



**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



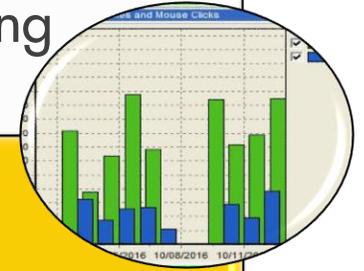
Cause

- Injury
- Lost time
- Productivity decrease



Effect

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



Fix



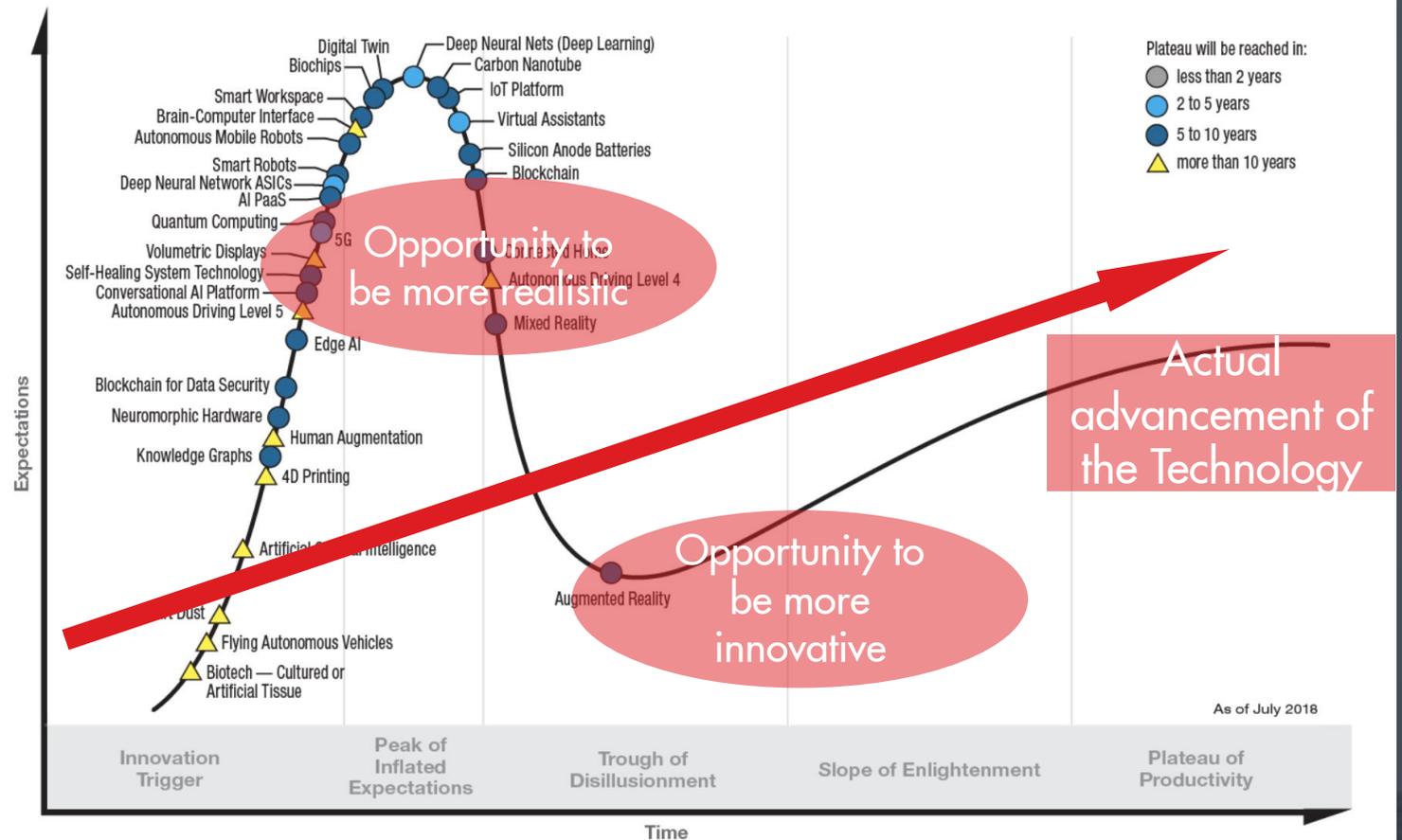
# Is Digitalization just the latest buzzword in Oil&Gas or a real value generator?

