

CHANGING THE WAY WE MANAGE CAPITAL INVESTMENT PORTFOLIOS: URBAN UTILITIES' PROGRAMME MANAGEMENT APPROACH

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ABSTRACT

Water utility providers are increasingly looking to not only adapt but transform the way they plan and deliver vital capital infrastructure to ensure the liveability of our cities and regions. Balancing the requirements of population growth, climate change impacts, net zero initiatives and ageing asset bases is vital to delivering sustainable value-for-money outcomes that provide services that really matter to customers into the future.

Since 2017, KBR has worked with Urban Utilities to co-design and implement their Program Management Approach (PMA) and transform their 5-year capital investment portfolio management approach. Now implemented across the 5 year \$1.5B portfolio, the PMA transformed Urban Utilities' approach to capital investment and provided a step change in investment and delivery performance; an inclusive business wide framework; a constructive and commercially focused culture; and dramatic increases in efficiency.

The PMA has enabled more than \$100 million in savings through efficiency, performance, and accountability improvements. It has also seen an uplift in delivery performance with 91% of projects completed on cost and time; and pre-market efficiency and effectiveness significantly reducing cost, saving \$19M in FY21 compared to FY19.

KEYWORDS

Programme management, organisational maturity, capital delivery, Capital Investment, Optimised Expenditure, Efficiency, Reducing Cost, Savings, Aging Assets, Climate Change

PRESENTER PROFILE

Robert Wilson is an experienced water industry professional with over 25 years successfully delivering engineering and programme management solutions for clients and stakeholders on water projects in Australia.

Rob is the Programme Director for UU's PDDP team who are now incorporating an integrated planning and delivery model enabled by the Programme Management Approach, which will develop and deliver Urban Utilities' capital portfolio over the next five years.

Rob is a highly effective manager of specialist engineering project inputs utilising a combination of his design and project management delivery skills, and water industry technical and design background.

INTRODUCTION

KBR partnered with Urban Utilities (UU) to transform the way they manage their capital investment portfolio with the Program Management Approach (PMA), a contemporary, integrated and collaborative multi-year delivery model now implemented across their 5 year \$1.5B portfolio.

The PMA has delivered more than \$100 million in savings through efficiency, performance and accountability improvements, which has enabled UU to provide better services for their customers and put downward pressure on the cost to serve.

KBR helped UU deliver sustainable value-for-money outcomes that optimised capital expenditure, increased investment planning integration with their shareholders, and provided services that really matter to their customers into the future. The successful implementation of the PMA reflects UU's steadfast commitment to evolve and strengthen their business to ensure they continue to enrich the quality of life for their customers and communities.

OBJECTIVES OF THE PROGRAM MANAGEMENT APPROACH

As our ever-changing environment continues to present ongoing challenges, the way Urban Utilities plans and delivers vital community infrastructure remains a cornerstone to enhancing their customer experience and providing environmental, economic and social benefits for their customers. We needed to ensure Urban Utilities was a sustainable and resilient business that could not only respond to these challenges but enhance the liveability of our cities and regions. In order to do this, we needed to re-evaluate how our capital delivery programme was delivered.

The vision for the PMA was to 'enable an integrated approach to the end-to-end planning and delivery across the Planning, Capital Delivery and Operations functions. This contemporary approach essentially transitioned existing asset-centric methodologies of capital works sub-programmes into smarter customer driven outcomes with programme management methodologies delivering optimised capital investment outcomes.

This vision guided the following objectives for the PMA model:

- Integrating the Planning and Delivery functions to produce a contemporary customer focused business model to increase visibility and co-ordination of the capital infrastructure lifecycle;
- Reshaping pre-market activities to form an integrated investment solutions and development structure to enable improved investment and asset management decision making: right projects, right time, and right scope;
- Enhancing the Program Management Office (PMO) and ensuring Urban Utilities is an 'intelligent client' by providing tools, systems and capability;
- Aligning the business to their customers by regionalising the capital delivery approach and driving customer focused accountability; and
- Implementing large delivery frameworks to drive performance and efficiency by streamlining interfaces and transactions and leveraging economy of scale.

APPROACH

KBR was engaged by Urban Utilities to support the implementation of the PMA, drawing on contemporary best practices from the Australian and international water industries. An initial deep dive into Urban Utilities' performance and capability informed a three-year PMA implementation roadmap. Baseline performance was established and the outcomes to be realised were clearly defined, including an uplift in customer service, improved efficiency, reduced costs, and creation of high-performance teams.

