https://www.og21.no/strategi-og-analyser/og21-strategien-2021/enablers-for-innovation-and-broad-implementation/digitalization-and-efficient-data-utilization/?downloadChapter=true

INNHOLD

OG21 Strategy - A New Chapter

1. Executive summary
2. The future of petroleu in the energy transitio
3. The nee new tec to impro competi
4. Technolo and knowled needs
5. Enablers innovatic broad impleme
   - 5.1 A need technol leaders
   - 5.2 An efficier innova systen with pu stimul of R&D
   - 5.3 Private equity

PUBLISERT 6. NOV. 2021

Digitalization and efficient data utilization

Most of the technology areas prioritized by the TGs and discussed in Section 4, include some elements of digitalization. Some examples from the TG priority tables are presented in Figure 57, categorized into a model where cyber security is a prerequisite, data collection and data management systems are considered enablers, and the physical or data analytics tools are called applications (Rystad Energy, 2021).

investr
in
techno

Figure 57. Prioritized technologies mapped into a digitalization value chain model (Rystad Energy, 2021)

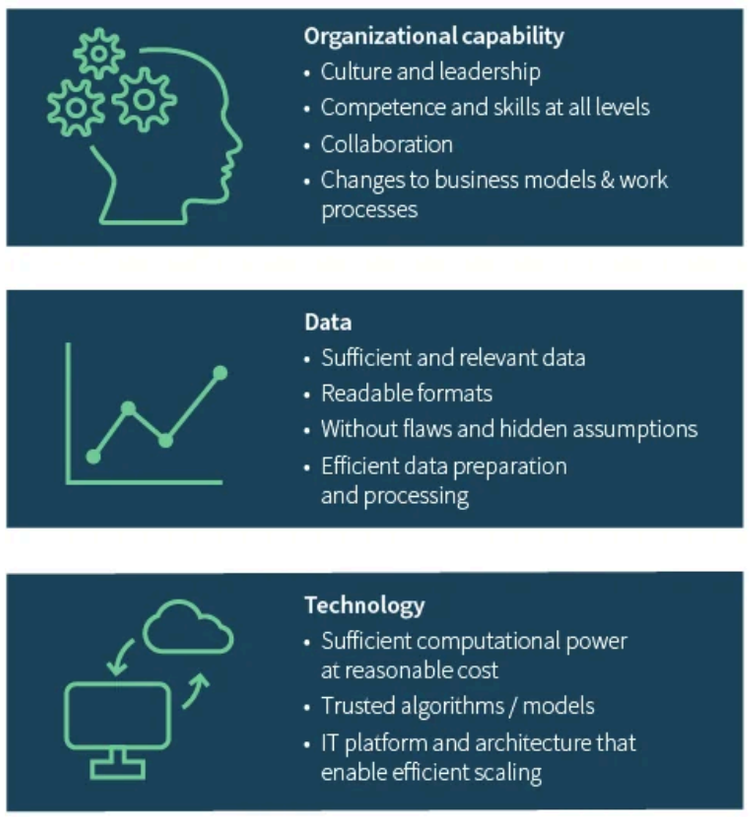
	Prerequisite	Enabler: Sensory input	Enabler: Data and systems	Application	Effect
TG1	TG5 Cyber security as an enabler of other digitalization technologies	New digital sensors for environmental surveillance and leak detection Measurement tools for discharges and better control of emissions	Data management systems for environmental risk assessments Analysis tools to improve long term potential discharges from wells and shared management tools for biodiversity.	Faster oil spill detection Faster leak detection Unmanned/people less facilities Visual detection of spills Subsea leak detection Detection of small leaks	People less operations Better control of emissions and content of discharge flows Reducing emissions Improve environmental impact and safety
TG2		New data gathering technologies such as new seismic and CSEM Optimizing data gathering plan what data, when and at what frequency.	Data management, infrastructure and crossdisciplinarity work. Hybrid modelling combining physical models with ML. 3D distribution of porosity, automatic fault interpretation.	Better reservoir models resulting in better subsurface understanding. Improved data flow across departments.	Less errors More efficient operations Better well placement Most recent knowledge utilized
TG3		Technologies for optimizing downhole data gathering and transport. Utilizing real time data when drilling.	Automation and digitalization to improve efficiently. Incorporate data from wells to aid the automation and decision support. Connectivity	Automated drilling operations Better understanding of drilling operations. Improved process understanding of rig operations. Better models and tools	Faster, better and safer drilling operations, resulting in increased volumes and reduced cost and emissions.
TG4		New sensors for detection of vibration, acoustics, sniffers and imagery	New software using artificial intelligence and machine learning algorithms in data modelling to improve uptime, lifetime extensions and secure integrity Digital twin tools	Material condition detection Condition based monitoring on e.g. electrical cables Risk based monitoring, inspection and maintenance Autonomous operations	New software using artificial intelligence and machine learning algorithms in data modelling to improve uptime, lifetime extensions and secure integrity Digital twin tools
TG5		Sensoring of integrity issues or potential hydrocarbon leaks Sensory to perceive impending collisions between vessels and structures Sensory to provide access to remote areas of facilities	Software to improve situational awareness Artificial intelligence to detect integrity breaches before they occur Software for better overview of vessels to prevent collision	Increased situational awareness Continuous and improved leak and integrity detection Increased overview of and routing of offshore vessels	Better crisis management Fewer collisions Less human exposure to leaks or integrity issues

