



KONGSBERG

KONGSBERG DIGITAL

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SVP Energy

KONGSBERG GROUP – 203 YEARS OF TECHNOLOGY INNOVATION



FROM DEEP SEA TO OUTER SPACE

THE KONGSBERG ORGANISATION

- Business areas



KONGSBERG MARITIME

Global market leader within both offshore, merchant marine and subsea applications



KONGSBERG DEFENCE SYSTEMS

Modern product portfolio in growing defence and aerospace niches



KONGSBERG PROTECH SYSTEMS

Unrivalled global market leader in remote weapon stations



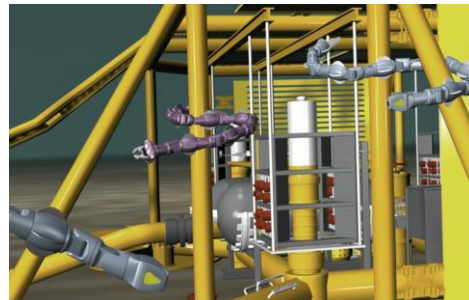
KONGSBERG DIGITAL

Developing the next generation of digitalized products and services

INNOVATION DRIVES NEW OPPORTUNITIES



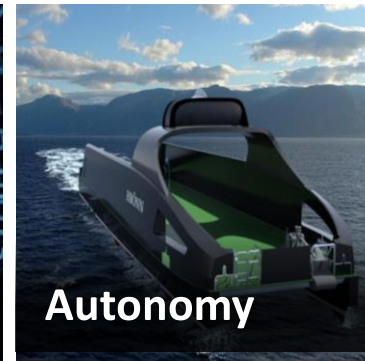
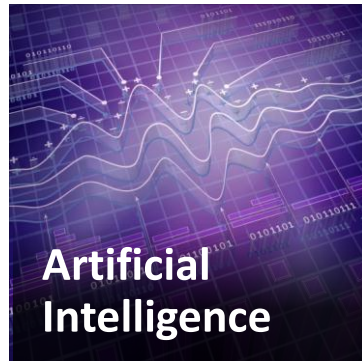
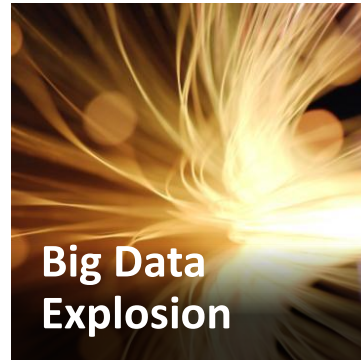
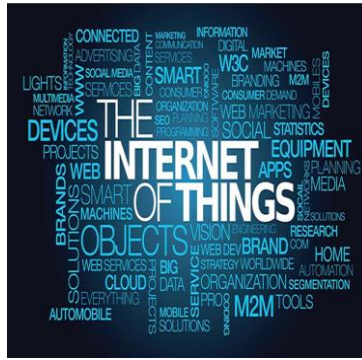
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TECHNOLOGY DEVELOPMENT



