

The Race is on! Optimising risk and maximising Totex Value to drive great AMP6 outcomes

says Louis Quartly,
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The PR14 business planning process has created a substantial challenge to the UK Water industry requiring companies to outperform on their customer-focused Outcomes, demonstrate substantial efficiency compared to AMP5 and satisfy shareholder expectations of levels of Return on Investment (ROI). The outperformance challenge is further driven by the reduction in the allowed Weighted Average Cost of Capital (WACC), resulting in a shortfall in Shareholder ROI that must be bridged by Totex Outperformance and achieving Outcome Delivery Incentives.

Through the AMP6 early start programmes it has become clear that there is significant potential to achieve Totex savings by challenging previous approaches to capital programme delivery. As Totex thinking matures and influences operational activities, further efficiencies will be realised by exploiting proactive, outcome-focused interventions to replace less efficient output-driven activities.

Much has been written around the subject of risk and value management and the need to develop Integrated Risk and Value Management (IRVM) processes to assure and manage capital programmes. Most of these approaches have focused on the effective and efficient delivery of capital schemes once they have progressed to the delivery stage of the asset lifecycle. With the AMP6 regulatory changes and the need to meet and outperform Customer Outcomes there is a greater need to understand risks, opportunities and value that can be realised through the full asset lifecycle from asset management, asset creation and asset operations.

Root Cause Analysis is Key to Totex Efficiency in AMP6

Delivering the most appropriate Totex solution will be dependent upon the correct identification of the true root cause of any service risk. Robust root cause analysis approaches are seeing greater adoption within the UK water industry, ranging from conventional operational risk assessments, to more sophisticated risk-based and Reliability Centred Maintenance (RCM) approaches such as FMECA (Failure Mode Effects & Criticality Analysis).

FMECA is a systematic, proactive method for evaluating an asset or plant's functional processes, to identify where and how it might fail and to assess the relative impact of different failures. The result highlights the failure modes with relatively high probability and severity of consequences, allowing effort to be directed where it will produce the greatest value. This approach can be used to recognise the current and emerging root causes of service risks and to understand how sites should implement and target planned maintenance activities, identify operational interventions and start to prioritise capital maintenance spend.

Applying these asset risk approaches, coupled with appropriate Cost Benefit Analysis (CBA), will allow water companies to make substantial Totex savings through a reduction in reactive, operational maintenance and maximise the effectiveness of capital maintenance spend.

Applying an Integrated Approach to Strategic Planning and Delivery

Geospatial mapping of activities to group similar work "types" has been used for many years to increase capital delivery efficiencies through improved construction plant utilisation, reduced Streetworks noticing resource, reduced wastage of reinstatement materials and centralised construction hubs. In AMP6 we are applying the new principles of "Outcome Mapping", recognising that a single risk or opportunity potentially impacts a number of Outcomes. For

instance, a supply vs, demand intervention also impacts the potential number of customer contacts received, the amount of water pumped into an area, the quantity of water abstracted from the environment, the water balance, etc. The process of geospatially mapping all needs, irrespective of the proposed work type in the Business Plan, by impact upon each Customer Outcome, provides an understanding of the base service risk within a geographic area or system. It also allows other mitigation measures to be considered, leading to interventions being treated on a truly Totex basis. This ensures "line-of-sight" between the proposed solution and the strategic need, further maximising value proposition by enabling multiple Outcomes to be achieved by a single set of interventions.

Totex Hierarchy Facilitates a Logical Approach to Solution Development

Once the service risks in a catchment or system are recognised there are many ways to resolve them. To enable clients to release additional outperformance opportunities, MWH has developed Integrated Asset Management tools such as the Totex Hierarchy, where we utilise a progressive list of Totex measures to mitigate the service risk and drive value.

Eliminate – Remove the root cause of the Risk through upstream activities, such as influencing customer or stakeholder behaviour, or earlier implementation of interventions:

- 80% of blockages are caused by inappropriate disposal of material in the sewer
- More watercourse pollution is caused by diffused pollution, such as misconnections or run-off, than a sewage treatment work consent breach
- Tankering and treating a trade discharge elsewhere to prevent the need for process upgrades
- Utilising more proactive methods of communication, linked to smart meters, to remove the need for customers to make contact regarding a service interruption

Operate – Proactively operate and maintain assets to bring them up to the designed capability and eliminate service failures, through greater application of performance management and Reliability Centred Maintenance (RCM).

Invigorate – Leverage asset capabilities or unrecognised headroom to improve the capability of existing or redundant assets through the implementation of:

- Process (rather than Civil) solutions and Process Optimisation
- Advanced Data Analytics and control systems
- Proactive process activities
- Retrofitting of capability and performance enhancing technologies

Fabricate – Safe and efficient construction of new assets utilising factory-based production approaches such as modular, off-site construction and standard products

Each catchment or system is 'processed' through the Totex Hierarchy to develop a tactical approach to service risk reduction. This approach also recognises that although some lower Totex solutions may save Capex, a highly collaborative effort is required to sustain the benefits, particularly where customer and stakeholder behaviours need to be influenced. In early start AMP6 programmes we have seen that the best approach is a blend of these solutions. The "Eliminate, Operate and Invigorate" approach can successfully resolve around 50% of the service risk, allowing a reduced Capital intervention ("Fabricate") to be utilised as a backstop.

Risk and Value Benefits Realisation

As part of the early start programmes, clients and their supply chains have undertaken outline and theoretical screening processes to understand the benefits of the risk and value approaches discussed above. It is key that as we progress through AMP6, the actual Totex solutions are assessed in terms of their effectiveness in addressing the strategic Outcomes and value of efficiency to be delivered.

The Risk & Value process should form the basis of Asset Planning and Operation & Maintenance decision-making. The ability to show a direct 'line-of-sight' between the recognised service risks and the customer-focused Outcomes, ensures interventions provide the appropriate balance of customer experience, shareholder returns, and Totex efficiency.

The regulatory changes driven by Ofwat, and the business plans water companies have developed, present an exciting and challenging environment for the companies and their supply chains. Applying risk-based approaches to Asset Management, Asset Creation and Asset Operation will drive real value and necessitate a wide range of innovative solutions. It is key that the root cause of a need is fully understood so that a most appropriate operational or capital solutions can be developed. AMP6 is less prescribed than the previous five AMPs and those water companies, and associated supply chains, who best understand and manage risk across the entire asset life cycle will, undoubtedly, succeed.



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