**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



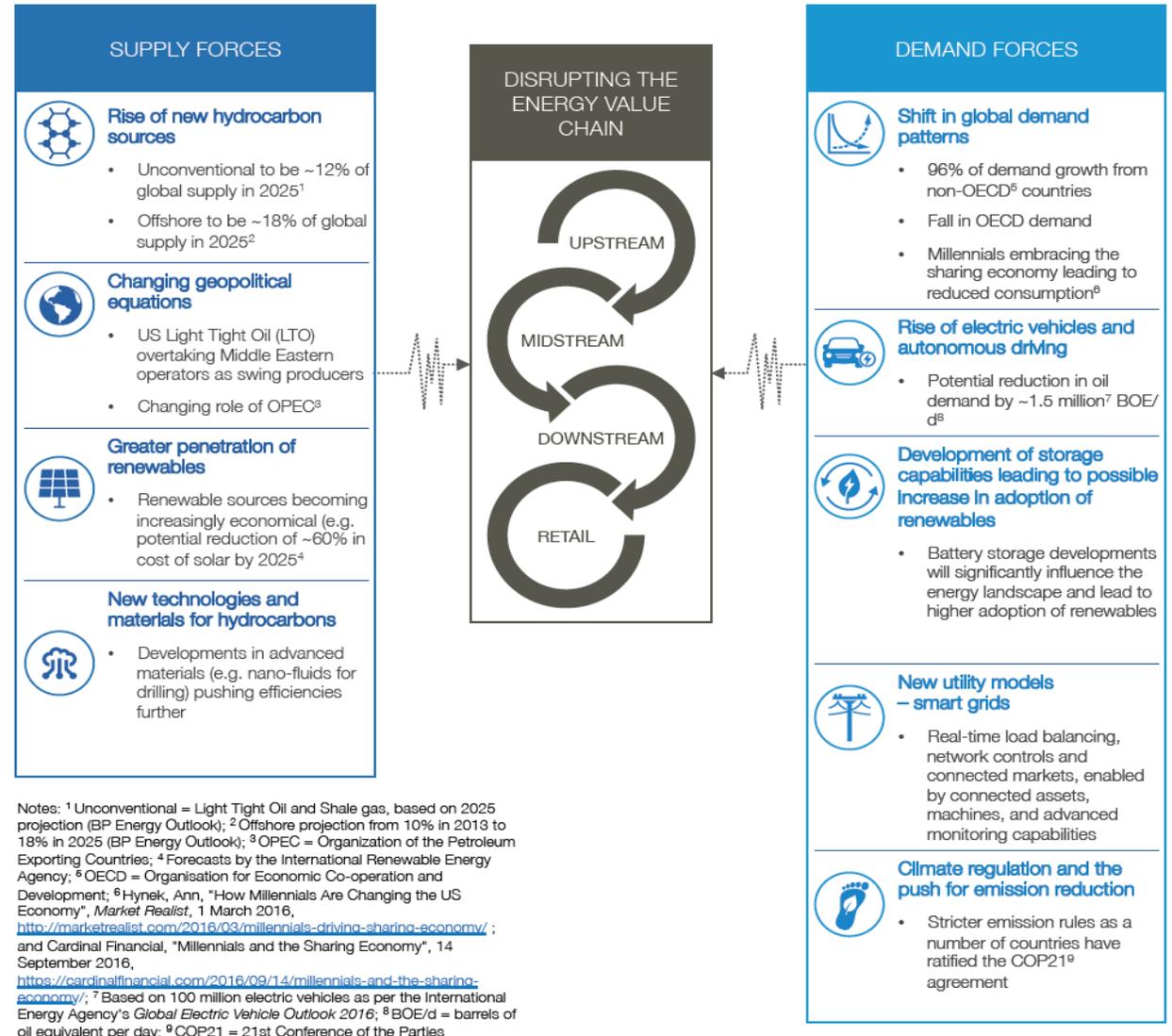
# Energy Challenge 2050



“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.

