



ASSET MANAGEMENT JOURNEY IN THE TERTIARY EDUCATION SECTOR: WAS THERE A COVID DETOUR?

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1. FOREWORD

Firstly, I would like to thank TEFMA for the 2021 Conference Scholarship that enabled me to visit four universities in the Melbourne region with the aim of learning the respective institutions asset management journey post pandemic and share my experiences and knowledge. This would not have been a reality if not for the encouragement and support from my line manager, Emmett Mackle – Assoc. Director Facilities Management and my director, Simon Neale – Director Property Services. I would also like to record my appreciation and thanks to the team at the respective universities for their support and making my visit to their university a successful one:

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2. BACKGROUND AND DISCLAIMER

The aim of the visits was to learn and understand the post Covid asset management journey for the tertiary sector. Also, to exchange my experiences and ideas with my asset management counterparts at the visited universities.

The report is intended to provide a high-level overview of the post covid asset management journey for some of the universities. It provides a snapshot of the focus areas of the universities within asset management space. I have concluded the report with my perspective as an asset management practitioner on the asset management maturity journey of these universities based on the limited engagements and information. This may anecdotally reflect the overall tertiary sector approach to asset management post Covid.

Based on the asset management maturity assessment tool that is being used by the New Zealand universities to report their maturity to the Tertiary Education Commission, a list of questions was prepared and circulated prior to the visit. The questions are more as discussion triggers since the respective universities may differ in their asset management focus areas to align with their university's strategic directions. The questions were:

- Current, Medium term and long-term asset management focus areas
- Renewals planning process – planning of asset replacements and the prioritisation approach
- Interior maintenance approach – frequency, assessment etc
- Condition assessment – plant & equipment, exterior and interior
- Asset management system – asset data/information capturing and changing process etc
- Team structure supporting asset management
- Asset management related reporting including asset management plans, dashboards etc

- Criticality framework/risk management
- Project handover w.r.t asset management related information, defects liability period management

3. UNIVERSITY 1

Covid impact has had the University review its 10-year strategy, redefining its goals. This impacts the lifecycle management of the property portfolio, which means that the asset management activities become pertinent.

Asset management is one of the planning activities of the property team. A dedicated resource has been allocated to manage the asset management related activities including the continuous improvement planning. Asset data improvement are among the continuous improvement initiatives. Space related data and information, and certain fire related assets are in an Integrated Workplace Management System, Archibus, while the work order management is done through another work order management system. The two systems are currently being integrated. It is possible that currently the data integration is done manually. Bar codes are used to link the work order management system.

Anecdotal evidence suggests that the work orders are currently raised against the trade services and the location of the issue, and not to the asset in issue. This may seem easier to manage but will have its own challenges to carry out any business intelligence or asset performance analytics.

Lifecycle management activities are taking place and with appropriate alignment with strategic direction of the University, but the University recognises that there are aspects of asset management that is lagging and has plans to address them. This is expected to be carried out by the dedicated resource. Currently, the focus is to establish critical assets list and for that there are efforts being made to develop a criticality matrix.

The focus is also on determining an estimate of the backlog maintenance liability. The information is not only for reporting purposes e.g., TEFMA benchmarking but also for asset lifecycle planning. For the benchmarking reporting, the condition and functionality data are an important input. The space planning team prepares the functionality information, while the condition data are derived from service providers and institutional knowledge.

This indicates that the condition assessments are not carried out as a strategic exercise that will inform the asset lifecycle management planning or cyclic maintenance strategy in particular the interior maintenance. The interior maintenance is mainly done in response to demand, need or a customer report on condition.

A single dedicated resource to establish and implement a continuous improvement plan for strategic asset management plan will pose its own challenges. However, the University has taken the journey in the right direction.

4. UNIVERSITY 2

Student experience seems to be one of the key strategic focuses for the University. This was progressed with active projects taking place within the City Campus. The projects are more aimed to keep the students within the Campus i.e., the 'Sticky Campus' approach. This was noted during the walk around and was confirmed during the interview.

