

# XDWORLD

## “Infinity Access in your Hand”

Accelerating company vision through ArcGIS as a backbone for asset integrity management in oil and gas company

ESRI User Conference San Diego 2019

Widiastuti Nur Farida - Indonesia

 **esri** Indonesia

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# OUTLINE

**01** INTRODUCTION

**02** PHE AS MINIATURE OF OIL AND GAS  
INDUSTRY IN INDONESIA

**03** BIG DATA DISRUPTION &  
CHALLENGES

**04** XD WORLD – INFINITY ACCESS IN  
YOUR HAND

**05** SUMMARY

# INTRODUCTION – Fact Sheet

**. 17,000**

**Islands**

with more than 700 languages.

**. 4th**

**260 Millions**

largest populated country

**. 1700**

**MBOPD**

Peak oil production at 1977



**INDONESIA**



**Southeast Asia**



# INTRODUCTION - Pertamina (Persero)

Pertamina has its journey of over **6 decades experiences in the energy industry**. Pertamina continues to work hard in building the nation through strengthening its commitment in the fields of New and Renewable Energy and Business Diversification.

**Pertamina Hulu Energi (PHE)** as one of Pertamina's subsidiary envision itself to be a world class company which operates in **upstream** sector and portfolio of **downstream** oil, gas and energy.

## Upstream



Finding, lifting and processing oil and gas from subsurface into surface and ready for transportation. Also known as **Exploration and Production (E&P)**

## Midstream



**Transportation and storage** of crude oil and natural gas from E&P plant for further processing by pipeline, railway, road or tanker

## Downstream

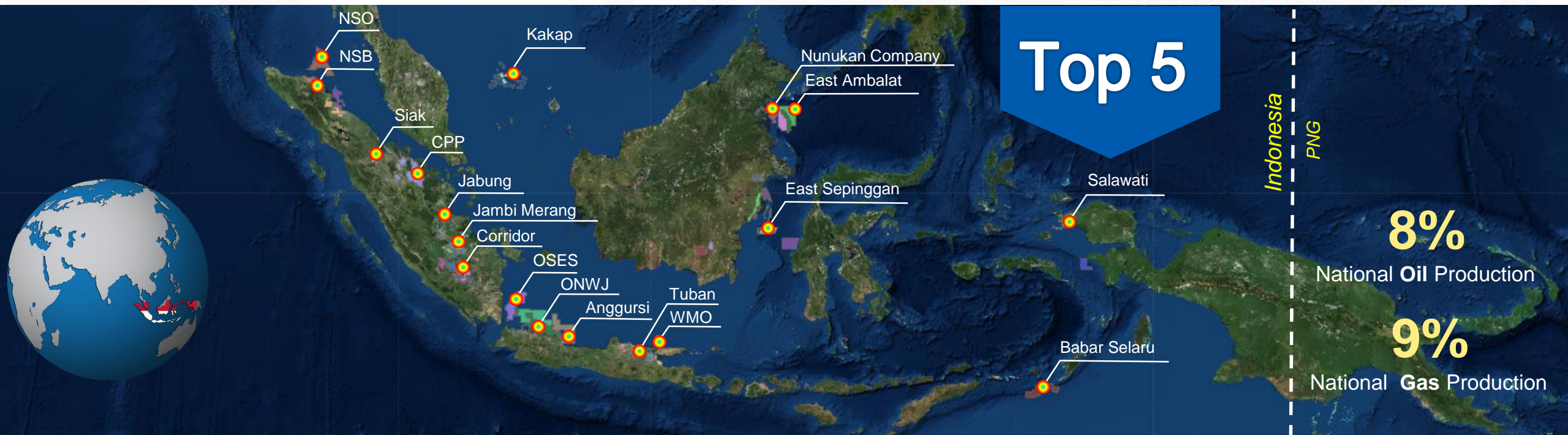


Further processing of crude oil and natural gas into useful final product or raw material for other industry. Also known as **Refining & Marketing (R&M)**



# MINIATURE OF OIL&GAS INDUSTRY IN INDONESIA

**Diversity of business characteristic, partnership and company's big resources** (Tangible & Intangible) become competitive advantage and key driver to achieve world class energy company