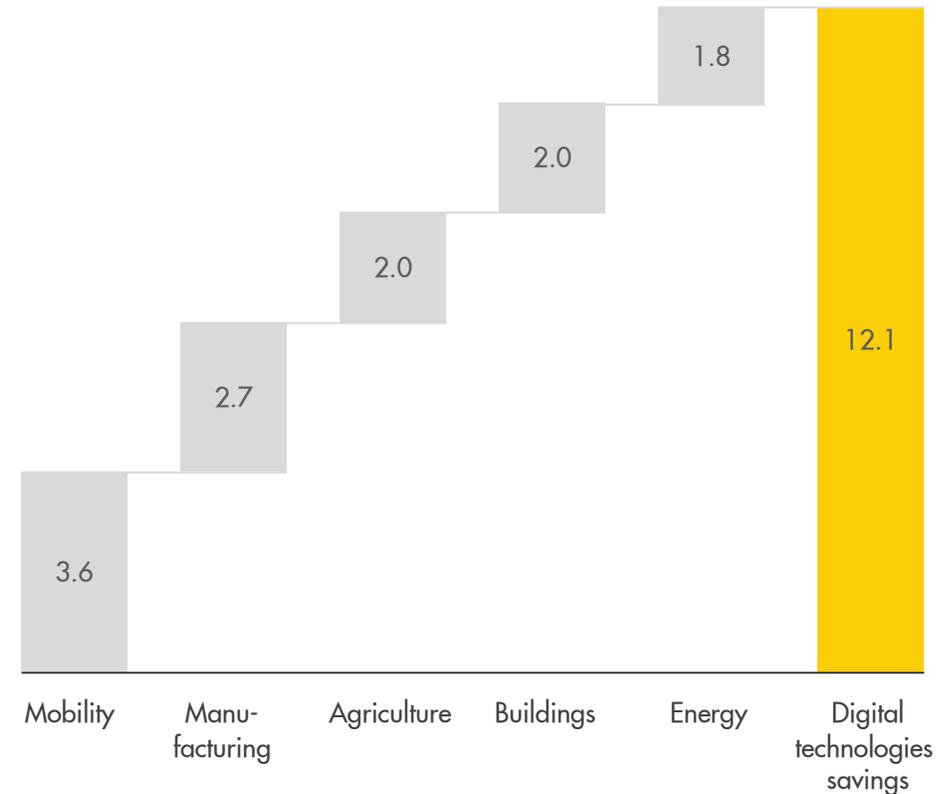
## WORK & BUSINESS

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

## MANUFACTURING

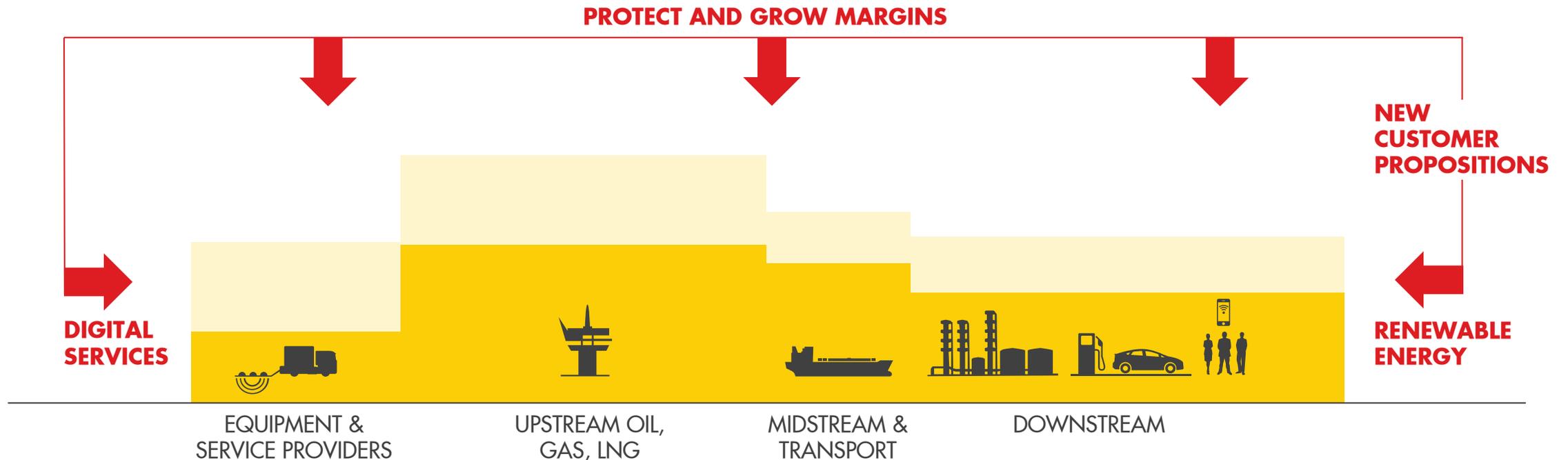
Digital technologies will place the customer at the center of a user focused service, cutting resource inputs at the same time.