The following key state changes for development of the PMA were identified:

- Pre-market integration – development of a fully integrated approach across the project lifecycle through reviewing and connecting processes and workflows across capital planning, development and delivery functions;
- Portfolio, Programme and project management maturity – development of new governance and business processes – e.g. deep dive, WHS framework, Programme review structure, assurance review cycles, estimating guidelines, standard WBS and CBS, contractor reporting;
- Quantification of benefits & benefits realisation – drive a shift from 'spend' to 'benefits' that is embedded in the processes, everyday language and culture, partnering incentivisation and investment review practices;
- Procurement and commercial models – performance incentivised, transparent and collaborative engagement models designed to drive efficiency, grow client data intelligence, reduce interfaces and align behaviours to Urban Utilities' strategic objectives;
- Resource demand and skill sets by Stage Gate – optimise internal structures and accountabilities to deliver efficiencies in partner transactions, partner accountabilities and client assurance requirements;
- Integrated Engineering Services – development of embedded design consultant support to provide seamless pre-market investment development accountability;
- Shift from project procurement to Programme procurement – establishment of tools and assurance processes that support a significant reduction in procurement transactions; and
- Resource numbers and skills alignment to PMA – appropriately leverage a high level of partner integration optimising Urban Utilities' operational budget.

IMPLEMENTATION METHODOLOGY

In May 2018, Urban Utilities engaged KBR as its Program Development and Delivery Partner (PDDP) to assist with the development and implementation of the PMA operating model. We provided advisory and support services across seven key focus areas; challenging past practices and assumptions, introducing new ways of working and leveraging learnings from industry peers to create an approach unique to Urban Utilities.

The methodology employed across the seven focus areas is summarised below.

CAPITAL INVESTMENT PLAN ANALYSIS

UU's \$1.5B five-year Capital Investment Plan (CIP) included more than 1,000 individual projects spanning wastewater treatment plants and water and wastewater network assets. The CIP analysis involved the assessment of each individual project in the CIP in terms of its maturity, risk, outcomes, outputs, interfaces and complexity. This investment analysis was overlaid with a risk-based qualitative and quantitative analysis that determined that a regionalised catchment based delivery approach was the most efficient delivery strategy.

PROCUREMENT STRATEGY

A programme establishment phase determined options for the capital delivery programme based on analysis of asset types, interfaces and interdependencies, risk, construction disciplines, and alignment with planning and servicing strategies. A 3DM (Data Driven Decision Making) model guided procurement options, together with broad engagement across Urban Utilities' operations, finance and procurement teams to calibrate risk and corporate objectives in determining the contracting model.

A transaction management process was developed in line with the procurement strategy, including industry briefings, Invitation to Offer documentation and a comprehensive four-stage offer evaluation.

ENGINEERING AND INVESTMENT MANAGEMENT

The delivery of engineering and design services was analysed to understand the number of providers, the number of individuals involved and an assessment of average utilisation. Workflows and governance structures were reviewed and streamlined to remove accountability handovers within the pre-market gated process. KBR led a 12-month trial to prove the concept, develop systems, workflows, tools and templates ready for roll out across the entire programme of works. This data visibility and process validation was instrumental in guiding the contracting strategy for engagement of the Integrated Engineering Services consultants.

PROGRAMME DELIVERY

To efficiently deliver UU's \$1.5B capital works programme, a catchment-based delivery strategy comprising six geographically-aligned frameworks was established. The implementation of these programmes was staggered, beginning with the Treatment Programmes. This approach provided an opportunity to provide proof of concept, and allowed time to build programme delivery supporting capability within the business.

PROGRAMME MANAGEMENT OFFICE

The scale and nature of the delivery and engineering contracts required a step-change in Urban Utilities' business analytics, data management and performance reporting. KBR developed a roadmap and provided specialist resources to operationalise tools, systems and

capability requirements across cost intelligence, portfolio analytics, portfolio controls and commercial management.

COST INTELLIGENCE AND ANALYTICS

The PMO developed structures and processes for benchmarking and cost modelling using industry datasets and construction cost data from within the business and our delivery partners. These processes were integrated with development of a cost assurance function aligned to the governance structures of the Programme delivery frameworks.

