DNV·GL

DIGITAL SOLUTIONS

DATA QUALITY SERVICES

For advanced industrial operations

SAFER, SMARTER, GREENER

DATA MANAGEMENT AND QUALITY

Advanced industrial operations depend on information systems for control and analysis. Data is increasingly considered to be of equal value to physical assets, and considerable costs are involved in collecting, storing and acting upon data. Our experience with quality assessments has been accumulated through many years of providing quality assurance related to ships, oil rigs, smart grids, processes, software, products, and organizations.

As with physical assets, the quality of the data is a prerequisite for ensuring reliable operations. In order to enable reuse of data and to provide trustworthy analytics or automation, the data must meet high quality expectations.

The primary driver for these data quality services is to enable organizations to derive improved value from their data assets, just as effective management of financial and physical assets enables organizations to obtain the best value from those assets.

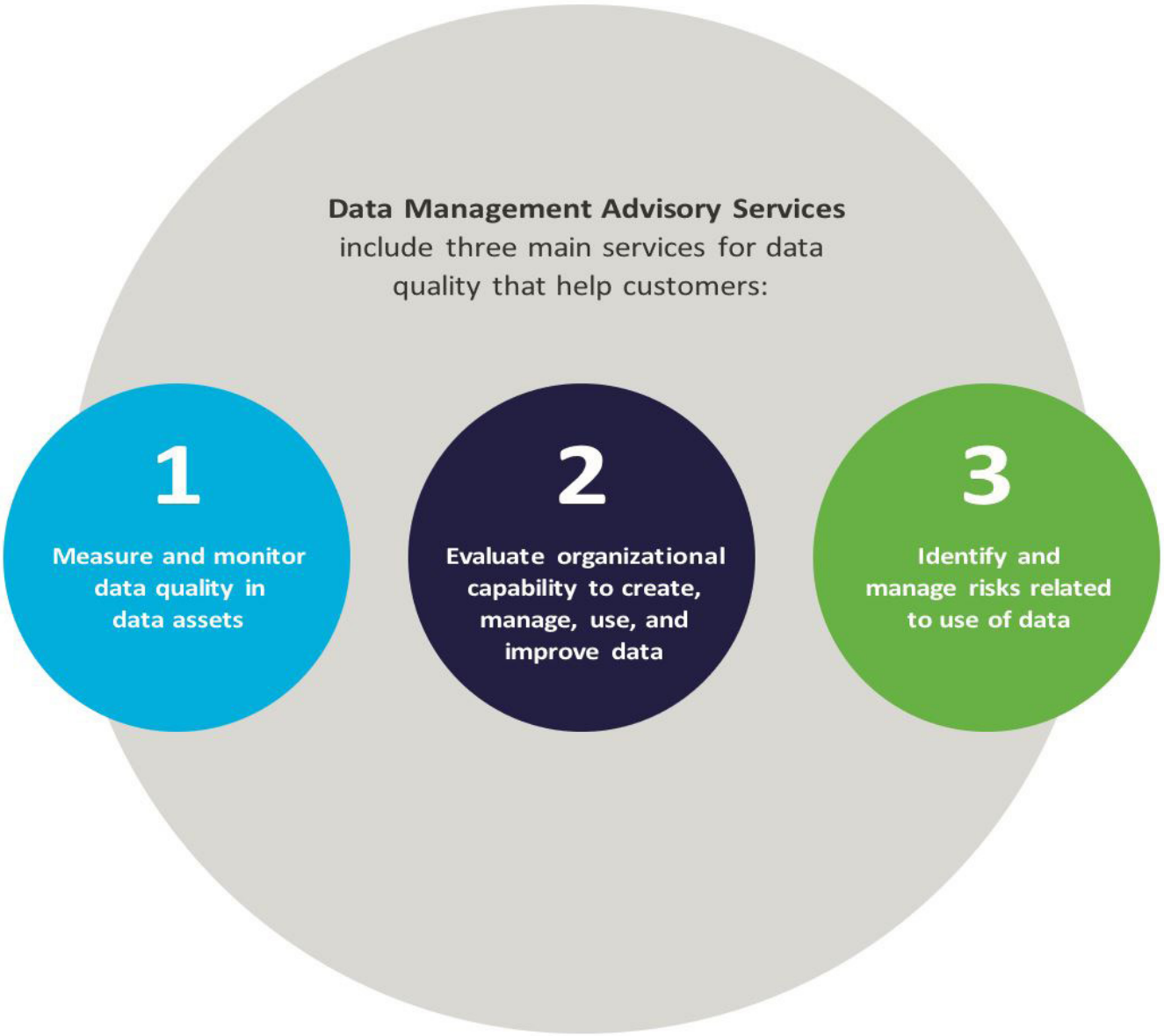
Data challenges
Data to be used are often obtained via several types of sensors systems or IT solutions from both within and external to a party's own organizational unit or legal enterprise. Data measurements, which a few years ago were impossible to obtain in a cost-efficient way, are at our fingertips, and the volume and number of types of data are rapidly increasing. Many organizations do not have sufficient asset management of data in place for data to be utilized as a valuable asset.

