

BENEFITS REALISATION THROUGH INTEGRATED GIS AND IT SOLUTIONS



COWI

Technical and commercial expertise is crucial when working with GIS and IT. With COWI as your partner, your organisation benefits from a supplier of both independent consultancy and integrated IT solutions that support efficient and effective digitisation – from business goals to development, operations and support.

We call that 360° consultancy.

Our services encompass:



› SOFTWARE PRODUCTS AND GEODATA MANAGEMENT

COWI offers a wide range of GIS products for efficient collection and analysis of data in public and private sectors. Our services cover the entire process from GIS strategy, implementation and data management to training/courses and subsequent support.



› IT MANAGEMENT CONSULTANCY

We cover the whole value chain in IT, management and applicable legislation: tender consultancy, business analysis, requirement analysis, specifications and tender processes. We also provide consultancy on business case analyses and benefits realisation, programme and project management (MSP and PRINCE2) as well as enterprise, solution and system architecture.



› DEVELOPMENT AND MAINTENANCE OF GIS AND IT SOLUTIONS

We develop customised solutions based on state-of-the-art technologies. The development process follows recognised best practices such as PRINCE2 and Scrum to ensure flexibility and learning in close cooperation with the customer.



› IT SUPPORT AND OPERATIONS

We offer support and operation of IT solutions, also encompassing specific GIS solutions. We apply the recognised best-practice processes in the ITIL framework to ensure flexible and professional cooperation with our customers.

This brochure presents some of the projects we have carried out within the above-mentioned service areas.



SOFTWARE PRODUCTS AND GEODATA MANAGEMENT



DATA WAREHOUSE FOR COLLECTION AND DISTRIBUTION OF DATA

For the electrification of the Danish railway network, COWI's EACO group established a central data warehouse offering full user management for collection and distribution of geotechnical, hydrogeological and geological data. Data from a variety of sources and disciplines, internal and external alike, is gathered in a daily updated central data warehouse, where they undergo quality assurance and alignment to serve users' purposes.



MOBILE SOLUTION FOR REGISTRATION OF LIGHTING MASTS IN THE CITY OF AARHUS

The City of Aarhus aims to modernise operation and maintenance of its road lighting. To this end, COWI established an efficient registration system for collecting accurate GPS positions and master data pertaining to some 54,000 lighting masts in the municipality. The solution is based on the GIS4Mobile platform, which, among other things, supports on-/offline synchronisation with mobile units and integration with the City's GIS systems.



WINTER SERVICES

COWI regularly carries out GIS registration of snow removal areas and routes in the City of Copenhagen and the Municipality of Sønderborg. The purpose is to reduce the costs of snow clearing and de-icing while maintaining a high level of service, and the registration is based on the 2015 winter and cleaning regulation.



GIS ANALYSIS FOR LOCALISATION OF NEWCOMERS IN THE MUNICIPALITY OF JAMMERBUGT

The Municipality of Jammerbugt and COWI jointly developed a GIS-based system to help administrations identify solutions that support sustainable planning of the integration of refugees and immigrants. The solution calls for insight into local possibilities and newcomers' needs and competencies, and the analysis considers transport options and sociodemographic aspects. The solution was awarded the Danish 2017 Geodata Award.



IT MANAGEMENT CONSULTANCY



MAERSK OIL, GLOBAL GIS INFRASTRUCTURE

COWI designed Maersk Oil's global GIS infrastructure, which covers Maersk Oil activities on all locations worldwide. The solution establishes a collaborative workspace for sharing oil exploration data among 400 users in Maersk Oil, based on a standard infrastructure and a GIS application portfolio. COWI was in charge of implementing web-GIS and desktop GIS, data platform, search facilities, infrastructure, security and access control.



CONSULTANCY TO THE DANISH MINISTRY FOR TAXATION

The Danish Ministry for Taxation (ICE) is developing its future property valuation system. COWI provides consultancy to ICE on the use of geographical information using GIS and public geodata. The consultancy covers methods for valuation of properties based on geographical criteria, identification of data sources and assessment of their suitability, requirements for content, quality, and need for data processing, as well as GIS consultancy on data modelling and establishment of technical GIS architecture.



SPATIAL PLANNING DATA REGISTER

COWI provides consultancy on spatial planning and IT to the Danish Business Authority, which is developing and implementing a spatial planning data register that is to contain local plans, municipal plan frameworks and rural zone permits as well as select information for all Danish municipalities. The data is characterised by providing information about the possible use of each site, and SKAT, the Danish Customs and Tax Administration, will use the data for future property valuation.