**52**  
Blocks

Oil & Gas, CBM and Shale Gas Blocks  
(Offshore & Onshore)\* + 2 Overseas

**226**  
MBOEPD

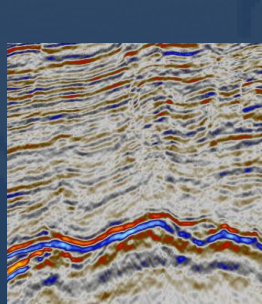
PHE Daily production

**2000**  
Million USDc

More than 2000 MUSD of  
Company Revenue

# BIG DATA DISRUPTION & CHALLENGES

Gigantic, growth and heterogeneity type of geospatial data & storage system



52<sup>+</sup> More to come working areas  
**507 TB**

## Subsurface

5,400 Wells

10,200 2D Lines  
130,000 Km

85 3D Surveys  
20,000 Km<sup>2</sup>

## Surface Facility

247 Platforms 16 Flowstations  
429 Pipelines

\*Java Area



# BIG DATA DISRUPTION & CHALLENGES

Gigantic, growth and heterogeneity type of geospatial data & storage system

Each data **managed by different database system** based on the subsidiaries previous system

Most of the subsidiaries **has its own coordinate system**

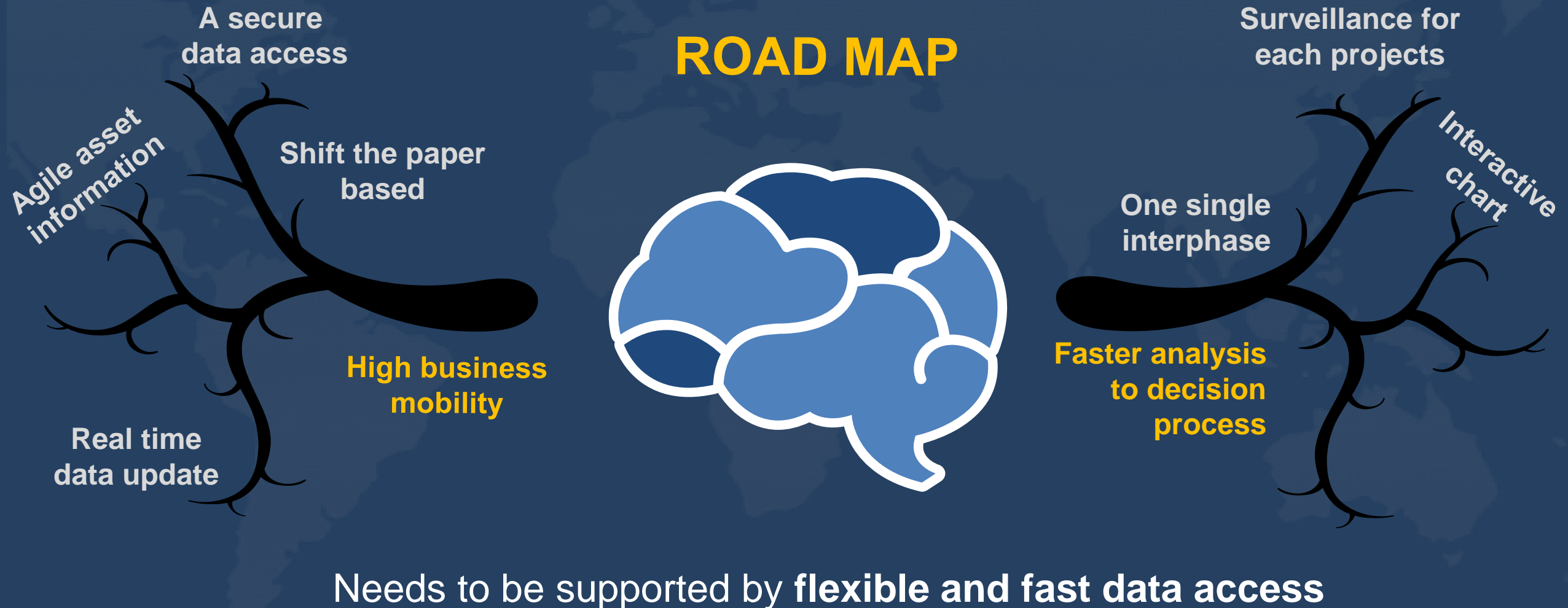
**Data duplication** and **losses** become **risks**, since there is a typical of **scattered data** within any subsidiaries



