



**Digitalization in the Oil and Gas Industry
Challenges & Opportunities in CE European Region**

Conference

15-16 November 2018, Visegrád

Society of Petroleum Engineers

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Agenda

HSSE

- RSI in digital age

Setting the scene:

- Business climate
- What is digitalization?

Digitalization delivering value in Upstream

Q&A

HSSE - Repetitive Strain Injury (RSI)

Severe health issues might occur!

- Human interface design
- Excessive mouse movement and clicking
- Bad posture

Cause



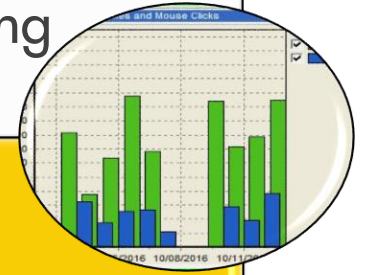
- Injury
- Lost time
- Productivity decrease

Effect



- Better UX design
- Minimize mouse travel clicks
- Influence vendors
- Use monitoring software

Fix





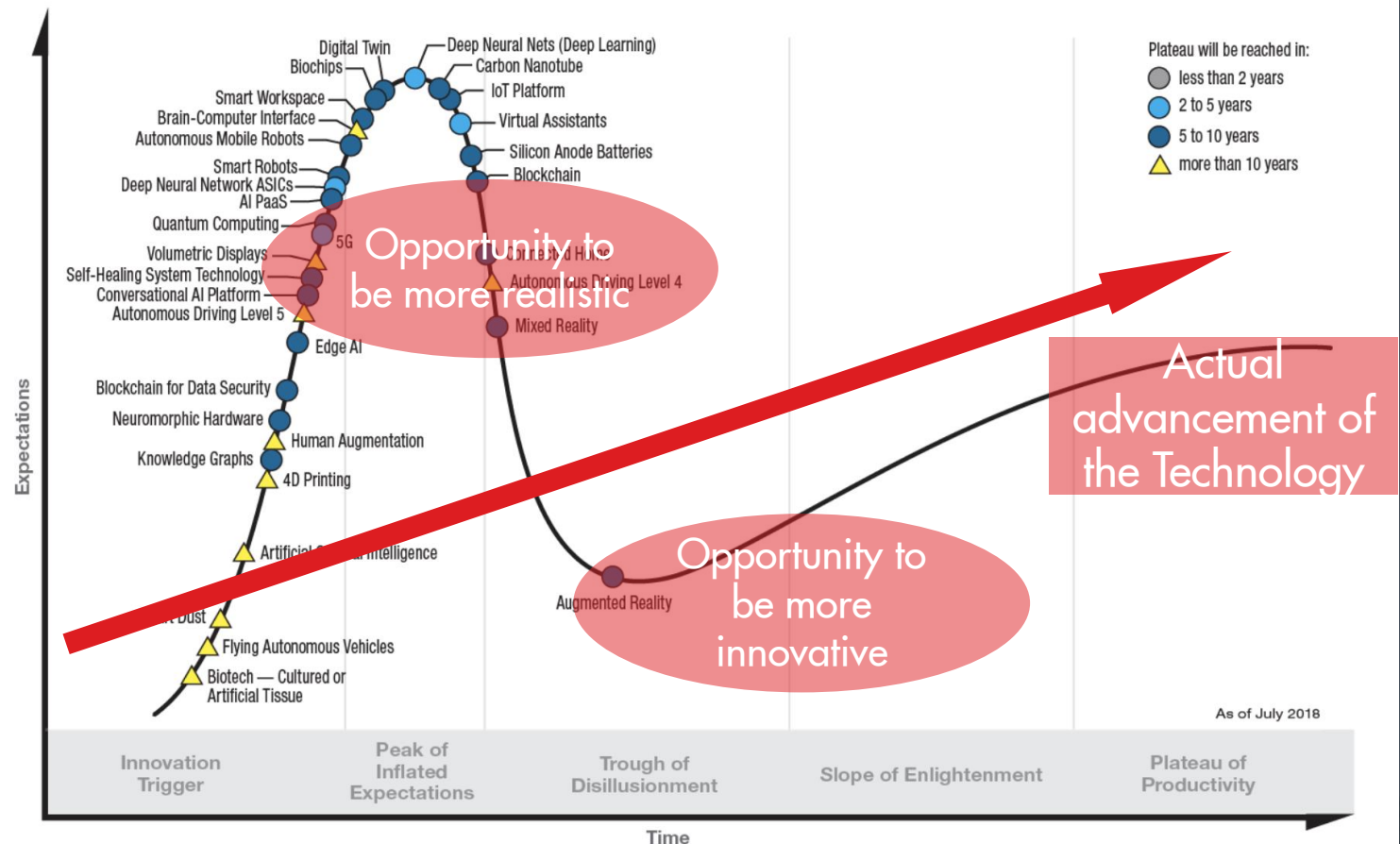
Is Digitalization just the latest buzzword in Oil&Gas or a real value generator?

