




SMART leakage management

Through business-driven analytics with
Capgemini and IBM®



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Water companies have already reduced leakage, but need to do more. The answer is to integrate and analyze data to generate the insights needed to tackle key optimization problems. The Capgemini analytics platform, using IBM Watson® Data Platform, makes this possible, and has achieved dramatic results. For example, a solution implemented for a large UK water company has been proven to detect nearly 85% of leaks. Alerts for a leak are raised more than 20 days earlier than the current industry average, with 72% confidence. This versatile, cost-effective platform for Insight-Driven Transformation is applicable to a wide range of water industry challenges.

Five linked optimization problems that your water company must address

To manage leakage really effectively, you need to optimize these five areas in an integrated manner, using all relevant data, both current and historic:

1. Where on the network is leakage likely to occur?
2. When a leak does occur, how can we narrow the search area to find it as quickly as possible?
3. What is the optimal way to organize the work of fixing a leak?
4. How can we optimize the pressure on the network so we don't cause leaks?
5. How can we allocate capital expenditure to replace vulnerable infrastructure before leaks occur?

The continuing imperative to reduce leakage

Your water company has no doubt made great progress already in reducing leakage. However, further innovation in leakage management is critical if you are to deal with challenges like water scarcity and the demand balance, while also responding to downward pressure on operational costs, addressing environmental considerations, and meeting customer expectations.

So how can you look beyond current processes and approaches to drive leakage levels down still further? Capgemini's leakage management approach, powered by IBM, provides a versatile and cost-effective answer, and is equally applicable to a wide range of water industry challenges. It's a way to capitalize on the huge investments your company has probably already made in systems, and the large volume of data generated as a result.

The key: better insights from your data

To achieve the next level of leakage reduction, you urgently need to find smarter ways to truncate the lifecycle of a leak, and bring outliers closer to the mean. Before this can happen, the focus of your investment needs to shift away from people and towards technology.

Capgemini and IBM believe that the answer to the leakage challenge lies in integrating and analyzing multiple data sources to provide business-driven analytics – that is, insights that make it possible to tackle key optimization problems such as those shown in the panel opposite. With these insights, your company can prioritize investment and balance competing objectives more effectively: a prime example of what Capgemini calls "Insight-Driven Transformation".

Our work with clients in the water sector confirms that these insights lead to tangible benefits. For example, a solution we have implemented for a large UK water company has been proven to detect nearly 85% of leaks. In addition, alerts for a leak are being raised more than 20 days earlier than the current industry average, with 72% confidence.

Why a new analytics platform is needed

Your company is probably already using data to improve processes, including those involved in finding leaks and managing the supply chain to fix them. You may also have made headway in predicting the most likely areas for defects to occur, and prioritizing replacement pipes.



However, the chances are you can't yet get the insights needed to tackle the most difficult leakage problems effectively. For example, one popular analytics approach relies on data lakes containing all available data to provide a bottom-up view of the organization and its activities. While this data-driven method can provide valuable insights, it is not so effective when you want a specific insight to address specific problems such as those described in the panel.

This is why you need to complement existing analytics with a new business-driven top-down approach – one that starts with a problem and considers what data is needed to solve it. It's also vital to have a fast, economical way of integrating data from multiple data sets from right across the business.

Only by analyzing these different types of data together can you understand network performance with a sufficiently high level of granularity to predict where leaks will occur, narrow the search area, and understand what type of leaks occur in what situations. This type of integration has been prohibitively complex and expensive – until now.

How the Capgemini approach, with IBM technologies, can help you tackle the leakage challenge

Imagine that, as Head of Leakage, you have a dashboard on your iPad telling you where leaks currently exist or are about to occur, ranking them by cost and priority, and showing which district team is responsible for each. What's more, the figures are updated every 15 minutes, which means that you've always got an accurate, up-to-date view of the network's performance.

The same data that you see on the dashboard is also being used by your engineers to pinpoint leaks, organize repairs, and decide the right pressure levels; it also drives your capital planning process. Not only does leakage volume get reduced – your investment can be reduced too.

If that sounds like a futuristic vision, it's one that's achievable today using the new business-driven approach from Capgemini, together with IBM. You can quickly and easily bring together data from across your organization to answer specific leakage questions and tackle all five linked optimization problems in an integrated manner. You can then get leakage down to the lowest possible level, while reporting the status in real-time.

What's special about this approach and platform?

Our approach can combine many data sets using a versatile, open and reusable platform. This platform is complemented with a service approach that delivers benefits at scale, rather than a series of individual consulting projects.

A business-driven approach to gaining insight from data

Instead of focusing initially on data and working from the bottom up, we advocate a top-down approach that is essentially business-driven. That means starting with defining the insight you need, not with the data you have.

In other words, you begin by asking the question “How do I narrow down the search area to find a leak as quickly as possible?” That means you can focus just on the specific data that's needed, so that you produce faster results with less waste.

Integrating multiple data sets with a versatile platform

Another key feature is the integration of data of multiple types, from multiple sources – including both current and historic data, plus internal and external sources. Experience shows that this is the secret to unlocking significant value and enabling Insight-Driven Transformation.

Instead of developing a bespoke platform for each requirement, we provide you with a generic platform that pulls multiple data sets together as required, so that you can quickly build analytics for specific needs. With this kind of open platform, you avoid the need to integrate specific systems each time you need a new insight.