GtCO<sub>2e</sub> abatement potential by sector (2030)



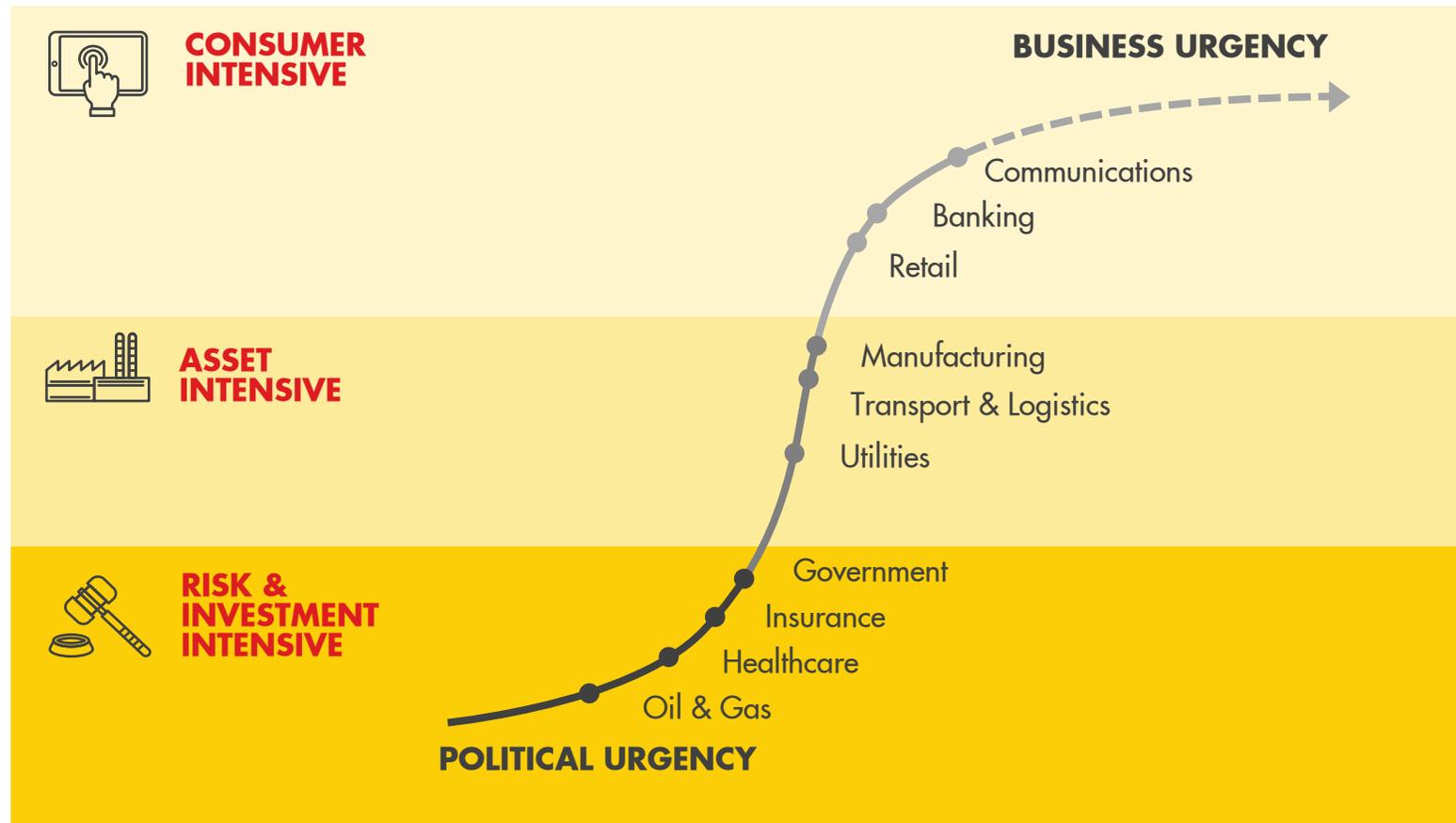
Global e sustainability initiative SMARTer2030 report

