Well Technologies in Pre-Salt: Results and Future Vision*

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Abstract

The current economic scenario has been directed the industry into the search of more aggressive solutions to the viability of new E&P projects. Considering more complex reservoirs, the need for technological evolution in the well's construction is definitely one of the pillars to economic feasibility. To optimize Petrobras' projects, the wells area has been developing processes to increase the technology deployment aimed to optimize CAPEX and OPEX and ABEX bringing an evaluation approach based on reliability criteria.

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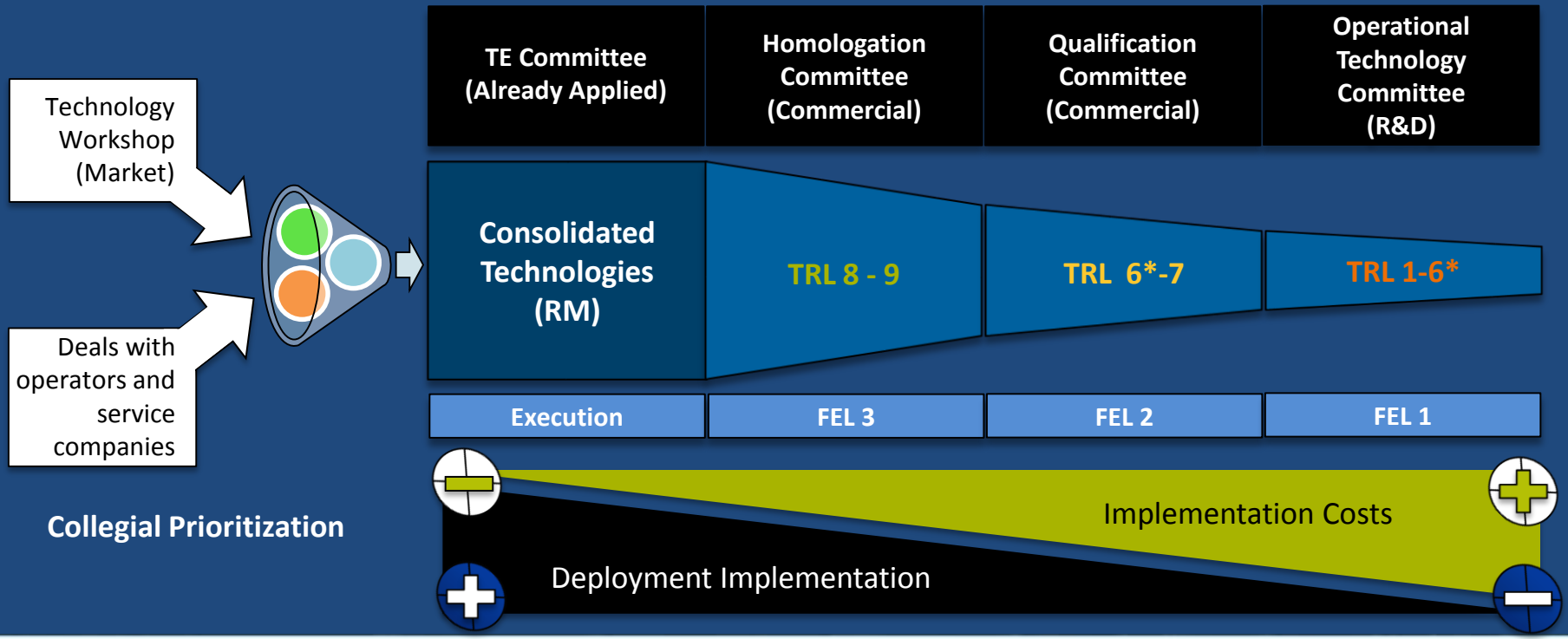
Agenda

1. The Process
2. Results
3. The New Foundation
4. Future Vision
5. Conclusions

The Process

Increasingly challenging scenarios for production and reservoirs management urges the well´s technological revolution.



