



Digital Transformation in Energy (Oil & Gas) Industries

Oktober 2021
Tim Pertamina Digital Transformation

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01 | **What is Digital Transformation (DT)**

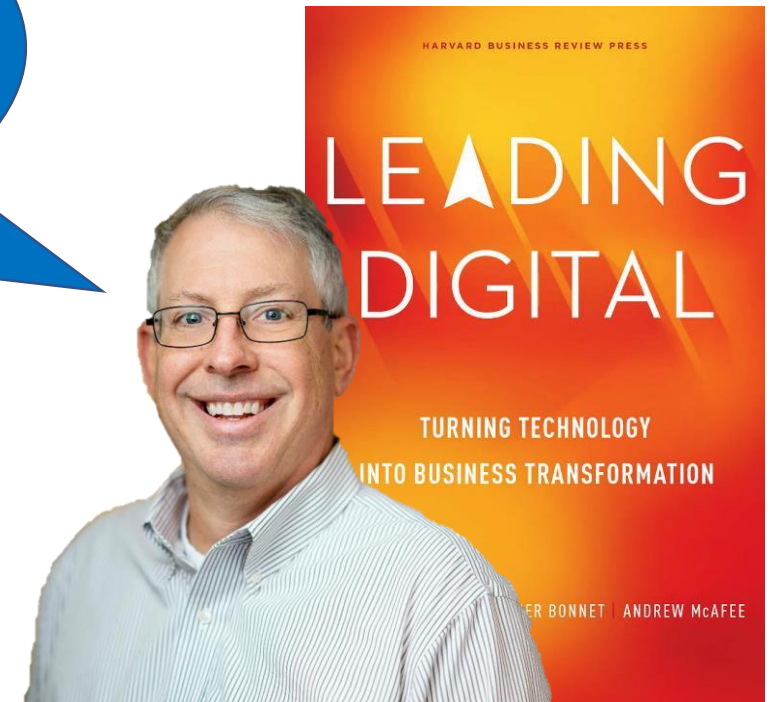
02 | **Digital Transformation in Energy (Oil & Gas) industries**

03 | **Digital Transformation in Pertamina**

how an organization uses technology, people and processes to fundamentally change business performance

Digital Transformation drivers:

- Before pandemic
- After pandemic



George Westerman

MIT principal research scientist and author of *Leading Digital: Turning Technology Into Business Transformation*

Global Megatrend

before pandemic



Urbanisasi Global



Demografi Dunia



Perubahan Geo Ekonomi
& Geo Politik



Perubahan Iklim



Persaingan
Sumber Daya Alam



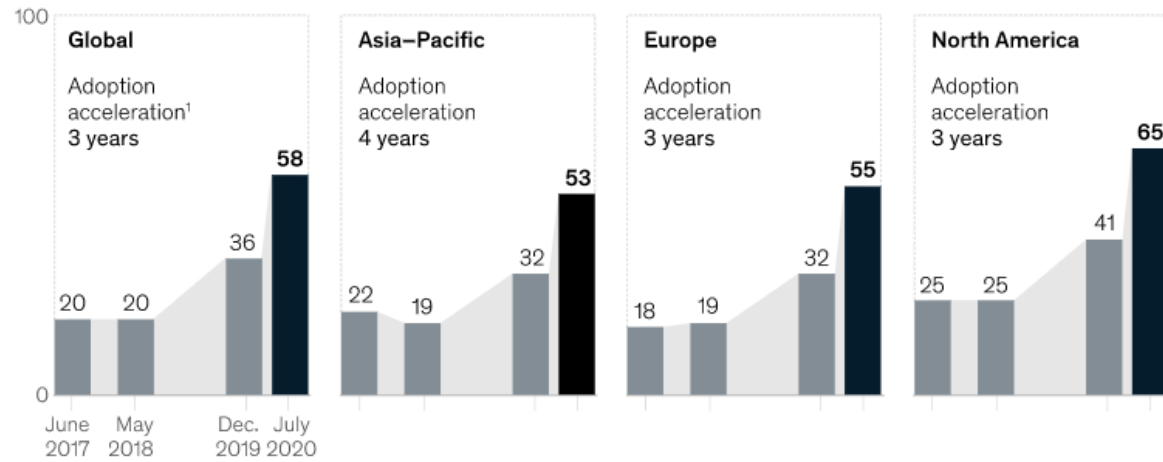
Kemajuan Teknologi

Digital Adoption

because pandemic

The COVID-19 crisis has accelerated the digitization of customer interactions by several years.

