



PETRONAS

Technical Data Standards – Development & Implementation

Noor Fadhilah Bt Mohd Raes

Technical Data, Technical Global
Upstream Business

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Overview

Flashback to 2013

- Moving the organization towards standards – the triple A Approach
- Technical data standards – high level roadmap

What happened after...

- Reaching the goal - Chronological Events of Technical Data Standards
- Challenges encountered & key success factor
- What we have accomplished
- Construction of the Technical Data Standards

Technical Data Standards – The Journey Continues

- Summary of the TDS activities
- Conclusion



Flashback to 2013

Tuesday, October 8, 2013

Kuala Lumpur

Impiana KLCC Hotel, Kuala Lumpur



10:15


Noor Fadhilah Bt M Raes - Regulatory Compliance,
Technical Data

Petroleum Management Unit (PMU), PETRONAS

PETRONAS E&P Technical Data Standards

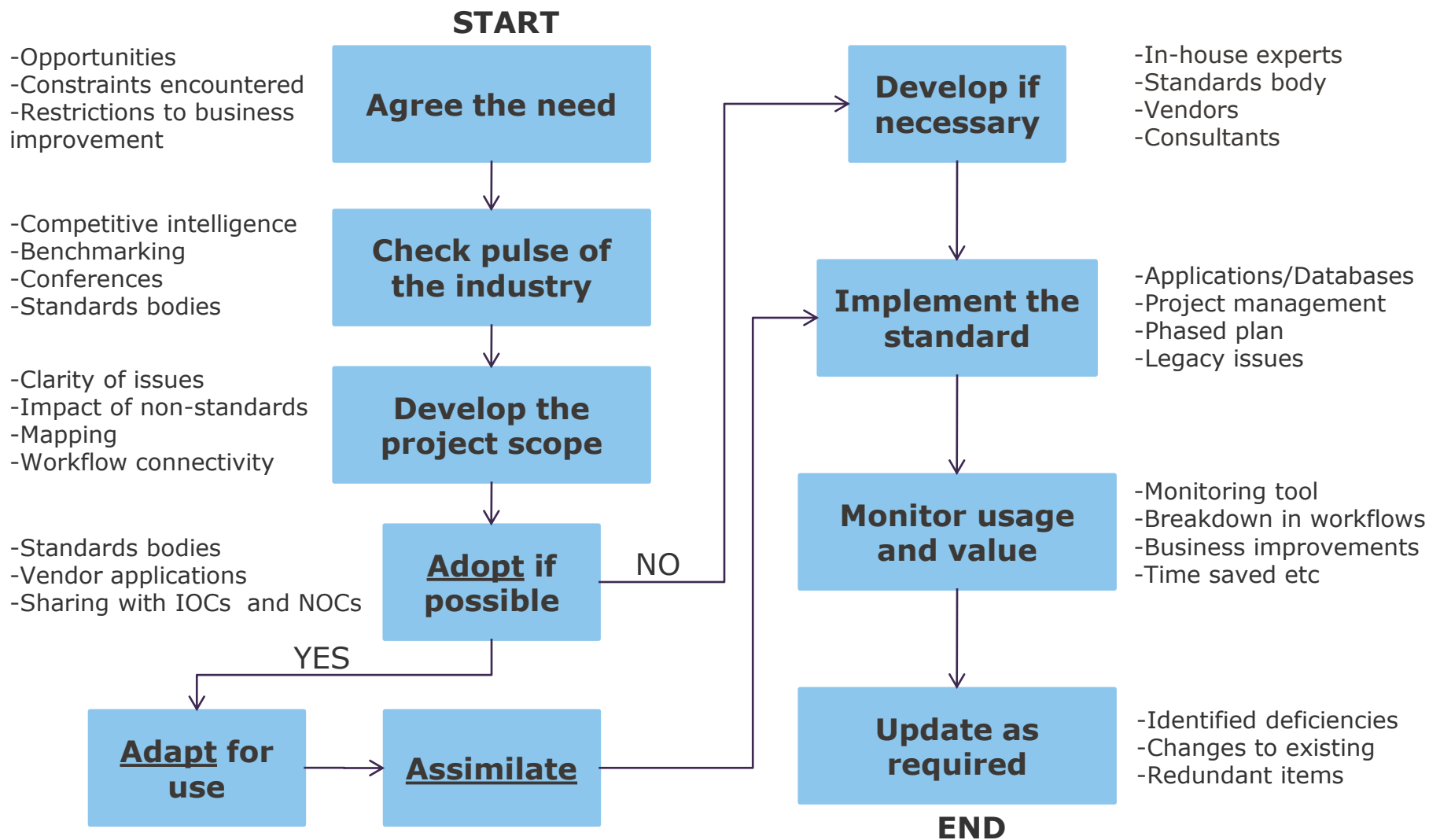
**Triple-A Approach – Value through
Collaboration**