**Critical issues** lead **disruptions** during **accessing and integrating** data to one another

Should be answered in a **new way**

# CHALLENGES – Challenges in Digital Era





# XD WORLD - Introduction

A geospatial data management system based on  
**ArcGIS Enterprise platform**

## Division

Exploration



Development\*



Finance  
and Business\*



Operation and  
Production\*



Relation\*



\* Future Works

Asset maps, asset dashboard, production performance, project surveillance,  
exploration key performance indicator and field scouting

*Products currently available in XD World*



GIS  
Corner

Enter



Corporate  
Planning

Enter



Exploration  
Academy

Enter



DEEP  
Magazine

Enter



X-CLOUD



ANNUAL REPORT



# XD WORLD - Introduction



## Objectives

1. To give **easy access** to obtain any PHE assets information
2. To maximize asset value and speed up **decision process**
3. A tool for surveillance **exploration activity** and **business process**.

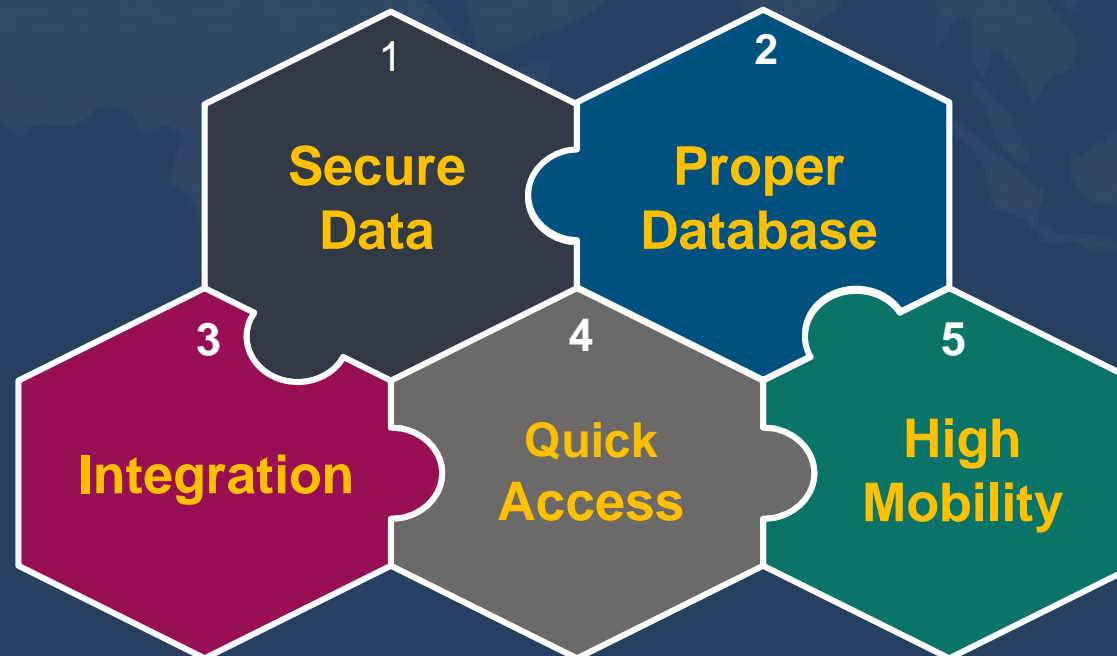


## Benefits



ArcGIS

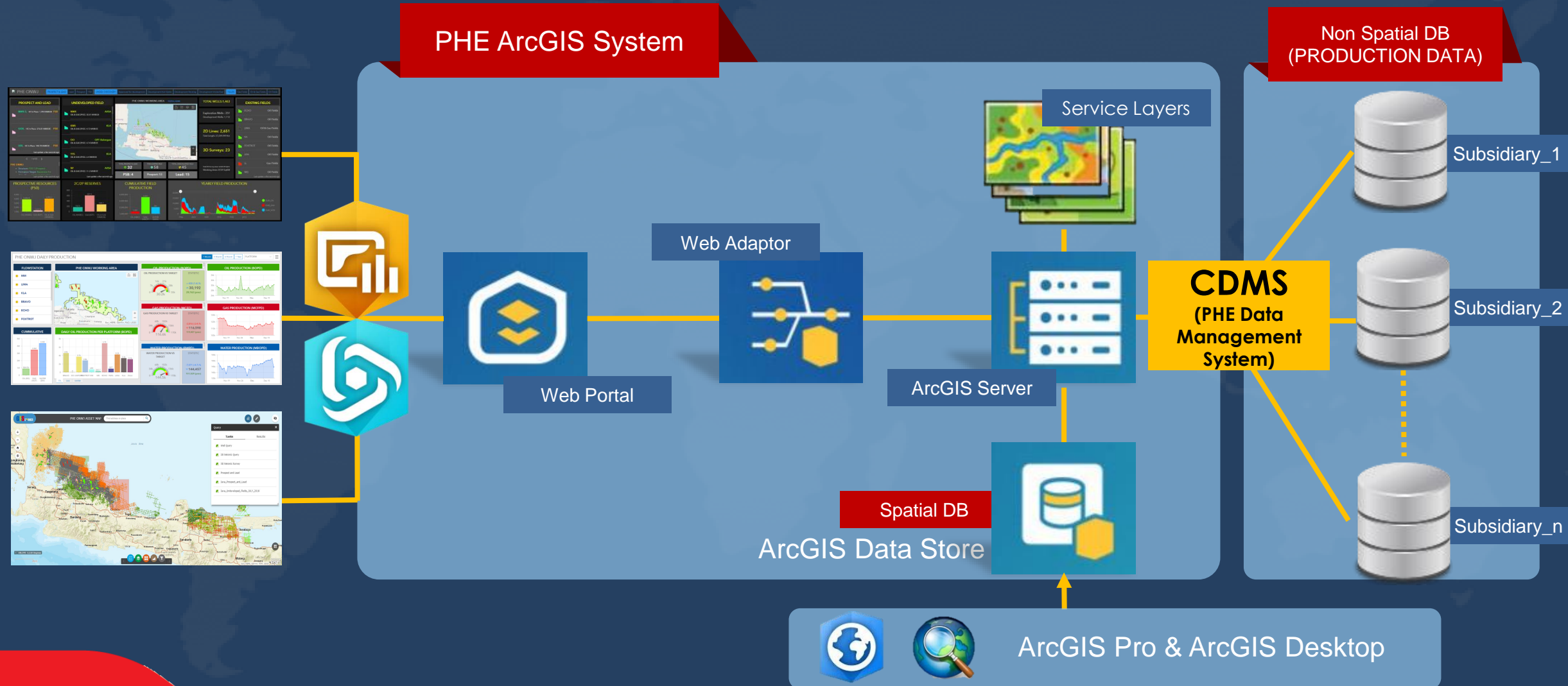
**XD**WORLD





# XD WORLD – System Architecture

ArcGIS Desktop/ ArcGIS Pro 2.3 and ArcGIS Enterprise 10.7



# XD WORLD – PHE Asset Dashboard

To evaluate PHE's subsidiary in one single window by considering remaining reserve, contingent resource and prospective resources



- Establish **what, where and how many** the asset PHE are
- Capture any subsidiary's **performance**
- Conclude **fast decision** for the **best exploration strategy** through subsidiary's performance analysis



