

Optimizing efficiency through digitalization in chemicals, petrochemicals and refining
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1. Please introduce your role at PETRONAS

I am accountable for the strategic direction and leadership of crude oil refining, trading and marketing of the petroleum products for PETRONAS

2. What does the subject of digital transformation and IoT mean to you?

Technology has been driving change in the industry for many centuries now ever since the Industrial Age. The new digital age is no different – if anything, the pace of innovation has become much faster. The power of technology is multiplying and costs are plummeting at an exponential rate - making possible, what was impossible only yesterday.

3. How do you see the role of the Industrial Internet of Things in refining, petrochemicals & chemicals? What are the key benefits and opportunities of using IIoT solutions in downstream operations?

IIoT benefits downstream operations in a few ways:

- a. Data driven organization – data science + wisdom/experience
- b. New ways of working – agility, integration & innovation
- c. New value – safety, efficient and reliable

4. How will this paradigm shift affect talent in manufacturing & downstream industry overall?

It's no longer enough to assign innovation to a single part of the business. Organizations must rewire their whole business to enable innovation to sprout and scale:

1. Encouraging employees to think of what is desirable, rather than what is possible.
2. Thinking solutions, instead of technology
3. Enhance culture of experimentation, powered by curiosity to push the boundaries to re-imagine each aspect of the business' entire purpose and value shared across the organization.

5. What does workplace innovation look like at your organization?

PETRONAS is evolving towards future integrated ecosystem, supply network & new business model focusing segment of 'one'.

6. How does this impact your customers?

With this change, we will provide with better cost to serve which in turn customers will benefit

7. What Does Industrie 4.0 mean for your company?

Digital transformation of the industry's value chain evolving beyond single industry spectrum.

8. Will Artificial Intelligence replace humans working in oil and gas?

No, since it still require right wisdom/experience for the business

9. Are manufacturers concerned about cybersecurity in their organization?

Yes, cybersecurity is a key concern for manufacturers

10. What are the key technologies which your company would like to implement in the next 5 years? (for refiners, petrochemical & chemicals companies only)

- a. Big Data & Analytics
- b. Machine Learning & AI
- c. Smart & Connected Plant

11. What are the current challenges and hurdles that affect the spread and deployment of the Internet of Things in your organization? (for refiners, petrochemical & chemicals companies only)

Digitization to Support Business Model

- Establish a robust, collaborative ecosystem of suppliers, distributors, start-ups, and customers that allows us to rapidly scale digital value chain into the new business models. Couple of solutions:
 - ECOSYSTEM ORCHESTRATION: Orchestrate the ecosystem by combining the efforts of different business partners (suppliers, peers, distribution) to create a new business model.
 - OPEN AND CO-INNOVATION: Obtaining and developing ideas for new products or services from a wide variety of sources, both internal and external to the firm
 - TECH INCUBATION CENTERS & COEs: Nurturing innovation clusters that design and prototype early-stage technology use cases

12. With these radical changes looming what opportunities lie ahead for manufacturers?

Opportunity through strategic partnerships which can expand the networks faster and realizing value at pace



13. What will the future workforce look like in the digital age?

Data driven organization, new ways of working and delivering new value.

