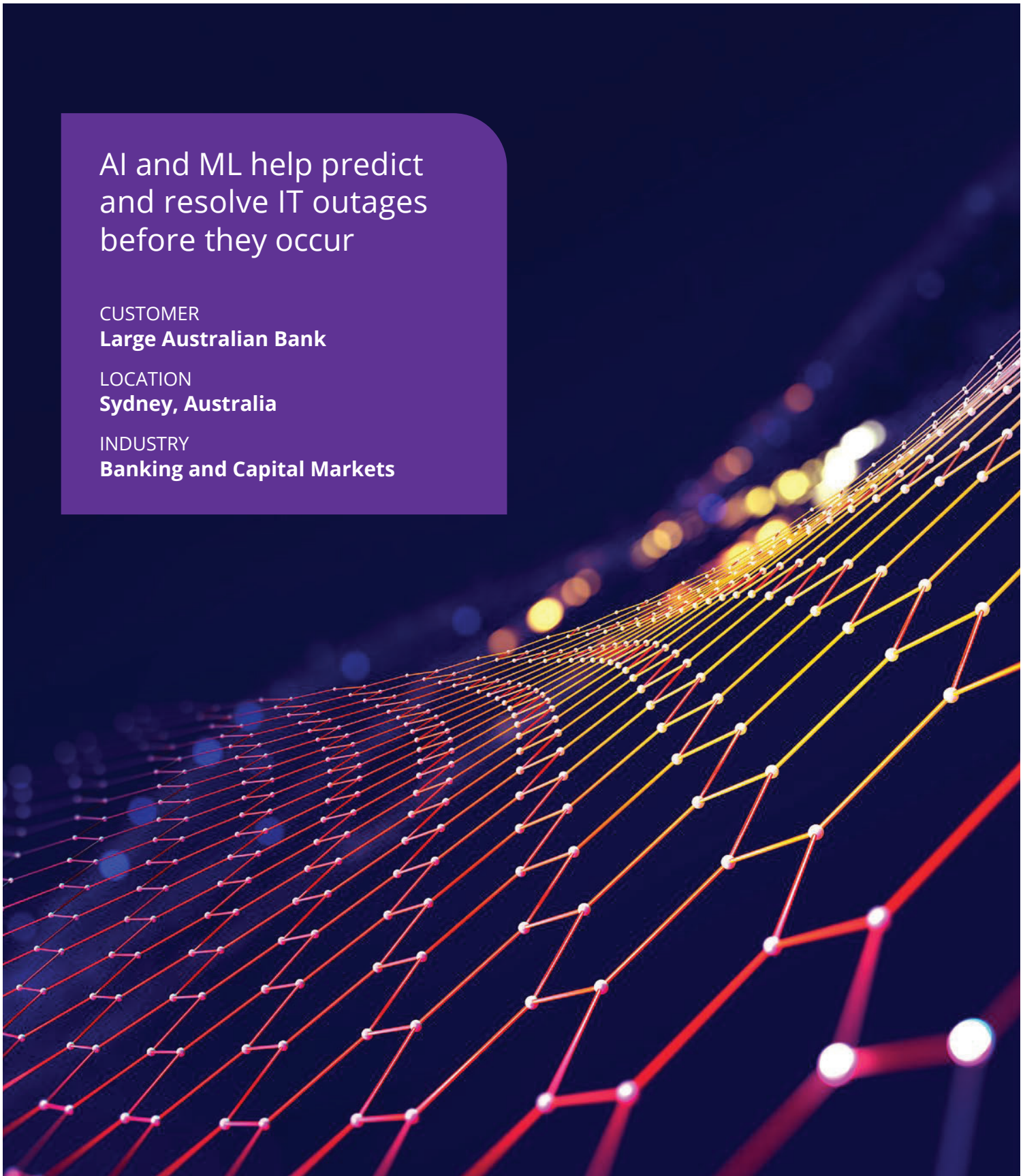
DXC TECHNOLOGY

AI and ML help predict and resolve IT outages before they occur

CUSTOMER
Large Australian Bank

LOCATION
Sydney, Australia

INDUSTRY
Banking and Capital Markets



Challenge

- The risk of critical IT service incidents affecting customer and employee experience
- An opportunity to use emerging technology to improve consistency and reliability of IT services

Solution

- Artificial intelligence (AI), machine learning (ML), advanced data science and analytics
- Analysis of three years of historical data with thousands of data points from hundreds of banking systems

Results

- Measurable improvement to IT service management quality
- Improved resilience, reliability and efficiency of systems for customers
- The capacity to provide risk scores to support regulatory reporting (APRA)

AI and ML help predict and resolve IT outages before they occur

With branches across the country, this large Australian bank offers a full range of financial services to help customers build and manage their finances.

The objective of this project was to create and support a robust solution that could predict outages in the bank's IT environment.

