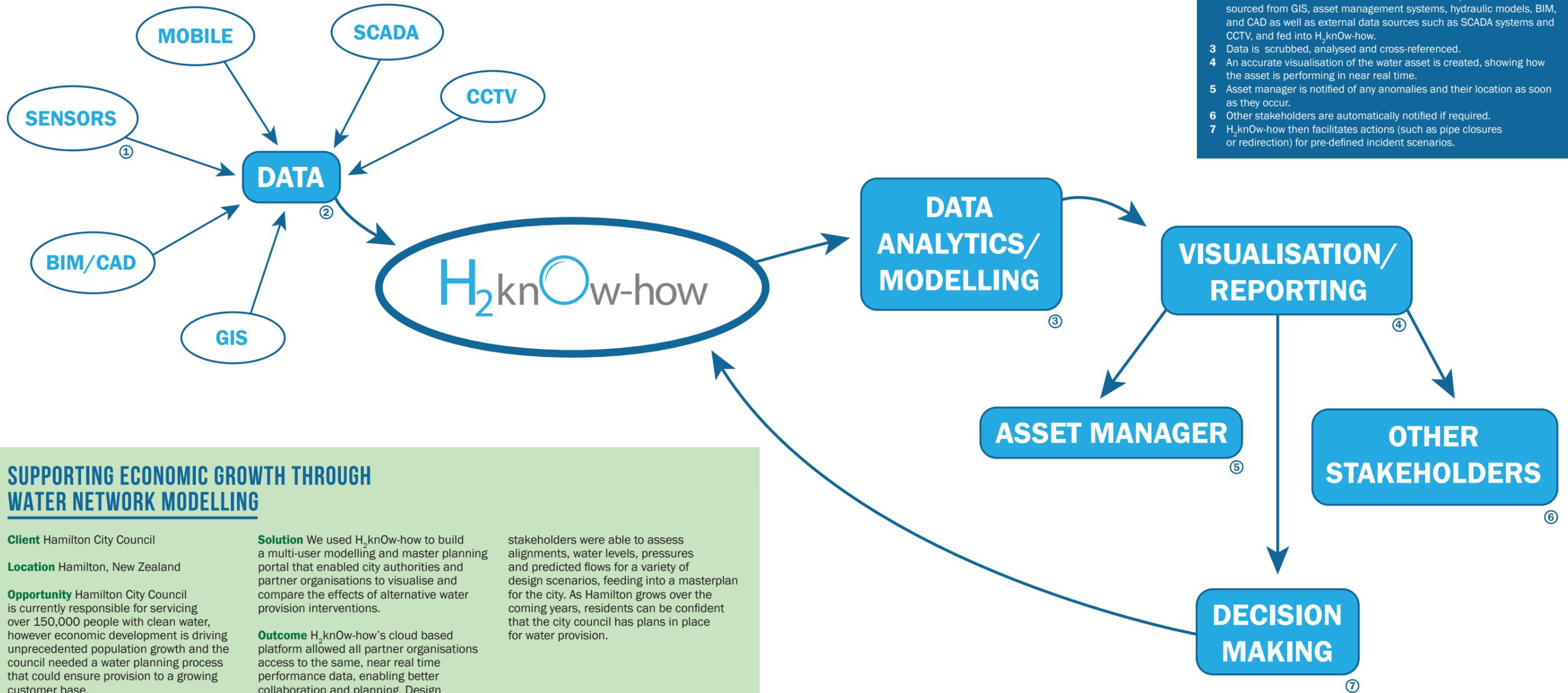


# USING REAL TIME DATA ANALYTICS TO TRANSFORM THE PERFORMANCE OF WATER AND WASTEWATER NETWORKS



# WHAT IS H<sub>2</sub>KNOW-HOW?



## SUPPORTING ECONOMIC GROWTH THROUGH WATER NETWORK MODELLING

**Client** Hamilton City Council

**Location** Hamilton, New Zealand

**Opportunity** Hamilton City Council is currently responsible for servicing over 150,000 people with clean water, however economic development is driving unprecedented population growth and the council needed a water planning process that could ensure provision to a growing customer base.

**Solution** We used H<sub>2</sub>knOw-how to build a multi-user modelling and master planning portal that enabled city authorities and partner organisations to visualise and compare the effects of alternative water provision interventions.