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DIGITAL DISRUPTION



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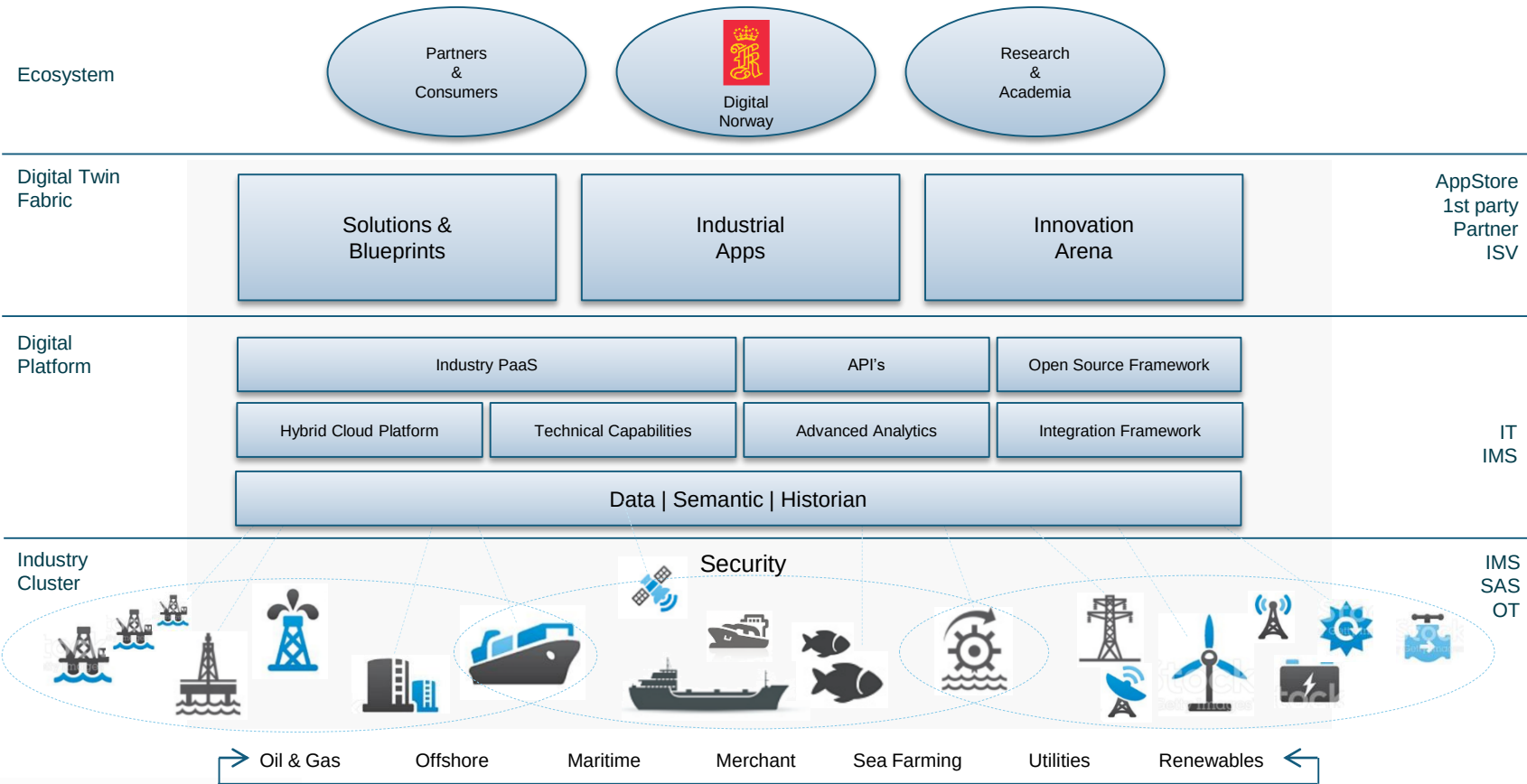
KONGSBERG DIGITAL - KEY FOCUS AREAS



The digital platform will leverage digital solutions and technologies across our industries



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System Integration - IOT

- Hardware and sensor information
- Business support systems (ERP, CRM, others.)
- Operation, surveillance and control (SCADA, monitoring, others,)



In our maritime business, KONGSBERG is the go-to partner as the system integrator on the ship. On more than 18.000 ships world-wide, KONGSBERG has delivered solutions for control and supervision of all the aspects on the ship.



For NATO, USA, Norway, Finland, Spain and Netherlands, KONGSBERG is a preferred partner for integrated defense systems

