

CASE STUDY

Proof of Concept: Asset Health Dashboard for Data-Driven Insights and Collaboration

The Rijnland District Water Control Board is charged with managing water safety, quality and quantity in the area between Amsterdam, The Hague and Gouda. The assets of this water authority include 41 km of seawall, 83 km of primary barriers, 1,272 km of regional barriers and nearly 900 pumping stations. It is of great importance for Rijnland that the assets realize their performance with sufficient reliability and availability within acceptable costs. This requires insight into the health of the assets. Together with Rijnland and its partners, MaxGrip developed the Asset Health Indicator (AHI), a dashboard that offers asset users the possibility to make data-driven decisions.

GOAL: CONNECTING DATA

The Asset Health Indicator fits seamlessly into Rijnland's ambitions. Water authorities want and have to digitalize their processes. One of the reasons for that is the Environment and Planning Act (Omgevingswet) that the Dutch government will enforce, which necessitates transparency of data and processes to all citizens. In addition, there are more challenges to overcome such as the ageing technical workforce and the increasing demand of assets through climate change and urbanization.

In the context of these developments, Rijnland sees asset data and digitalization as an important condition for asset management success. Within Rijnland, asset management is already a connecting discipline; asset-related departments led by asset managers work closely together in interdisciplinary teams. Each department, however, manages its own asset data. By bringing all of the data together, the departments will be enabled to get improved and shared insights that lead to long-term asset management improvements.

SUMMARY

Challenge: Create an Asset Health Dashboard to connect asset-related departments and make data-driven asset management decisions

Approach: Proof of Concept Asset Health Indicator

- Partnership with software and engineering companies
- RAMS proof of concept on a pump station
- IT and OT systems and data connection
- Interdisciplinary collaboration

Results: Scalable Asset Health Dashboard

- Process for proper storing and managing data implemented (safeguarding knowledge and data)
- Making projects less dependent on physical inspections and the workforce (to mitigate aging workforce)
- Proving data and technology enable data-driven decision making resulting in increase of performance and mitigating risks and costs

APPROACH: ASSET HEALTH DASHBOARD

Alex Veersma, maintenance manager at Rijnland, brought together companies with complementary expertise to take on the challenge of connecting data. MaxGrip and Wonderware Benelux had already jointly developed the initial concept of an Asset Health Indicator. So, Wonderware Benelux was asked to join as a software expert. MaxGrip also joined as the asset management expert. Additionally, engineering company Witteveen + Bos joined the partnership because they had gained experience at another water authority with regard to self-learning algorithms.

In a Proof of Concept project the partnership started to bring the Asset Health Indicator to life for a pumping station. The AHI demonstrates the health of a pumping station and underlying assets based on equipment data and performance monitoring facilitating condition-based maintenance. This data-driven asset management strategy enables increasing performance and reducing risks also saving costs by optimizing the use of the budget due to condition-based maintenance decisions.

RAMS Proof

What does the AHI demonstrate? MaxGrip consultant Arjen van Bruchem explains: "The health of an asset is more than only its condition. An asset should perform within the RAMS conditions of Reliability, Availability, Maintainability and Safety. Therefore, we have incorporated all of these aspects in the dashboard. So, in addition to fitness, the five dimensional AHI shows reliability, life cycle, compliance and criticality. A powerful visualization that gives insights quickly."

Proof of Concept

To create a working Asset Health dashboard, the team took the following steps for the Proof of Concept:

1. Choosing the right people for the PoC

These people should be an expert in at least one of the following: IT, OT, operational processes, maintenance processes, data science, technology solutions and project management.

2. Developing the front-end

What does the Asset Health Indicator look like and who does what with this information. In other words, defining the user perspective.

3. Connecting IT and OT data

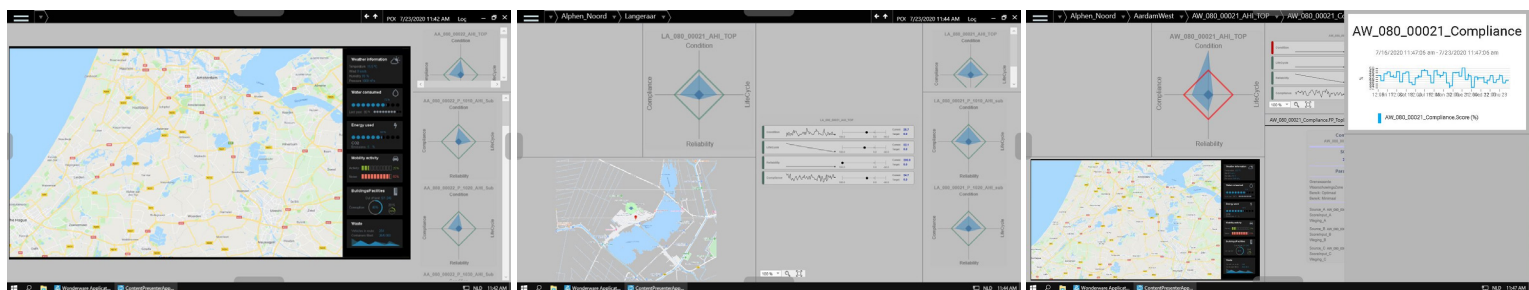
Different systems need to be linked so that both IT data (EAM/ APM system) and OT data (process automation) can be brought together.

4. Development of intelligence

Data check and improvement to ensure that the available data can be used in a single source of truth. In addition we define how the data can feed the dimensions of the AHI.

5. Testing and go-live

After testing with data dumps, the AHI is linked to the live production environment.



Screenshots: Asset Health Indicator

RESULTS: WORKING TOGETHER IS KEY

Alex Veersma is satisfied with the progress. "It is important for the future to capture knowledge in systems. A lot of data was not properly recorded. For new projects, we now ensure that we get the right data (and not documents) provided. In addition, based on data from the field, we look at how we can map the condition of the assets. This needs to depend less and less on physical inspections. Working with different parties with complementary expertise works very well." Arjen also stresses that collaboration was the key to its success: "MaxGrip has been able to play an essential role because we have enough knowledge overlap with all parties to lead and facilitate this partnership. From understanding process automation and the Enterprise Asset Management system, data management and reliability engineering to understanding work processes and performance indicators."

Listen to the radio interview (in Dutch) with Alex Veersma, maintenance manager Rijnland, to learn more about their asset management approach.

LISTEN

The Proof of Concept of AHI has also shown that data and technology are no longer the limiting factors. By combining, interpreting and visualizing data, information is produced (push). But what is the information requirement (pull)? The challenge for the future is to bring push and pull together; in other words technology and business. The scalable approach of the Proof of Concept is successful for Rijnland because it has shown which approach to take and which choices to make including how the AHI system can be scaled up to an organization-wide dashboard and be incorporated in an asset management strategy.

ABOUT MAXGRIP

MaxGrip consultants enable organizations in asset-intensive industries to achieve continuous improvements on their asset performance, also using the power of Digital Transformation. MaxGrip embraces APM 4.0 with a maintenance track record of over twenty years in industries like Oil & Gas, Food & Beverages and Utilities & Infrastructure. We operate on all continents and have a global presence with our main offices in the Netherlands (HQ), USA, and Malaysia.

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