



VALUE THROUGH ASSET MANAGEMENT: DEFINING THE REAL ROI

-- This article is based on a paper presented at the 2021 AMPeak Conference --

A common issue we have observed across many industries is that parts of a business often recognise the need for improving asset management practices, but they are not able to demonstrate, in a quantitative manner, the value it actually provides to the business.

Establishing an asset management system (AMS) is a long-term endeavour – generally measured in years – which also means it has a real cost to the business. To be able to obtain the funding and commitment necessary to implement an AMS, it helps significantly to be able to demonstrate benefits in financial terms to the executive or board.

In this paper we will look at the value derived from asset management, based on definitions in ISO 55002, using TransGrid as a case study.



Context

TransGrid is the electricity transmission business that supplies all of NSW. Its primary role is to connect the major generators to the three electricity distribution businesses that then supply commercial and residential customers.

TransGrid is required to comply with ISO 55000 under its electricity Transmission Licence and was originally certified to ISO 55001 in 2014. Since certification, TransGrid has constantly strived to develop and improve the system to exceed the minimum requirements of the standards in key areas.

There is a real cost in continual improvement and building an AMS to a maturity that exceeds what is required by the standard for compliance. So, it is natural that once compliance has been established and maintained for a period of time, that the executive and the board want to understand the value – in addition to compliance – that is being achieved by the AMS and improvement initiatives.

Maturity assessment and meaning of value

Our review of TransGrid investigated the links between the mechanisms and processes that were identified as driving the asset management maturity above the minimum requirements of the standard, and to identify where this is likely to materialise as quantifiable or demonstrable value to TransGrid.

The first phase of the review was to undertake an assessment of TransGrid against ISO 55001. We identified 11 certifiable areas (out of 27) for which we were able to substantiate that TransGrid's AMS exceeds the minimum requirements set out in ISO 55001:2014. These are shown in Table 1 (next page) mapped against TransGrid's six strategic objectives.



CLAUSE	SAFE	EFFICIENT	CONSUMER	BUSINESS	FUTURE	TECHNOLOGY
Context of the Organisation						
Leadership	Strong	Moderate				
Planning						
Support	Strong	Moderate				
Operations	Strong	Moderate				
Performance Evaluation						
Improvement	Minor	Moderate			Minor	

■ Strong
 ■ Moderate
 ■ Minor
 ■ Comply

Table 1: Outcome of the maturity assessment

TransGrid is regulated by the Australian Energy Regulator, which is an economic regulator, so it is focused on prudent and efficient investment. They are also regulated by IPART on safety. It was therefore no surprise, that we found the areas with the strongest demonstration of asset management were those that linked most directly to the safe and efficient strategic objectives.

To demonstrate and guide our assessment of value, we applied the latest revision of ISO 55002 that was released in 2018. ISO55002:2018 acknowledges that the suite of standards talks about value but does not clearly define what value is. The 2018 revision defines value to an organisation as being achieved through three mechanisms:

1. Value Generation: benefits derived from the use of the assets in the short term
2. Value Determination: the market value of the asset or value if sold, considering potential future benefits
3. Values: the culture and behaviours that enable the realisation of value to the business

These three areas of value realisation measure different attributes that are required for a business to operate sustainably. By applying these three lenses, we were able to quantify the value achieved by Trans-Grid to calculate a Return On Investment (ROI), demonstrate how

asset management is helping business growth and demonstrate that the culture of the business supports asset management.

Our review relied upon published financial and non-financial data, supplemented by some internal data regarding culture. We approached this using the following principles:

1. We applied the recent revision of ISO55002:2018 as the basis for defining and assessing the value under the categories Value Generation, Value Determination and Values.
2. We quantified the information in financial terms as far as possible so we could determine the ROI and identified other trends or behaviours that demonstrated benefits to the business.
3. Based our assessment on comparison of performance since certification in 2014 and comparison to other similar businesses.

Value Generation

Value generation relates to the short-term benefits or revenues created from the use of the assets. This category is largely quantifiable and recent historical data can be used to show the financial return to the business that can be

achieved through effective asset management. Key metrics for this may include maximising business revenues, minimising the lifecycle cost of owning the assets, and meeting performance requirements such as reliability or availability.

Since our task was to find the benefits of exceeding minimum compliance, we assessed Value Generation relative to 2014, when TransGrid achieved compliance. Historical data in terms of asset performance, financial benefits and expenditure are available from annual regulatory information disclosures.