Average share of customer interactions that are digital, %



¹Years ahead of the average rate of adoption from 2017 to 2019.

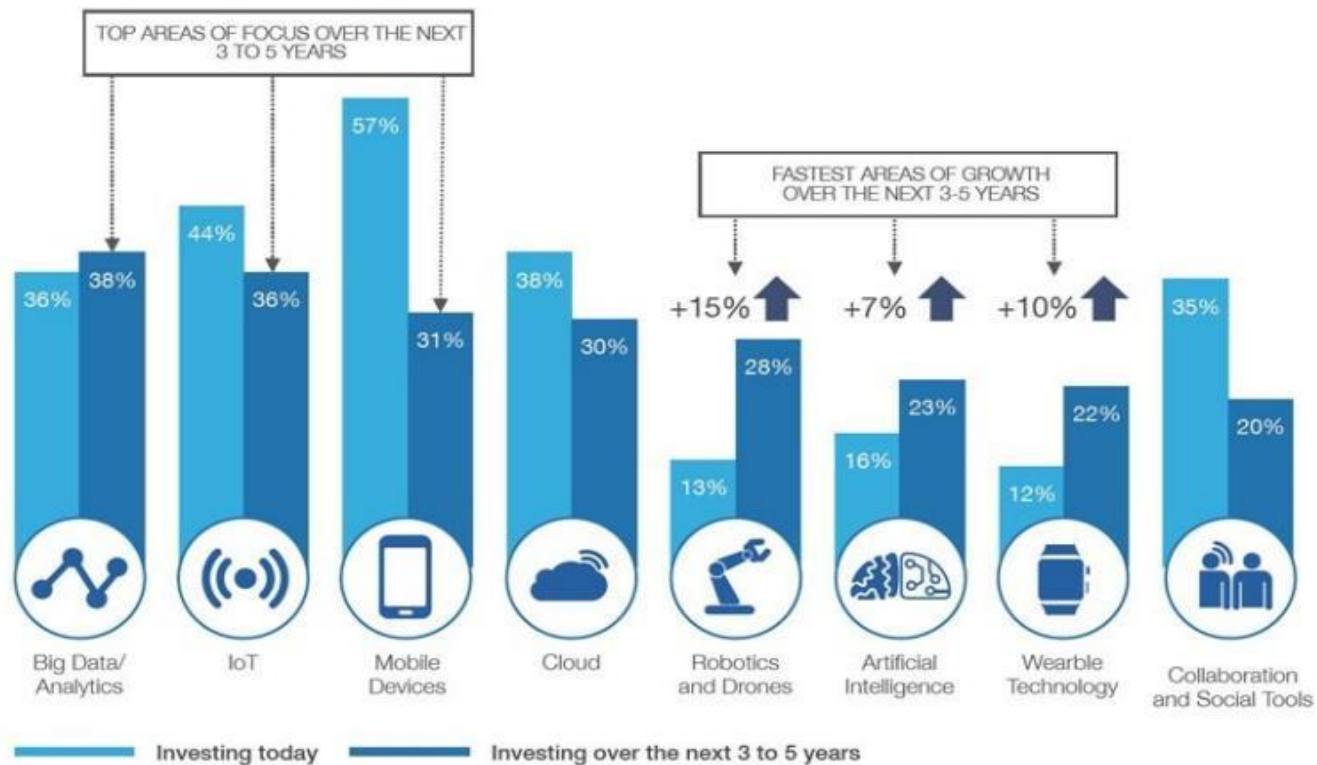
Now is the time for Indonesia to consider the various trends that will define the next normal.

