SOLUTION
SOFTWARE BY DHI

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About DHI

As an independent, international consulting and research organisation, DHI develops and implements innovative solutions in support of water, environmental and health-related management. We offer a wide range of services that integrate leading edge IT technologies, test facilities, surveys and monitoring programmes to clients all over the world.

Whether clients are governmental authorities, municipalities, contractors, consulting companies or industries, DHI is committed to help them increase efficiency, safety and profitability through customised decision support systems, comprehensive training and professional support.

Solution Software by DHI
– Sustainable decisions for the world of water

Contact us

If you would like to explore how Solution Software by DHI might help your organisation make smarter decisions, please do not hesitate to contact us.

Find your local office at:
www.dhigroup.com/contact/dhioffices

Or send us an email:
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SOLUTION
SOFTWARE BY DHI

SUSTAINABLE DECISIONS
for the world of
WATER

The challenges of water and environmental management

Urban flooding continues to cause damages worldwide. Innovative solutions are required to address problems and make the right decisions

Water management can be complex

You have people and technology – but are they connected?

When valuable water management know-how resides in the minds of only a few experts or in stand-alone manual systems, efficiency and long term sustainability can be compromised. The best way to make institutional knowledge accessible is to migrate to open IT solutions that make 'knowledge islands' a thing of the past.

You gather data – but is the picture complete?

Gathering data manually from multiple sources, and compiling and disseminating reports to decision makers and stakeholders can be extremely time consuming. A water information management system offers fingertip access to relevant data. Data dashboards provide complete overviews of the status of assets and infrastructures, and advanced visualisation tools facilitate easy communication and dissemination of data.

You consider alternatives – but which is the optimal?

As a recurring process, decision making demands transparency and openness. Integrated water and economic modelling allows you to evaluate numerous scenarios and find the optimal solution. This enables you to build a solid foundation for making informed decisions – and for prioritising and disseminating them.

You monitor operations – but is efficiency increasing?

Finding innovative ways to increase efficiency and control costs is a constant battle. A decision support system provides integration between asset data, financial systems and modelling tools to help you identify and prioritise potential investments. The integrated systems makes it easier to optimise designs and reduce costs without compromising safety - or to pinpoint operational windows of opportunity that can minimise downtime.

You want profits to grow – but are you doing the right thing?

With growing pressure on already limited water resources, the best way to secure the future of your enterprise is by focusing on optimising water use and treatment both externally and internally. Intelligent, instrumented, interconnected systems will empower you to make smarter decisions that increase both your efficiency and your profits.

Custom solutions make life easier

Effective decision support demands immediate access to data, plus an entire battery of tools for analysis and modelling; evaluating, comparing and optimising alternatives, and for presentation and reporting.

Solution Software by DHI provides a robust and scalable framework for tailoring a decision support system to meet your specific needs and challenges. Modules for data handling and data management, analysis and modelling, scenario management, web, GIS, reporting, decision support, etc are all fully integrated. And simulation models such as the tried and trusted MIKE by DHI are often included.

Your solution - one step at a time

Building a decision support system starts with a thorough mapping of your business processes and your short term and long term requirements. Based on this we will help you develop an overall design and implementation plan.

The total solution is often best implemented in phases for maximum uptake and sustainability. Throughout this process DHI will supply support and training in order to strengthen acceptance and sharpen your focus. Whether the goal is to support information management, planning decisions or operational/real time decisions, our agile approach will help you achieve it.

The City of Copenhagen used innovative design solutions to build a new beach park and monitor the bathing water quality. Prognoses based on real time data on loading, water and weather are currently published on the internet, via emails and on smartphone apps

A decision support system help you analyse, visualise and report on vital business processes according to your needs

Linking people, data and technology

Empowering your organisation, one step at a time

Integrating data
Integrating and providing access to your data is an important step, but the outcome promises transparency and acceptance. Connecting and making data and information readily available throughout your organisation helps you increase productivity and build trust and credibility.

Managing data
Data management is about structuring, enhancing and adding value to your data and information. Customised data analysis, GIS and advanced visualisation tools offer one-click access to multiple data sources and value added data structures.

Planning and operations
Modelling and optimisation add significant value to data and information. You can investigate multiple scenarios and their potential physical, environmental and socio-economic impacts. You can use multicriteria assessment tools to rank potential project layouts and enhance design parameters.

Presenting and disseminating results
One of the most important features of the decision support system is its ability to rapidly transform large amounts of complex data into reports and layouts that provide a scientific, transparent foundation for informed decision making.

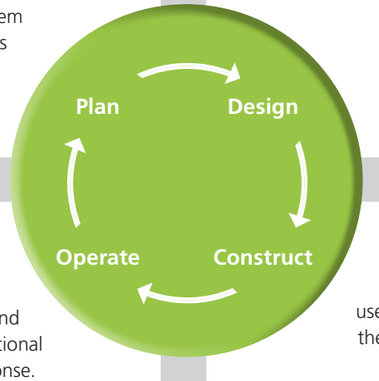
Sustainable decisions for the world of water

Support throughout the entire project life cycle

Planning decisions
Which of the proposed projects show potential over the next few years?

