Qlik

CUSTOMER STORY

DATA ANALYTICS

Australian National University

Sustainable campus operations with smart technologies and insightful analytics

CastSolutions

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Rajeel Naicker, Controls Engineer, Australian National University

Addressing complex problems

When Australian National University (ANU) was founded in 1946, its aim was to help realise Australia’s potential as the world recovered from a global crisis and entered a period of post-warrebuilding.

Central to achieving its mission was a drive to connect talented people with diverse perspectives, equipping and encouraging them to address complex problems. As Australia’s national university, it’s a responsibility to which ANU remains firmly committed to this day.

The global crisis that ANU faces today is very different from the one that underpinned its beginnings. The challenges posed by climate change, sustainability and environmental, social and governance priorities now dominate global agendas and are increasingly defining the opinions and attitudes of ANU staff and students. They are also challenges that ANU is determined to engage with proactively, starting with its own operation.

“ANU has a strategy towards the reduction of carbon emissions,” explains Rajeel Naicker, Controls Engineer at ANU’s Facilities & Services Division. “We’re looking to build a collaborative groundswell in identifying opportunities to enable actions for improvement.”

ANU currently has around 25,000 students and 5,000 staff, and its main campus in the Canberra suburb of Acton is an attractive mix of green parkland and university buildings. For a team looking to build a more sustainable future, it proved to be a perfect starting point.

Solution Overview

Customer Name
Australian National University

Industry
Public Sector

Geography
Canberra, Australia

Function
IT

Challenges
- Improve energy consumption and carbon emissions
- Increase energy efficiency and cut costs
- Generate awareness and participation in sustainability initiatives

Solution
ANU collaborated with Qlik Partner Cast Solutions to develop the Energy Dashboard as part of a long-term energy-saving initiative.

Results
- Simple but effective visualisations deliver effective insights
- ‘Crowdsourcing’ approach encourages end-user engagement
- Management can now make informed decisions and take meaningful action

A solution for a complete picture

The main challenge for Naicker and the Facilities & Services team in cutting carbon emissions wasn't hard to explain, ANU needed to reduce its energy consumption. It is the second-largest electricity user in the Australian Capital Territory, and its portfolio of large buildings accounted for around half of its carbon footprint.

"We have around 250 buildings on campus, so the university wants to understand where electricity is used," Naicker explains. "Ten years ago, a team was put in place to understand data and bring it into the very closed dashboard systems that are usually supplied by industrial automation companies."

It was immediately clear that this wasn't a task that could be completed quickly. Step one was to replace hundreds of old and inaccurate dial-based electricity meters.

"The first part of the solution was to upgrade to a smart meter system," Naicker continues. "That was a three-year project, going through all the switchboards, changing meters and the surrounding IT infrastructure. When we saw all the data we could access as a result, we realised we needed a dashboard system."

Early dashboard versions were an improvement but lacked the desire visual appeal and engagement. Seeing a full picture wasn't possible.

"The data looked very corporate, very boring, like reading a newspaper," he recalls. "We decided to go to the market to look for a better solution."

Building the Energy Dashboard

Australian data analytics solution provider Cast Solutionssaw a clear answer to ANU's requirements, and was selected to design, develop, implement and service the solution for ANU following a robust tender process in 2021.

"We wanted to work with Cast to design the dashboard we want, not something they forced upon us," says Naicker. "The Qlik solution was excellent."

The Facilities & Services team worked with Cast Solutions to build the Energy Dashboard. The Qlik-based platform combines a variety of data sets sourced from over 200 buildings and approximately 1,000 electricity meters to understand where and how energy is used.

It combines real-time local weather data to enhance building energy efficiency, with Qlik Sense handling data modelling and visualisations to provide near-real-time insights to users across ANU.

"It's a near-real-time application that combines data modelling, visualisation and compliance reporting," Naicker explains. "It consists of a range of dashboards for the Facilities & Services team to manage day-to-day operations, maintenance and capital works."

A new range of perspectives

The Energy Dashboard now provides critical insights into energy usage and heat transfer, building and structural characteristics, and operational factors and occupant behaviours that influence energy consumption.

Its Environmental Management Plan (EMP) perspective, which ties into an extensive ANU project with the same name, also highlights energy hotspots and opportunities for improvement. Management staff can now see where and how energy is being used, and how and where resources could be invested to reduce both carbon output and costs.

There is a broad range of user options and views. The Campus Overview screen gives a helicopter view of electricity consumption for buildings across the Acton campus. The Building Analysis function enables a deeper understanding of consumption in specific buildings and after-hours analysis identifies consumption outliers and hotspots outside business hours.

“Previously, this level of building, precinct and campus information could not be accessed easily,” says Naicker. “Also, electricity meter data is generated at five-minute intervals and those huge volumes could not be manipulated manually. That’s only possible with Qlik.”

A defining characteristic of the project is what the Facilities & Services team calls “crowdsourcing”. By sharing access to the Energy Dashboard and the data it delivers to individual building managers and wider staff, they can now identify areas and issues that could be fixed.

“As the Facilities & Services team, we understand how the campus works, but every building is different, with different requirements for different types of teaching or research,” explains Naicker. “So we used Qlik to develop heat maps, simple pie charts and line graphs so building managers can understand what’s happening at a glance.”

Enabling a new pro-environment generation

Prior to implementing the Energy Dashboard, lack of transparency on carbon emissions or energy costs was holding ANU back. Now decisions on how and where ANU should invest in projects to reduce its energy consumption and carbon footprint are now based on data-led evidence.

“Our message is: you tell us what’s happening and we’ll help you,” Naicker explains. “We can put in better systems, we can help with HVAC, we can turn chillers off at certain times and use outside air to cool buildings.”

Such is the tool’s effectiveness that in October 2023, ANU won the ESG-centred App Innovation award at the Qlik ANZ Health & Public Sector Digital Transformation event. Naicker is justifiably proud, but remains mindful of the bigger picture.

“It’s a small win for the university, but hopefully down the road a large win for the environment,” he smiles.

ANU is now extending the tool to other sustainability-based use cases and part of the EMP, such as water usage and waste management, with the aim of reducing waste to landfill and increasing recycling, repurposing and reuse. Also growing in importance is future-proofing the tool and further widening its reach.

“Moving forward, we want to push data to students, empowering a new, pro-environment generation to challenge us and drive change,” Naicker concludes.

The keys to success

1,000
electricity meters tracked

250
buildings covered

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Rajeel Naicker, Controls Engineer, Australian National University

About Qlik

Qlik transforms complex data landscapes into actionable insights, driving strategic business outcomes. Serving over 40,000 global customers, our portfolio leverages advanced, enterprise-grade AI/ML and pervasive data quality. We excel in data integration and governance, offering comprehensive solutions that work with diverse data sources. Intuitive and real-time analytics from Qlik uncover hidden patterns, empowering teams to address complex challenges and seize new opportunities. Our AI/ML tools, both practical and scalable, lead to better decisions, faster. As strategic partners, our platform-agnostic technology and expertise make our customers more competitive.

qlik.com

About Cast Solutions

Cast Solutions is an Australian-based business advisory data management, data integration and advanced analytics service provider. It provides business intelligence, real-time reporting, data insights and visualisations, all of which are aligned with the client's business operations and strategic focus.
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