**Outcome** H<sub>2</sub>knOw-how's cloud based platform allowed all partner organisations access to the same, near real time performance data, enabling better collaboration and planning. Design

stakeholders were able to assess alignments, water levels, pressures and predicted flows for a variety of design scenarios, feeding into a masterplan for the city. As Hamilton grows over the coming years, residents can be confident that the city council has plans in place for water provision.

## MODERNISING THE WAY AUCKLAND MANAGES ITS STORM WATER ASSETS

**Client** Auckland City Council

**Location** Auckland, New Zealand

**Opportunity** Auckland City Council manages over NZ\$5bn of storm water assets, with ongoing renewal and maintenance work. However, the council depended on paper-based information as well as audits of thousands of as-builts and CCTV videos in order to design renewal plans.

**Solution** We developed a custom workflow management scheme using H<sub>2</sub>knOw-how's web-based, geospatial platform which digitised the entire management process and is now driving over NZ\$10M in critical asset renewal projects. Real time asset data is brought into the management system, providing an understanding of current performance, while data storage provides access to current and historic data, replacing the paper-based tracking system.

**Outcome** H<sub>2</sub>knOw-how has brought cost savings of over 20% through efficiency gains and data storage. The system has done away with the need for external project management, and has brought increased transparency to the work of Auckland City Council and its partners, giving people more trust that their money is being spent where it is most needed.

## DIGITAL SYSTEMS AID RAPID SERVICE RECOVERY IN TIMES OF CRISIS

**Client** Christchurch City Council

**Location** Christchurch, New Zealand

**Opportunity** Christchurch's wastewater network conveys more than 100,000cu m of sewage each day to a single wastewater treatment plant. Urban growth and increased use of hard paving caused an increase in sewer overflows. We needed to understand what was overloading the sewer system and how it behaved in order

to design the optimal solution for preventing overflow incidents.

**Solution** Thirty pressure, flow and ultrasonic sensors were installed across the sewer system and connected to the H<sub>2</sub>knOw-how management platform via mobile internet, allowing city authorities to monitor flow rates and the time, duration and location of overflow incidents to better manage the wastewater system in near real time.

**Outcome** Not only did we bring major efficiencies to the city's wastewater network, we also helped the sewage system bounce back from major damage following the devastating earthquake of February 2011. Our monitoring system enabled authorities to pinpoint damage, allowing them to take swift action to fix leaks and restore service provision, getting Christchurch back on its feet quicker.

## HOW H<sub>2</sub>KNOW-HOW CAN HELP YOU...

### 1 Optimise assets and return on investment

Data-based systems are the most cost effective way of leveraging new and existing information to discover new efficiencies to existing water infrastructure, offering potential capacity improvements of 40% without building. Faults can be immediately detected and rapidly rectified, reducing loss of service with targeted maintenance.

### 2 Better decisions faster and cheaper

Use modelling and analysis to gain accurate, real time visualisations of how your assets are performing and to inform

immediate operational and longer-term capital decision making.

**3 Connect stakeholders** Cloud-based systems provide all parties with access to the same information and enable efficient collaboration. The value of a digital solution is that it can be linked to data streams from adjacent assets – enabling further functionality and efficiency gains.

**4 Automated management:** Asset managers and maintenance teams are immediately notified in the case of breakages, spills, faults and anomalies.

Automatic responses to pre-defined flow incidents can be programmed, ensuring immediate action and preventing losses.

### 5 Support future asset development

H<sub>2</sub>knOw-how can inform asset expansion by combining current data with upgrade plans to project how well the network will cope. The tool can also play a big role in crisis management, by visualising disaster scenarios – such as floods or major damage to the network – and modelling the effect on the rest of the system.

## WHAT OUR CLIENTS THINK:

**H2KNOWHOW HAS BEEN A CRITICAL TOOL IN FACILITATING OUR NZ\$1M / YEAR CCTV WORK PROGRAM. IT HAS INTRODUCED GREAT EFFICIENCIES THROUGH THE ENTIRE CONTRACT WORKFLOW, SAVING US SIGNIFICANT LABOUR COSTS BY STREAMLINING THE DATA HANDLING AND PRESENTATION PROCESS.**

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Sam Clive, Senior Stormwater Specialist, Auckland Council

**MOTT MACDONALD HAS TAKEN US FROM HAVING ONLY A VERY BASIC KNOWLEDGE OF OUR THREE WATER NETWORKS IN PORIRUA TO WHERE WE ARE NOW; USING DYNAMIC ACCESS TO REAL-TIME MONITORING AND MODELLING DATA TO INFORM OPERATIONS AND PLANNING.**

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