Use your decision support system to perform multicriteria analysis for evaluating, ranking and prioritising various scenarios.

Design decisions
In the design phase, advanced data and modelling analysis will help you optimise the design, control costs, minimise risk and maximise efficiency and security.



Operational decisions
A 24-hour real time overview provides mission critical data and forecast information for operational planning and emergency response.

Construction decisions
During construction you can use the predictive capabilities of the system to forecast windows of opportunity.

Feedback monitoring allows you to ensure compliance, test and optimise design.

Complex problems – custom solutions

Nile Basin water resources management

Egypt, Sudan, Ethiopia, DR Congo, Uganda, Tanzania, Kenya, Burundi, Rwanda

"The Nile Basin decision support system will provide the basis for agreement on and development of sustainable water resources projects in the Nile Basin."

Dr. Abdulkarim H. Seid
DSS Lead Specialist
Water Resources Management Project
Nile Basin Initiative

Challenge The 9 riparian countries of the Nile river basin, represented by the Nile Basin Initiative, have agreed to develop the water resources of the 3 million km² Nile river basin in a cooperative manner; share socioeconomic benefits, and promote regional peace and security. The development of shared and accepted water resources management technologies is an important element in achieving this common vision.

Solution The Nile Basin decision support system (NB DSS) integrates climatological, hydrological and environmental data with sophisticated water simulation models, together with sector economic production models, cost-benefit and multicriteria analysis tools.

Value The NB DSS provides accepted processes and tools for quantifying the benefits of water and for sharing of information. It enables transparent and objective prioritisation of investments and contributes to sustainable water resources management in the Nile Basin.

Murrumbidgee computer aided river management

New South Wales (NSW), Australia

"The project will make control of water flows more responsive and more precise."

State Water Corporation

Challenge The Murrumbidgee River supplies major irrigation areas in the Murray Darling Basin. The river is highly regulated to meet water requirements. The NSW State Water Corporation (SWC) aims to improve its water deliveries by optimising dam releases and reducing operational losses.

Solution SWC will implement a computer aided river management system (CARM) to ensure that irrigators and environmental customers along the river receive the right amount of water in the right location at the right time. The CARM integrates real time weather and river flow data with advanced hydraulic forecast models to determine optimum dam releases and river gate settings.

Value CARM will assist river operators to make precise deliveries, minimise water losses and use saved water in the upstream reservoirs as an environmental flow reserve. The system, along with associated river modernisation projects, aims to return 80 GL of water annually to the environment.

Success in non-revenue water reduction

Teplice, Czech Republic

"The decision support system helps us reduce leakage and optimises pressure management throughout the City. The most important factor is long term stability of the leakage level."

Karel Eminger, SCVK a.s.
Regional Dispatching Center Manager

Challenge The City of Teplice has for several years lost up to 40% of its clean water through a leaky water distribution network. These problems are further acerbated by recent growth and development of the city.

Solution The operator of the network and DHI have developed an Urban Water Management DSS, which integrates a wide range of data and information sources including SCADA data with advanced tools for leakage management, pipe failure detection, network repair prioritisation and associated investment strategy.

Value The network operator and DHI have enabled the City to significantly reduce water leakage, corresponding to annual savings in excess of €160.000.

The complexity of water management is increasing. Globally, managers and operators have to deal with mounting water related issues. They are also facing a demand for fast, cost effective and sustainable decisions.

Solution Software by DHI offers an innovative and simple solution framework for smart water management.

Marine operations - minimising cost and risk

Korea

"DHI's forecasts made the transport and immersion of the tunnel elements much safer, and reduced the risk considerably."

Danielle de Groot
Technical Advisor STRUKTON

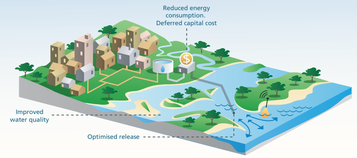
Challenge The 3.24 km long Busan-Geoje submerged tunnel was built as part of an 8.2 km motorway in South Korea. Being very sensitive to wave action, the transportation and immersion of tunnel elements demanded an accurate metocean forecast system to provide precise 5-day forecasts of weather and ocean conditions.

Solution In close collaboration with STRUKTON, DHI and partners set up a regional metocean forecast service. High-resolution 5-day forecast (issued twice-daily) provided STRUKTON with mission critical operational information throughout the 3-year project (2007-2010).

Value DHI's cloud-based metocean forecast service ensured that tunnel element transport and immersion operations were closely planned and monitored. The forecasts also enabled STRUKTON to plan and optimise operations in such a way that no costly stop-work orders and violations of safety limits were experienced.

Smart release of recycled water for cleaner water and huge savings

Gold Coast, Australia



"The Seaway SmartRelease Project enables us to meet future needs for recycled water release."

Guillermo Capati
Group Manager
Integrated Total Water Cycle Planning
Allconnex Water

Challenge The Gold Coast water agency Allconnex Water is responsible for the release of excess recycled water into the waterway. To meet future service levels, Allconnex Water requested a solution capable of improving water quality in the intracoastal waterway while accommodating increasing loads on treatment plants.