# XD WORLD – Live Production Report

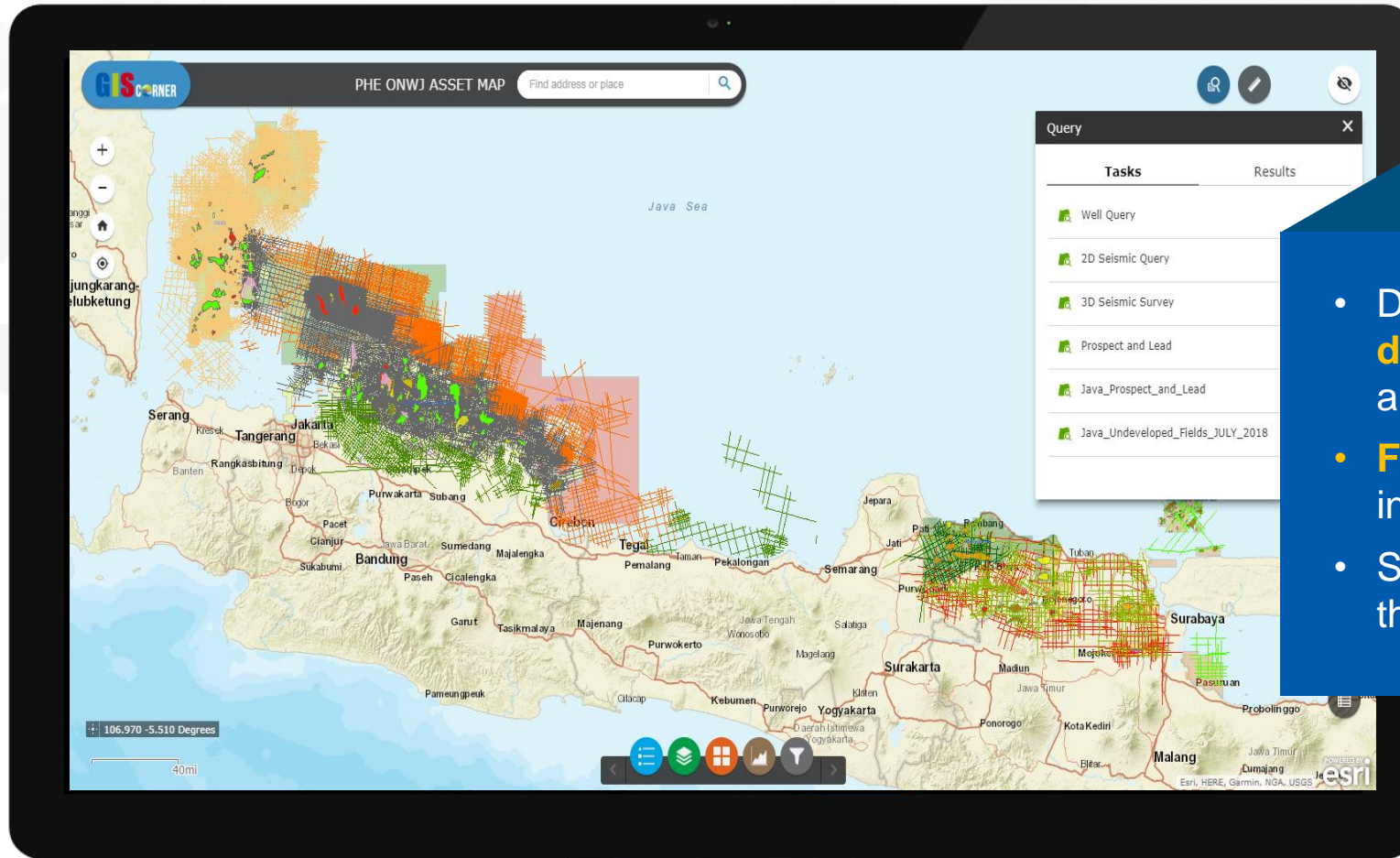
The Graphical chart showing **performance of PHE production**



- Shows **real time dashboard**
- Shows **production deviation** of today's and yesterday's rate
- **Summarize the production** for last a month, 3 months, 6 months and the past last year