ADVANCED ANALYTICS



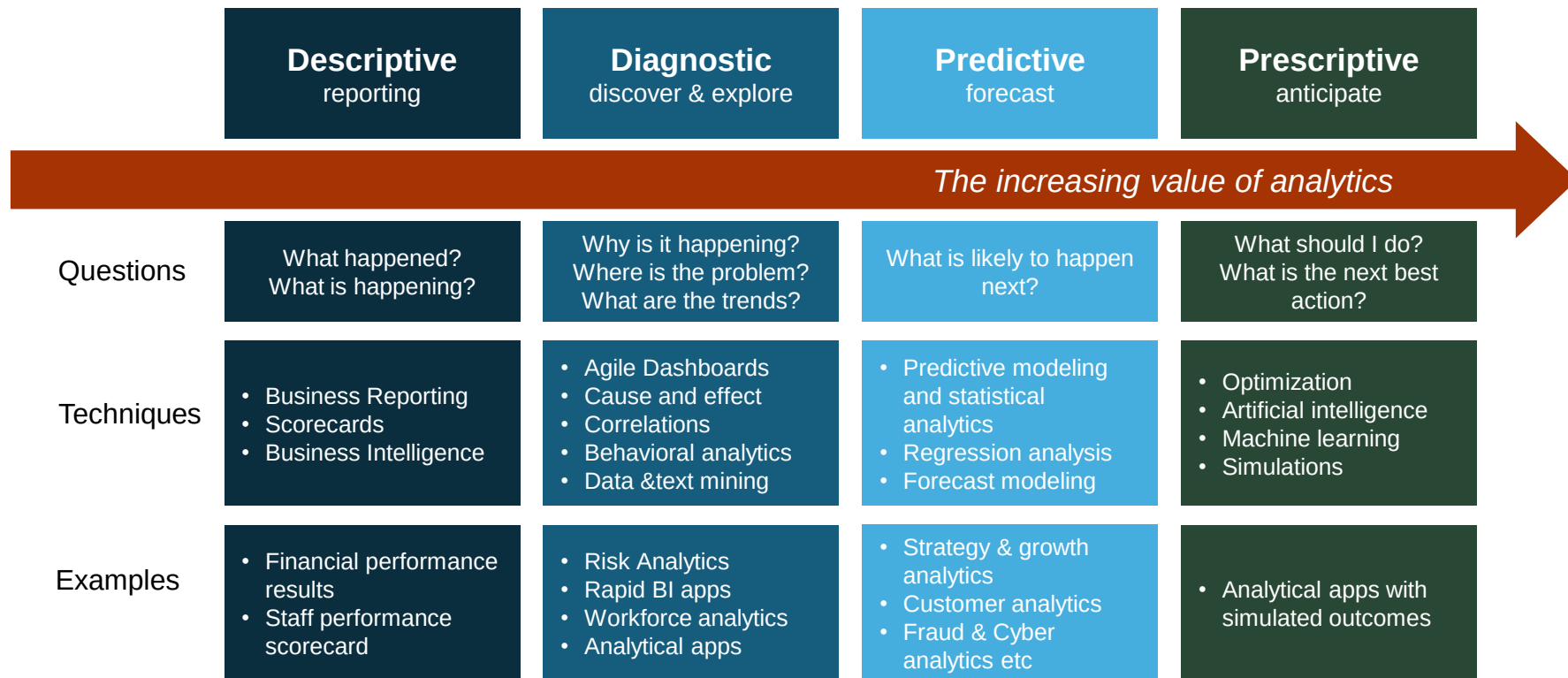
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ANALYTICS MATURITY MODEL



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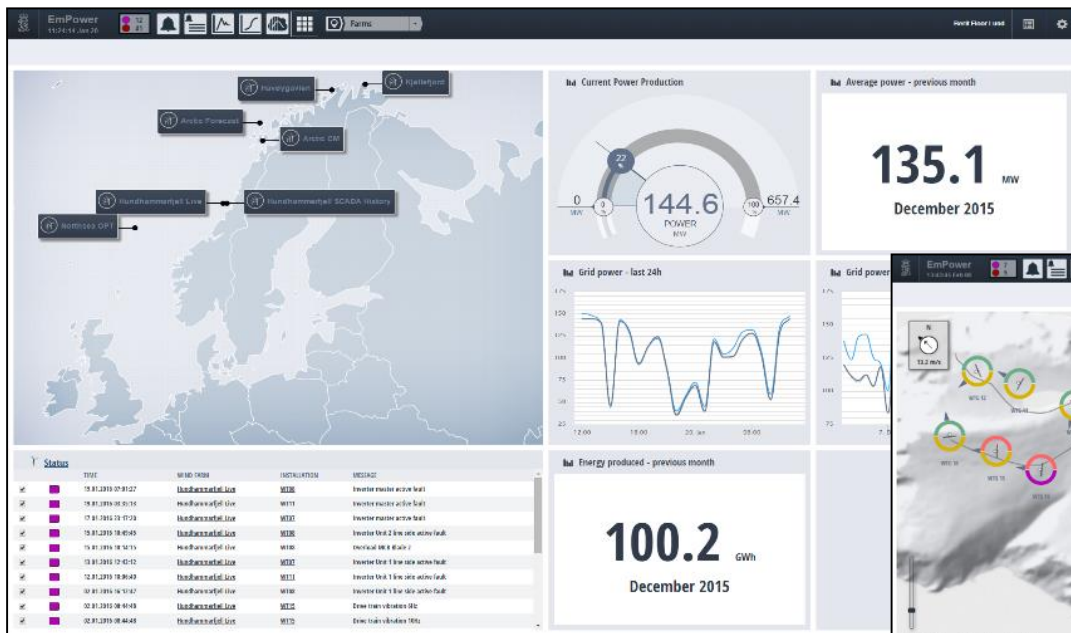