Themes for next normal



Perkembangan Digital Transformation di Oil & Gas

Investasi di berbagai **TEKNOLOGI DIGITAL** telah digulirkan oleh perusahaan oil & gas dunia



With fewer offshore people to coordinate, onshore operations and maintenance are streamlined

Robots perform predictive maintenance offshore and **human operators are reduced** from the hazardous environment

Engineers onshore focus on innovation and efficiency, designing modular equipment with maintenance routines for robots

Petroleum engineers are now joined by programmers onshore who work to **optimize throughput**

Offshore surface vessel **3D prints components of subsea factories** for robot vehicle installation to equipment

Offshore **seafloor robots** operate, modify, and install small parts in dangerous areas previously serviced by human divers

Subsea factories act autonomously for standard and safety-oriented operations controlling flow and limiting accidents

Potential economic benefits of automation

- 15% Labor substitution
- 85% Performance gains
- Better safety, as people removed
- Faster decision-making through global control room
- Predictive maintenance saves costs
- 17% Relative impact¹

¹ Ratio between additional net impact and operating cost.

McKinsey&Company

Visi Digital Transformation di beberapa perusahaan Oil & Gas



"Shell has been at the forefront of digital technologies for decades ...

*... **Shell Vision is to be the Digital Energy Company"***

Shell

- Mengadopsi digitalisasi di berbagai rantai nilai, **pioneering di beberapa use cases** (mis. 3D printing)
- Fokus pada **digitalisasi bisnis inti** dan mencari **new disruptive value models**
- Di Hulu, fokus pada **peningkatan produksi**
- **Tidak terdapat koordinasi tersentralisasi** – digital dilakukan oleh masing-masing unit bisnis
- Menyadari diperlukannya **cultural shift**



*"To be the **leading digital Upstream company**, comprised of globally connected networks of physical equipment, people, and digital processes"*

CEO Upstream, BP

- Aspirasi untuk menjadi **Digital pacesetter** di antara para IOCs
- Berinvestasi dalam mengembangkan **teknologi digital untuk eksplorasi** secara *in-house*
- Melakukan adopsi **teknologi digital** secara besar-besaran dan global
- **Visi dan koordinasi tersentralisasi**
- Mengalami **cultural shift** walaupun dikenal sebagai salah satu pionir digital



*"Be a **global digital leader** within our core areas and to capture opportunities provided by the rapid development within digital technologies"*

CEO, Statoil

- **Agenda Digital secara grup**, dengan tujuan menjadi pimpinan dalam aset masa depan
- **Inovasi Digital** fokus pada **drilling**
- Mempromosikan **open innovation**
- **Keterlibatan pimpinan** dalam mengembangkan strategi digital
- Menyadari diperlukannya **cultural shift**

Digital Transformation Business Case

Perusahaan Oil & Gas dunia membangun ekosistem digital transformation melalui kerjasama dengan leading tech-firm

Studi Kasus: Repsol dan Google



FINANCIAL TIMES
 MARKETS GRAPHICS OPINION WORK & CAREERS LIFE & ARTS HOW TO SPEND IT
 Repsol SA (+ Add to myFT)
 Google and Repsol team up to boost oil refinery efficiency
 Google's technology will be used to analyse hundreds of variables that measure pressure, temperature, flows and processing rates among other functions for each unit at Tarragona. Repsol hopes this will boost margins by 30 cents per barrel at the facility and plans to roll out the technologies across its five other refineries.