Tamás Krasznavölgyi

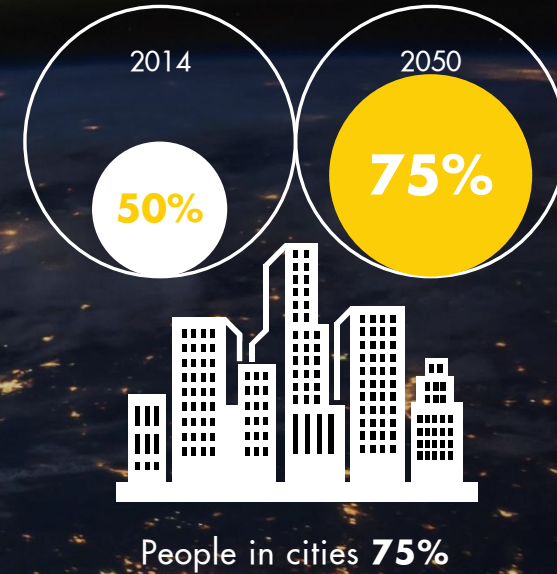
Senior Subsurface Workflow Consultant
Projects & Technology Development

Digitalization definitely generates value. It's not just a hype!

Hype Cycle for Emerging Technologies, 2018



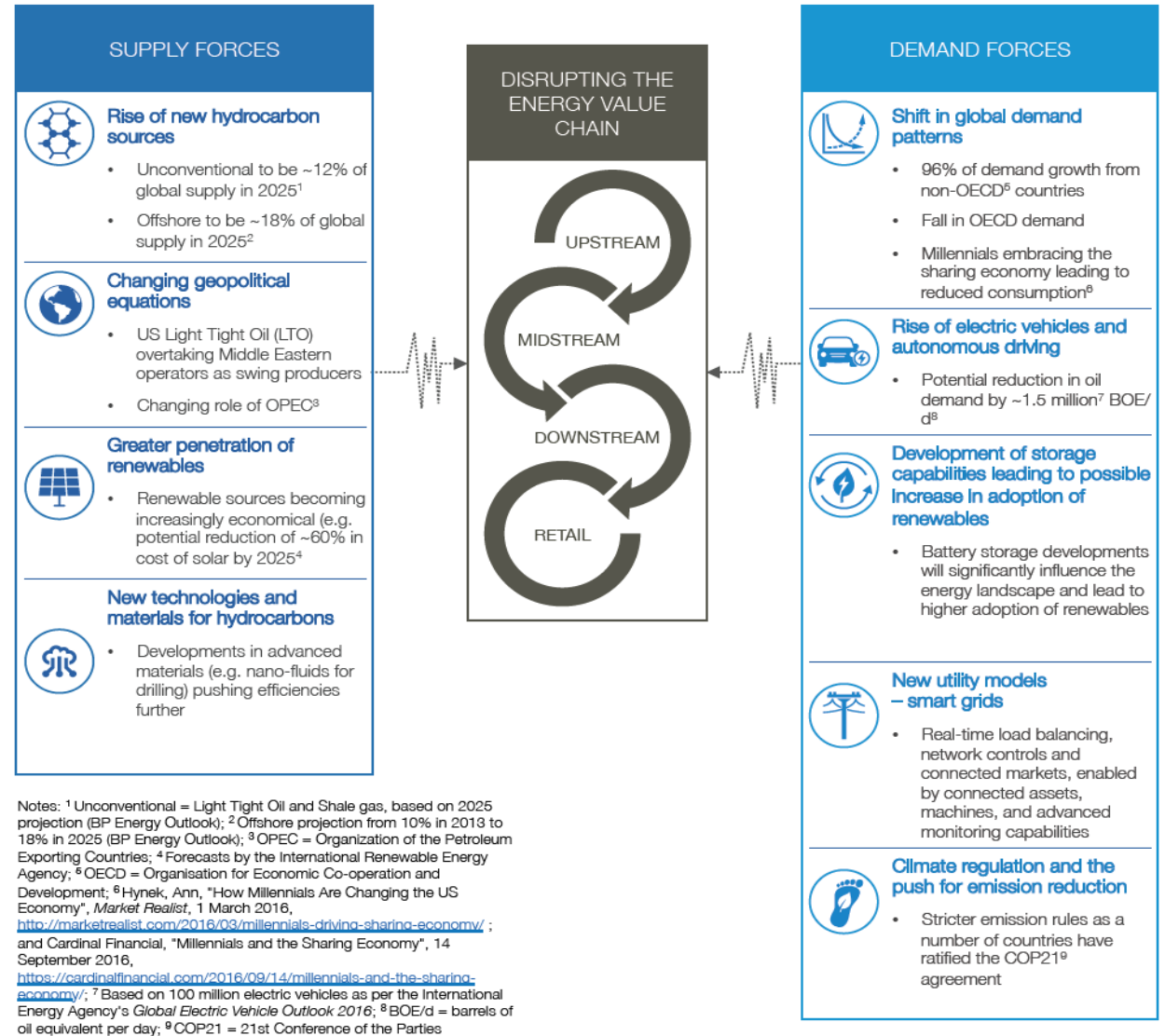
Energy Challenge 2050



“Driven by the major forces of the energy transition and digitalisation, we’ll likely see the re-making, over time, of the energy system.”

BEN VAN BEURDEN

Shifting Trends in Supply and Demand Are Reshaping the Oil and Gas Industry



Source: World Economic Forum/Accenture analysis

Digitalisation has a role in tackling climate change

ENERGY

Digital technologies can enable the integration of renewables onto the grid, improve efficiency and heighten transparency.