Solution Allconnex Water and DHI implemented SmartRelease, which combines metocean forecasts with real time quantitative and qualitative data in order to determine the optimal time to release recycled water.

Value Recycled water is now released without compromising the environmental and recreational value of the city's waterways, deferring the need for a $60 M infrastructure investment for up to 10 years.

Front runner in water and sanitation management

City of Cape Town, South Africa

"We expect to save a considerable amount of water, time and money every year."

Jaco de Bruyn
City of Cape Town's
Water Sanitation Department

Challenge The City of Cape Town has a growing and thirsty population. Currently unaccounted-for-water varies from 19-25% - a major problem in a metro with a limited water supply. City managers needed a comprehensive information management system (IMS) which provides fingertip access to all necessary information.

Solution The City of Cape Town and DHI developed an advanced IMS that seamlessly integrates data from a wide range of databases, allowing access to mission critical data and information. The IMS displays the overall water supply and wastewater situation in real time, promoting and facilitating operational decisions.

Value The IMS provides city managers with instant access to information and a clearer overview of the operational situation. It is now easier to operate and manage the city's water supply as well as sewage collection, treatment and disposal.

Partnership and capac ity building
– ensuring long term sustainability

Training and capacity building - both in the office and in the field - ensures sustainability

Long term partnerships

Strengthening your water and environmental management practices by deploying a custom decision support system is a strategic decision demonstrating leadership and a commitment to governance. As partners we will work with you to build a solution that matches your current needs and that can easily be scaled and enhanced to meet any future requirements.

Transparency and acceptance

To ensure that the decision support system meets your needs we work closely with you during design, development and implementation. By emphasising and prioritising a strong science base and acceptance of the decision support system you can ensure that staff and stakeholders will accept its functionality and limitations.

Capacity building

As soon as you are ready to deploy the decision support system your staff will learn how to take full advantage of the integrated data, water modelling optimisation and presentation capabilities. Depending on your individual needs, management courses can cover anything from scenario modelling and cost benefit analyses to regulatory processes, quality control and report generation.

Support for sustainability

The best way to ensure the long term usage of your decision support system - both technically and institutionally - is to focus on ownership and training. DHI's partnership commitment builds long term support – from ongoing training and technical support to regular system maintenance.

DHI's global and innovative research and development programme further ensures continuous advancement of Solution Software by DHI thus representing state of the art. Our commitment to you and the global user community is one of pushing the limit, looking for challenge and delivering robust solutions for everyday usage.

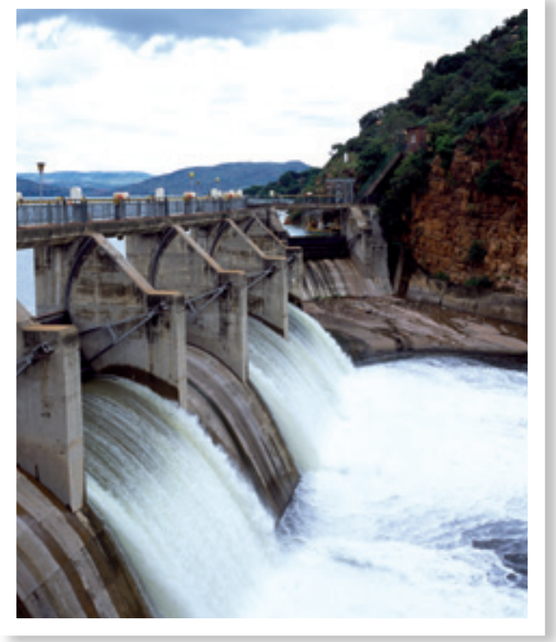
Long term sustainability

Extracting maximum value from your decision support system is ensured through regular system support and maintenance. Whenever your business processes change, your solution should follow suit. Whenever new software components are released, your solution should be upgraded. And whenever you hire new staff, they should receive comprehensive training.

Expert assistance

A Service and Maintenance Agreement with DHI offers direct access, not to a third-party call centre but to DHI's own team of experts. DHI's Support Centre provides dedicated technical support and we stand ready to answer questions related to analysis modules, modelling and data management, operating systems, data security and hardware compatibility.

The full Solution Management Service Agreement is a custom agreement defined in partnership with you. It can cover extended technical and engineering support, software upgrades, further customisation of your solution. It may also include services such as solution hosting, backup and restore.



Multipurpose dam and reservoir optimisation operations ensure that competing water demands remain balanced

Solution Software by DHI

- Connect existing 'data islands' for active data access and sharing
- Use cutting-edge water modelling tools for planning and operation
- Get advanced data analysis, reporting and visualisation
- Improve project cost benefit and investment planning
- Optimise project design to reduce costs and minimise risks
- Facilitate clear and precise communication with stakeholders
- Create open, scalable and adaptive solutions for changing needs
- Achieve sustainability with a Full Solution Support and Management Agreement