\$0.3/bbl peningkatan margin

50% peluang peningkatan dalam empat bulan pertama

\$100mn potensi pendapatan tambahan

Studi Kasus: Chevron dan Microsoft



Forbes
 Billionaires Innovation Lea
Chevron Signs Seven Year Deal With Microsoft In One Of Cloud's Biggest Wins Yet

Alex Konrad Forbes Staff
 Venture Capital
 Covering venture capital, software and startups



Chevron's Drilling & Completions Decision Support Center monitors operations around the globe -- and soon, over the cloud. [crave](#)

Energy giant Chevron has selected Microsoft as its preferred cloud provider in one of the biggest head-to-head wins yet in a developing race between tech leaders for cloud computing



Bermitra dengan Microsoft untuk menggunakan Microsoft Azure sebagai solusi Cloud utama untuk percepatan transformasi digital



Penggunaan IoT di refinery terkait dengan implementasi Predictive Maintenance

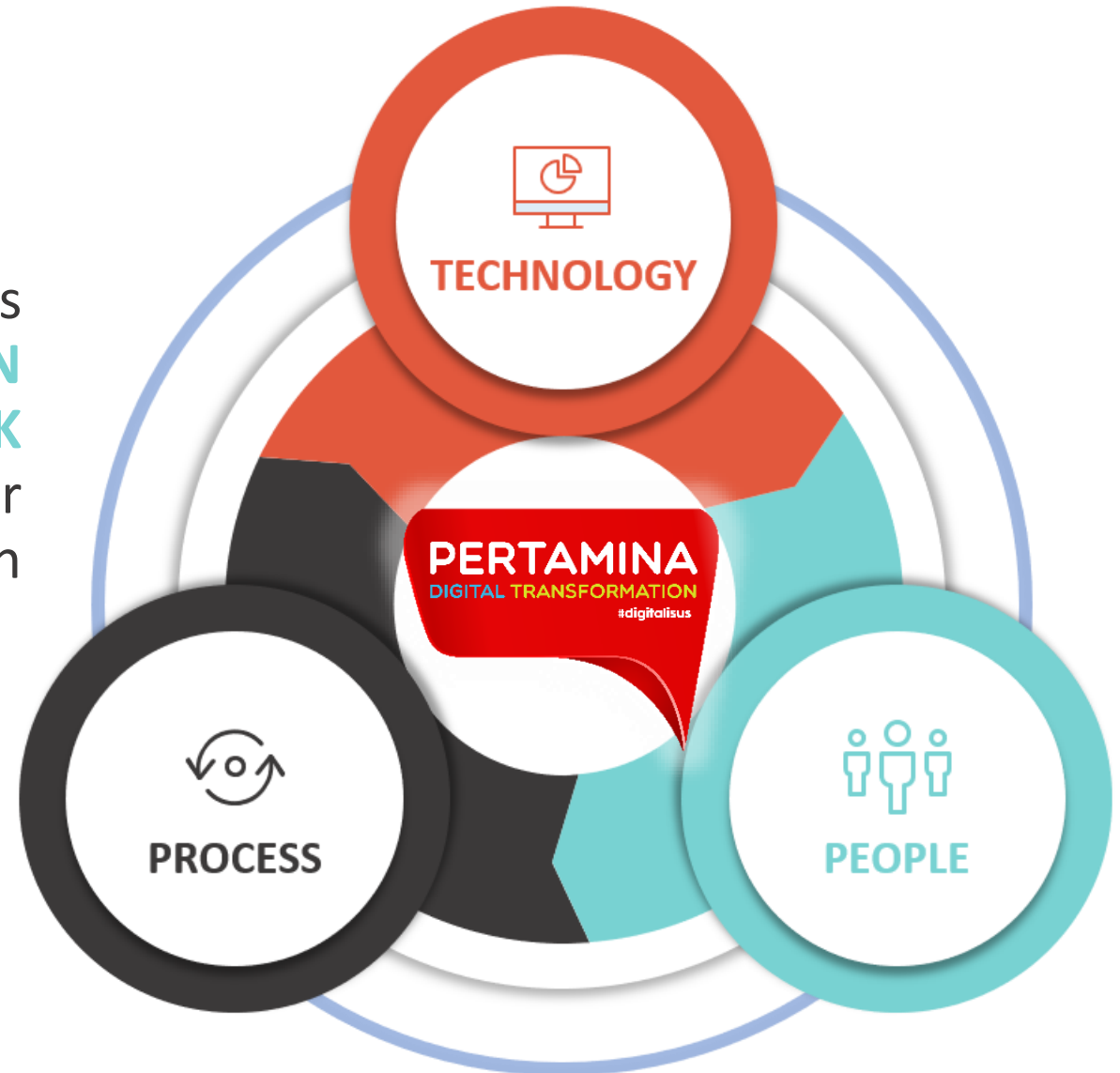


Mendukung implementasi RPA dan AI untuk mengotomatisasi pengumpulan dan ekstraksi data ke dalam sistem untuk pelaporan dan analisis