EmPower – Wind Farm Management System

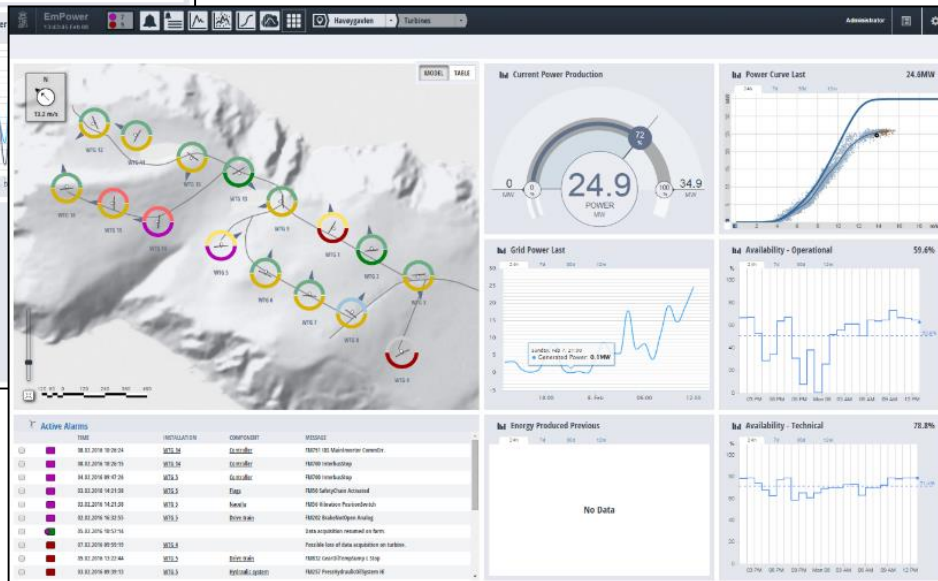


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- Production Forecasting
- Process simulation
- Maintenance work planning