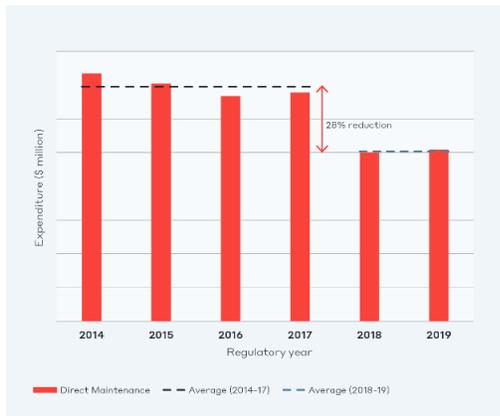


Figure 1a

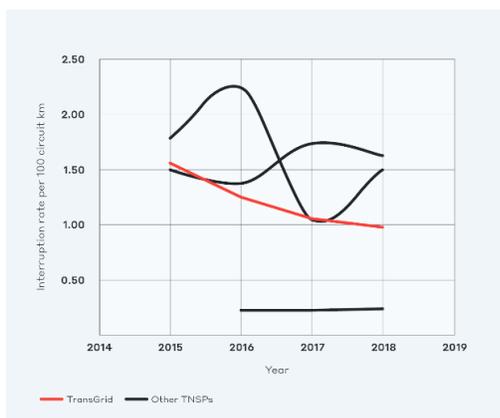


Figure 1b

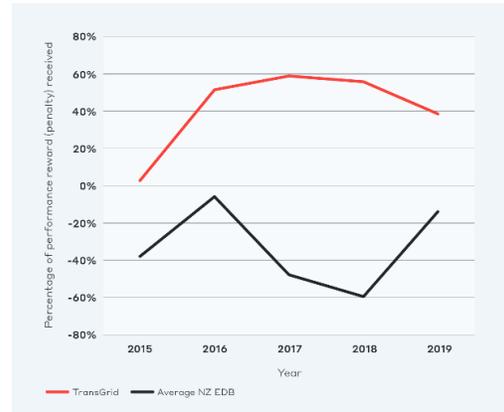


Figure 1c

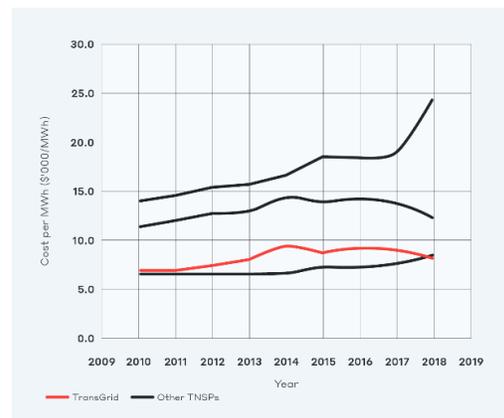


Figure 1d

Figure 1: Demonstration of value achieved through asset management

The key areas where we focused and were able to quantify financial benefits to calculate the ROI, were:

As mentioned earlier, TransGrid owns the transmission network in NSW, so they have a large asset fleet. By improving their understanding of their assets TransGrid has been able to more efficiently plan and allocate maintenance to reduce their network maintenance expenditure. Figure 1a. shows the 28% reduction in expenditure achieved.

Figure 1b shows the improving (decreasing) trend in the interruption rate on TransGrid's network. The interruption rate has decreased more steadily than peer business, providing

value to their customers and it is also reflected in financial returns from their incentive schemes.

The AER administers the service target performance incentive scheme which rewards businesses for performance above the targets and penalises for performance below the targets. The targets are reset every five years based on the average of the performance of the preceding five years. Hence, continual improvement is required to benefit from the scheme. Therefore, this metric demonstrates the incremental improvement of the network performance. Figure 1c compares the performance of TransGrid to the average performance of NZ businesses which have a lower level of asset management maturity. The data demonstrated improved performance under the incentive schemes with a higher level of asset management maturity.

Figure 1d shows TransGrid's cost to customers has decreased slightly during the past few years while it has increased for peer businesses. This indicates improved efficiency of the business.

TransGrid's prescribed maximum allowance is based on a program of works and there is also an incentive component of individually specified project. TransGrid has continued to deliver the complete capital work program as well as all the specific identified projects. The benefit of this is three-fold: it minimises risk to the network as the required investment is being undertaken; maximises the return from their incentive schemes; and, ensure their investors receive the expected returns.

Value Determination

Value Determination relates to the market value of the assets or value if sold. This takes into account the future revenue that can be expected to be derived from the assets, the value of the assets themselves and financial factors (tax,

depreciation etc). Hence, this category of value is forward looking.

The importance of asset management to the category of Value Determination is that it will enable the future revenue to be derived from the assets, maintain existing performance and ensure that the business remains sustainable. Our review did not value the entire business, instead we focused on how TransGrid applied asset management to ensure business sustainability (maintaining the benefits of Value Generation in the long term), and growth of the business.

Our assessment of sustainability came from our review of asset management maturity which included reviewing documentation and interviewing staff. We found that TransGrid has promoted asset management across the business and implemented the AMS as part of an integrated business system, rather than operating separately. Each business unit and functional team, not just operational areas, demonstrated an understanding of how their role contributed to the overall business asset objectives.