Business challenge

Like all large financial institutions, this large Australian bank manages a complex IT environment. As part of the bank's ongoing modernisation strategy, the organisation's CIO saw an opportunity to use emerging technology to more proactively monitor and improve the consistency and reliability of IT services. He proposed a project to apply advanced analytics, artificial intelligence (AI) and machine learning (ML) to manage the risk of critical IT service malfunction.

The bank's IT team was charged with developing a solution to provide a holistic view of future stability risks for IT services. The objective of this project was to create and support a robust solution that could predict outages in the bank's IT environment. This would transform the management of IT service health by allowing the bank to proactively manage risk while reducing the impact of IT infrastructure failure on customer and employee experience.

Solution

DXC Technology was selected to partner with the bank's IT team to develop this unique solution. The resulting model uses data, AI and ML to analyse various service management metrics, identify patterns and produce a risk score determining the likelihood of future outages or incidents. This allows preventive action to be taken to minimise potential impact on customers.

DXC has been engaged in various projects across all areas of the bank's business for many years, including innovative and experimental work using emerging technologies. For this new project, a team of DXC data scientists used a design thinking approach and worked hand in hand with the bank to design, prototype and build AI models to consume historical system-level log data from hundreds of banking systems. System data covers everything from mission-critical customer-facing bank systems to back-end credit card and other processing systems with thousands of service management data points and statistics ingested to predict IT outages four weeks into the future.

> "Critical to our approach was using the modelling process to identify important data that needed to be cleaned, but without impacting the creation of the algorithm and scorecard. You will always find data that isn't good enough because the cleaner the data, the better the model."
>
> **— Michael Henry**
> Managing Partner,
> Analytics Practice,
> DXC Technology, Australia
> and New Zealand

An AIOps (AI for IT Operations) model was used, which observes, engages and acts in a continual cycle to detect, diagnose and automate tasks for issue resolution. Future outage predictions are based on the continual insights generated through this cycle and fed into the model.

The modelling and AI-led learnings are visualised on a dashboard, providing the bank with advance warnings for corrective action to be taken before systems go down, with the chance of future occurrences further minimised. This plays a strategic role in enabling a data-driven objective lens on IT risk, and insights generated provide "next best actions" for prioritisation.

DXC worked with a variety of disparate system owners and business stakeholders within the bank to fully understand their differing needs and how outputs would be used on a daily basis. Work included an extensive feature engineering effort based on numerous SME interviews, workshops and brainstorming sessions — all completed in a highly rigorous and consultative manner. Based on this collaborative approach, 700 features were selected and productionised within the bank's big data cluster, ensuring the creation of the most accurate algorithms.

DXC's ability to act quickly was critical. Michael Henry, managing partner for DXC's Analytics Practice in Australia and New Zealand, said, "Critical to our approach was using the modelling process to identify important data that needed to be cleaned, but without impacting the creation of the algorithm and scorecard. You will always find data that isn't good enough because the cleaner the data, the better the model. However, we started with the data we had, knowing the accuracy was around 60%. The continuous cycle of AI feeding data into itself generates an iterative learning and continuous improvement focus — which will ultimately increase the accuracy exponentially."

AI explainability was also a key factor for success, with DXC balancing data accuracy and explainability to create the best model. The bank must be able to explain to anyone within the organisation and regulatory bodies why specific techniques are used for creating certain algorithms — satisfying data governance requirements through transparency.

Results and benefits

DXC's expertise in data science, data engineering, AI and ML helped the bank's IT team build the solution to solve this challenging problem. DXC worked closely with the team to apply its deep understanding of the bank's IT landscape, the nuances of banking capabilities, systems and situations, and the power of AI, ML and analytics.

The AI and ML model drives a cycle of data feeding into itself for continuous learning and improvement, resulting in improved accuracy over time.

The solution is helping increase the bank's performance by predicting the likelihood of high-priority incidents affecting customer-critical systems across its technology estate. Drawing on thousands of service management data points and statistics from incidents over the past three years, the model has measurably improved IT service management quality and will ensure more resilient, reliable and efficient systems for the bank's customers.

The bank's CIO said, "It's a highly predictive capability that allows our service managers to ensure our systems are safe, stable and secure. For us, it's about making our service management practices more proactive and forward-looking."

It has fundamentally changed the bank's approach to system outages — with the ability to predict issues up to four weeks out, allowing the bank to better understand the contributing factors to outages and remediate them before they occur. The AI and ML model drives a cycle of data feeding into itself for continuous learning and improvement, resulting in improved accuracy over time. In addition, visibility and understanding of advanced data analytics have increased across the bank's broader IT ecosystem, and the data is also used to support quarterly regulatory reporting to the Australian Prudential Regulation Authority (APRA).

DXC helped the bank turn innovation into a repeatable process through this project, setting the framework and a continuous way of conducting analysis at scale. The methods, tools and technology used to create the models and algorithms have formed the foundation for future work.

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