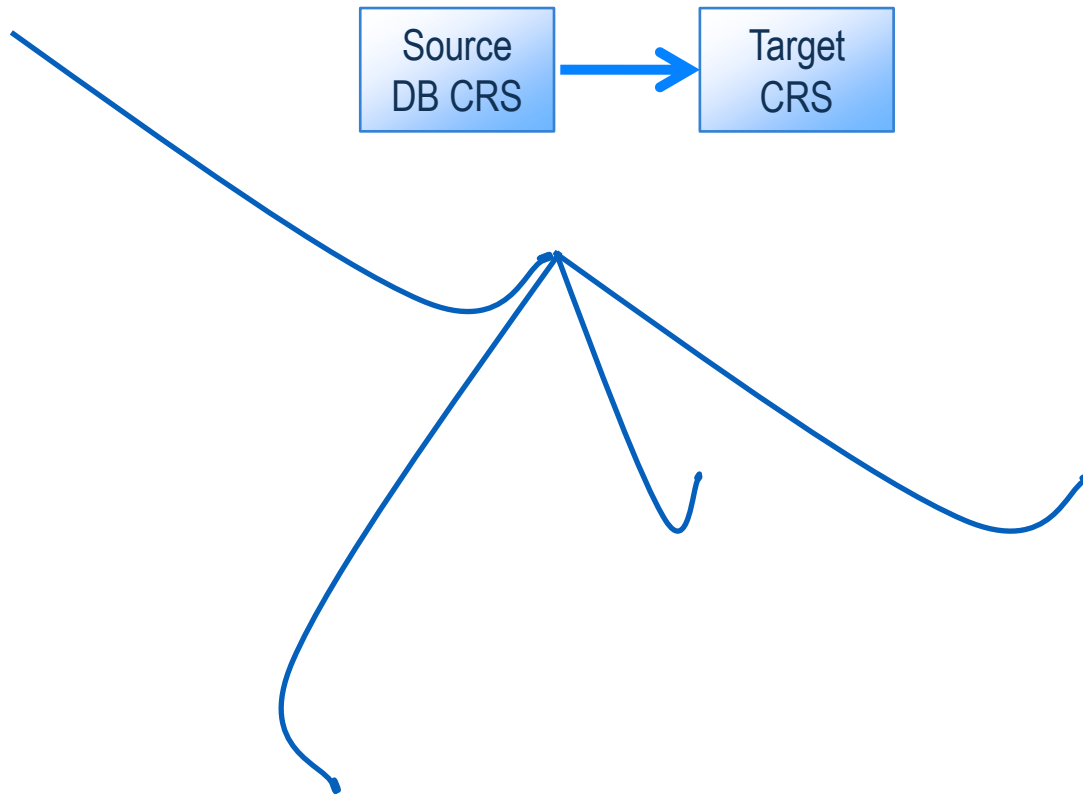
Data Quality considerations

Source versus Target



Considering Subsurface Interpretation and data quality

Source Well/Borehole Location / Surface & Bottomhole



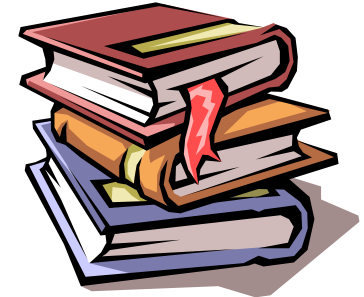
**Best
Practice**

Accuracy Requirements. For engineering
1 cm; for exploration 1 m

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Considering Subsurface Interpretation and data quality

Have wells been validated in map view?
Magnetic declination correction done?



**Best
Practice**

Boreholes to a well in map view

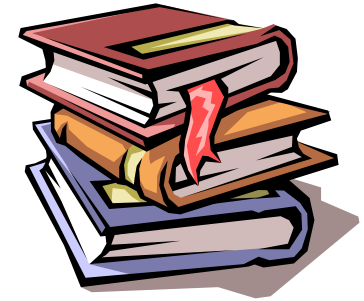
1. Is boreholes set complete?
2. Data properly identified?
3. On received TVD calculations, is there any QC?