# 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

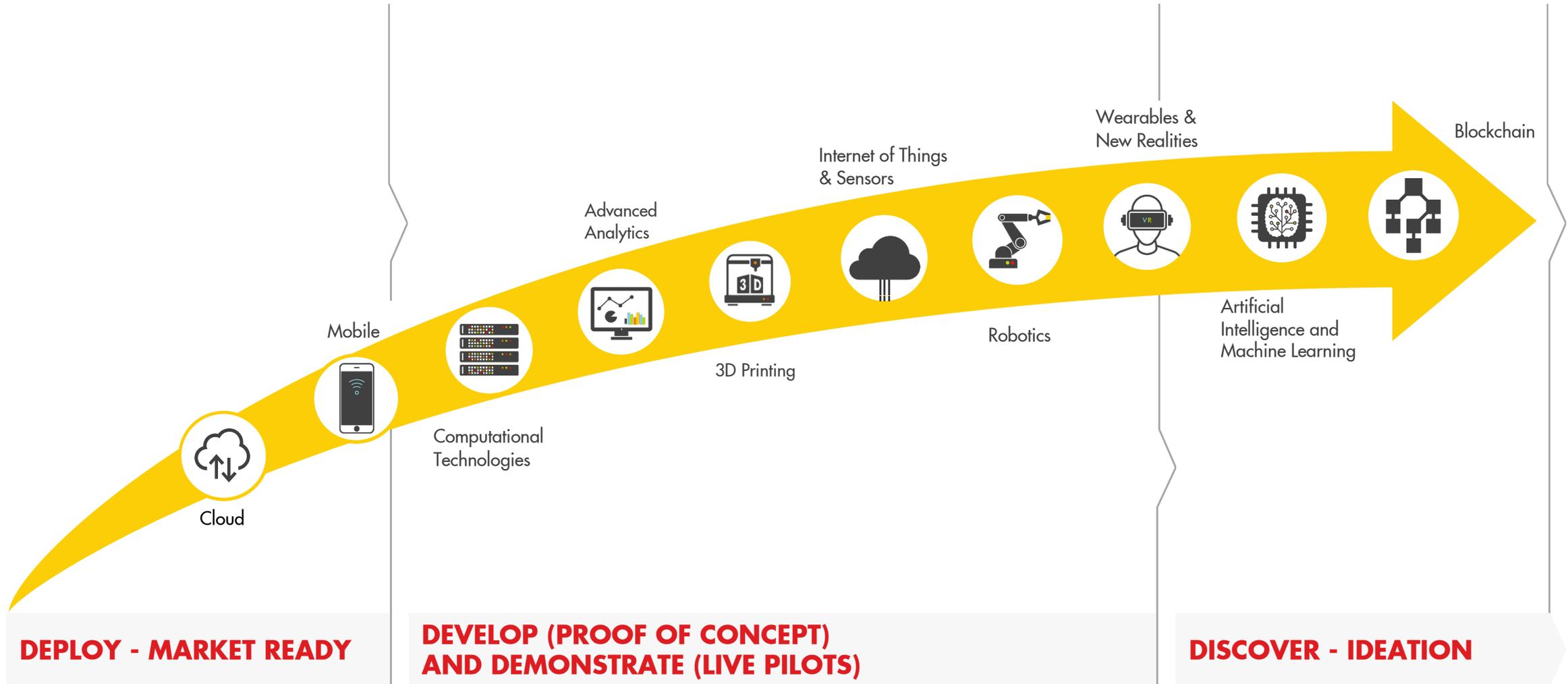
- New
- An outcome
- One off thing
- Only in the future

## INDUSTRY DEFINITION\*

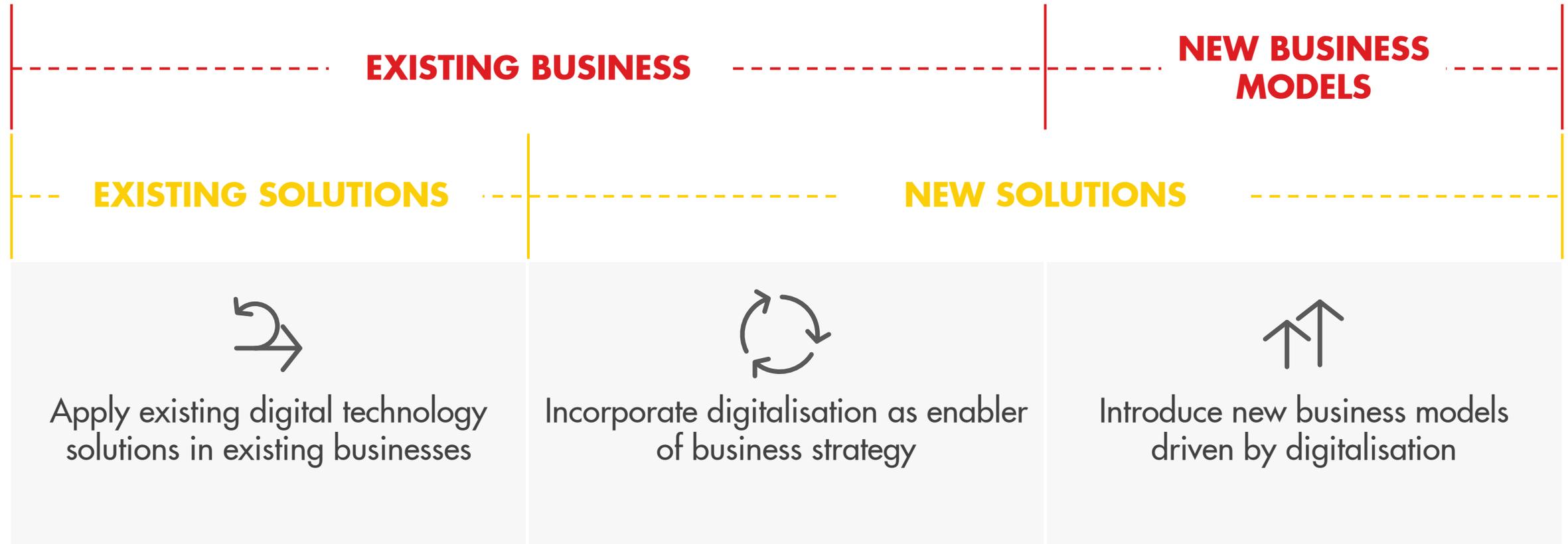
“The use of Digital technologies to change a business model and provide new revenue and value-producing opportunities”