Source: Rystad Energy research and analysis

The digital transformation that the NCS needs to take part in, include tools and solutions such as AI in combination with physical models, robotics, drones and automatio remote operations, unmanned installations, and advanced digital twins. The transformation is enabled by technological advancements such as computational power anc improved algorithms and models. But improved technology that can efficiently process data and provide quality decision support is not enough. Successful digitalization delivering added value, also require organizational capability, access to quality data, systems for efficient data management, and new technology.

Challenges and opportunities with digitalization identified in this OG21 strategy revision align well with the challenges and opportunities discussed by OG21 in recent stu machine learning (OG21, 2020).

Figure 58. Digitalization success require maturity in organizational capability, data collection and management, and technology (OG21, 2020)



Gathering and processing the right data is often a cumbersome and time-consuming task. Data might not be on the right format, it may be locked into applications, it mig be known to the user because it sits in other departments, or it may need to be manually checked for flaws. High data quality is fundamental for creating trust in data anc therefore for realizing full digitalization and autonomous systems. Systems and sensors that can correct for data errors is an important part of providing high quality data high-quality data is also dependent upon safe and efficient data transfer. The full data value chain must be considered to build trust, starting from sensors, through data t communication and storage, all the way to and including the use of data in applications.

In an industry where the amounts of data are growing exponentially, it will be important to develop technology, systems and work processes that enable efficient data ga and processing as well as efficient data sharing between parties.

There are many examples of good collaboration on data gathering and exchange in the petroleum industry. The "Subsea Wireless Group" (SWiG) is an example of an international industry collaboration on data gathering and transfer, where one of the objectives is to promote interoperability for subsea wireless communications.

Another example is "DISKOS", an industry database for the NCS with seismic data, well data and production data. "Digitalt grunnfjell" is a third example where informatio cuttings from 1500 NCS wells is digitized and made available for analyses. With the many collaboration initiatives going on and the considerable opportunity for more collaboration going forward, the oil companies on the NCS have come together in a digital collaboration initiative, managed by the Norwegian oil and gas association, wi purpose of coordinating such initiatives to the best for the whole industry.

Recommendation: The industry should collaborate on developing procedures and standards that enable data interoperability and efficient data sharing.

Meldinger ved utskriftstidspunkt 12. november 2026, kl. 13.18 CET

Det ble ikke vist noen globale meldinger eller andre viktige meldinger da dette dokumentet ble skrevet ut.