While the capital works are in progress, the FM Team carries out a routine condition assessment as it is a key activity that provides valuable data for the estimation of the backlog liability and the subsequent development of an appropriate renewals plan. The following approach is undertaken by the team with regards to condition assessments:

- the plant & equipment condition assessment is carried out by their respective facilities management contractors.
- the interior condition assessment is carried out using internal resource. The interior condition assessments are done for critical buildings only but across all spaces within these buildings.
- A rolling programme is in place for the exterior condition assessment.

Prioritisation of works is influenced by the criticality of the building or asset. The criticality is established based on the institutional experience within the property team, the demand, and the type of system with reference to the building design.

Asset data and information are critical inputs for asset management related decision-making processes. The data are kept and maintained by the respective facilities management contractors, where every 5 years the University utilises the data to do analysis and renewals planning. The potential challenges from this arrangement are data quality and asset classification inconsistency, which means the University FM team needs to do a realignment before utilising the data. The FM team is considering centralising the asset database and be responsible in managing the data with the provision of access to the FM contractors for the work order management. The appropriate asset management system (software) is being considered.

Projects is one key source of asset data and information. The data gathering exercise at the University is done over time following post practical completion. This meant that during the defects liability period any work orders raised may not be recorded directly to the affected assets, as they may yet to be registered in the asset management system. TEFMA benchmarking is one of the reports that requires the above-mentioned information and in particular the backlog maintenance, where the input comes from the FM team. The reported information is not for the entire portfolio but based on the 100 plus critical or meaningful buildings.

While the above-mentioned asset management related activities were occurring, the University had gone through a resource optimisation exercise due to the impact caused by COVID. This resulted in the rationalisation of some of the teams including the FM team. There was a loss of some dedicated resources for asset management and those activities have been reallocated to other teams. This may impose some challenges for the team.

5. UNIVERSITY 3

Another university was forced to review its strategy with consideration given the reducing gross floor area of the estate. A target of 25% reduction by 2025 is being deliberated. Almost 75% of accommodation spaces have been decommissioned with the intention to either demolish, repurpose, or divest. Poor utilisation has been the main factor for this strategic decision.

Like many other universities, Covid has impacted its revenue stream and placed immense pressure on capital generation. The University is considering options that will help to manage this predicament. One of them is a joint-venture development that can generate long-term revenues and may not be directly university but more commercial and retail focused. Minor land bank divestment is also under consideration.

In addition to these challenges, there is the lifecycle management of existing estate and related services. Old infrastructure like the power, water etc, needs focus as they have either exceeded their useful life or are in poor condition. Replacement of these underground/hidden infrastructure, which are more than 50-year-old is a challenge in an active campus environment. Hence, renewals planning becomes critical. This is handled by the University's Infrastructure and Operations team, which also includes capex delivery, net zero initiatives, space optimisation, property development and leasing, and master planning.

The Capital Maintenance renewal plan is funded by annual budget of approximately \$10M (AUD) which funds the backlog maintenance related projects and another capital fund of \$5M (AUD) for new assets. The team has the liberty in prioritising the fund within the financial framework and utilising an overarching business case.

There are no space charges, which would generally fund the operations of the built environment, as such the services delivered are basic. So, any additional service requirements e.g., replacements or maintenance of interior assets/elements are done via request and upon receiving a cost centre from the requestor.

The asset management system holds the data and information of the plant and equipment, and the interior assets. The database for the plant and equipment was established four years ago. The hierarchy depth for the interior assets was deep resulting into approximately 100,000 assets. The interior assets condition assessments are carried out by staff and students employed as casual staff. Maintaining the quality of the asset data is challenging. At present, an ad-hoc approach is taken where if an asset is not found in the asset management system, then no fund will be allocated for replacement. An asset registration form is used to capture any new assets that are being introduced through large projects. Like the other universities Archibus is the system used to hold space related data.

Based on the asset management system information and institutional knowledge, the team estimates \$250M (AUD) backlog maintenance liability that requires some level of attention. Limited funding means prioritisation is inevitable. The team uses 1 to 5 criticality rating, where considerations are given to various criteria and considers the asset performance and strategic direction. The team is in the planning phase for next year's renewals/replacement programme.