- Performance Monitoring
- Condition Monitoring
- SCADA integration

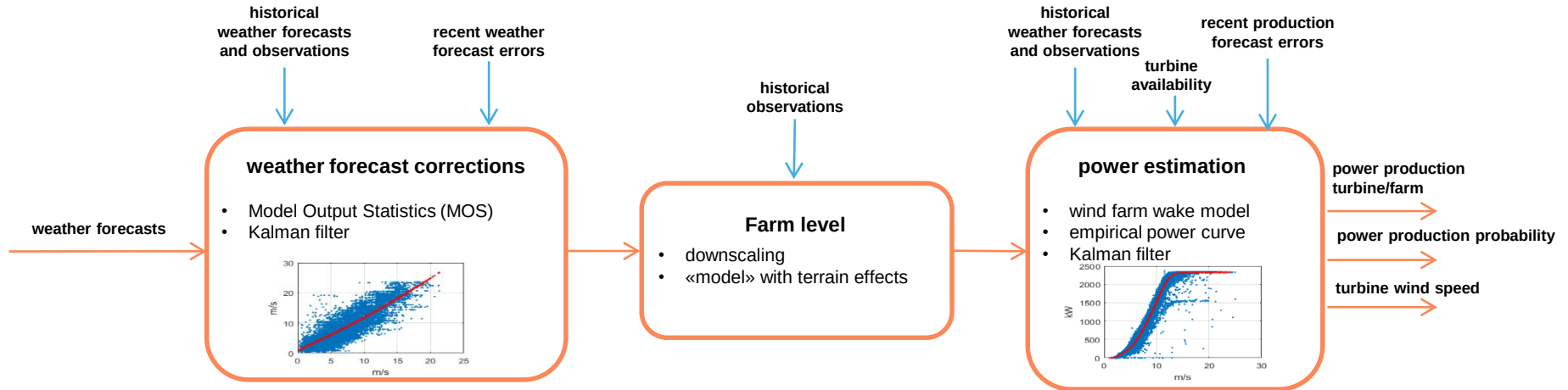


Power production forecasting



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Physical modelling combined with machine learning algorithms