FOOD

Digital technologies can help raise productivity and reduce food waste onto the grid, improve efficiency and heighten transparency.

HEALTH

Digital technologies will put “a doctor in your pocket,” allowing users to manage their own health via their smart device.

LEARNING

Digital technologies can make education accessible, engaging, flexible and affordable.

BUILDINGS

Digital technologies will increase comfort and reduce energy and water bills.

MOBILITY & LOGISTICS

Digital technologies can help everyone reach their destinations faster, cheaper and safer.

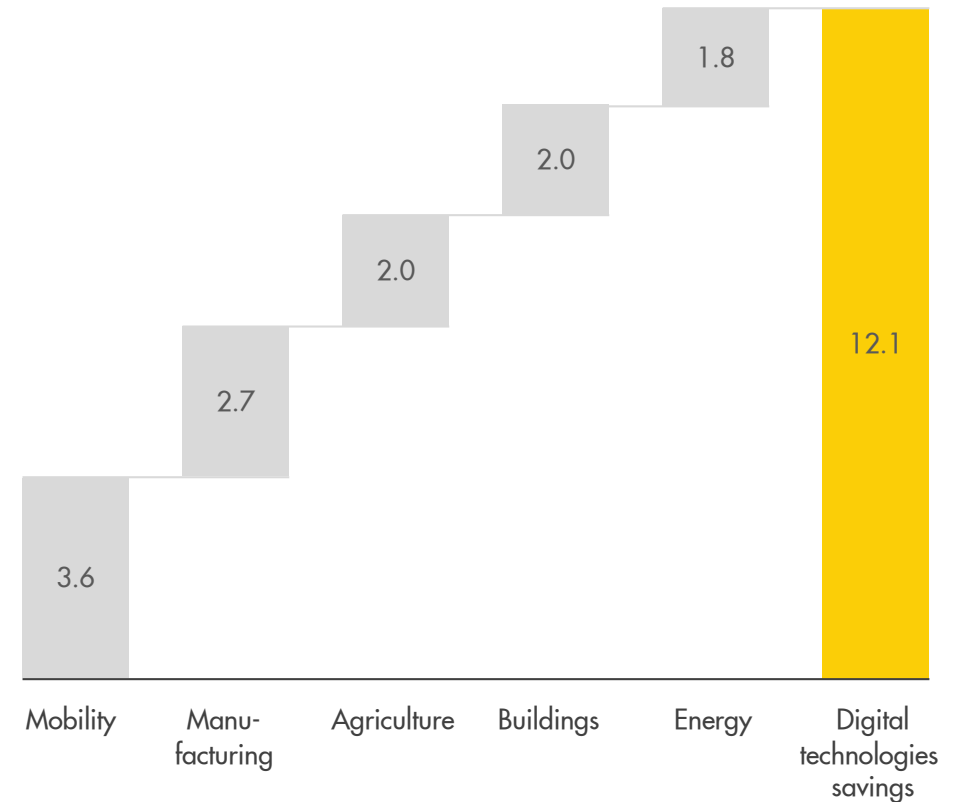
WORK & BUSINESS

Digital technologies enable telecommuting, virtual conferencing and save employees time and money.

MANUFACTURING

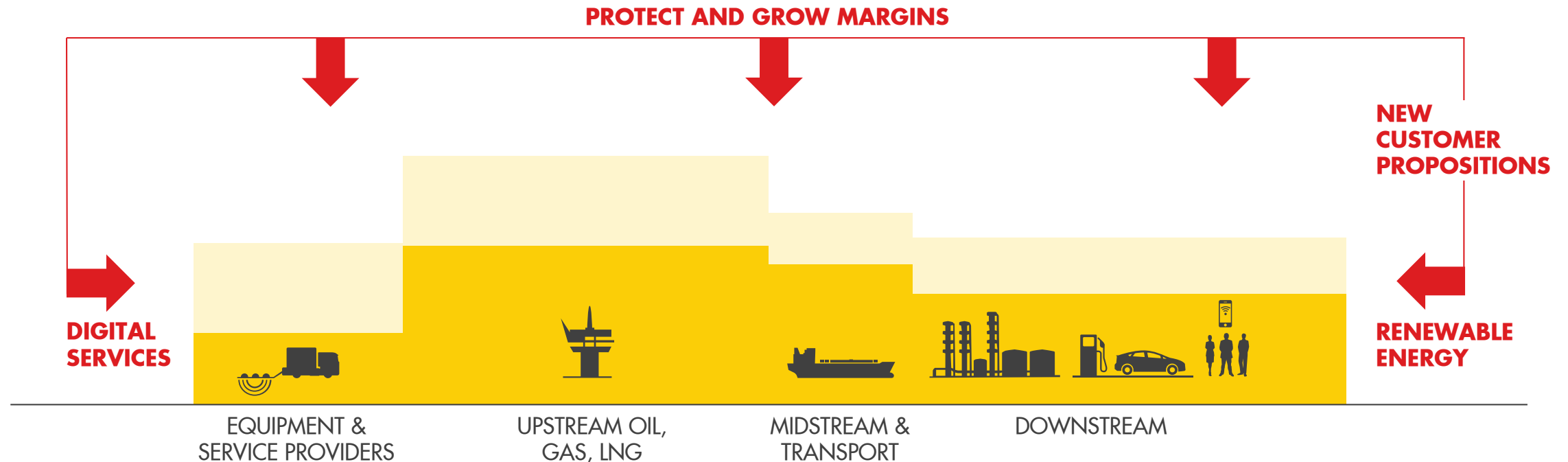
Digital technologies will place the customer at the center of a user focused service, cutting resource inputs at the same time.