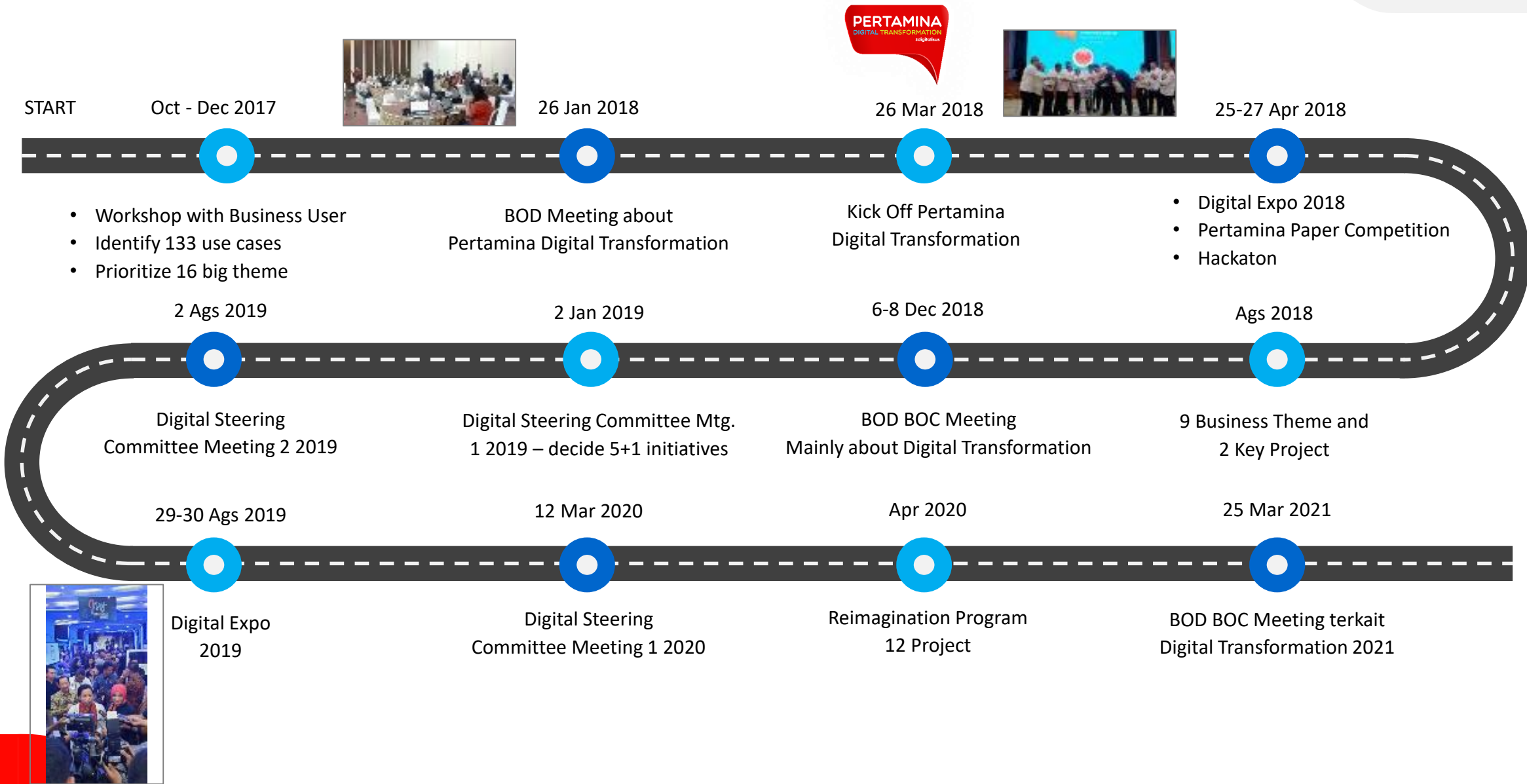


Strategi Pertamina Digital Transformation

Agar dapat mencapai tujuan strategis perusahaan, **DIGITAL TRANSFORMATION** membutuhkan perubahan secara **HOLISTIK** (**process, people & technology**), tidak sekedar “memindahkan” proses bisnis yang berjalan saat ini ke platform digital



Perjalanan Pertamina Digital Transformation



Pertamina's Digital Acceleration Index (DAI) Journey



#DigitalLife #DigitalTransformation #ReadytobeADigitalLeader

DAI 2021

Beberapa deliverable Pertamina Digital Transformation



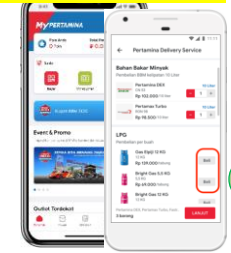
1 P-Office 2.0



2 Digital Procurement



3 MyPertamina



4 Logistic Planning MS2 Mobile



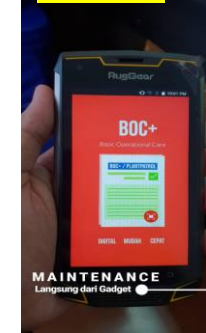
5 Upstream Cloud



6 Joint Operation Dashboard (JOD)