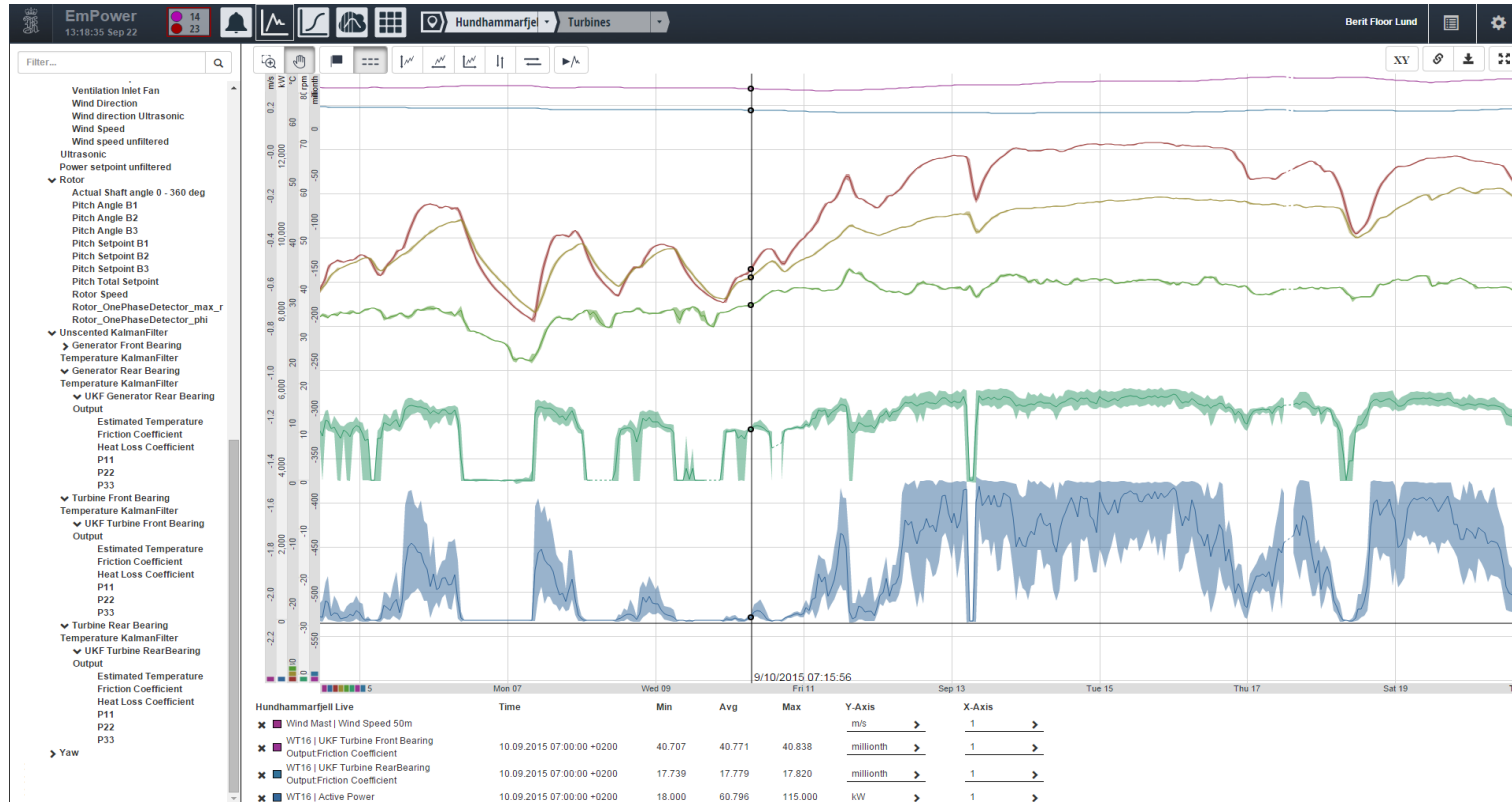


Virtual («soft») sensors

Interpreting multivariable dynamic relationships



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Estimated bearing friction



Primary sensor signals

eSmart Systems



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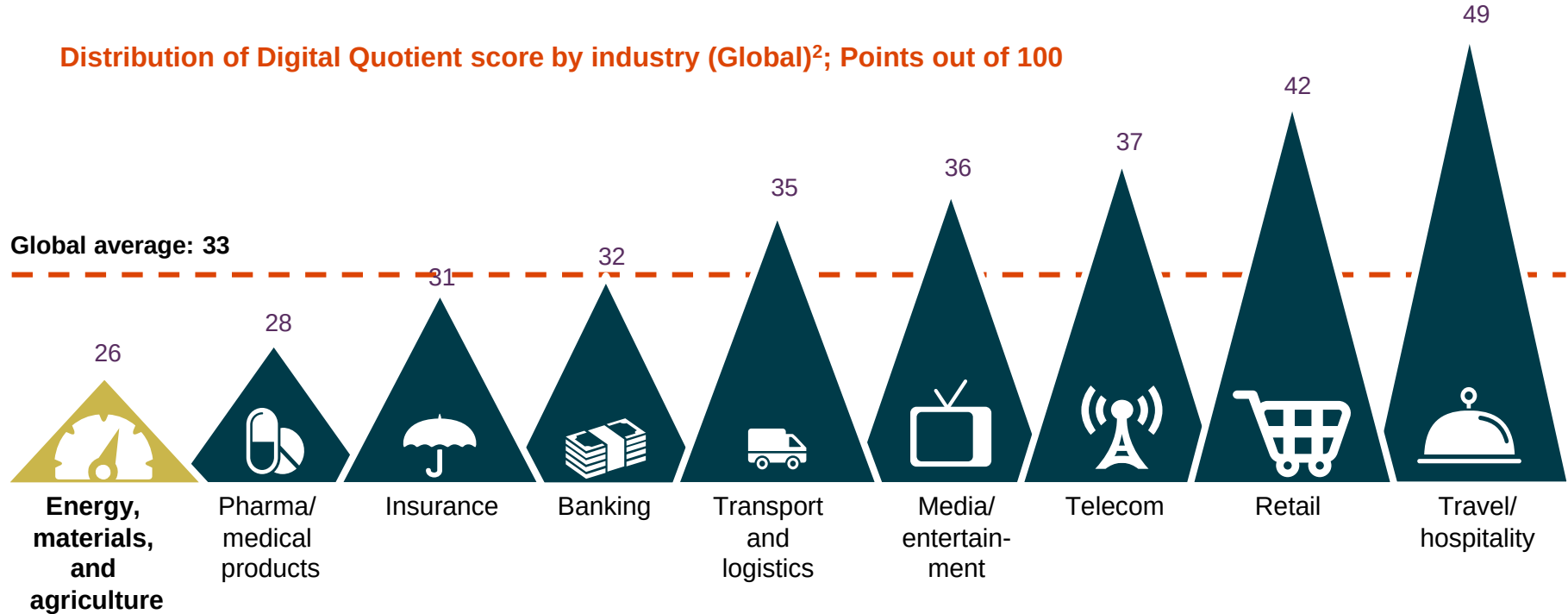