show

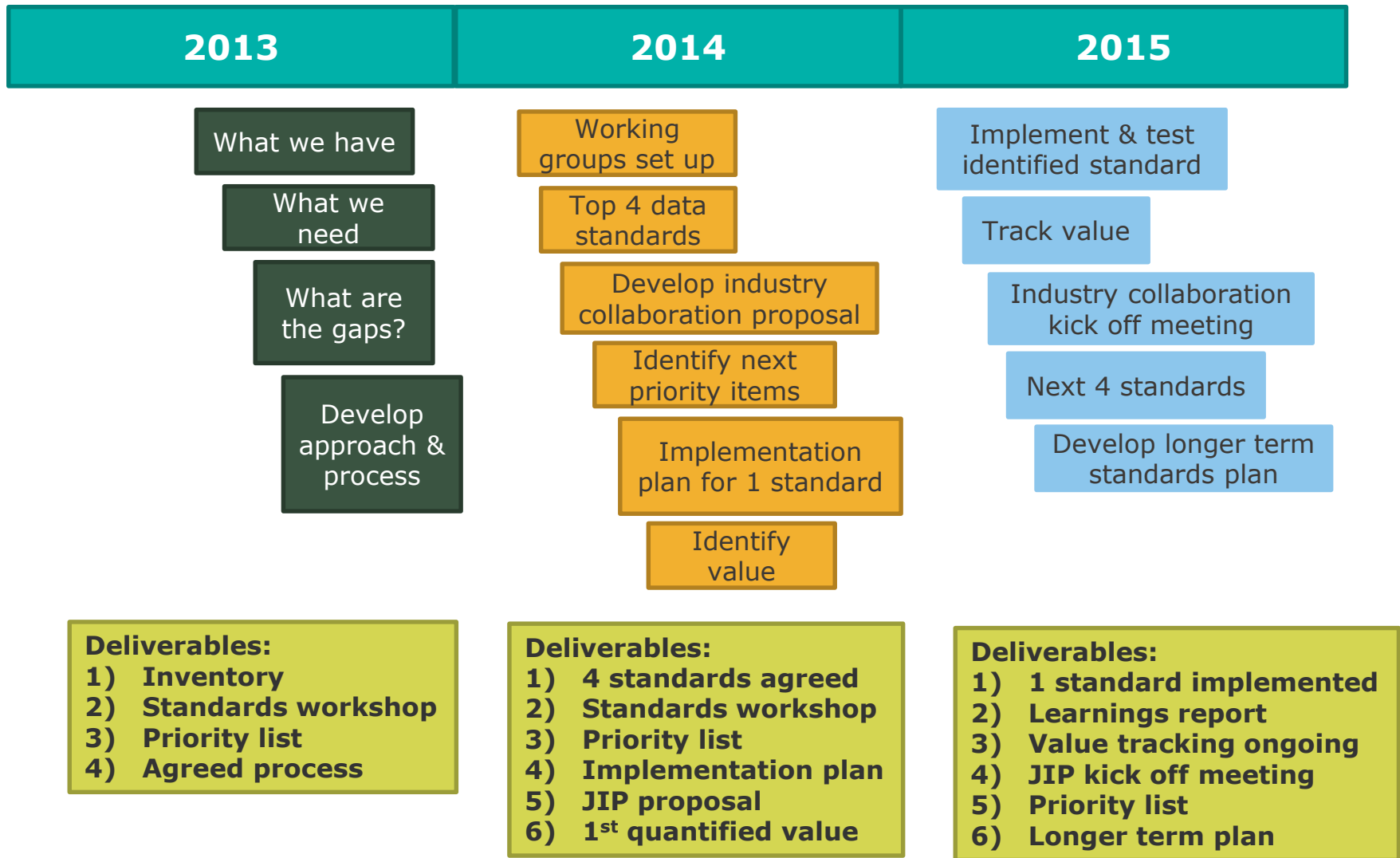
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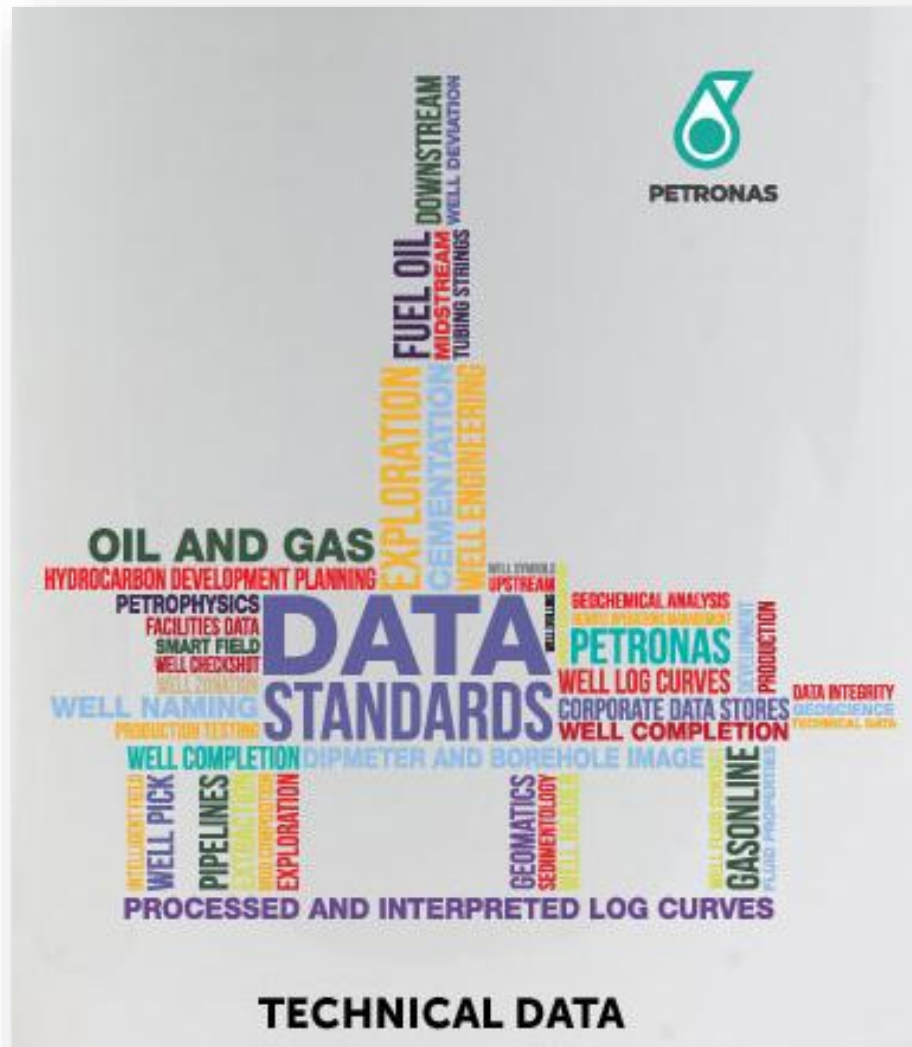
Moving the organisation towards standards – The Triple A Approach



Technical data standards - high level roadmap

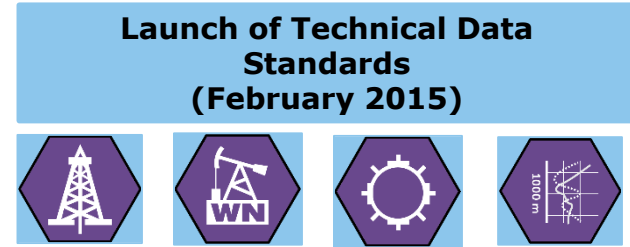


What happened after...



