

## **THE ASSET MANAGEMENT JOURNEY FOR PUBLIC WORKS AGENCIES IN AUSTRALIA** INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALASIA

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### **Abstract**

The Australian public works sector manages essential infrastructure, evolving from reactive maintenance to data-driven, risk-based asset management. Inspired by ISO 55000, modern practices balance cost, performance, and risk. Integrated planning, sustainability metrics, and collaboration to address funding and aging infrastructure challenges. This paper explores key phases, innovations, and strategies for sustainable, effective asset management in Australia.

### **Introduction**

The public works sector in Australia plays a critical role in delivering and maintaining essential infrastructure, including roads, bridges, water systems, and public facilities.

Over the past few decades, asset management within this sector has evolved significantly in response to increasing demands for service reliability, sustainability, and fiscal accountability.

This journey has transitioned from reactive maintenance approaches to data-driven, strategic asset management frameworks aligned with international standards.

### **Early Approaches and Challenges**

Historically, many public works agencies in Australia relied on a reactive approach to asset management, addressing issues only after they arose. While this method allowed for immediate problem-solving, it proved costly and unsustainable in the long run. Infrastructure deterioration, increasing population pressures, and funding constraints exposed the inefficiencies of

reactive maintenance, highlighting the need for a more structured and proactive approach.

### **The Catalyst for Structure Asset Management**

The introduction of structured asset management principles began gaining traction in the late 20th century. Influenced by international best practices, Australian agencies started adopting frameworks such as the International Infrastructure Management Manual (IIMM) and ISO 55000 Asset Management Standards. These frameworks emphasized proactive maintenance, lifecycle costing, and long-term planning to optimize asset performance while minimizing costs and risks.

The adoption of asset management plans (AMPs) became a crucial step in this transformation. AMPs provided a systematic approach to documenting asset conditions, service levels, risk assessments, and future investment needs. This shift enabled agencies to move beyond short-term fixes, ensuring the longevity and reliability of infrastructure assets.

### **Modern Asset Management Practices**

In recent years, asset management in the public works sector has become increasingly data driven. The use of Geographic Information Systems (GIS), Building Information Modelling (BIM), and predictive analytics has enhanced decision-making capabilities. Agencies now employ risk-based prioritization techniques, allowing them to allocate resources efficiently and address high-risk infrastructure components before they fail.

A significant milestone in modern asset management has been the adoption of integrated

planning and reporting (IP&R) frameworks. These frameworks align asset management strategies with broader organizational objectives, ensuring that infrastructure investments support community needs and long-term sustainability goals. The inclusion of sustainability metrics in asset management has further driven progress, incorporating climate resilience, emissions reduction, and environmental considerations into decision-making.

### Challenges and Future Directions

Despite significant advancements, challenges persist. Limited funding, aging infrastructure, and a shortage of skilled asset management professionals continue to place pressure on agencies. To address these issues, many public works organizations are embracing collaborative approaches, engaging stakeholders, and forming community partnerships to optimize asset management outcomes.

The future of asset management in Australian public works will likely see greater integration of emerging technologies such as artificial intelligence (AI), digital twins, and Internet of Things (IoT) solutions. These advancements will enable real-time monitoring, predictive maintenance, and enhanced asset performance tracking, further improving infrastructure resilience and efficiency.

### Conclusion

The asset management journey of the Australian public works sector has been one of continuous evolution, marked by a transition from reactive to strategic, data-driven practices. By embedding principles of sustainability, innovation, and stakeholder engagement, public works agencies are well-positioned to ensure the longevity and

effectiveness of infrastructure assets for future generations. Continued investment in technology, training, and collaboration will be key to navigating the challenges ahead and maintaining high-quality public infrastructure across the country.

### REFERENCES

IPWEA (2020) International infrastructure management manual. 6th edn. Sydney: Institute of Public Works Engineering Australasia. <https://www.ipwea.org/resourcesnew/bookshop/iimm>.

### Resume

Steve is a civil engineer and fellow member of the Institute of Public Works Engineering Australasia (IPWEA). He has over 30-years' experience managing infrastructure across the public and private sectors.

Steve is a prominent thought leader in the sustainable management of built infrastructure and is the Principal Advisor for the IPWEA Asset Management Program. Steve is IPWEA's representative for the Global Forum on Maintenance and Asset Management and principal author of several infrastructure studies including the National State of the Assets Report for the Australian Local Government Association.

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