GtCO_{2e} abatement potential by sector (2030)



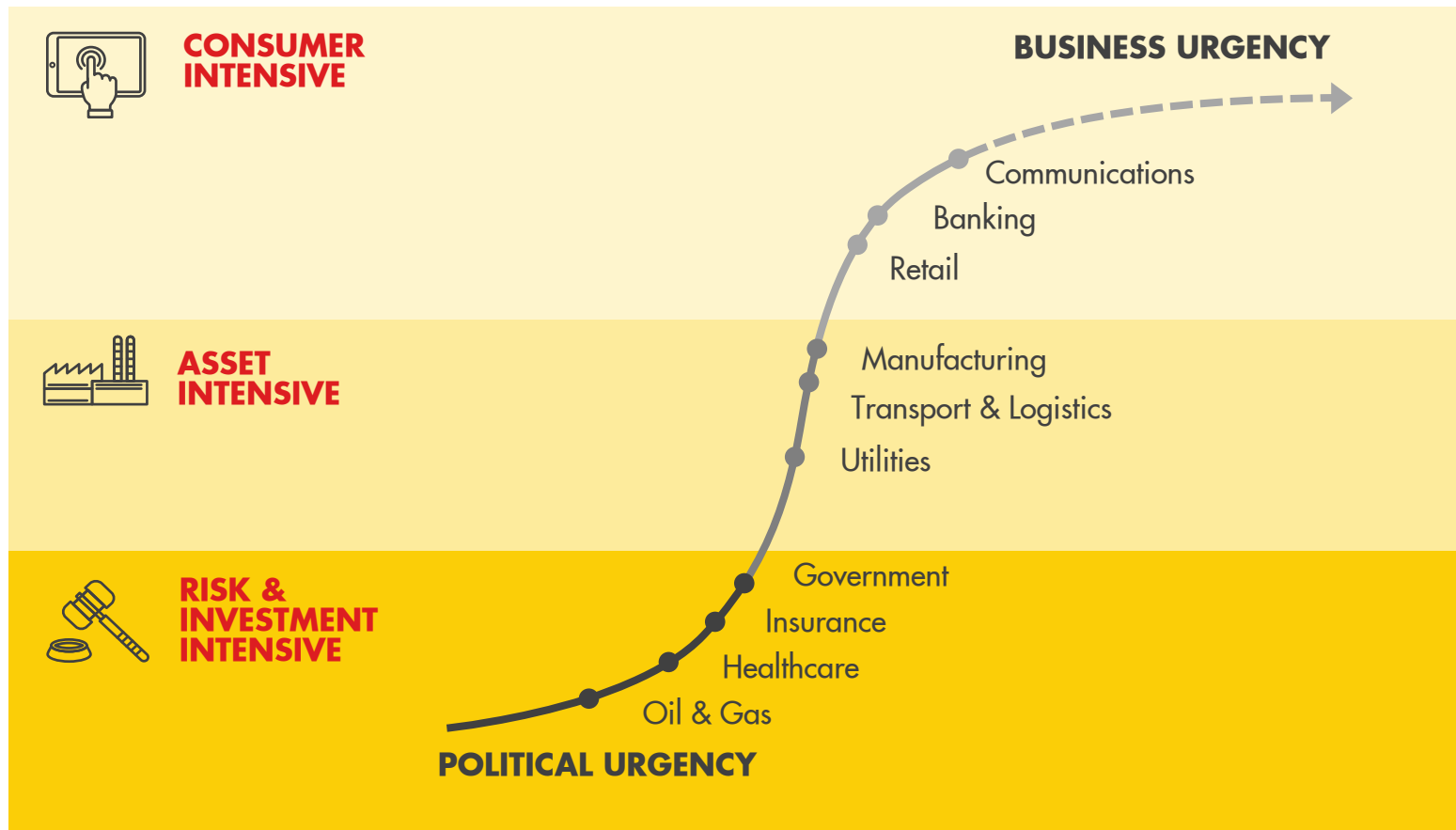
Global e sustainability initiative SMARTer2030 report

Profit pools are shifting, challenging traditional models and creating new opportunities



Oil & Gas is lagging in digitalisation, but the competition is moving

Industries are moving at **different paces** to implement digital transformation.