Reaching the goal: Chronological Events of Technical Data Standards

Development Journey of Technical Data Standards



TD Data Standards Project Initiation (August 2014 to December 2014)

TD Data Standards Workshop #2 (February 2014)

- Commencement of 4 Data Standards:
 - Well Header
 - Well Symbols
 - Well Naming for Production & Development Wells
 - Log Curves Naming

- Validation of Priority List, Approval Workflow for Standards Development
- Technical Data Domains
- Malaysia Petroleum Management (MPM) SMEs

- Project Team
- SMEs

TD Data Standards Workshop #1 (October 2013)

- Inventory of existing standards
- Requirement gathering
- Prioritization
- Technical Data Domains
- PETRONAS Carigali Sdn. Bhd. (PCSB) Subject Matter Experts (SMEs)

Extensive Engagement of TD with Business: A total of 73 SMEs and Technical Professionals (TPs) engaged across various Upstream Divisions



Challenges encountered & key success factor

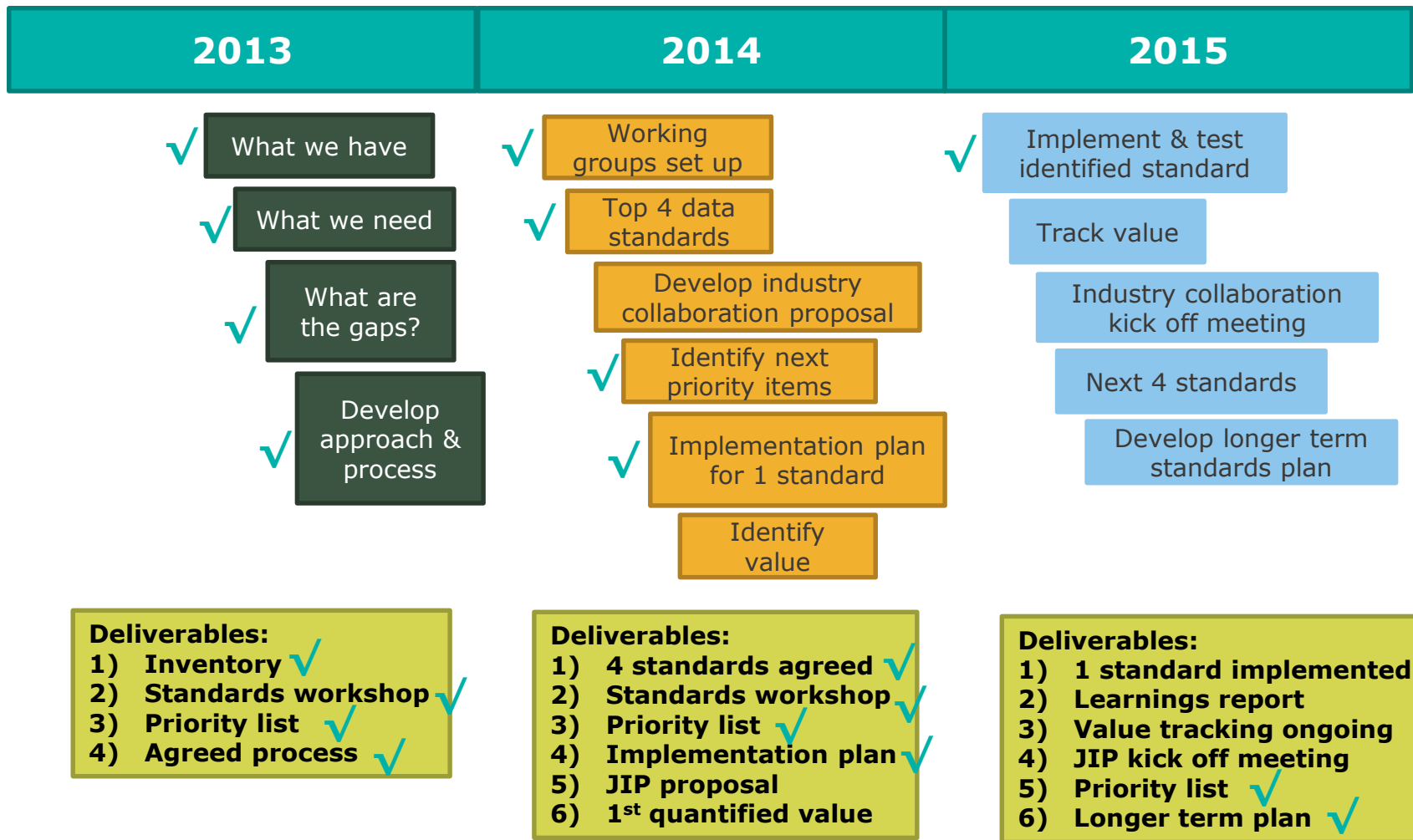
Challenges encountered

- Minimum resources of project team
- Awareness on importance of Technical Data Standards
- Strategizing in the engagement session to gather the TPs & SMEs
- Documentation of Technical Data Standards

Key success factor

- Higher management support
- Close collaboration and synergy amongst all parties
- Positive energy and enthusiastic participation from TPs & SMEs
- Dedicated technical resource to develop the TDS

What we have accomplished



Construction of the Technical Data Standards - PETRONAS Upstream Well Header Standards

Well Header

A set of data unique to a "single spot on the ground" for a drilled well