\*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

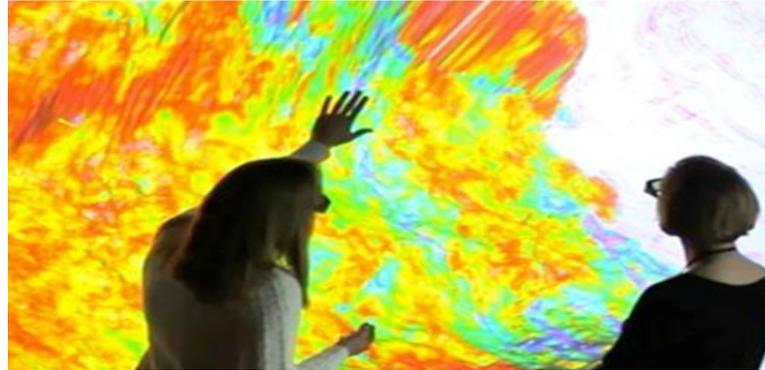




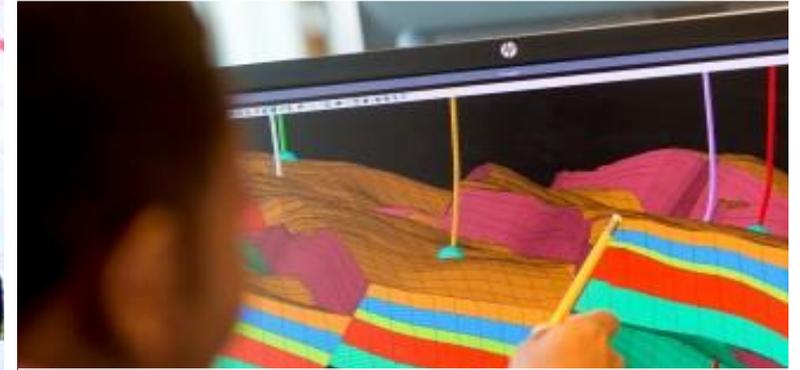
# Digitalisation delivering value in Upstream & Integrated Gas