ORGANISATION TRANSFORMATION

A phased roll out of the transformation and organisational redesign was implemented. An initial project team approach using KBR resources supported the new approach whilst the broader PMA operating model was defined. Wider scale organisational change was then enabled to restructure the Infrastructure Delivery section providing resource alignment to the PMA model.

OUTCOMES AND IMPACTS

The implementation of the PMA operating model resulted in new ways of working, systems, processes and capabilities progressively rolled out. This included the establishment of a new Integrated Engineering Services (IES) capability, a Portfolio Management Office (PMO), and six Delivery contract frameworks (refer Figure 1).

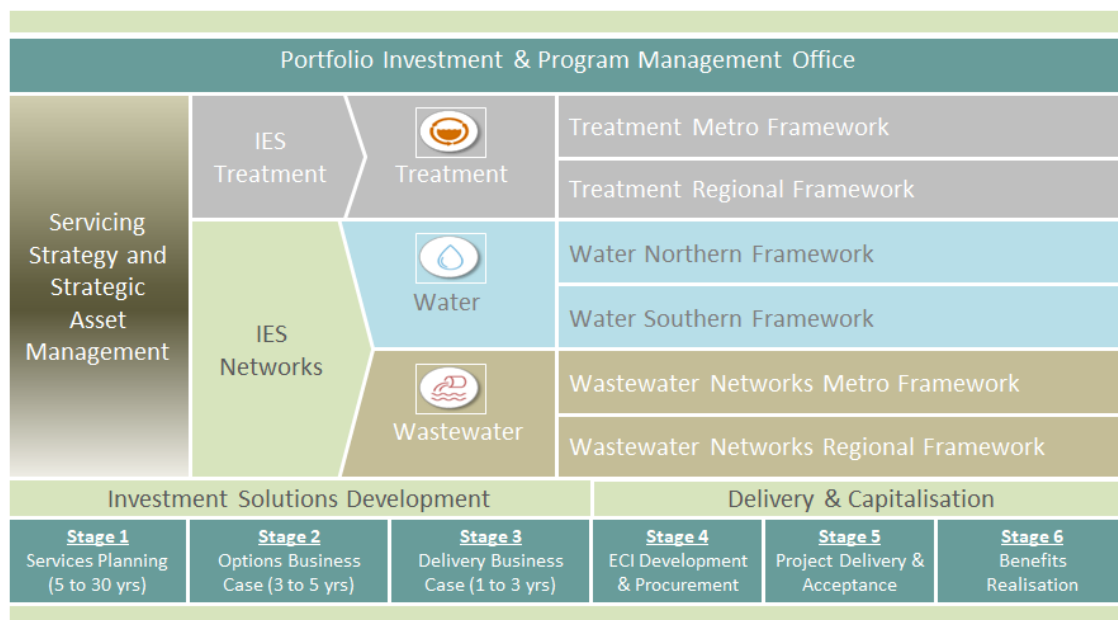


Figure 1: PMA architecture

Four delivery partners were procured across the six delivery frameworks:

- Fulton Hogan - Treatment Metro & Wastewater Networks Metro;
- Downer - Wastewater Networks Regional & Water Southern;
- John Holland - Treatment Metro; and
- Diona - Water Northern.

Two engineering consultants were procured for the IES:

- Stantec – Networks; and
- Ajile (Auerecon/Jacobs JV) – Treatment.

Upon closing FY21, the PMA had commissioned \$150M in capital infrastructure, had \$216M in delivery and had developed \$237M to be delivered over the next 2 years. The PMA has delivered \$105M in savings to date exceeding a \$60M savings target by FY24. Figure 2 provides a summary of benefits achieved through the PMA across a range of measures.

