



# Smart leakage management through business-driven analytics with Capgemini and IBM

Gain even more insights from your data



People matter, results count.

Water companies have already made great progress in reducing leakage, but innovation in the ways it is managed going forward is critical if we are to deal with water scarcity and the demand balance while reducing service costs. An essential enabler for meeting this requirement is business-driven analytics: insights that enable you to tackle the key optimisation problems inherent in managing leakage, by integrating and analysing multiple data sources – including both current and historic data, and both internal and external sources.

The leakage management approach described in this paper is powered by Capgemini and IBM. Our analytical platform is versatile and cost-effective, and applicable to a wide range of business challenges experienced by water companies.



## Despite all the effort, leakage still poses challenges

Water companies have invested heavily in operational effort to manage leakage, as well as in technologies such as telematics and pressure management systems. They are to be congratulated on having dramatically reduced leakage.

Now, however, a combination of factors is making it imperative to look beyond current processes and approaches and drive leakage levels down still further: these factors include downward pressure on operational costs and the drive to address environmental considerations and meet customer expectations.

Companies urgently need to find smarter ways to truncate the lifecycle of a leak, and bring outliers closer to the mean. To make this happen, the focus of investment needs to shift away from people and towards technology.

## The key: even more insights from your data

Capgemini and IBM believe that the key to the leakage challenge lies in better insights. By identifying the right insights and using them to support decision-making, water companies can find and prioritise their most effective options, and balance competing objectives optimally. They can reduce the number of leaks, and predict and locate those that do still occur faster and more efficiently.

To get the necessary insights, companies must find new ways to capitalise on the huge investments they have made in systems, and the large volumes of data that have been generated as a result. Of course, some of this data is already being used to improve processes, including those involved in finding leaks and managing the supply chain to fix them. Companies have also made headway in predicting the most likely areas for defects to occur, so that they can decide which pipes to replace first.

## Limitations of current analytics

Although many companies are already extensively analysing their data, they have yet to produce the insights needed to tackle the most difficult leakage problems effectively, because they can't address the five linked optimisation problems (see panel) in an integrated manner. For example, one popular approach relies on data lakes containing all the available data to provide a bottom-up view of the organisation and its activities. While this data-driven approach can provide valuable insights, it is not so effective when you want a specific insight to address specific problems like these five.

## Five linked optimisation problems water companies need to address

To manage leakage really effectively, companies need to optimise five areas in an integrated manner, using all relevant data, current and historic:

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



Companies now need to complement their existing analytics with a new, business-driven approach – a top-down one that starts with a problem and considers what data is needed to solve it. For example, you might start with a question like “how do I narrow down the search area to find a leak as quickly as possible?” then consider what data you need to answer the question, and finally assemble that specific data ready for analysis.

This is an effective approach to leakage, because you focus only on the data that is going to provide value by answering your question. But it’s vital to have a fast, economical way of integrating data from multiple data sets – current and historic – and from all parts of the business. It’s only by analysing these different types of data together that it becomes possible to understand network performance with a sufficiently high level of granularity to predict where leaks will occur, narrow the search area when they do occur 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-IBM approach helps you tackle the leakage challenge

Imagine you, as the Head of Leakage, have a dashboard on your iPad telling you where leaks exist or are about to occur, ranking them by cost and priority, and showing who is responsible for each. The figures are updated every 15 minutes. The same data that feeds the dashboard is also used by engineers to pinpoint leaks, organise repairs and decide the right pressure levels. It also drives the capital planning process. As a result, your leakage volume is being reduced with less investment.

If that sounds like a futuristic vision, it’s one that’s achievable today by following our business-driven approach. You can quickly and easily bring together data from all parts of your organisation – whether current or historic – to answer specific leakage questions. That means you can tackle all five of the linked optimisation problems in an integrated manner. You can then get leakage down to the lowest possible level and report the status in real-time using the same data.

# The Capgemini-IBM solution

The right approach is a business-driven one that can combine large numbers of data sets using a versatile, open and reusable platform. This platform needs to be complemented with a service approach that delivers benefits at scale, rather than a series of individual consulting projects. That's what Capgemini and IBM offer in our new joint solution. Let's look more closely at each of these features.

## 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. Start by thinking not about data but about insight. Ask: "What business issues do we need to solve, and what information would enable us to do that?" That question enables you to focus on the data that's relevant to the immediate requirement, producing faster results with less waste.