World Economic Forum focusing on digitalisation for Oil and Gas estimate a value of **\$1+ TRILLION** in the next 10 years

What does digitalisation mean to Shell

SHELL CONTEXT

FOCUS

- How Digital technologies can help address current business challenges
- Technologies that can have a substantial impact on our industry

IS NOT

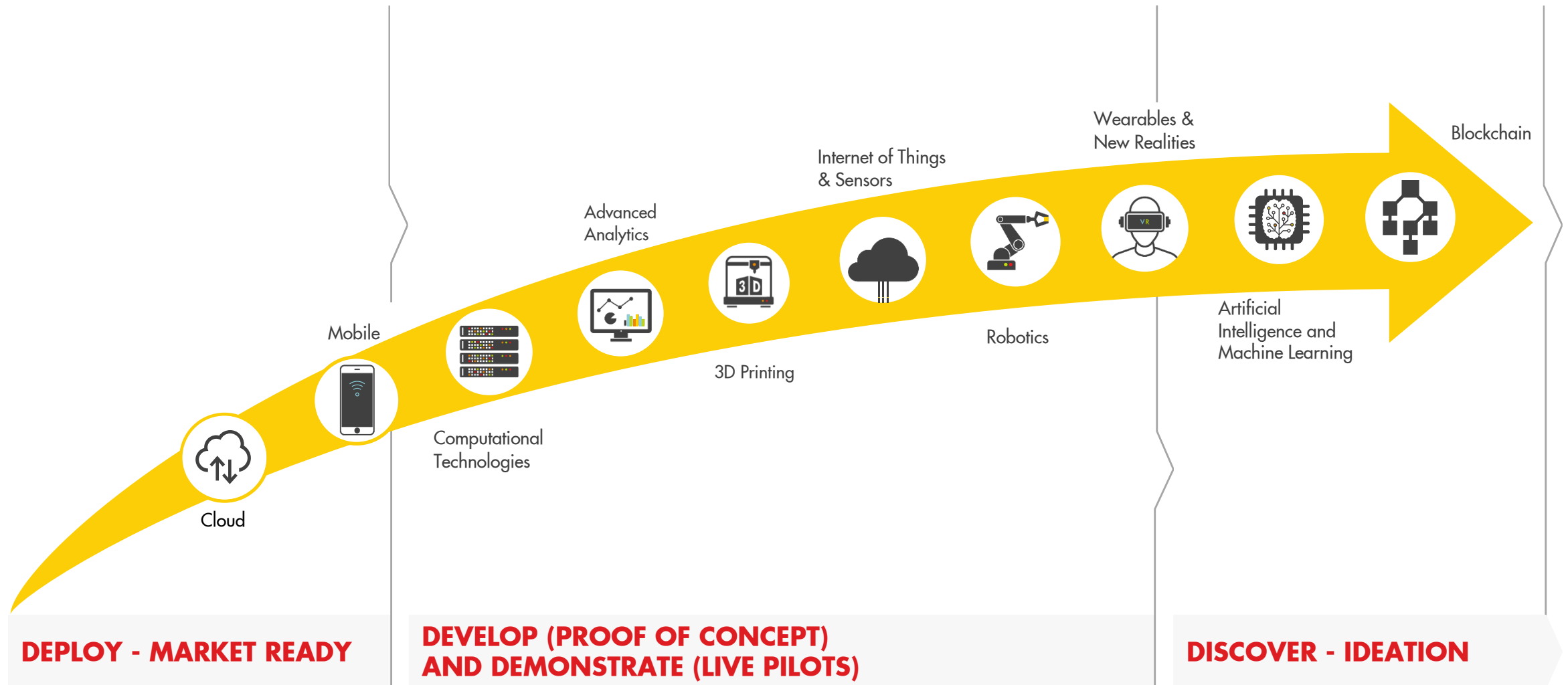
- New
- An outcome
- One off thing
- Only in the future

INDUSTRY DEFINITION*

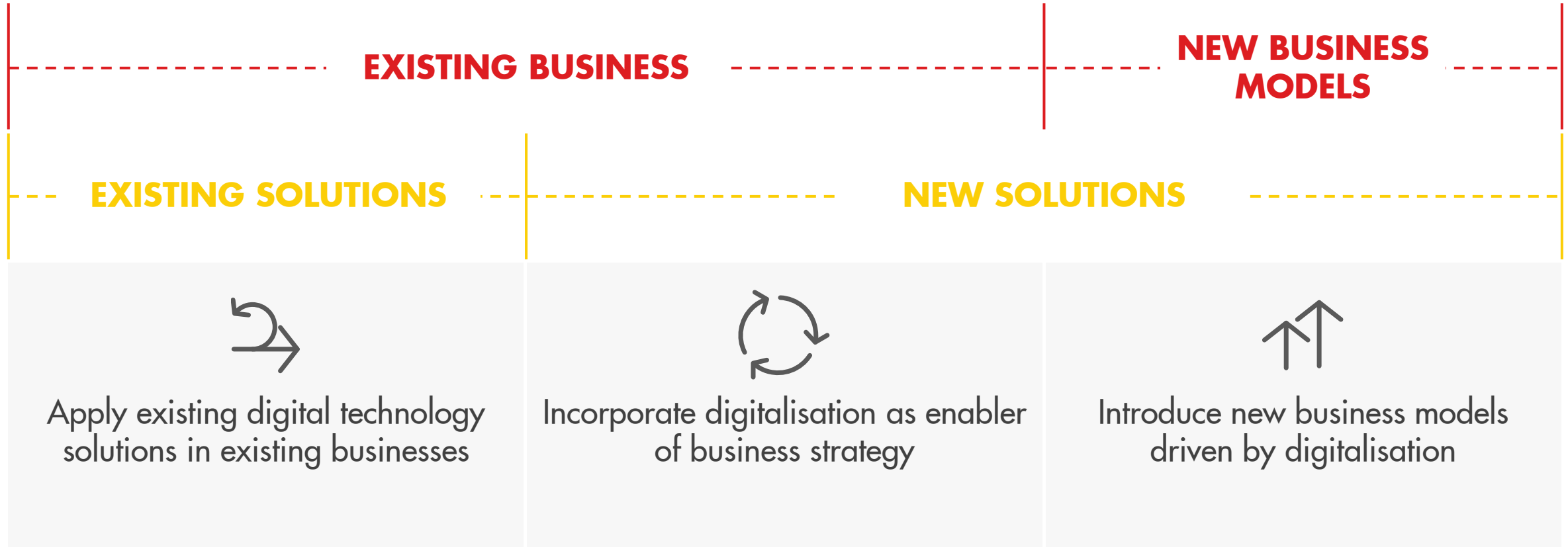
“The use of Digital technologies to change a business model and provide new revenue and value-producing opportunities”