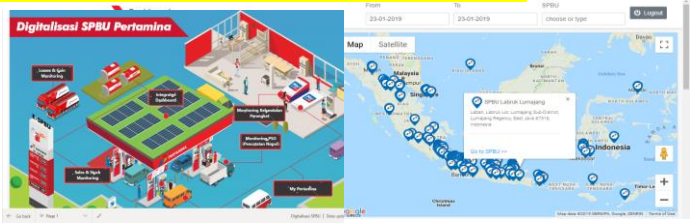
7 BOC



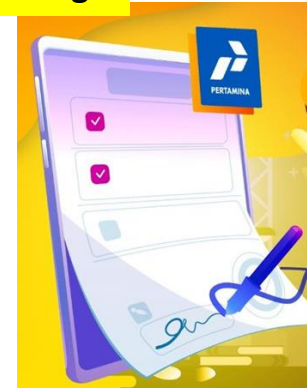
8 Preventive & Prescriptive Maintenance System



9 Digitalisasi SPBU



11 P-Sign



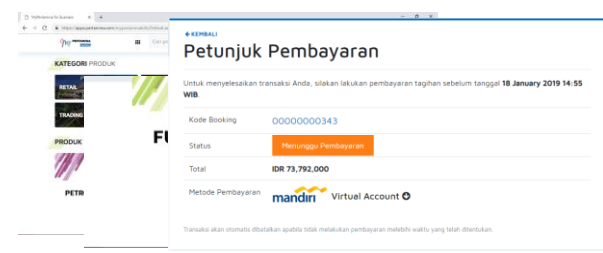
12 Integrated Operation Center



13 Corporate Dashboard



10 My Pertamina for Business



Salah satu deliverable Pertamina Digital Transformation

Digital channel Pertamina

MyPertamina as a Digital Channel:

- Transaction includes marketing, sales, product bundling & partnership
- Loyalty includes cross-point (point exchange)
- Digital advertising & entertainment

MyPertamina is one of the tools to create customer retention and acquisition, leverage business, and support government program



Aspiration

Super app.

One app with many use cases.