THE ENERGY SECTOR IS IMMATURE IN CAPTURING THE POTENTIAL FROM DIGITAL INNOVATION



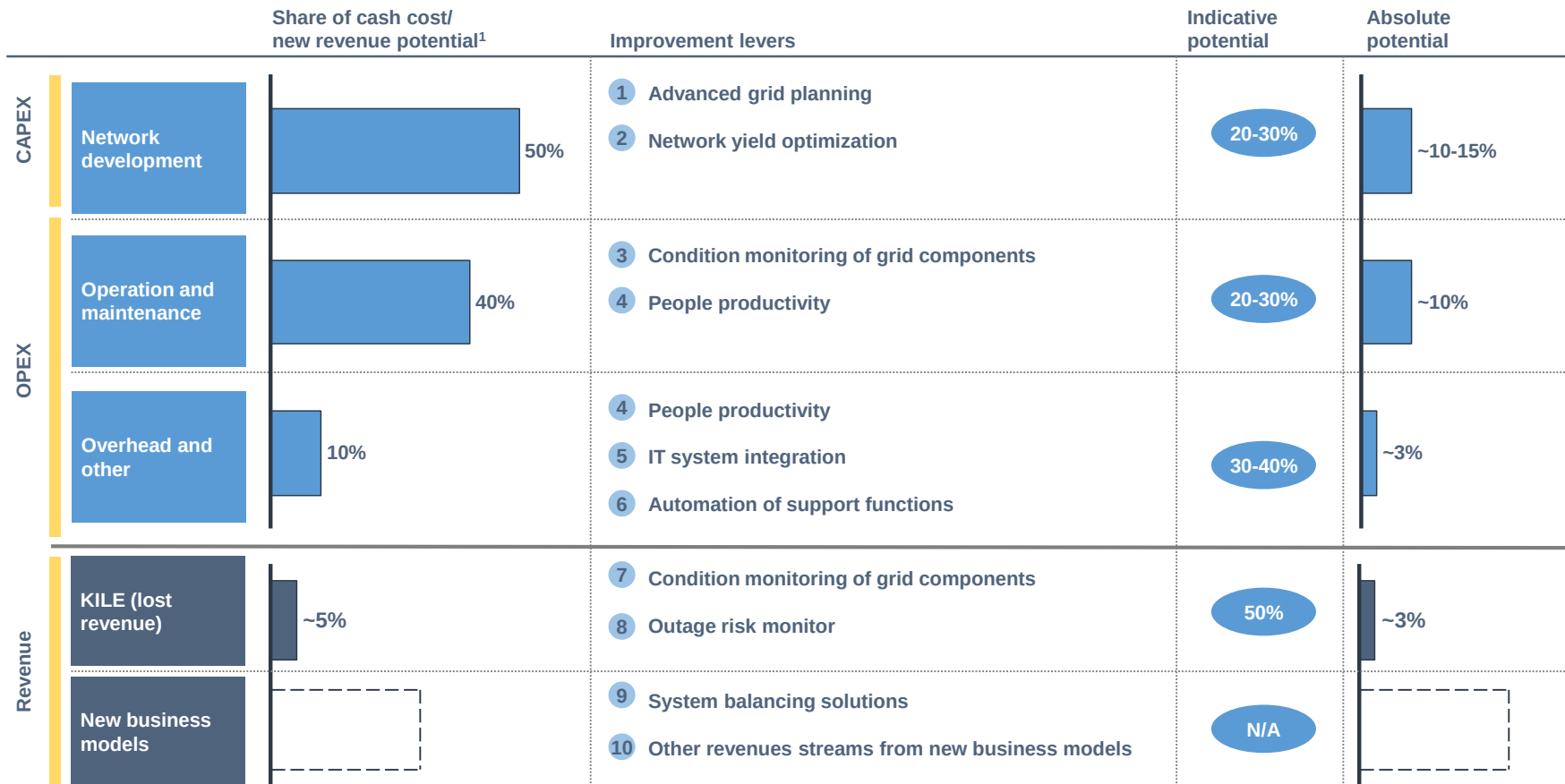
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Distribution of Digital Quotient score by industry (Global)²; Points out of 100



SOURCE: McKinsey analysis

Mapping of digital improvement areas in distribution grids



1 Rough indication of costs and revenues. Numbers may vary greatly between companies and regions

Source: McKinsev experts and team analysis



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Thank you
Kongsberg Digital