**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



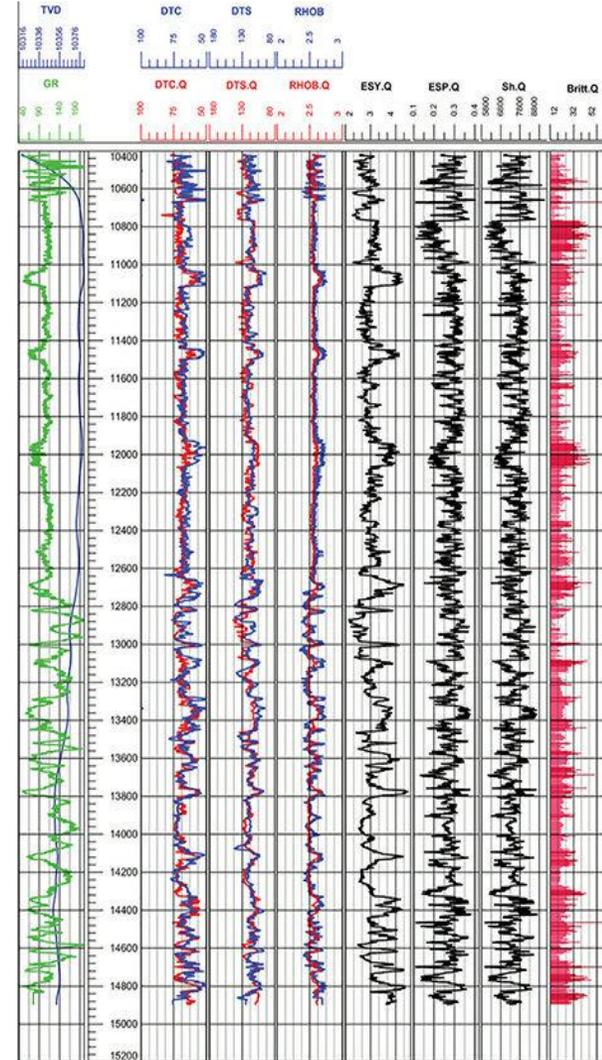
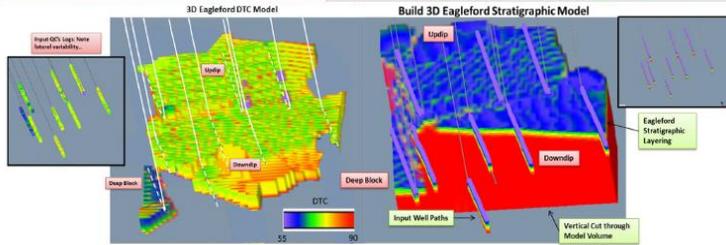
**Business**  
Easier to do business with



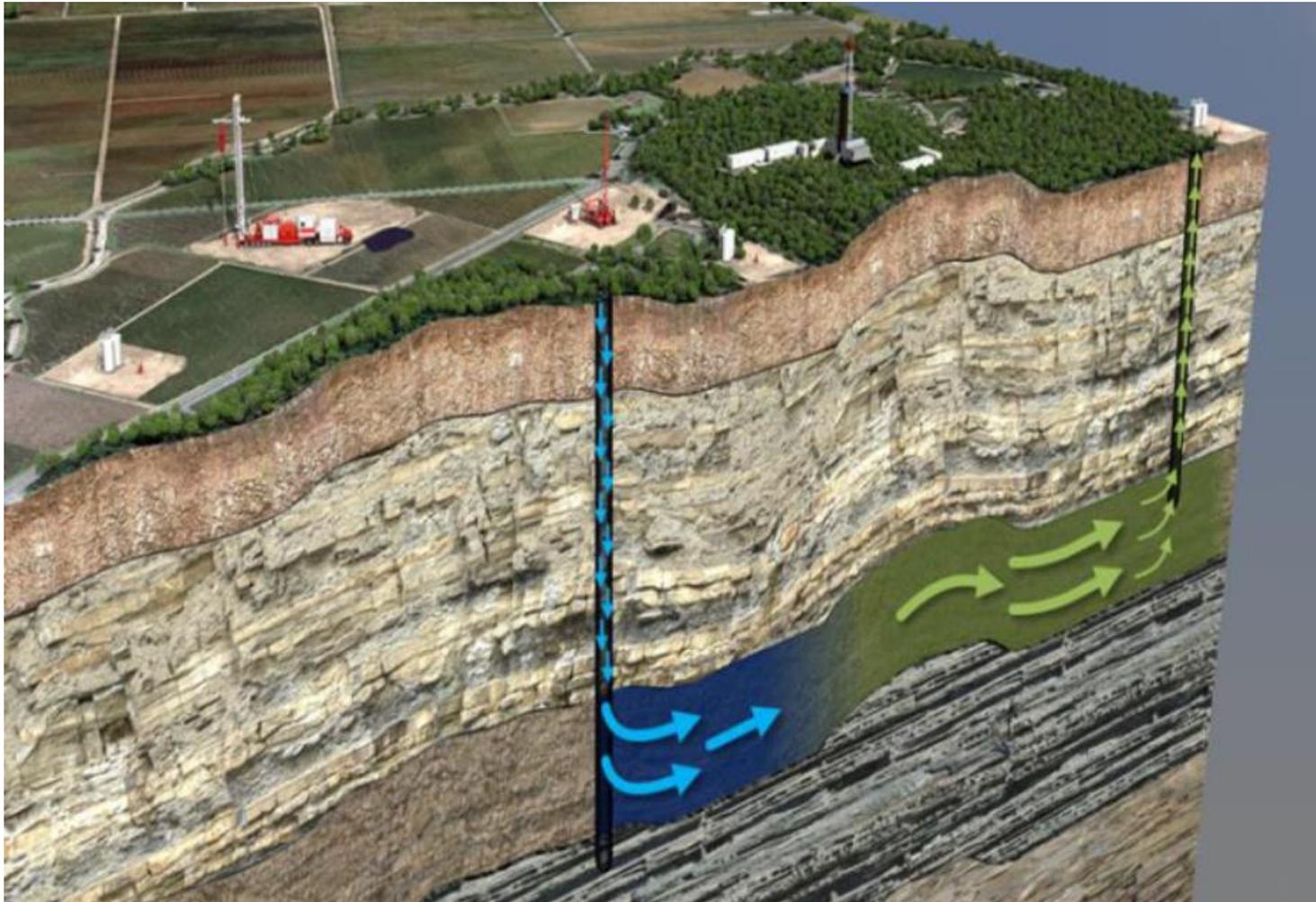
**Customers**  
Seamless customer experience