Collegial Prioritization

Results

Technical Groups in 2 years

Qualification	Homologation	Technical Specification
Finished: 4	Finished: 27	Finished: 20
Running: 8	Running: 10	Running: 10

The Foundation

Maintainability

Ability of being preserved or replaced, so that the system can still perform its required functions under specified usage conditions, when maintenance is performed under certain conditions and using pre-established procedures and means.

Availability

Ability of performing a required function, during a specified time, taking into consideration **reliability, maintainability and supportability**, assuming the necessary external resources are provided.

$$A(t) = f(R(t), M(t), S(t))$$

Reliability

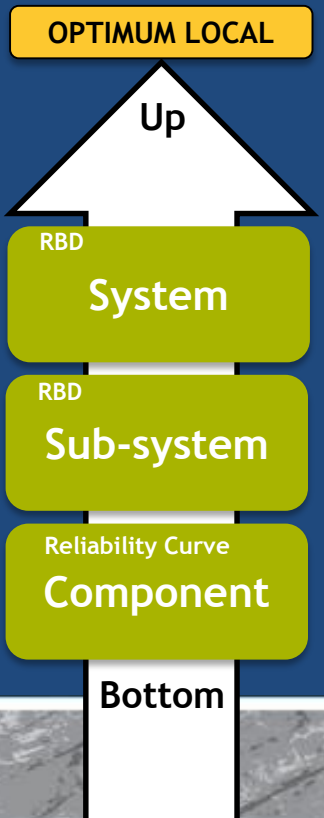
Ability of performing a required function under specific conditions, during a given time.

Supportability

Related to the degree at which a certain system can be given support, regarding inherent design characteristics of reliability and maintainability, as well as efficacy of product support, such as spare parts, tools, and training required to operate a system and maintain it.

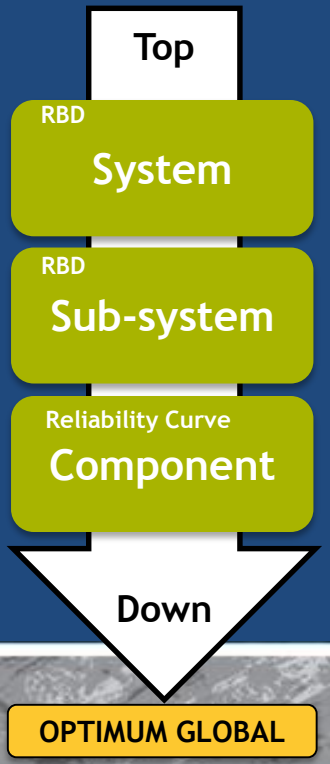
Future Vision

TOP-DOWN X BOTTOM-UP RELIABILITY



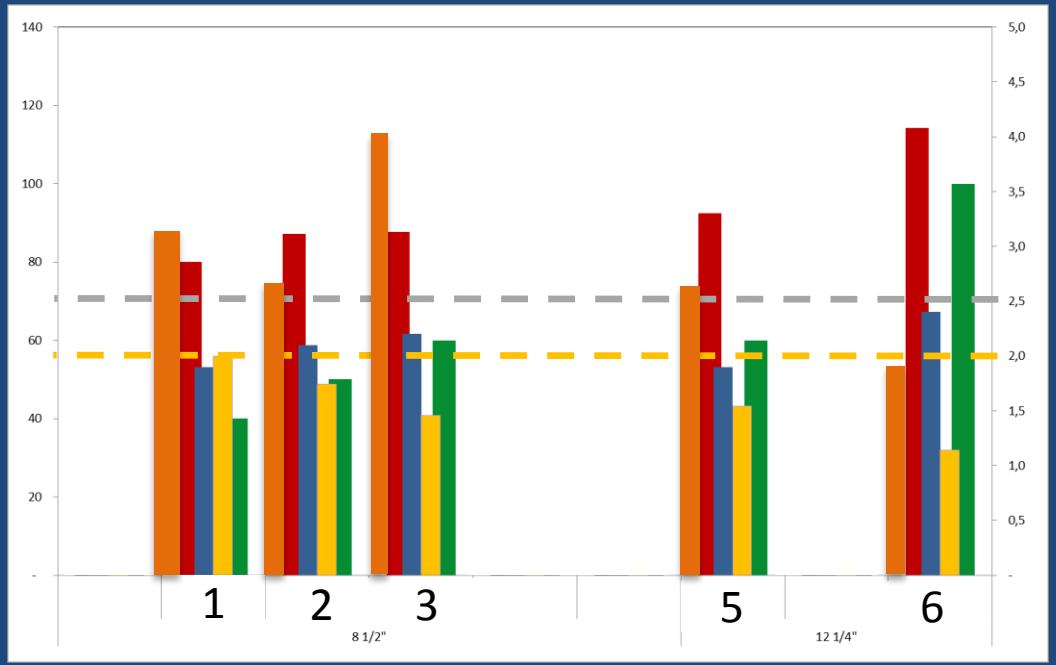
Bottom-Up strategy: No guarantees the desired system reliability will be achieved. Efforts and energy may be applied to maximize the reliability of a component with little impact on the global system reliability.