SMART CITY AND INTERNET OF THINGS (IOT)

COWI has carried out several Smart City projects, e.g. for the City of Copenhagen and the LOOP City cooperation, which aim at specifying and calculating the economic consequences of Smart City initiatives and at analysing technical options and constraints. COWI's approach combines solid engineering skills with IT knowhow and economic analyses in order to translate technological hype into real, value-adding solutions.



DEVELOPMENT AND MAINTENANCE OF GIS AND IT SOLUTIONS



IT SYSTEM FOR MAPPING AND MANAGING POLLUTED SOIL

COWI is responsible for maintaining and enhancing JAR – the national register of soil pollution – relying on a team of developers in Denmark and Lithuania. The register enables the regions to effectively manage sites with polluted soil. The web-based JAR system combines all data necessary to manage areas according to the Soil Pollution Act – including GIS, pollution and administrative data. JAR contains all the data needed to facilitate decision-making and case processing by the regions.



MANAGEMENT OF EU AGRICULTURAL SUBSIDIES

COWI develops and maintains the Danish Agricultural Agency's advanced GIS solution IMK2, which the Agency uses to handle farmers' applications for EU agricultural subsidies, and to subsequently administrate the subsidies and verify the subsidy basis. With some 45,000 users and highly complex GIS calculations based on some 200 map layers, the system makes extremely high demands on system performance and reliability.



INTERNET OF THINGS (IOT) FOR AUTOMATIC ENVIRONMENTAL MONITORING

COWI developed the Danish Nature Agency's future IoT platform for collection of data from environmental sensors. The system continuously gathers data from sensors that measure, e.g., water level, temperature, acidity and salinity in lakes and watercourses. Within the next couple of years, the system is expected to handle in excess of 10,000 sensors.



DANISH REGISTER OF UNDERGROUND CABLE OWNERS (LER)

COWI heads operation, maintenance and further development of the LER system for the Ministry of Housing, Urban and Rural Affairs. LER contains information on the geographical interest areas of some 5,000 utility owners. The system provides contractors and others carrying out excavations with information on owners of utility lines in a specific area. The objective is to reduce the risk of damage to utility lines and increase supply reliability.



IT SUPPORT AND OPERATIONS



MAPPING AND MANAGEMENT OF POLLUTED SOIL

For JAR Samarbejdet (a collaboration between the Danish regions), COWI is responsible for maintenance, enhancement and support of JAR – the national register of soil pollution. The register enables the regions to effectively manage sites with polluted soil. COWI also supports each region's JAR operations and hosts JAR for one region. COWI's team in Denmark and Lithuania provides system support and COWI's hosting centre handles operational issues.



OPERATING SYSTEMS

COWI has developed multiple operating systems, e.g., for performance monitoring. The systems continually collect performance data from sensors mounted in strategic places. Among other things, the systems are used to monitor bridge integrity and to collect water and traffic data. The systems are designed to collect data via the 3G/4G mobile network, and they send out alarms via email and text messages if the data exceeds fixed threshold limits, or if the systems experience technical problems.



GIS COURSES

GIS is popular with many companies and public administrations and is becoming a standard tool such as Word and Excel. COWI regularly offers GIS courses on, e.g., QGIS and MapInfo. Web maps have also become more widespread, but the basic skills needed to extract simple GIS data or seize the opportunities of existing statistical data are priceless. The courses aim to build the participants' competencies, working their way through the GIS program, moving from simple to ever more advanced exercises.



MAERSK OIL, GIS OPERATION AND APPLICATION SUPPORT

COWI provides 2nd-line support to Maersk Oil's global GIS infrastructure. The support covers both service delivery management and subject matter expertise, which in practice means that all support is managed and handled by COWI's support team. The support is based on a fixed service level agreement (SLA) and provided by a permanent team of supporters in COWI Denmark and our Lithuanian subsidiary.



ABOUT COWI

COWI is a leading consulting company that creates value for customers, people and society through our unique 360° approach. As part of the COWI organisation, our GIS and IT experts have access to more than 6,000 colleagues working in a broad range of specialist fields. Many projects are carried out in cooperation across the organisation to achieve synergies and access domain knowledge that benefits the projects.

All of our services are defined in COWI's quality management system, which is based on our long-standing experience in project implementation, and which is certified according to the ISO 9001 standard. This ensures a high level of quality in all processes.

With offices all over the world, we draw on global project experience and competencies when handling projects, irrespective of their size or location in the world. At any given moment, we are involved in more than 17,000 projects.

We have more than 80 years of experience in the consulting business, and together with our customers, we create coherence in tomorrow's sustainable societies.

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