Accuracy Requirements. For engineering
1 cm; for exploration 1 m

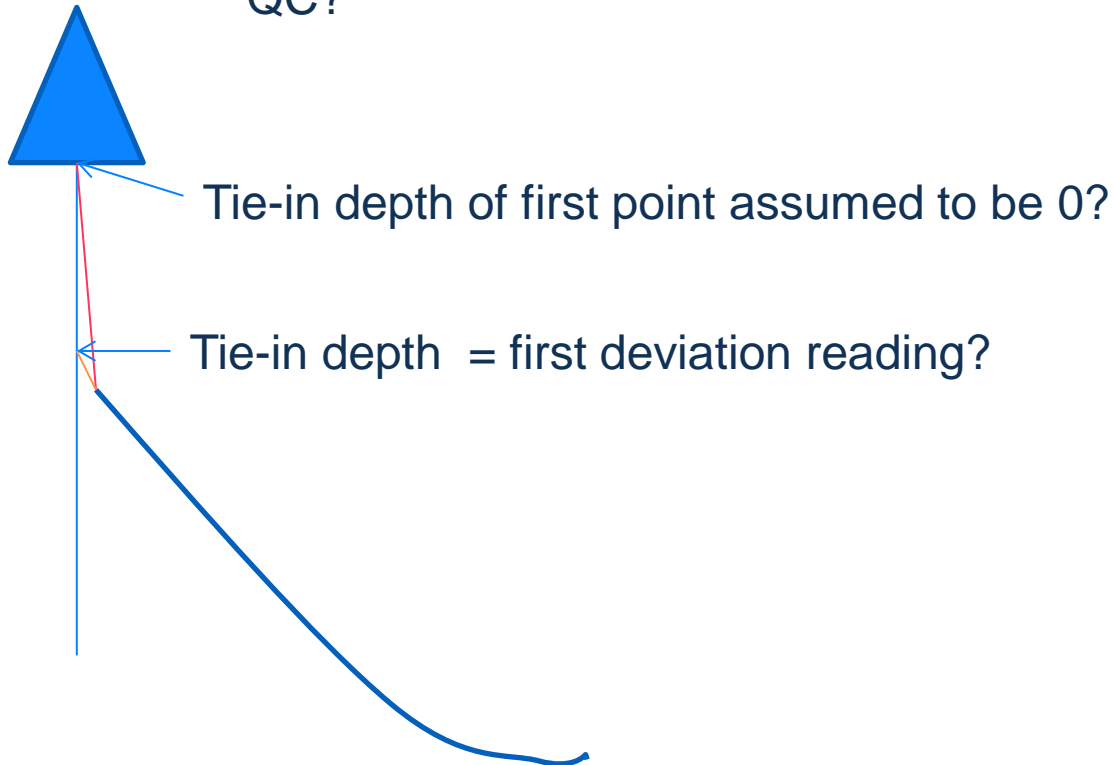
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Possible errors on Deviated wells