Top-Down strategy: Assures the required Reliability of the system. The components are designed so as to achieve the desired system reliability.



Future Vision

SelePOÇO – Select the best well project based on criterias,
like cost and complexity

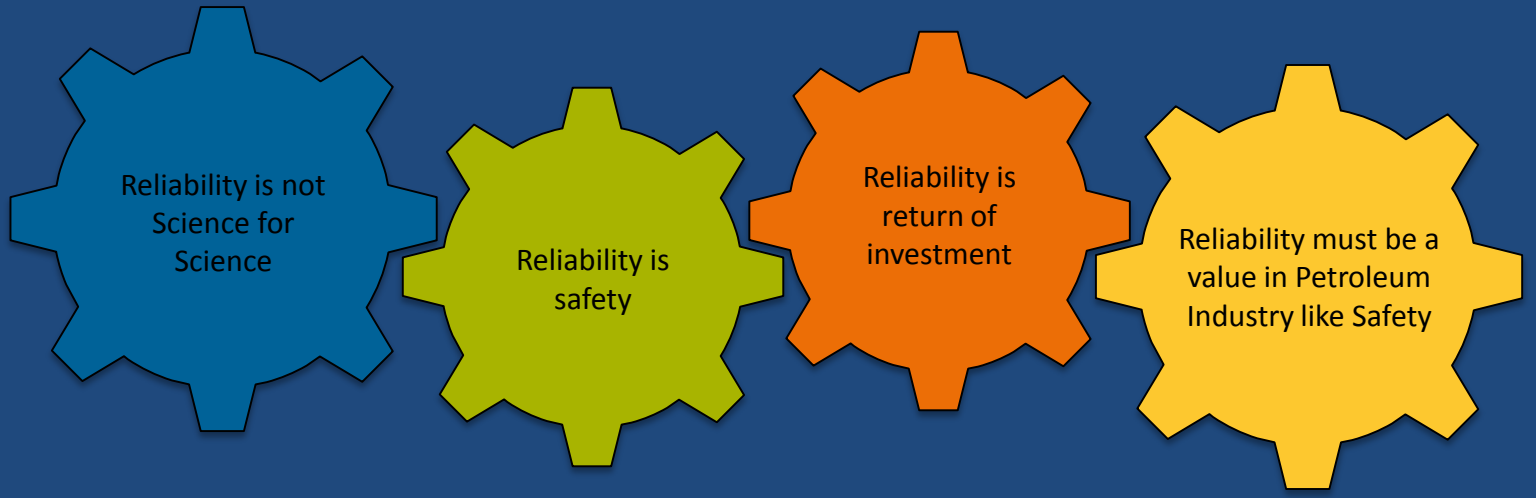


Nowadays the only cost included is CAPEX.

There is a need to include OPEX! So, we must model Reliability and Maintainability for every well configuration.

- OPEX (MM US$)
- CAPEX (MM US$)
- Complexity
- Normalized Cost (MM US$)
- Productivity (kbpd)

Conclusions



We need your collaboration to build more reliable wells:
Reservoir Engineers and Geologists can provide a lot of data about the well conditions.