

ASSET MANAGEMENT

Key lessons learnt	A project’s initial capital investment can be the tip of the iceberg of asset-related project costs. A range of potentially “hidden” whole-of-life costs can exist and should be factored into the project’s business case.
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Introduction

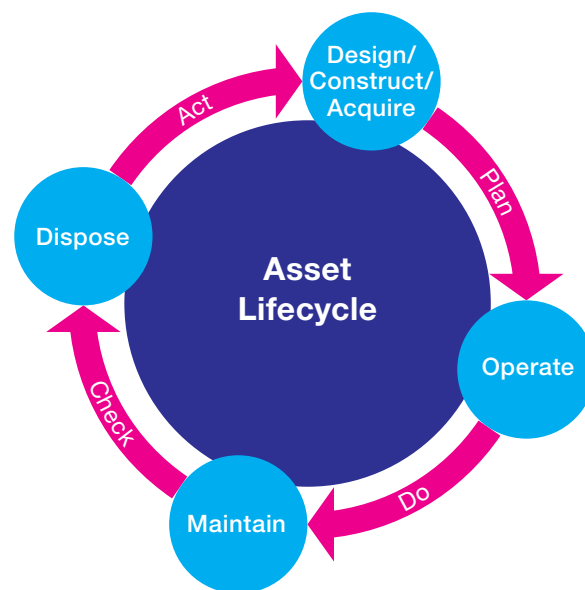
The international standard ISO 55001:2014 defines asset management as the “*coordinated activity of an organization to realise value from assets*”, and as this definition suggests, modern asset management is a broad discipline that touches many aspects of business case practice. Two fundamental principles of asset management that have particular implications for business cases are *consideration of assets from a whole-of-life perspective*, and that *assets exist only to deliver value to stakeholders*.

Key considerations

Option development

One of the first asset management considerations occurs during the problem definition and option development phases, and involves questioning *whether an asset solution is required at all?* Often, the need for asset investment can be reduced or deferred through supply-side actions to reduce demand, such as operational or maintenance practice changes, or through demand management (reduction) measures. Examples include the use of tidal flows (changing lane directions at different times of day) to enhance bridge capacity, and the introduction of community education programs to reduce water demand and hence extend water system capacity. In these ways, the desired outcome (value) can often be achieved with non-asset solutions.

If it’s decided that assets are part of the solution, however, the whole-of-life principle becomes a key part of the business case. While Cost Benefit Analysis (CBA) and NPV implicitly take a life-cycle view, it is important that all the key whole-of-life costs are identified in both the Stage 1 and Stage 2 business cases.



Source: GHD Asset Management Model

Initial investment

It is common for the initial capital investment to be the focus of attention, however it is not unusual for this to represent as little as 20% of the whole-of-life cost of an infrastructure project, with operations, maintenance, renewal and disposal costs accounting for the remaining 80%.

The up-front investment can usually be estimated using standard cost estimation practices, but can include a range of component costs that may be overlooked, including:

- ▶ Planning and feasibility
- ▶ Concept design
- ▶ Stakeholder consultation
- ▶ Detailed design
- ▶ Disposal of existing assets
- ▶ Construction
- ▶ Handover and commissioning, and
- ▶ Consents or permits.

Preparing for the introduction of new assets into operation (Operational Readiness) can also bring significant costs. These include costs associated with setting up and populating asset registers and information systems, training operators and maintainers, re-engineering business processes, and the associated organisational change management. The operability and maintainability of assets often receive insufficient attention during the detailed engineering design and assurance phases and can lead to significant rectification costs during warranty or later during the operational phase. These requirements should be identified and incorporated into both the capital estimates and design specifications, as they are typically more costly to address if left until after creation of the asset.

Operations and maintenance

Ongoing operations, maintenance and renewal can represent 70 to 75% of total costs over the life of a project – or three to four times the initial capital cost – but are frequently underestimated or glossed-over. Moreover, there is often an inverse relationship between the capital and operating costs. This is commonly termed the “opex-capex trade-off” and means that a better-built, (usually) higher capital cost asset will often have reduced maintenance costs or a longer useful life, relative to a lesser quality but cheaper asset. The opex-capex trade-off is an important consideration during detailed design and option evaluation in the Stage 2 business case, as it has direct implications for not only cash flows, but also the economic life and residual value of the asset.

Disposal and decommissioning

Depending on the project and assets involved, end-of-life disposal and decommissioning can represent either a positive or negative cash flow. Positive residual values can be estimated based on other transactions in the market or expert advice, but the costs associated with readying the asset for sale must also be considered. In cases where decommissioning requires complex removal or dismantling of the asset, remediation of the site or other make-good obligations, necessary provision should be made in the project’s end-of-life costs.

Other considerations

It is common for the assets associated with one project to interact with or impinge upon other, existing asset systems. The interaction of roads, power, water and communications utilities in a road corridor is one example. This creates potential cost imposts to the project, but also opportunities, if the timing of construction, renewal and maintenance works can be coordinated or harmonised.

Source material

International Infrastructure Management Manual (5th Edition), Institute of Public Works Engineering Australasia, 2015

ISO 55000:2014 Asset management – Overview, principles and terminology, International Organization for Standardization (ISO), 2014

The Asset Management Landscape (2nd Edition), Global Forum on Maintenance and Asset Management, 2014

Support

Further information and/or support concerning the role and use of these asset management practitioner notes can be provided by contacting Warren Adams at warren.adams@ghd.com.

► About the author:

Warren Adams is Executive Advisor, Strategic Asset Management with professional services firm GHD Advisory. He has 35 years’ management consulting experience of which more than 20 years has been in the asset management field. He is an ISO 55001 Certified Asset Management Assessor and Member of the Asset Management Council (Australia) and the Institute of Asset Management (UK).