The responses to the challenges listed below are one way to structure the road towards cost-efficient and risk-managed data-driven operations and innovation. This can be achieved by establishing trusted Data Management, where all these data challenges should be considered.

DATA CHALLENGES

Four services

- Data quality assessment
- Organizational maturity assessment
- Data usage risk assessment
- Data management advisory services



1 Value of an adaptive ecosystem

This service will systematize the data and measure the degree to which they meet the implicit or explicit expectations and requirements of users and systems utilizing the data. It contains a set of methods, guidelines, tools, and platform support for defining requirements, measuring data quality, and drilling down into the results. The purpose is to measure actual data against predefined requirements. Important categories of such requirements are:

SYNTACTIC QUALITY

The degree to which data conform with the specified syntax; i.e., the requirements stated by the metadata. Metadata can be legal values, data types and referential integrity, such as links between data parts, business vocabulary, and any defined business rules.

SEMANTIC QUALITY

The degree to which data correspond to what they represent. For example, when a sensor measures 72 °C, the actual temperature should also be 72 °C at the point of measurement; if this is not the case, there is some amount of semantic error.

PRAGMATIC QUALITY

The degree to which data are suitable and useful for a particular purpose. Pragmatic quality validates data users' perceptions of fitness for purpose. For example, if sensor measurements are needed every second, but they are received on average once per minute, then the requirement is not met and the data are considered to be of low pragmatic quality.

Detecting erroneous data and identifying the underlying reasons why data are corrupted are fundamental first steps that enable more advanced improvements.

2 Organizational maturity assessment and improvement

The second service is a framework that aims at encompassing processes, capabilities, and governance required for ensuring high data quality. The framework consists of eight data quality maturity areas spanning five maturity levels. The service helps customers both to create a baseline and to determine how the organization will capture, manage, use, and share data without compromising the usefulness of the data or introducing risks.

The customer is provided with help to identify the maturity level needed to ensure that the organizational and technical capabilities are in place to respond to data quality issues in a proactive, predictable, and repeatable manner. A gap-analysis is performed to define the improvements required to close the gap between the baseline and the needed maturity level.

3 Data usage risk assessment and improvement

The third service addresses risks related to usage of data with its known and potential data quality issues. Usage of data of low quality may have consequences along several axes, such as brand, economy, business position, or opportunities. Risk analysis tools can be employed to evaluate and prioritize mitigation activities according to risk score. Barriers can be introduced to mitigate against specific vulnerabilities, reduce threats, and better manage unwanted consequences.

The primary objective of risk management of data usage is to increase the understanding of consequences that may occur from poor quality data and to identify and prioritize improvements.

The result of the data usage risk assessment is a common picture of the risk situation and related mitigation activities that are easy to communicate.