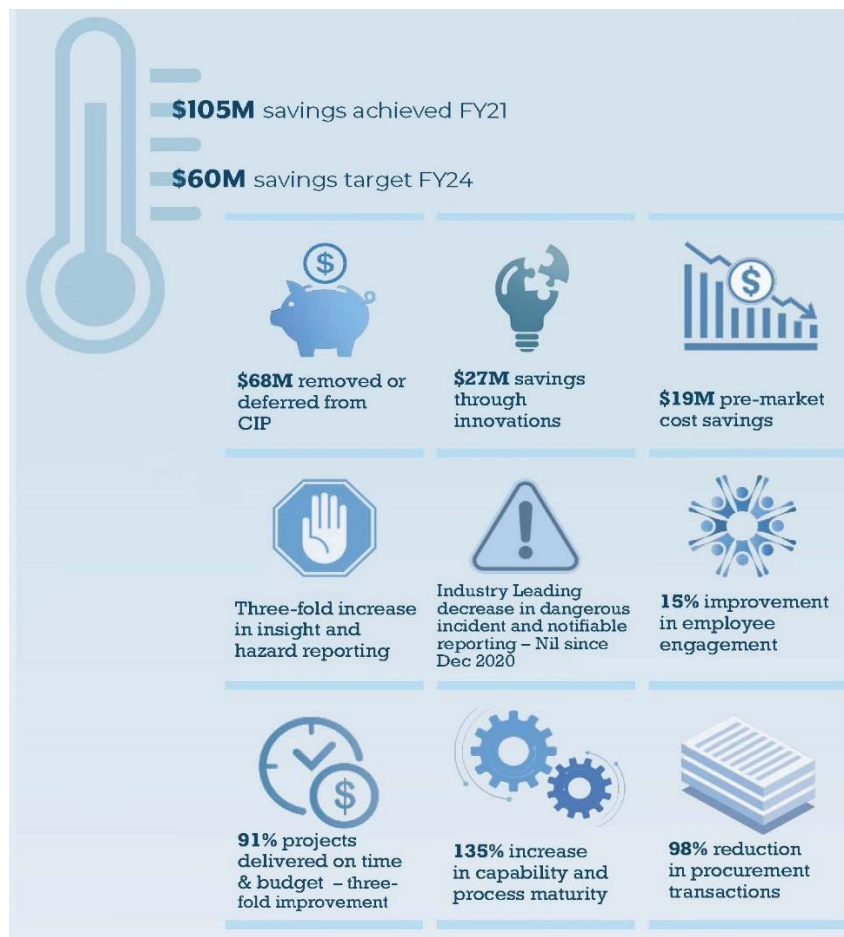


Figure 2: PMA achievements summary

Below are detailed outcomes and successes of the PMA across a range of areas.

TRANSFORMING THE WAY URBAN UTILITIES DOES BUSINESS

KBR has enhanced Urban Utilities' structure, systems and processes, acquired new knowledge and skill sets and strengthened their capabilities for better business and service outcomes. We are fostering greater integration and collaboration across UU's infrastructure planning and delivery teams and, together with their engineering and construction partners, are delivering more than \$1 billion in capital projects over five years. Urban Utilities' delivery performance is industry leading, and they continue to strengthen their safety performance and the way they engage with communities and stakeholders when delivering vital water and sewerage infrastructure.

As part of the business transformation, stakeholders across the business were actively engaged to establish new accountabilities under the PMA and further develop workflows, systems and governance structures. The PMA has established a constructive, high performance culture which is reflected in a 15% increase in employee engagement scores through the PMA embedment phase (2019 – 2020).

OPTIMISED CAPITAL INVESTMENT PLANNING

Under the PMA, cross-functional Investment Review and Assurance Groups were established coupled with processes and a cultural shift to ensure every investment business case is based on defined benefits underpinned by evidence based service performance data. \$465 million worth of projects have been evaluated through this revised investment process to date with \$68 million removed or deferred from the five-year CIP where it was determined that the capital solution would not deliver the required benefits.

Urban Utilities has moved to an integrated planning approach and changed the way investments are being planned from a rules-based approach to a catchment-based approach focused on optimising network system performance and service outcomes. The approach is developing more robust, data driven investment plans with a strong evidence base, enhancing the way UU deliver services and improve outcomes for customers.

ENGINEERING AND DESIGN EFFICIENCY

The IES team is responsible for all premarket activities creating a streamlined investment development process with optimal resource utilisation. As a result, premarket spend has reduced by over 40% with the implementation of the PMA. These efficiencies are resulting in real pre-market consultant cost reductions with a \$19M saving in FY21 compared to FY19. Refer to Figure 3. Pre-market performance has also led to year on year efficiency improvements in post market engineering costs and is one of the indicators of pre market quality.