## Integrating multiple data sets with a versatile platform

Another key feature of our solution is that it integrates data of multiple types and from multiple sources. Experience shows that this is the secret to unlocking significant value and enabling insight-driven transformation.

Instead of developing bespoke platforms for specific requirements, it makes sense to work with a generic platform that pulls multiple data sets together as required to build analytics for a specific need. With an open platform like this, you avoid the need for integrating specific systems each time you need a new insight. This means that while you're solving urgent problems in the area of leakage, you're also equipping your company to solve a whole range of other business problems, such as those relating to debt.

The results of the analysis can be automatically fed back into your business processes to assist with real-time control of assets and systems.

## A service approach that delivers long-term benefits

It's not cost-effective to launch a new consulting project each time you need a new type of insight. Instead, we aim to work with clients to deliver a continuous stream of benefits over a number of years. We offer a range of commercial structures to suit varying client needs, including long-term managed service style arrangements where investment is linked to value delivery and risks are shared.

## Benefits of the Capgemini-IBM solution for managing leakage

- Drive down service costs, increase customer satisfaction and achieve operational excellence. Get an instant overview of actual and threatened leaks, with costs and priorities, on a single dashboard-style display.
- Predict where leakages will occur and find and resolve them quickly.
- Prevent leaks from occurring – by scheduling maintenance based on predictive analytics instead of just the age of the pipes you can prevent more leaks while replacing fewer pipes.
- Identify the right level of pressure both to satisfy customers and to minimise leakage.
- Gain a business-driven analytic approach platform that can be used to tackle a wide range of business challenges.

## Why Capgemini and IBM?

Many vendors offer “point solutions” to tackle specific aspects of getting insights from data, but IBM is the only company that offers best-of-breed products to address every element of the architectural stack. That means 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 that way it’s possible to achieve the ideal compromise 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 ones, meaning that clients have the flexibility to integrate other vendors’ products if they want to.

IBM’s platform is complemented by Capgemini’s unrivalled global capabilities: its expertise in operational consulting and specifically in creating and improving business models and processes; its experience in generating and applying insights from data; its worldwide teams of specialists in data science and technology; and its well-established partnership with IBM and depth of knowledge of IBM products.

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

Together, Capgemini and IBM provide a full range of services to support any client in this area: technology solutions, consulting, implementation, and (if required) managed services provision.

## Operational analytics study

A new study<sup>1</sup> conducted by Capgemini Consulting’s Digital Transformation Institute identifies some key organisational attributes that have enabled “game-changers” to leap ahead of other companies, and in particular “laggards” who are only now introducing analytics:

- **Integrated data approach:** Leaders in operational analytics are integrating data sets across their organisations to gain a holistic view of operations. As many as 43% of game-changers have completely integrated data sets, whereas only 11% of laggards do.
- **Using a wide variety of data:** Successful companies enhance the quality and scope of their operations data by using external and unstructured data – this is true of 59% of game-changers but only 27% of laggards. Similarly, 48% of game-changers use external data to enhance insights compared with only 23% of laggards.
- **Making analytics an essential component of their decision-making process:** The operations areas in 58% of game-changers say they do this, but for laggards the figure is just 28%.

<sup>1</sup>Capgemini Consulting press release, “Capgemini study: Organizations shifting analytics ‘focus’ away from customer experience towards operations” [https://www.capgemini-consulting.com/sites/default/files/03\\_23\\_operational\\_analytics.pdf](https://www.capgemini-consulting.com/sites/default/files/03_23_operational_analytics.pdf)

## Next steps

You're probably already doing great work in the area of analytics. But unless you can optimise all five of the areas we listed, in an integrated manner and based on data, you have opportunities to reduce leakage further using analytics. Three simple steps will tell you how our approach could help:

- 1. Maturity assessment.** How many of the five linked optimisation 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 do you have to leverage insight better?
- 2. Opportunity mapping.** Explore the opportunities in more detail, and develop a business case for implementing a platform for gaining the missing 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.

We have methodologies and tools to help you explore your options with minimal effort and risk. The whole approach is a flexible one that can build 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.





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Talk to us if you'd like to know how fast you could go and what you would gain in terms of reduced service costs, increased customer satisfaction and enhanced operational excellence. Remember, the Capgemini and IBM offer is more than an innovative approach to dealing with leakage. It's a business-driven analytics strategy and platform that, once in place, will meet a wide range of future needs across your whole organisation.



## 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 200,000 team members in over 40 countries. The Group reported 2016 global revenues of EUR 12.5 billion.

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