1. Tie-in depth = 0, how deep is it?. Any prospect above?
2. On received TVD calculations, is there any QC?



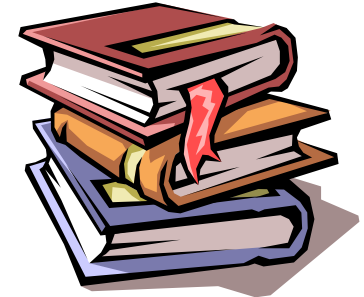
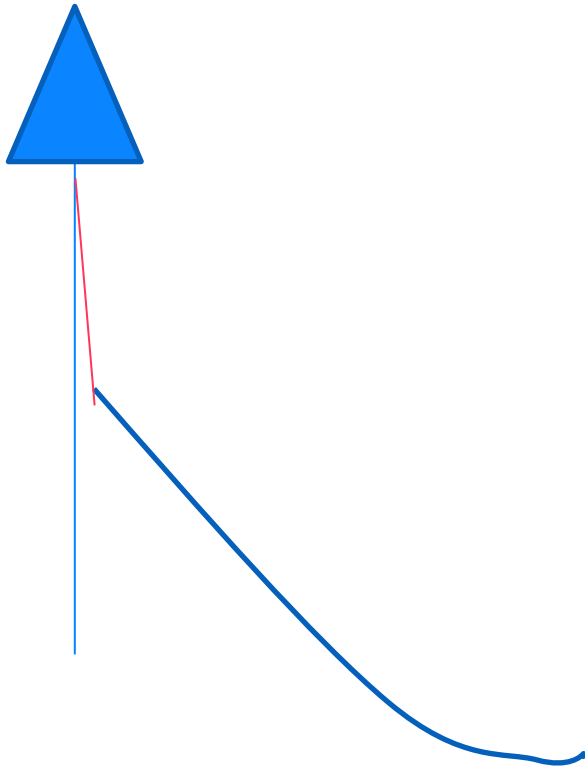
**Best
Practice**



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Thin beds area?

1. For TVD data is datum KB, RT? MSL?

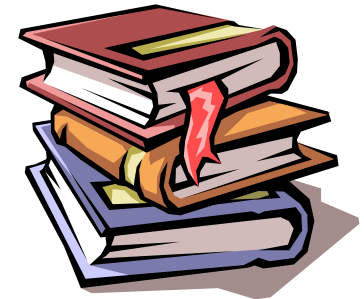
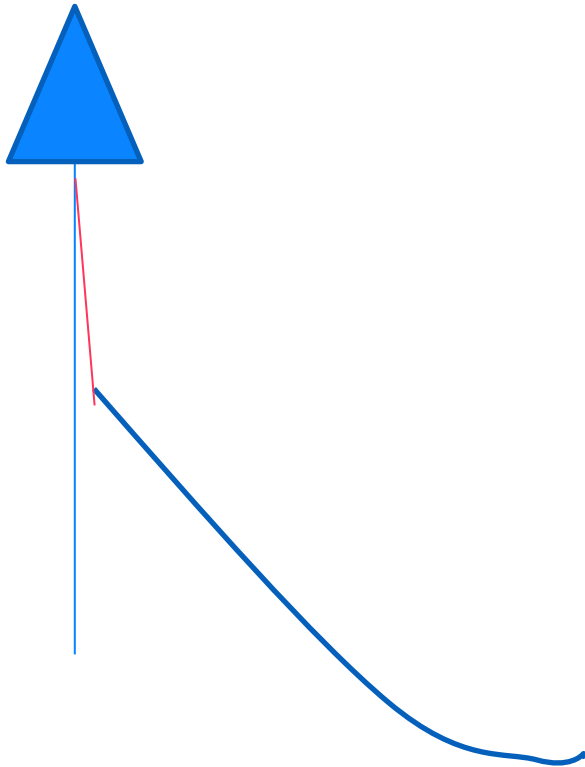