6. UNIVERSITY 4

The last 7 years the University have been focusing on refurbishment and lifecycle renewals of its estate after years of capital new investment. However, the University strategic direction is being reviewed under the new Vice-Chancellor. The University may be embarking into a redevelopment strategy with focus on teaching and learning spaces.

One of the strategies considered by the University in response to Covid was exiting leased buildings or spaces, mainly occupied by support services by employing the hot-desking approach for its affected users and within its main campus.

The asset management input comes from a dedicated team of 4 that is under the Asset & Facilities Management structure within the Property Services. Like other universities, Archibus is the space information system, while the asset management system used is CAMS. There is a soft integration between the two and the FM contractors work order management system. The facilities management activities are outsourced hence the requirement for the integration.

A full space assessment with focus on the teaching and learning spaces was carried out to assess the condition and utilisation. Usually, the annual interior condition assessment is done using the students as a casual resource. The Asset team modified its assessment approach moving from a rating system to more of a matrix with 'when' – short, medium and long term, and 'work level' – light, medium and high refurbishment. This a condition based interior maintenance and not a cyclical one.

A pilot project has been initiated in developing 3D model for spaces with the intention of visualising the assessment information including the utilisation. Students are being used for this work and the equipment is being leased.

The Asset team utilises a mathematical approach in prioritisation process. The criticality of an asset is influenced by the asset type, service area and replacement cost. These factors are then weighted accordingly using the AHP (Analytical Hierarchy Process) approach. The prioritisation process is further supported by considering asset performance factors like reactive maintenance work orders, utilisation, utilities usage, primary purpose and the age of the building/asset.

This analytical output supports the annual budget bidding process. On an average, the annual allocation has been between \$5M and \$10M with one year going up to \$14M. The delivery team has a dedicated project management resource that manages this programme of works including the initial project planning, where the asset team is only a stakeholder.

Projects generate asset data and information, and the Asset team has in place a robust asset data gathering process using an asset registration form. Completing the asset registration process is mandatory for the sign-off of the practical completion. Prior to the practical completion, dedicated resources will chase for the asset information. The sign-off by Asset team occurs at three stages of a project:

- Part A – At PC, submission of full asset register and documents
- Part B – 90 days after PC
- Part C – End of DLP

DocuSign is being used to manage the business processes behind the project sign-off.

7. MY REFLECTIVE PERCEPTION

Like any other sector, the tertiary education sector was impacted by Covid prompting review of strategies. Based on my visits and engagements with the four Universities, there were commonalities and some differences in their strategic responses within the estate/property/built environment management space, which can be summarised as:

- Seeking organisational efficiencies through human resource optimisation
- Review on the capital investments – balancing the focus between student experiences and teaching, learning and research
- Maintained focus in ensuring the existing estate or built environment continues to deliver the required levels of service through affordable levels of investment

The challenges with these changes are the level of impact they have on the organisation's asset lifecycle planning and management related infrastructure like the plans, processes, systems, implementation resources etc. The deviations to the University's asset management journey depends on the scale of the impact.

The visited universities seem to have experienced some level of impact, but none has shown major deviation from their core asset management focus. Although, it must be noted that the asset management maturity varies between these universities, and that determines whether they are on the appropriate path to begin with.

The maturity variance can best be encapsulated by using the asset management maturity rating or scale from the International Infrastructure Management Manual¹ and Asset Management Maturity Scale and Guidance² document.

¹ [International Infrastructure Management Manual](#) developed by New Zealand's National Asset Management Support (NAMS), which is now a special interest group within the Institute of Public Works Engineering Australasia.

² [Asset Management Maturity Scale and Guidance](#) is a guidance document developed by the Institute of Asset Management, UK, introducing asset management maturity, and how it can be defined, scaled and recognised.