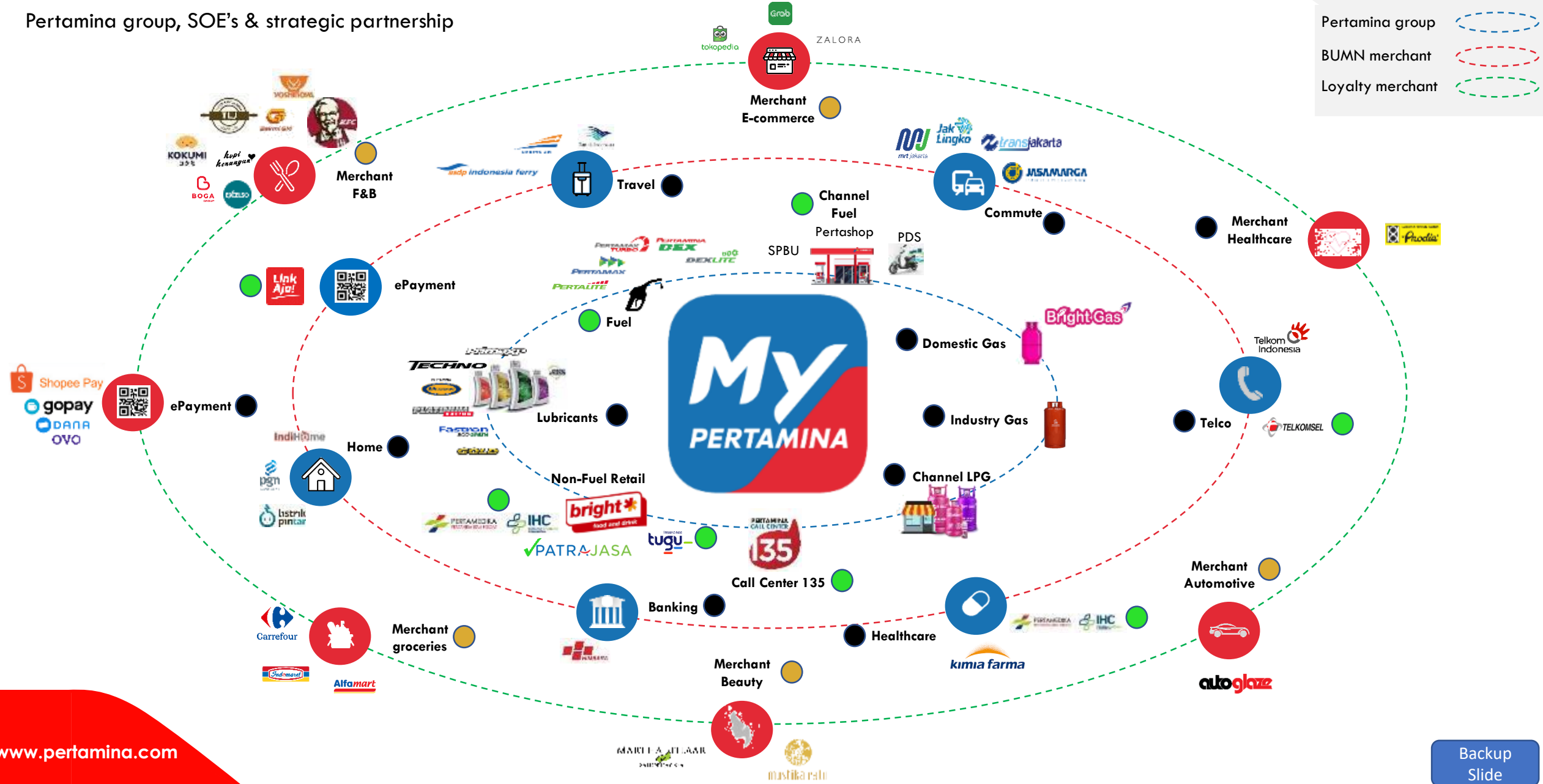


MyPertamina Ecosystem Development Roadmap



Pertamina group, SOE's & strategic partnership

- Pertamina group
- BUMN merchant
- Loyalty merchant



Penghargaan untuk IT Pertamina terkait Digital Transformation



Enterprise Innovation Awards 2019



Digital Technology & Innovation Awards 2021



Top Digital Awards 2020

Sumber: Tim Pertamina Digital Transformation



D'FrontRunner Award 2021 by Telkomsel

TERIMA KASIH