**Best
Practice**

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Well Logs

1. Original acquired or legacy digitized wells?
(Lack of knowledge about curves duplicity, among other issues)



***Best
Practice***

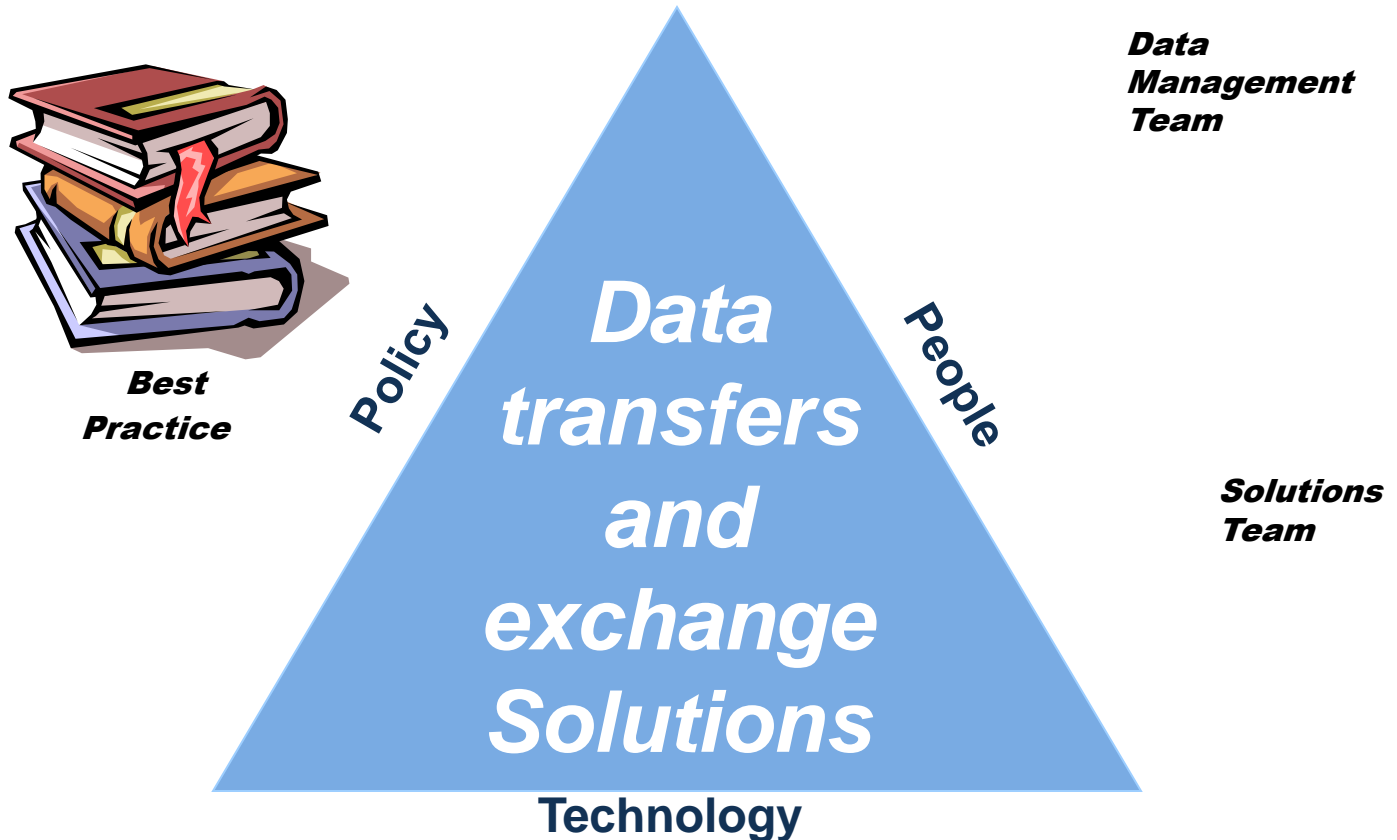
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Well Data and Software interpretation

Who or which interpretation Software needs What and How?

- Petrophysical Studies
- Geological Interpretations
- Seismic Interpretations
- Reservoir analysis
- Well/Core correlations

Data transfers and exchange Solutions



Conclusion

If Data Management became a discipline with the boom of Interpretation Software and the discovery of:

1. “Garbage in=Garbage out”
2. Subsurface Interpreters should not be burden with daily data management issues

Best way to include well data in Subsurface interpretation is not only from transferring data from a Master database, but also to have some understanding of data transfer changes in the process, to ensure accuracy in Interpretation results.

Thank You

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