Identified mandatory & optional Well Header Attributes from Well Master Database (WMDB)

Researched and incorporated industry definitions of Well Header Attributes

Identified SMEs using Well Header Information (Drilling, Geomatics, Project)



Engaged and reviewed content with SMEs



Final PETRONAS Upstream Well Header Standards:
54 Well Header Attributes
45 Mandatory/Tier 1 attributes,
9 Optional/Tier 2 attributes

Construction of the Technical Data Standards - PETRONAS Log Curves Naming Standards

Log Curves

Description of depth attributes pairs of data that are produced from various sensing system measured up and down a well



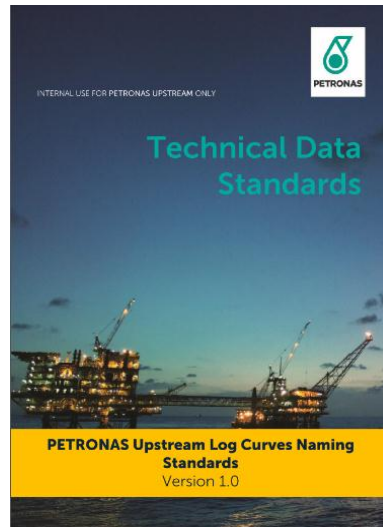
Creation of Petrophysical Standards Landscape across Petrophysical Information Lifecycle

Defined scope of PETRONAS Upstream Log Curves Naming Standards

Inventorised PETRONAS existing Standards & perform Industry Standards comparison



Engaged and reviewed content with SMEs & obtained endorsement from Petrophysics Peer Review Committee (PPRC)



Final PETRONAS Upstream Log Curves Naming Standards:

14 Composite Log Curves Standards
20 Petrophysical Interpreted Log Curves Standards

Construction of the Technical Data Standards - PETRONAS Upstream Well Symbols Standards

Well Symbols

Graphic symbols composed to provide information of a well's status (technical status, hydrocarbon type & status, injection status)



Collation of existing well symbols in place

Basic Construction of Well Symbols



Engaged and reviewed content with SMEs

How to generate a well symbol?