# XD WORLD – Regional and Subsidiary Maps

A friendly customization for users to extract the desired layer

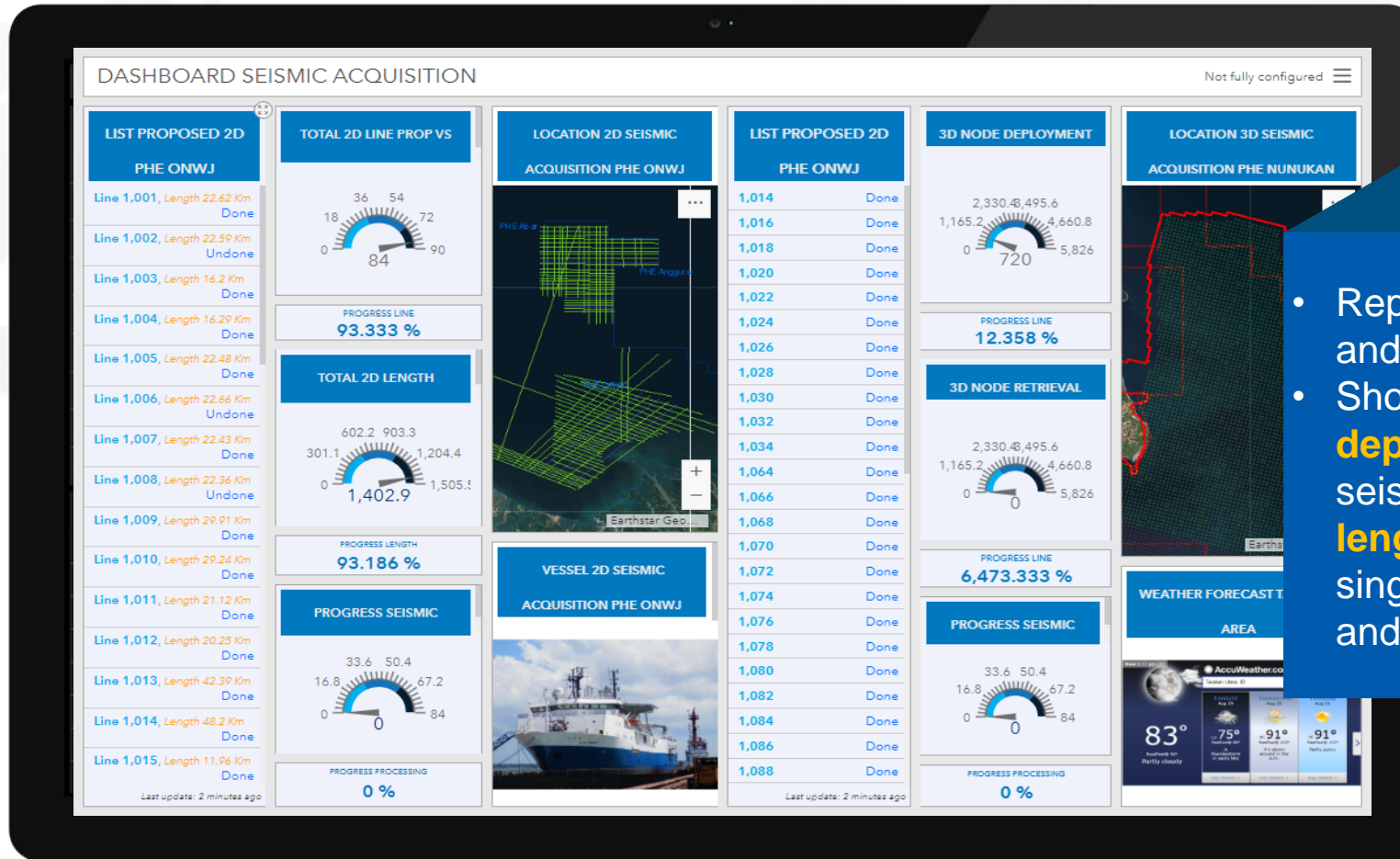


- Displaying **geographical location and detail informations** of wells, seismic lines and surveys also structures and facilities
- **Filtering and querying** the spatial data into several groups needed
- Showing the **graphical chart** by selecting the geographical area of interest



# XD WORLD – Seismic Acquisition Progress Tracking

A real time window to **assist the new seismic acquisition**



- Representing **interactive chart** of proposed and actual program that has been carried out
- Showing detail **progress** for **node deployment, retrieve and shooting** of 3D seismic acquisition also detail **progress length** for 2D seismic survey (Recorded a single point of coordinate into several line and area)

# XD WORLD – Subsidiary Dashboard

Specifically proposed for capturing subsidiary performance



- Showing **Integrated display** of well, seismic line & survey, lead, prospect and drillable prospect
- **Analysing structures** for prospects and leads parameters
- Showing **detail montages** for drillable prospect wells

# Explore XDWorld Now!







# XD WORLD

Infinity access in your hand

Enter

# XD WORLD – Strong Point

## Before



- Paper Based
- Complex Excel Data
- Localize Each Subsidiaries Storage
- Scattered Data

- Digital Platform
- Centralized Data Storage
- Integrated Information
- Strong Visualization
- Easy to Access



## After

# XD WORLD – What's Next?

## A lifetime of Challenges and Opportunities Crammed in a First One Year



- Portfolio Asset of PHE (Inventory of lead, prospect and drillable prospect)
- Digital library of surface data/regional subsidiary map/query
- Live production report
- Seismic acquisition progress tracking