For example, the review found that TransGrid had conducted stakeholder analysis activities and identified its internal and external stakeholders for its operations, which formed the basis for their strategic planning instruments for operational activities. Additionally, the data team was found to have engaged with the operators and planners to identify asset management data needs in order to increase planning and control of routine activities. This activity sought to provide greater clarity on data requirements for operations, as well as opportunities for business improvement with other organisational business units.

While this is a qualitative finding, it indicates how well asset management is embedded across the

business and is essential for ensuring long-term functioning and sustainability.

An area where we were able to quantify Value Determination was the ability to demonstrate growth. For TransGrid, this is done by delivering the full capital works program on the regulated network and maximising the volume of non-regulated assets they are engaged to build.

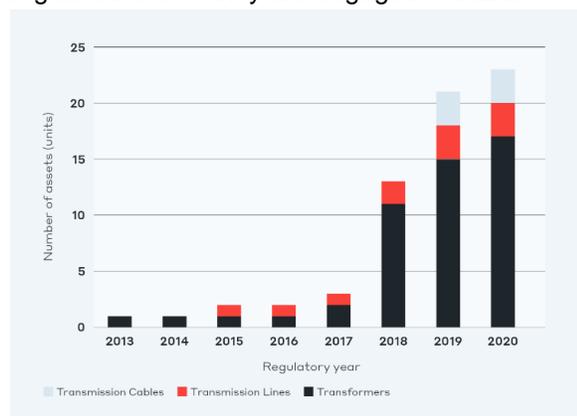


Figure 2: Demonstration of growth enabled by asset management

We have already discussed how TransGrid has generated value through its regulated network via the incentive schemes. While doing so, it has also been able to capitalise on the once in a lifetime opportunity presented by the growth in renewable energy. As shown in Figure 2, the amount of non-regulated works they have been able to win and deliver has significantly increased. The growth in these assets is a clear indication of increasing value of the business and is a quantifiable outcome of the asset management systems and practices that have been established.

Values

Values relates to the culture and behaviours that underpin the business that enable it to achieve its objectives, remain sustainable and grow. It is often considered as the additional value that can be attributed to an organisation from the level of confidence that the organisation's culture

imparts on the community and how it impacts internal workings of the business. This includes the behaviours internal to the business and the perception by its external stakeholders including customers and government organisations such as regulators.

In TransGrid's case, the external component relates to the ability to garner support from a community that may be affected by the construction of new infrastructure. This includes the perception of the environmental and societal performance of the business. Surveys completed by TransGrid demonstrate an increase in trust and reputation amongst their customers from 70% up to almost 80% in three years, with an increasing trend. The improving perception and social licence to undertake the construction is critical – and adds value to the business – due to the increase in construction required for renewable energy and major interconnectors between NSW and other states that is currently being undertaken.

The internal component relates to the benefits that are derived from the organisational culture and the understanding of the asset management system throughout the organisation and everyone's role within the system. For the purpose of Asset Management, the importance is the ability to establish behaviours and culture that will enable the long term sustainability of the assets to ensure that they will at least retain, if not grow, the value of the organization. Internal surveys undertaken by TransGrid demonstrate an increasing level of engagement by the staff in the Asset Management Group from 50% in 2018 to 68% in 2020. The level of engagement and support for asset management was notable in our interactions with the staff across the business. As a semi qualitative assessment, this isn't included in our ROI calculation, but is essential for maintaining long term value.

Return on investment

Based on the value generation component of our assessment, we calculated the benefits obtained based on the improved performance of TransGrid from 2014 to 2020. This included savings in capital and operational expenditure, and benefits derived from the incentive schemes.

We also were able to identify the costs of the asset management functions across the same period which encompasses the period of time where TransGrid increased its focus on asset management to drive business and performance improvement. The total cost of asset management was extracted from the Maintenance Operations and Asset Management expenditure from the Economic Benchmarking RIN.

WSP calculated that TransGrid has achieved an ROI of 3.2 across the six-year period, or on an annualized basis, that equates to a 20% return each year.

Supporting this return, WSP found evidence that a strong culture had been embedded into the business which provides confidence that the benefits of the asset management system will be sustainable for the long term.

Conclusion

Our case study of TransGrid identified 11 certifiable areas (out of 27) that we were able to substantiate that TransGrid's asset management system exceeds the minimum requirements set out in ISO 55001:2014. The benefits of this were an ROI of 3.2 across the 5-year assessment period, or an annualised return of 20%. This value was demonstrated by:

- Improving network performance and efficiency resulting in financial benefits and improved customer-experience.
- Behaviours that underpin business sustainability that are embedded across the business
- Growth in the business demonstrated by the growth in non-regulated assets
- A positive perception by external stakeholders

We found that the definitions of value provided in ISO55002:2018 could be applied to a business to determine a quantified return on investment as well as to clearly identify how the business will maintain or increase value in the future through sustainability, growth and culture.

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