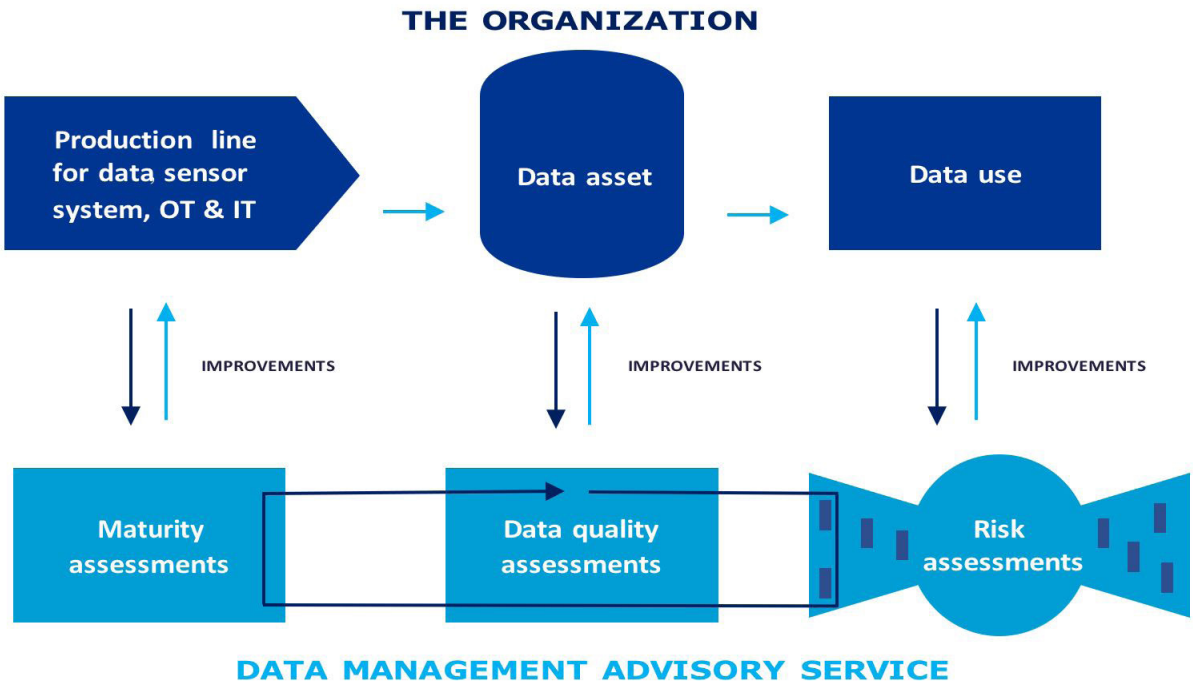
4 Data management advisory service

Data Management Advisory Service combines the assessments and takes one step further, providing customers with practical help and guidance to plan,develop, and implement maturity improvements and risk mitigation activities, so that they can adapt and reinforce their enterprises and their capabilities. This will enable organizations to achieve increased value from their data assets.

This service is provided by subject matter experts from maritime, oil and gas, power and renewable, health, and other industry sectors, with a complementary knowledge base of information governance and data quality.

This service also functions as a platform for exploitation of big data assets. If the customer has collected and stored massive amounts of data, DNV GL can assist in providing quality assurance of the data and generating new streams of revenue by selling access to the data or by establishing new applications for the data.

With this service, DNV GL aims to help customers obtain access to, create, and manage data today, which will enable new business values and manage risks tomorrow.



GOOD QUALITY DATA - WHAT ARE THE BENEFITS?

Good quality data empower people and organizations to generate more revenues, increase profits, and developcompetitive products and services. In addition, good quality data:

- Increase → customer trust
- Provide → assurance and availability of accurate, reliable, and accessible data, and information for analysis
- Reduce → costs by identifying problems at the earliest possible stage
- Provide → the right person with accurate, available, secure, and up-to-date data and information at the right time
- Enable → insightful, timely, and informed decisions and recommendations
- Enable → digitalization and automation of new processes
- Enable → employees to act with integrity in many types of collegial, customer, governmental, and partner interactions
- Assist in → using and sharing of big data in understandable manner
- Enable → organizations to obtain the best value from the investments in data assets

BAD QUALITY DATA - WHAT MIGHT BE THE CONSEQUENCES?

Bad quality data may indicate a lack of reliability of an organization and the services it provides. In addition, bad quality data may result in:

- Increased → costs to rectify faults in products and services
- Difficulties in → maintaining legal agreements, contracts, and compliance with requirements
- Risks to → production stability and efficiency
- Risks to → life, damage to property, and the environment
- Harm to → the reputation of the organization and employees
- Loss of → trust in people and organizations
- Difficulties in → obtaining value from the investments in data assets

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About DNV GL

DNV GL is a global quality assurance and risk management company. Driven by our purpose of safeguarding life, property and the environment, we enable our customers to advance the safety and sustainability of their business. Operating in more than 100 countries, our professionals are dedicated to helping customers in the maritime, oil & gas, power and renewables and other industries to make the world safer, smarter and greener.

Digital Solutions

DNV GL is a world-leading provider of digital solutions for managing risk and improving safety and asset performance for ships, pipelines, processing plants, offshore structures, electric grids, smart cities and more. Our open industry platform Veracity, cyber security and software solutions support business-critical activities across many industries, including maritime, energy and healthcare.

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