



# The University of Adelaide

## Optimising asset investment planning for 300+ buildings

### Client

University of Adelaide

### Location

Adelaide, South Australia, Australia

### Vitals

- Australia's third oldest university
- Portfolio of more than 300 buildings and an area of around 425,000m<sup>2</sup> across four campuses
- Equivalent full-time student population of circa 22,000
- Consistently ranked within the top 1% of universities in the world

### Challenges

The University of Adelaide (UoA) needed a robust asset investment plan (AIP) to manage its portfolio of more than 300 buildings, which vary significantly in age, complexity, and condition. Balancing the needs of these buildings and their associated risks against given funding is a significant challenge.

### Results

- By partnering with Brightly, UoA has created a 25-year AIP enabling it to:
- Run "What-If?" scenarios to predict estimated building deterioration and condition levels.
  - Prioritise buildings and component renewals based on importance.
  - Identify a short-term reduction in funding with an acceptable level of deterioration to its building stock in 5–10 years' time

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## Concerns

Universities are asset-intensive organisations that manage complex building portfolios, ranging from highly specialised research & teaching buildings, sports facilities, archives, and libraries to student accommodation centres. Not only do they face the same challenges in maintaining their asset portfolio as any other asset-intensive organisation, but it has been widely acknowledged that Australia's tertiary education sector was among the hardest financially hit by the COVID-19 pandemic.

Being a research-intensive university, UoA needed to balance maintaining comfortable facilities, providing specialised conditions for research activities and storage archives, and overall business continuity within the allocated budget. However, like many of its peers, it faced significant funding challenges and needed to either reduce or delay its planned asset renewals.

Another challenge was making the right capital and maintenance expenditure decisions. Given the university is nearly 150 years old, its building stock varies significantly in age, complexity, and condition state. If left unmanaged, building portfolio degradation could significantly impact services supported by the buildings.

The university wanted to move away from its previous practice of investment planning, which relied heavily on the opinions and perceptions of building managers and occupants without solid evidence to back up the decisions being made.

Instead, UoA sought to better understand the short-, medium-, and long-term impacts of different investment levels on the overall building portfolio based on real data. It also wanted a way to objectively prioritise buildings and building component renewals based on their importance in supporting the overall vision and ambitions of the university.

Lastly, it needed to be able to communicate this information in a simple and effective manner to UoA's leadership so they could easily understand the consequences of their decision making.



## The Solution

UoA partnered with Brightly to create a 25-year asset investment plan (AIP) that included "What-If?" scenarios to predict the deterioration of its buildings and condition levels given various funding levels.

To develop the plan, the university adopted Brightly Predictor, a prediction modelling and decision support tool for the long-term planning of infrastructure assets. The Predictor models combined snapshots of asset data with asset life cycle and financial strategies to produce options for capital works investment in the future.

The "What-If?" scenarios allowed UoA to improve its understanding of tipping points beyond which risks to business continuity would be unacceptable. Through this, UoA was able to identify an optimum short-term reduction in asset investment funding with an acceptable level of deterioration to its building stock in 5–10 years.

Using the program, UoA was also able to create a target level of service (LoS) for each building priority to assess performance and contribution to the university's strategic objectives. It placed buildings into four priority categories for maintenance and operational purposes, from high priority through to low priority. Capital works intervention levels were then designed to reflect building priority and building component criticality, allowing UoA to mitigate extreme or high risks involved with failing critical components in high-priority buildings.

Using visualisations to tell the story was a crucial part of communicating the predictive insights to the key stakeholders. A visualisation platform was developed using Power BI to present modelling analysis outcomes in a clear and impactful way, using metrics and graphs that could be understood by everyone.

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## The Results

The asset investment planning (AIP) approach has been ground-breaking for UoA and within its peer group. Since its development, the data-driven AIP has become an integral part of UoA's strategic asset management planning, allowing its leadership to compare different investment options for their building portfolio and make more informed decisions on what to invest in and when.

At each iteration of the modelling, multiple funding strategies are presented to aid with planning and decision making. A key improvement has been refining the cost of building component renewal. While the initial modelling adopted component replacement value as the renewal (treatment) cost, over the subsequent modelling iterations, this was refined by applying a percentage of component replacement values which are continuously validated against the latest building capital works.

Stakeholder engagement in each modelling iteration has also allowed them to better understand many of the assumptions that have been made during the modelling process, and to adopt improvements going forward.

The university recognises that achieving desired outcomes should not be a one-off process but a journey involving all stakeholders. Equipped with a better understanding of the modelling process, UoA continues to enhance its AIP by broadening its input parameters, improving data accuracy and output visualisations, and embedding the AIP model outputs within the critical decision-making process of its leadership. For UoA, evidence-based asset investment planning has become a way of life.