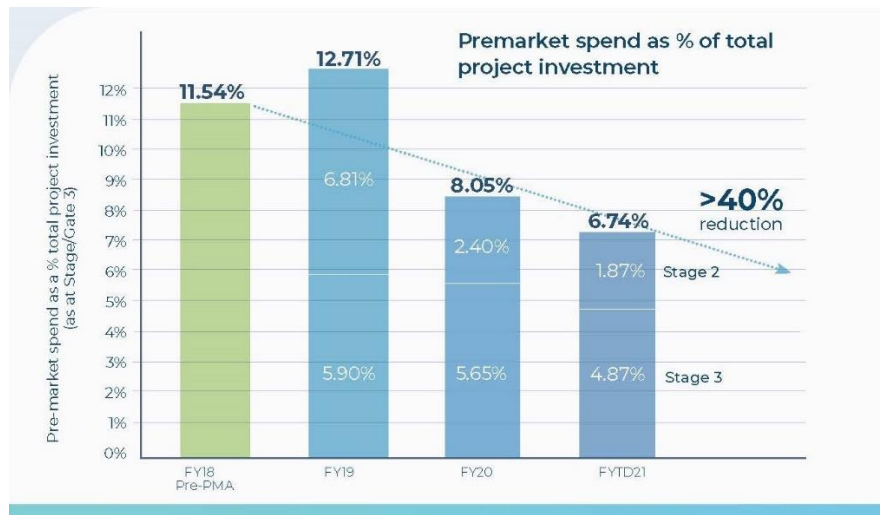


Figure 3: Premarket cost efficiency gains

INDUSTRY LEADING DELIVERY PERFORMANCE

Under the PMA model, procurement transactions have reduced by over 98%. In the financial years 2013 to 2018 there were around 550 individual procurement contracts for engineering and construction services. This has now been reduced to two engineering and six construction multi-year contracts, streamlining how UU engage the supply chain to realise significant procurement efficiencies. The delivery partners have been engaged through open-book, incentivised contracts with fees linked to performance against key performance indicators. This arrangement drives strong delivery performance and collaboration and ensures Urban Utilities has clear visibility of construction pricing.

In FY21, 85% of projects within our capital portfolio were delivered on time and budget. This figure reflects that a small number of projects were still being delivered under the old model. Of the projects delivered under the PMA model, 91% were completed on time and budget exceeding the target of 80%. Refer to Figure 4.

Urban Utilities realised \$27 million in savings by working with their delivery partners to jointly challenge solutions and identify more cost-effective design and construction outcomes. The new delivery programme is achieving competitive pricing with 96% of direct costs subject to a competitive tender process during the ECI phase, ensuring value for money when coupled with cost intelligence and assurance processes.

PROGRAMME REPORTING AND VISIBILITY

Urban Utilities now has a significant cost intelligence capability allowing them to accurately estimate and forecast project costs, which has improved confidence in their capital investment plan.

Urban Utilities also has a better understanding of the true cost of delivering capital, enabling UU to work more effectively with their partners to understand and achieve value for money in delivering their capital works. As at FY21, UU achieved a sevenfold improvement in pre-market cost estimation accuracy. Furthermore, variation between the actual cost to deliver a project and the business case estimate is now around 8% reflecting their strong evidence-based processes. Building on the work to date, UU continue to focus on improving early stage estimating (Gate 2). Refer to Figure 4.

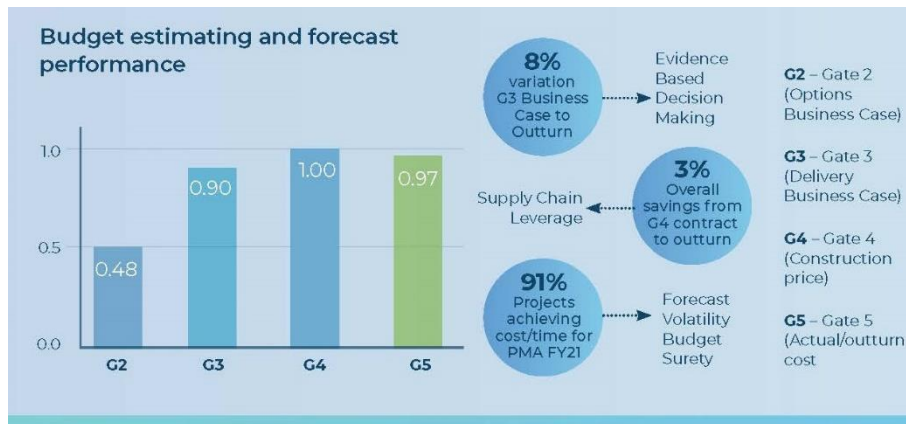


Figure 4: Cost forecasting performance

PARTNERING FOR SUCCESS

KBR successfully helped Urban Utilities to establish an Innovation Framework and develop partnerships with their delivery partners and leading utilities in Australia and the UK, which has provided contemporary knowledge and delivered numerous innovative project solutions.

