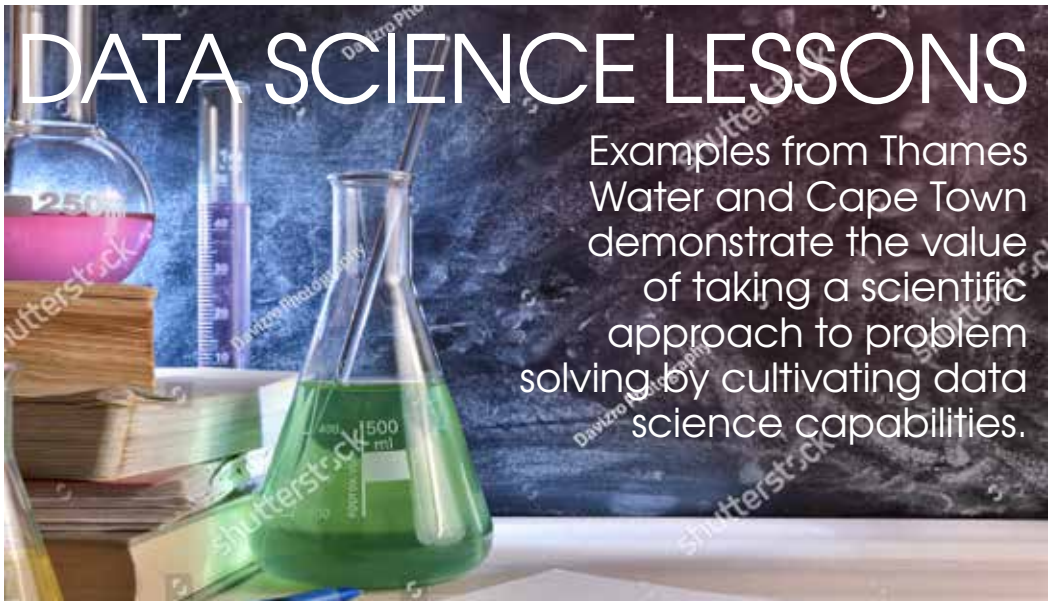
INDUSTRY COMMENT

DATA SCIENCE LESSONS



Examples from Thames Water and Cape Town demonstrate the value of taking a scientific approach to problem solving by cultivating data science capabilities.

Shaun Dippnall is founder and CEO of EXPLORE Group, which specialises in data software, data science and related training and consulting services.

Data science combines multiple fields, including statistics, scientific methods, artificial intelligence (AI), and data analysis, to extract value from data. In this world of digital transformation, it's increasingly being talked about as something that every business needs to get better at – but few actually manage to do so.

Earlier this year, Thames Water announced it was investing £1bn in technology over the next six years to revolutionise its water and waste operations. Data science is playing a key role in this tech overhaul.

Thames has a vast network and population to serve. London's sewer system was built for a population of four million back in 1865, when only two and a half million people lived there. Fast forward to today, and the capital is home to more than 9m people. Together with the greater Thames region, Thames Water now supplies more than 15m customers with drinking water.

More than 500 factories assist the company in the treatment of its water or waste. Blockages resulting from flooding or pollution in this vast delivery network have been a continual problem and Thames Water needs to be able to pre-empt and prevent these. Leakage from the water network has also been an ongoing and major challenge for the firm.

Cape Town inspiration

Thames Water is now using data science and analytics to deliver products that reduce leakages, respond quickly to supply interruptions, prevent blockages and flooding, reduce wastage and eliminate environmental pollution, all while saving vast amounts of money. There are currently 70 data scientists from EXPLORE-AI involved in the Thames Water project, helping to build out its smart water and waste platform, a major refresh of its technology estate.

EXPLORE-AI's consulting arm was invited to deliver analytics on the Thames network after the company became aware of our work in Cape Town.

When the water crisis hit Cape Town in 2018, we tasked our students at EXPLORE Data Science Academy with creating a database using historical water consumption data by suburb, available on Cape Town's open data portal. The goal was to develop insights into the city's water shortages and provide recommendations to alleviate the crisis. It was here that specific water supply related analytical tools were developed.

At the time, Thames Water's chief digital officer, John Beaumont, commented: "The decision to appoint Explore AI was based on its in-house data science capability and its proven expertise in mapping the various data sources that contribute to understanding the factors affecting Cape Town's water supply. By working with Explore AI, Thames Water has entered an unprecedented new era in disruptive technology that enables us to digitise our business in ways previously not possible."

Two years later, EXPLORE-AI has over 70 local data scientists working specifically for Thames Water across 12 squads. To date, the solutions delivered have yielded benefits including increasing leakage detection efficiencies by more than 15%, and helping the control room better respond to reduce the impact of cold snaps.

> **Businesses need to imbue their already competent workforce with skills in analytics, programming, business intelligence and data engineering**

Leveraging data

You don't need a team of 70 to start harnessing the power of data science. In fact, in the current situation, it would be quite difficult to find so many skilled candidates. According to IBM, last year demand for data scientists and data-savvy candidates surged by almost 40% as businesses lean increasingly on digital ecosystems to engage with potential customers, and need to put all of the data they're harbouring into action.

If data science is to be embraced as a philosophy and an approach to overcoming challenges and finding opportunities, businesses instead need to imbue their already competent workforce with skills in analytics, programming, business intelligence and data engineering. And the magic you get when you upskill your existing team, is that they know your business, your customers, and love what you do. You can nurture a truly data-driven culture instead of trying to retrofit one artificially by slowly bringing in outside talent.

Data science skills should be viewed as team pursuit, blending an affordable recruitment pipeline with the upskilling of in-house staff to gradually uncover the myriad benefits of a more scientific approach to problem-solving.