# Industry examples – Qlog: Quantico Energy LWD Logs derived from Mudlogs

Quantico Energy Solutions, Inc.	Data Sheet	Directional / MWD	Operator A Permian Well X 12-345-67890	
		Well Survey		
		Gamma		
		Temperature		
		Resistivity (if available)		
	Input Measurements	Totco / Pason		
		WOB		
		ROP		
		Pump Output / Flow In		
		Torque		
Mud Log (if available)	Differential Pressure			
	Standpipe Pressure			
	Mud Weight			
	Other			
	Gas components			
Output Parameters	QLog			
	Density			
	Shear			
	Compressional			
	Geomechanics			
	Youngs Modulus			
	Poissons Ratio			
	Horizontal Stress			
	Brittleness			
	UCS			
	Reservoir Quality			
	Bulk Modulus			
	Bulk Compressibility			
	Density Porosity			
	Permeability			
VShale				



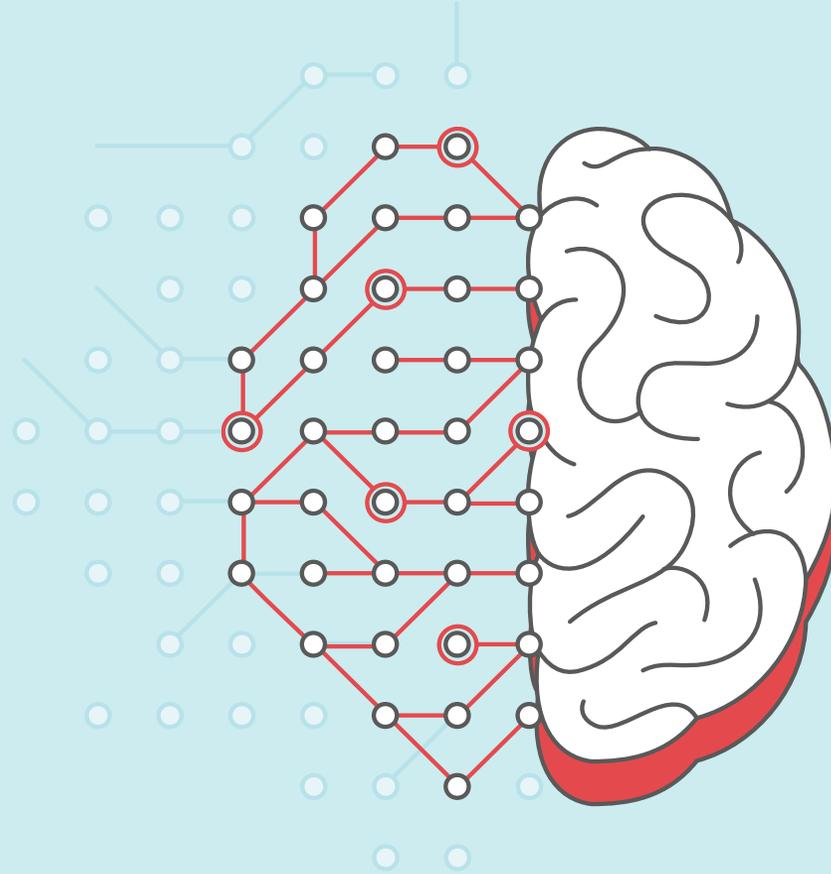
# Industry examples – Reservoir Engineering



## Data Driven

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

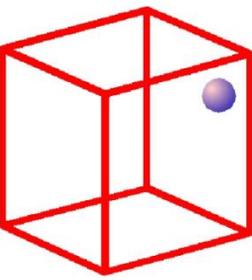
# Not just a change in technology



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# 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