Urban Utilities' Innovation Framework comprises a series of activities throughout the year to harness learnings and innovations from their PMA partners. Cornerstone activities include an annual innovations conference featuring local and international speakers, a recurring 'shark's den' where people pitch their innovative ideas, and monthly lunch and learn sessions hosted by their partners. Innovations currently being explored include the development of an app to access and share lessons learned, automated design for pumping stations and compartmentation of reservoirs for efficient maintenance.

Urban Utilities has joined forces with SA Water to share learnings, co-develop solutions to common industry challenges and enhance staff professional development and networks. This is on the back of KBR's 'Delivering Connections' initiative, which KBR created after seeing the benefits and opportunities that could be realised by strengthening this industry connection.

CRITICAL SUCCESS FACTORS

Throughout the PMA design and implementation, many of our assumptions and decisions were validated, and key lessons were also learnt. These are at levels ranging from strategic development to operational implementation. Following is a summary of key lessons and validated assumptions KBR has taken from the PMA:

- Being able to trial new approaches and ways of working provides critical proof of concept both to demonstrate outcomes to the business and to set realistic performance frameworks for partners.
- Early discipline and clear expectations (internal and external) in cost and technical assurance processes are critical in setting the collaborative framework. We worked hard initially to adjust the business culture and practices to a new partner accountability model.
- UU's delivery partners have the capability to bring significant value to earlier decision making and intervention in the capital lifecycle, however governance and contractual settings place constraints around the agility in leveraging that capability.

- Governance plays an important role in driving team and partner cultures, demonstrated through an investment review group focussed on driving clarity in benefits definition.
- Coordinated and structured programme review processes coupled with an uplift in data visibility and insights are powerful and critical components in driving proactive responses to emerging issues.
- There is high value in creating innovation eco-systems and a collaborative culture to leverage the depth and breadth of the partnership knowledge and capability to deliver excellent customer solutions.

SUSTAINABILITY – CONTINUOUS EVOLUTION

The PMA architecture was designed to integrate various interfaces across two separate Urban Utilities business Groups, Planning and Infrastructure Delivery. UU’s business and partnership capabilities developed through the PMA have fostered the organisational and cultural transformation needed to continue delivery of cost-effective services for both their business and their customers. As the PMA gained momentum, the importance and value in developing a complete ‘end to end’ approach was increasingly evident.

Urban Utilities has now formed the Integrated Solutions (IS) group integrating this ‘end to end’ approach under singular executive leadership. This is a key enabler for continued integration and value realisation through the next generation of the PMA. The next generation strategy is being developed by drawing lessons and validation of the current approach into the new operating context that IS provides. The next generation approach will seek further process efficiencies, leverage existing PMA architecture efficiencies and align with IS’s shift to an integrated planning and adaptive decision-making approach.

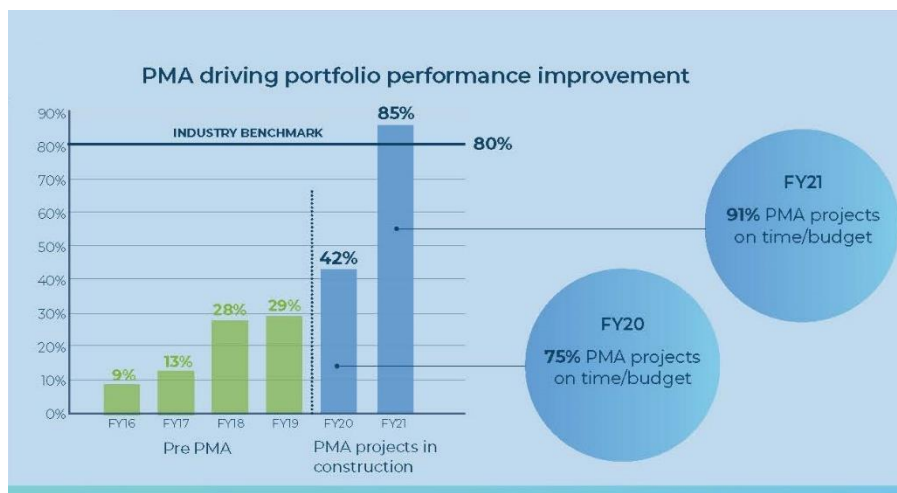


Figure 5: PMA delivery performance improvement