*Industry definition has been sourced from Gartner

Shell is focusing on digital technologies that are reaching an inflection point and have a substantial impact



The focus of digitalisation with vary from business to business



Big Data Landscape 2016



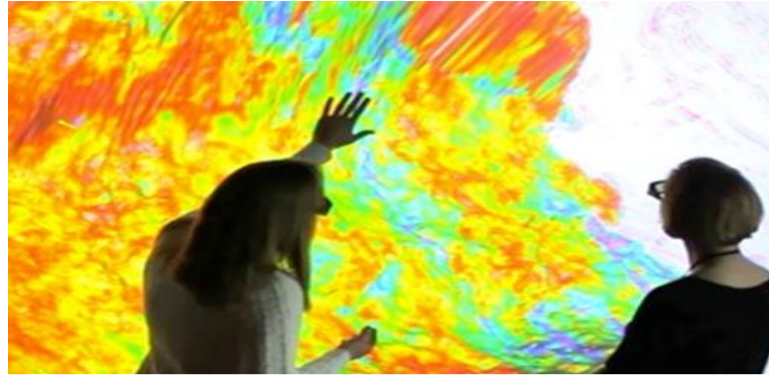
© Matt Turck (@mattturck), Jim Hao (@jimhao), & FirstMark Capital (@firstmarkcap)

FIRSTMARK

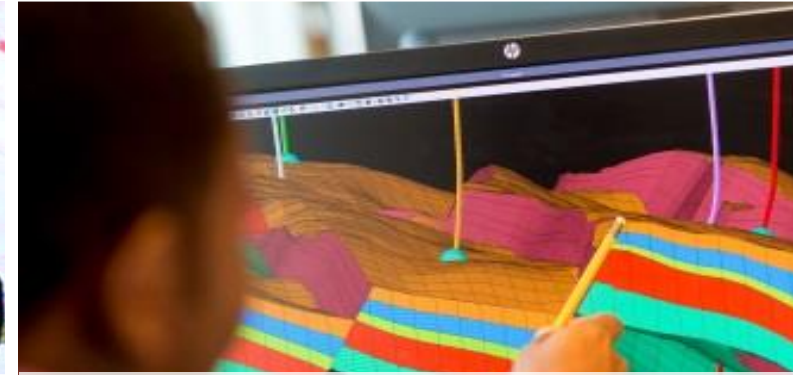
Digitalisation delivering value in Upstream & Integrated Gas