Example:-



Drilling, oil and condensate prognosed, gas show



Drilling (Circle)

Oil (solid black)

Prognosed (Bottom left quadrant)



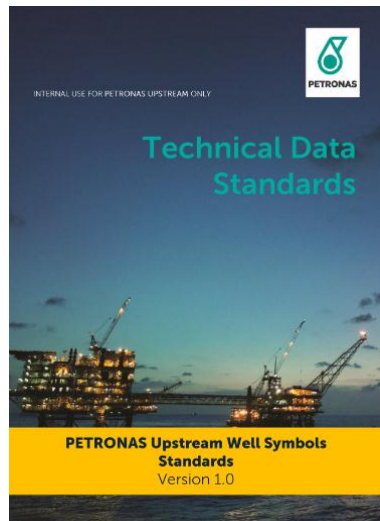
Condensate (square pegs)

Prognosed (Bottom left quadrant)



Gas (sun rays)

Show (Bottom right quadrant)



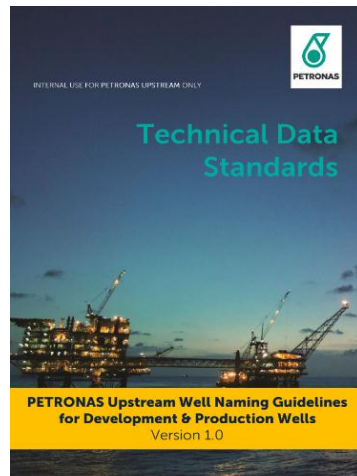
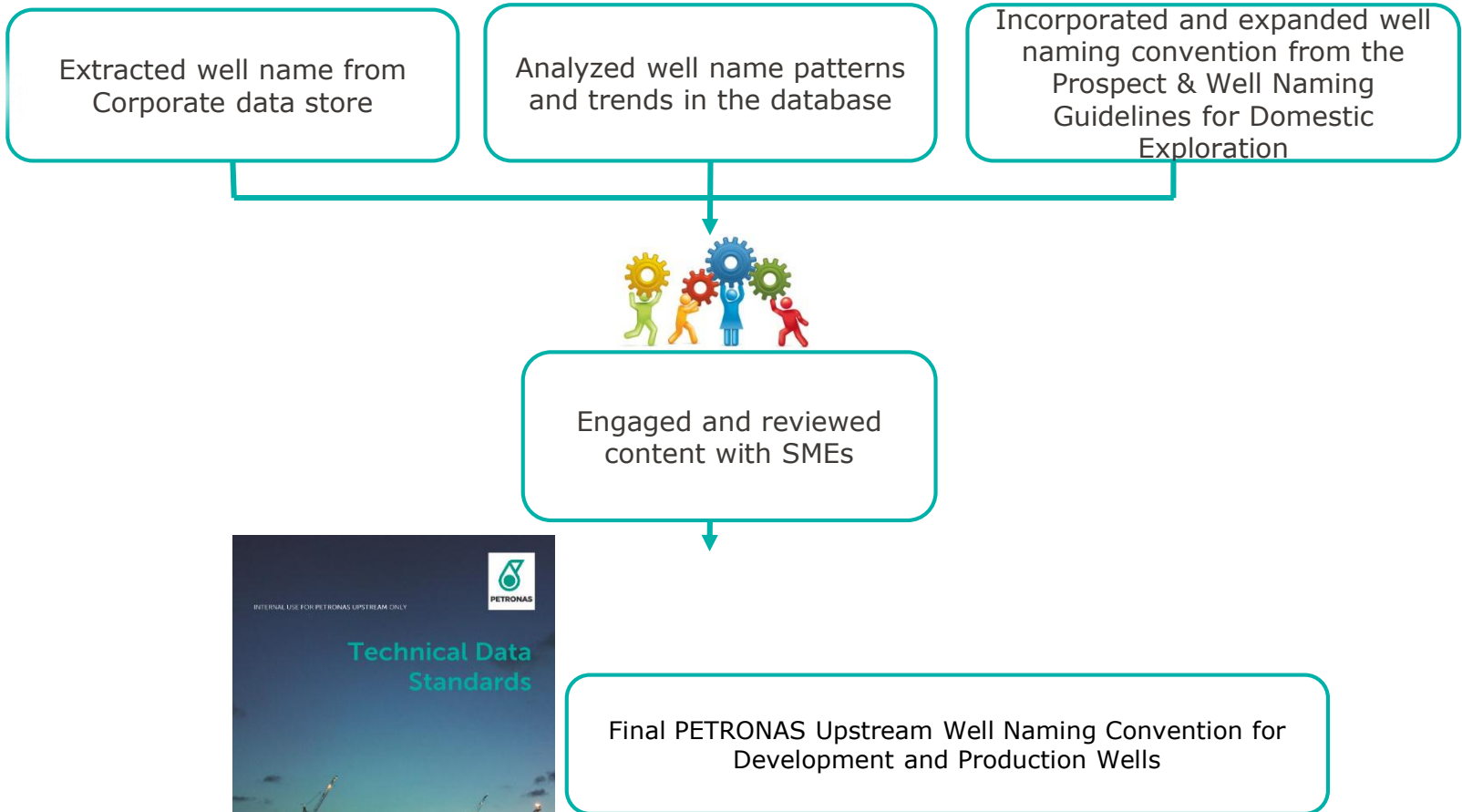
Final PETRONAS Upstream Well Symbols Standards:

518 Well Symbols across PETRONAS Upstream usage
32 most commonly used symbols across PETRONAS Upstream data

Construction of the Technical Data Standards - PETRONAS Upstream Well Naming Guidelines for Development & Production Wells

Well Naming Guidelines for Development & Production Wells

A unique and permanent name assigned to each well drilled during development & production phase



Summary of the TDS activities

2015



**Data Standards Launch Event
4 Standards, 1 Implementation Guide**

Approval, Printing & Distribution of 4 Standards



**Closing of 2014 Data Standards:
4 Standards, 3 Implementation Guides**

Phase 2: Implementation of 4 Standards

Identification of 8 Standards prioritized for 2016



Development of 8 Data Standards

Conclusion

❖ **Technical data standards is a huge area**

- *Therefore prioritization and a phased plan are essential elements*
- *There are plans to develop/enhance more new technical data standards. Sedimentology Legends and Plant Information (PI) Blueprint are in progress.*

❖ **Standards Implementation is also our focus**

- *Implementation of the TDS will be carried out in the relevant systems and databases*
- *For 2015, we focused on implementation of Well Header and Well Naming Guidelines for Production & Development Wells*

❖ **Standards Governance is high on our priority list**

- *Awareness of TDS to PETRONAS Upstream is an ongoing process*
- *TDS compliance tracking will be a core part of our approach*



PETRONAS

Thank you

Paper Abstract

Data standards are an essential component of the data management challenge in any organization. This is especially true in an upstream organization where the cost of data acquisition is significant and the data entropy effect is high. Much of the value of data is derived in workflows, reusability and sustainability. However, the creation of good data standards is not easy. It is not exciting, with no quick short term gains, tedious, requires meticulous checking of dependencies within the organization as well as knowledge of the availability of similar work outside the organization. Very often, this work is also not well recognized.

This paper describes the countless effort it takes to develop and implement the technical data standards for PETRONAS Upstream business. The journey still continues to ensure sustainability of the implementation.

The Triple A approach

ADOPT

For any data standards required, look outside PETRONAS first

- 1) Standards Bodies (Energistics, PPDM, SLC)**
- 2) Oil & Gas companies**
- 3) Service providers**

ADAPT

Identify all the areas where the standard is applicable and develop plan for implementation

Get internal stakeholder's buy-in and go through the approval process. Endorsement to use

"Adapt" may require collaboration to make it usable

ASSIMILATE

Agree on priority. Proceed with implementing key applications and databases

Develop plan to address legacy issues

Implement compliance metrics for the implemented standard(s)

Improve over time