Facility asset management

Learning Phase

Producing 1<sup>st</sup> Phase

Producing 2<sup>nd</sup> Phase





**Production Facility & Project Development 2018**



**The 1<sup>st</sup> Place at ESRI Indonesia Oil and Gas Customer Experience 2018**



**Leadership People Development 4.0 Industrial Revolution with Mr. Tanri Abeng (President Commissioner of Pertamina) 2018**



**Exploration Award –Breakthrough Program 2019**



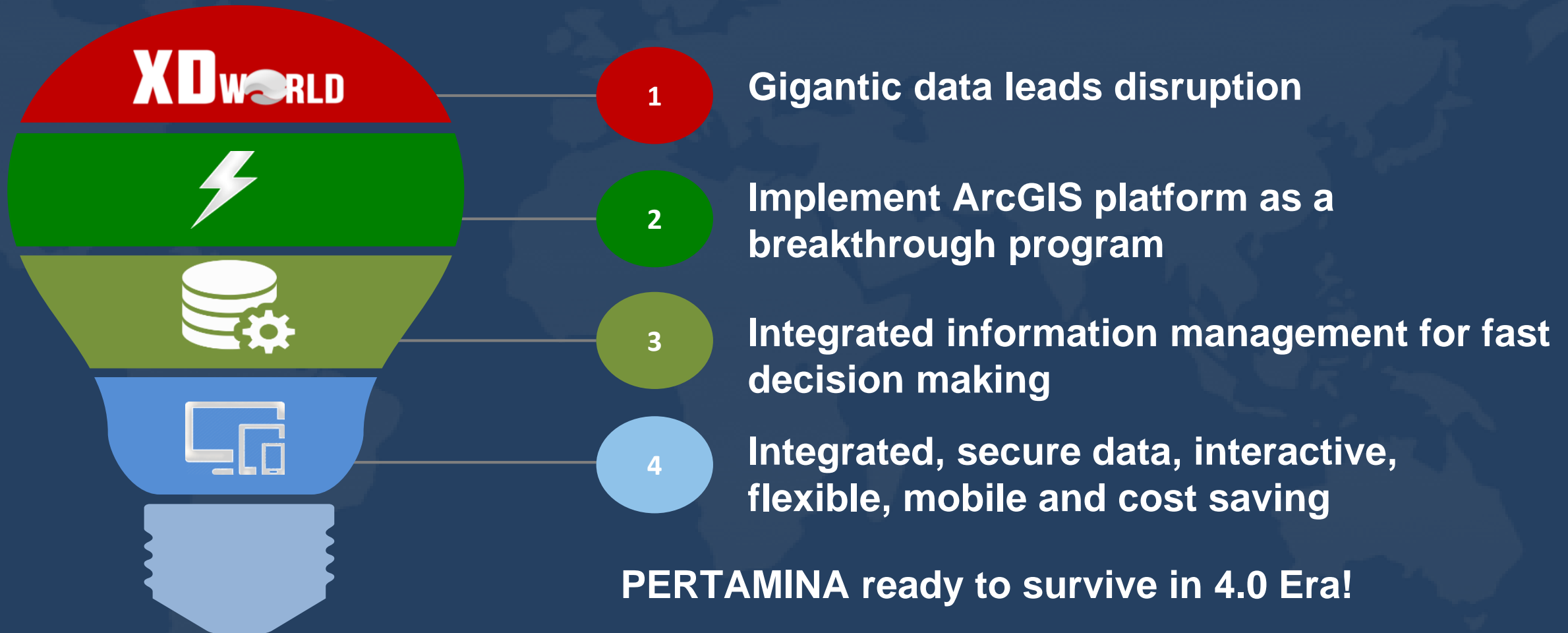
**Special Achievement Award Pertamina Hulu Energi 2019**



# XD World in Frame

## “Infinity Access in Your Hand”

# SUMMARY



**PERTAMINA ready to survive in 4.0 Era!**

# ACKNOWLEDGEMENT



- Board of Director Pertamina Hulu Energi
- GM All Pertamina Hulu Energi Subsidiaries
- All Managements Pertamina Hulu Energi
- Government Regulator for Oil and Gas (SKKMigas)





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**Special thanks to**