Safety & Environment
Achieving goal zero



Exploration
See what others can't see



Reservoir Modelling
Optimise recovery & manage uncertainties



Engineering & Construction
Efficient execution of capital projects



Well Delivery
Best in class wells



Production
Increase reliability & availability

Digitalisation delivering value in Downstream, Chemicals and New Energies



Safety & Environment
Achieving goal zero



Engineering & Construction
Efficient execution of projects



Manufacturing
Increase availability and reliability



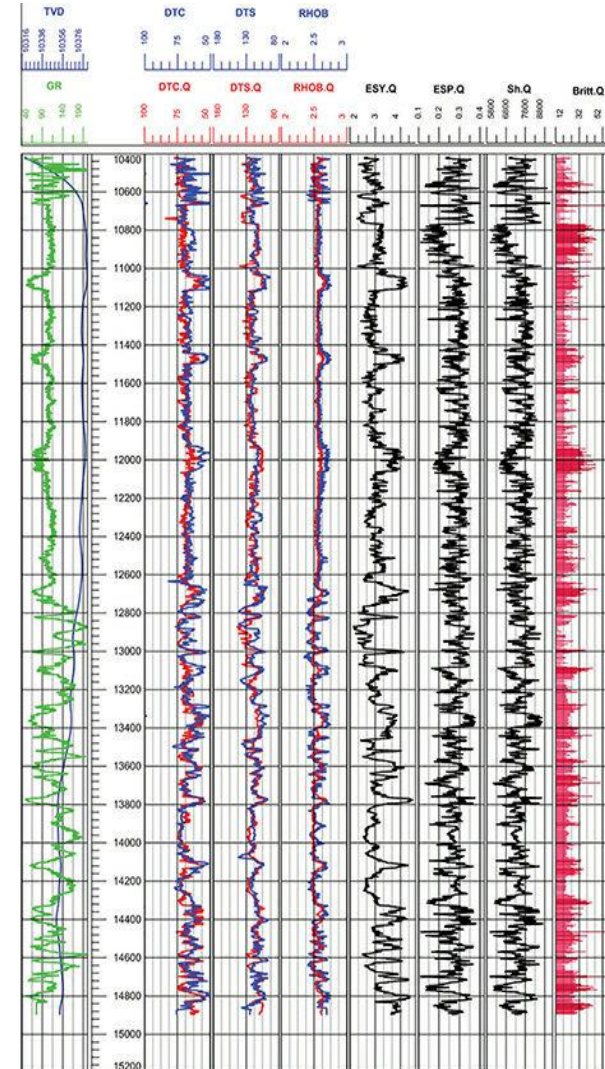
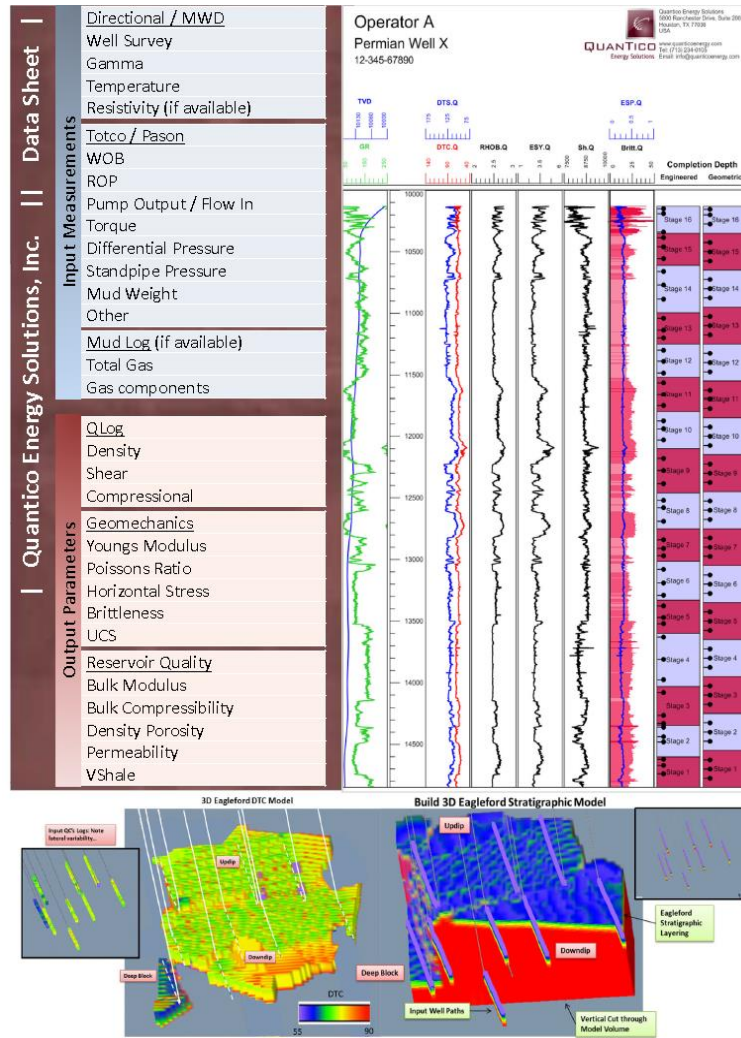
Trading & Supply
Products at the right location and right time