In addition, this approach means that at the same time as you're solving urgent leakage problems, you're also equipping your company with a core BI platform with the potential to solve a whole range of other business problems. The results of each new analysis can be

automatically fed back into the relevant business processes to assist with real-time control of assets and systems.

A service approach that delivers long-term benefits

We know it is not cost-effective to launch a new consulting project each time you need a new type of insight. Instead, our approach is to work with clients to deliver a continuous stream of benefits over several years. We manage this through a range of commercial structures to suit varying client needs. For example, we offer long-term managed service style arrangements where investment is linked to value delivery and risks are shared.

The background image shows two men in business suits and hard hats. The man on the left is wearing a red hard hat and holding a document. The man on the right is wearing a white hard hat and also holding a document. They appear to be on a construction site, with a blurred background of a building under construction.

The benefits: drive down service costs, increase customer satisfaction, and achieve operational excellence

The value of our service impacts on many activities and functions. Your business can:

- Generate an instant overview of actual and threatened leaks, with indicative repair costs and priorities, on a single dashboard-style display
- Predict more accurately where leakages will occur, improving the ability to find and resolve them quickly
- Prevent leaks from occurring; by scheduling maintenance based on predictive analytics, rather than the age of the pipes, you can prevent more leaks while replacing fewer pipes
- Identify the right level of pressure to satisfy customers and minimize leakage
- Access or develop a business-driven analytic platform that can also be used for other functions in the business (such as customer management)
- Detect up to 85% of leaks, with alerts raised 20+ days sooner and with 72% confidence.

Why Capgemini and IBM?

Many IT vendors offer “point solutions” to Watson® tackle specific aspects of generating insights from data. But in Capgemini’s view, IBM is one of the few companies that offers best-of-breed products to address every element of the architectural stack. That means our clients can mix and match IBM building blocks to create the platform that’s right for them, secure in the knowledge that they have been designed to work together.

In this way, it’s possible to achieve the ideal balance between a modular offering and one that’s pre-integrated – without the need to invest in a large-scale package. At the same time, the solutions are open, meaning that clients have the flexibility to integrate other vendors’ products.

The IBM Watson® Data Platform is complemented by Capgemini’s significant global capabilities: our expertise in operational consulting and specifically in creating and improving business models and processes; our experience in generating and applying insights from data; our worldwide teams of specialists in data science and big data; and our well-established partnership with IBM and depth of knowledge of their products.

Insight-Driven Transformation: Game Changers in Operational Analytics are showing the way

A study conducted by Capgemini, *Going Big: Why Organizations Need to Focus on Operations Analytics*, identified some key organizational attributes that have enabled

a group of companies we called “Game Changers” (those who have integrated most of their analytics initiatives with their business processes) to leap ahead of other companies – in particular the “Laggards” who are only now introducing analytics¹.

¹ *Going Big: Why Organizations Need to Focus on Operations Analytics*, March 2016, Capgemini

The Leaders in operational analytics:

- **Take an integrated data approach.** Leaders bring together multiple data sets from across their organizations to gain a holistic view of operations. As many as 43% of Game Changers have completely integrated data sets, compared to only 11% of Laggards.
- **Use a wide variety of data.** Around 59% of Game Changers enhance the quality and scope of their operations data by using external and unstructured data, but only 27% of Laggards do this. Similarly, 48% of Game Changers use external data to enhance insights compared to only 23% of Laggards.
- **Make analytics an essential component of their decision-making process.** 58% of Game Changers agree, but only 28% of Laggards do.

Capgemini and IBM have invested, both separately and together, in this platform. Both parties have committed the effort and resources necessary to make the platform a reality and have contributed in-depth sector expertise to tailor the platform to the needs of the water industry, and specifically address the problem of leakage.

Next steps

Even if you are already doing great work in analytics, take another look at the five linked optimization problems listed above. By using analytics to optimize all five in an integrated manner based on data, you can increase your opportunity to reduce leakage further.

In three simple steps, Capgemini can show you how our approach could help you:

1. **Maturity assessment:** How many of the five linked optimization areas can you address? Can you assemble the data you would need to do more? Are you wasting effort on data activities that don't help the business? What opportunities are there to leverage insights better?
2. **Opportunity mapping:** Explore opportunities in more detail, and develop a business case for implementing a platform for generating the missing but critical insights.
3. **Static analytics:** Test and expand the business case by using a snapshot of your data to estimate how much value you could get from deploying the platform.

Our methodologies and tools can help you explore the options with minimal effort and risk. The whole approach is flexible, and can be built on – and leverage – your existing investments. For example, we can use data from an incident data management system, a database for predicting leaks, or a data lake. Our full range of services includes technology solutions, consulting and implementation, and, if required, managed services provision.

Talk to us if you'd like to know what your company could gain in terms of reduced service costs, increased customer satisfaction, and enhanced operational excellence. Remember, the Capgemini offer is more than an innovative approach to dealing with leakage. It's a strategy and platform for Insight-Driven Transformation that will also meet a wide range of future needs across your whole organization.

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Find out more

Interested in finding out more about how Capgemini can help your company further reduce water leakage and enrich the entire business? Contact us to arrange a half-day or one-day workshop that will ignite your journey and, more importantly, your stakeholders' enthusiasm for the way forward.

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About Capgemini

A global leader in consulting, technology services and digital transformation, Capgemini is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. It is a multicultural company of over 200,000 team members in more than 40 countries. The Group reported 2018 global revenues of EUR 13.2 billion.

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