IIMM Maturity Levels	IAM Maturity Scale	Definition/Description	Organisational 'Bubble Speech' of Maturity
N/A	Innocent	The organisation has not recognised the need for this requirement and/or there is no evidence of commitment to put it in place	WHY WASTE OUR TIME ON ASSET MANAGEMENT?
Aware	Aware	The organisation has identified the need for this requirement, and there is evidence of intent to progress it.	WE DO SOMETHING WHEN WE HAVE AN INCIDENT
Basic	Developing	The organisation has identified the means of systematically and consistently achieving the requirements, and can demonstrate that these are being progressed with credible and resourced plans in place.	WE HAVE SYSTEMS IN PLACE TO MANAGE ASSET MANAGEMENT
Core	Competent	The organisation can demonstrate that it systematically and consistently achieves relevant requirements set out in ISO 55001.	
Intermediate	Optimizing	The organisation can demonstrate that it is systematically and consistently optimising its asset management practice, in line with the organisation's objectives and operating context.	WE ARE ON THE ALERT FOR AM OPPORTUNITIES AND RISKS THAT MIGHT EMERGE
Advanced	Excellent	The organisation can demonstrate that it employs the leading practices, and achieves maximum value from the management of its assets, in line with the organisation's objectives and operating context.	ASSET MANAGEMENT IS AN INTEGRAL PART OF EVERYTHING WE DO

These universities are transitioning themselves between developing (basic) and competent (core) as they indicated having in place system (people, process, and tools) to support one or more of the following key asset management understandings:

1. Understanding and defining asset management requirements
2. Developing asset management lifecycle strategies
3. Asset management enablers

It must be noted that some of these universities, in particular University 3 and 4, are operating at the 'Optimizing' or 'Intermediate' maturity level in certain aspects or functions within these broad AM understandings. This was evident in their explanations and evidence around resource, process and outcome. Examples:

- Robust project handover processes
- Dedicated asset management roles (more than 1 role)
- Effective deferred maintenance management through establishment of clearly defined replacement/renewal plan
- Robust asset information management and gathering process

On the other hand, there are universities like University 1 and 2 unknowingly or in the absence of a holistic asset management maturity assessment, have some of the AM aspects or functions, at the 'Aware' maturity level. Example:

1. Unstructured asset data and information that may not be suitable for an effective asset lifecycle management process.
2. Asset database is handed over to several external facilities management service providers to manage. Potential to create inconsistencies and later inefficiencies as

the combined databases need to be cleaned and aligned before any business intelligence process can take place and this must be done by the internal resources.

3. Expectations of one single asset management resource to resolve AM gaps and progress continuous improvements.
4. Data gathering and subsequent maintenance strategies development challenges as this phase is only done after a project is handover leading to a potential inefficiencies or incompleteness.

8. CONTINUOUS IMPROVEMENT SUGGESTIONS

The asset management journey is a long-term focus and the success of systematically enhancing the AM maturity relies greatly on the continuous improvement initiatives taken by our organisations. Covid may have impacted the AM journey that resulted in some of us in the tertiary sector deviating from our original asset management travel path. The following suggestions are based on my travel and best practices.

1. A holistic approach must be undertaken by universities and other tertiary education institutions when planning the asset management maturity continuous improvement. Solutions derived from a targeted or atomistic approach, where a particular function or aspect of AM are altered, may only address the symptom, and may not provide a sustained and systemic solution.
2. A gap analysis using a recognised AM best practice framework or tool e.g. IIMM or ISO55000 should be made across all the three broad AM understanding areas. This may not require an external party to carry out the analysis, a core internal working group self-reflecting on the AM maturity would be a good start. This will enable the organisation to understand the skilled resource requirement to carry a more deep-dive analysis and develop a detailed continuous improvement plan.
3. The developed continuous improvement plan needs to be diligently progressed and tracked, if possible, by a continuous improvement specialist or the dedicated AM resource. The success of this depends strongly on the support and buy-in from the senior leadership team.

These suggestions are easily said but hard to embrace and implement. Unfortunately, asset management is not backed by regulations, hence organisational commitment to better itself and become a learning organisation is imperative to achieve success in the asset management journey. Recent realisation of the importance of proper asset management by many built-environment intensive service sectors, including the tertiary sector is encouraging. However, this impetus should not be dampened or the first one to deprioritised due to affordability reasons.