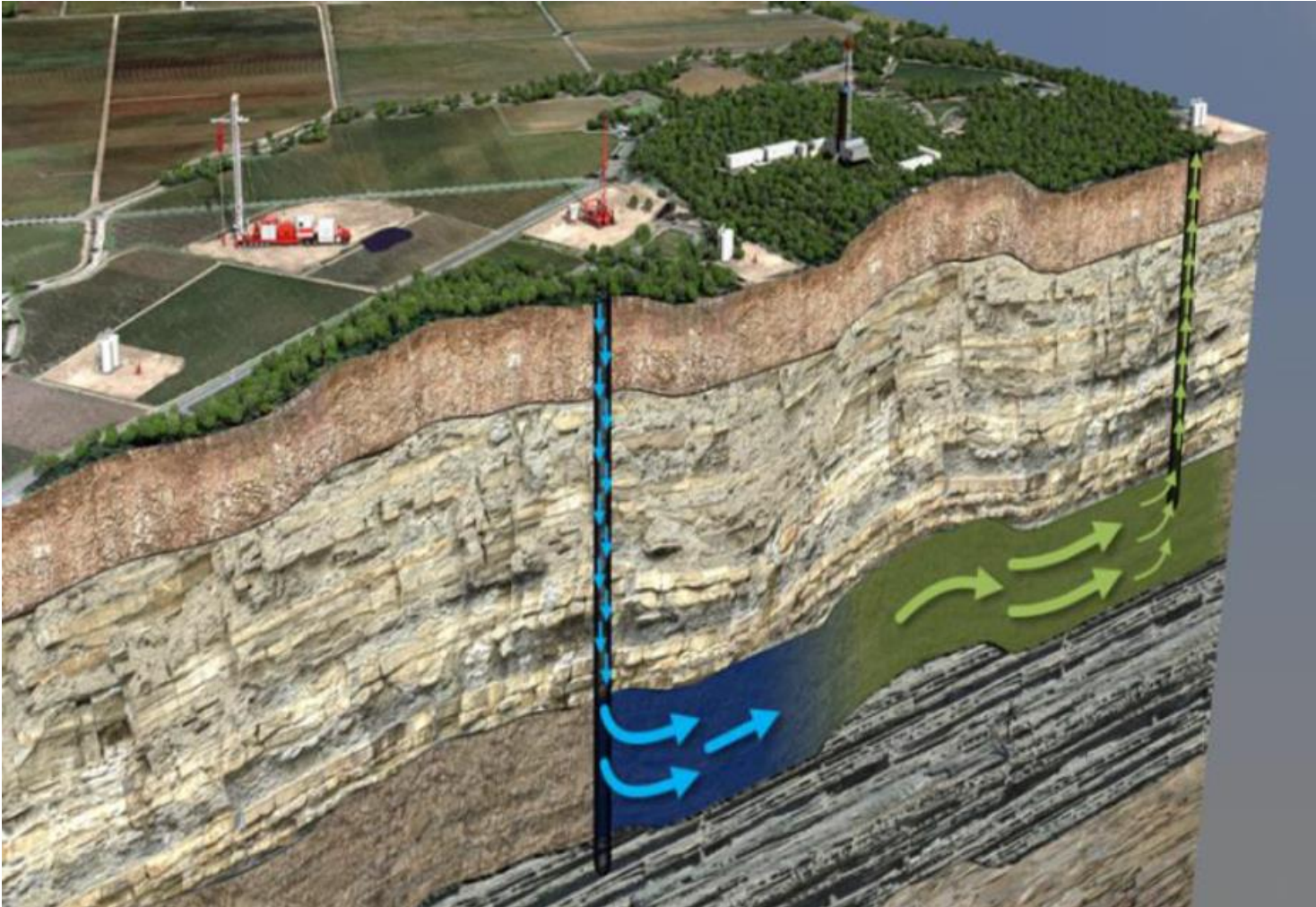
Business
Easier to do business with



Customers
Seamless customer experience



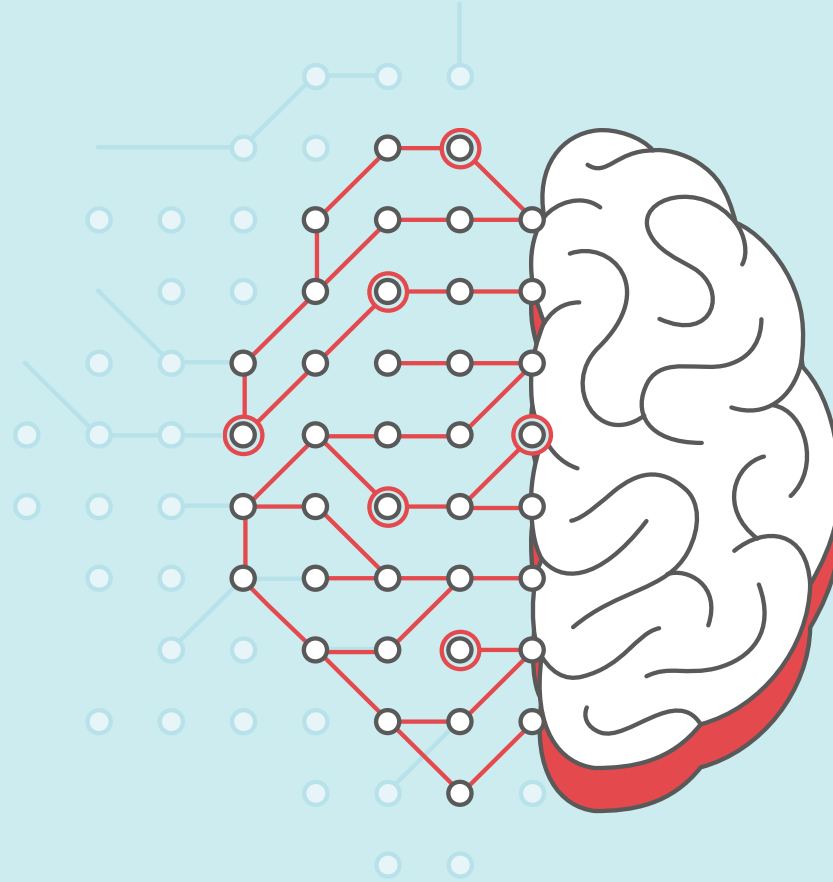
Industry examples – Reservoir Engineering



Data Driven

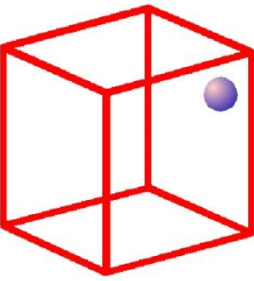
- Waterflood Optimisation
- Steam injection Optimization
- Sweetspotting for injection
- Sweetspotting for Production

Not just a change in technology



Culture beats strategy





Out of the box thinking: very first Groningen Pale Ale

Data analytics solution from a total different industry

“De Bierbrouwerij” – Beer Brewery

IBM Watson analysed the ingredients that make up beer, and compared the results with the past, present and future of the city of Groningen. The local brewery Martinus then went on to brew and bottle a beer containing all the traits resulting in our very first city beer!





Q&A

