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## **Leveraging Cross-sector Lessons**

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### **ABSTRACT**

#### **What learnings can traditional process engineering provide to other sectors as our water infrastructure evolves and transitions to more complex processing systems?**

Water utilities organisations are moving beyond predictable municipal service delivery toward the operation of complex process facilities that increasingly resemble manufacturing, like gasification and biosolids processing. This operational shift requires new technical capability, accompanied by a leadership mindset change to models more suitable for dynamic services and products. The purpose of this presentation is to illustrate the advantages of complex process plant experiences when contemplating process engineering changes that are impacting the water sector. It is targeted for practicing, operational attendees using examples from the author's experiences moving between industrial, water sectors and horizontal and vertical infrastructure.

Firstly, many challenges the water sector is facing reflect continuing industrial revolution - the processes and changes we are seeing in water sector process are not always new – only the application to water sector is! These changes are intertwined with sustainability, compliance, and health, safety and environment obligations, making continued stakeholder engagement essential. To combat these risks, business leaders need to understand the value proposition during decision making and manage stakeholders communicate well.

Procurement and contracting processes may need to be adapted to provide both efficiency and agility for routine operations as well as as specialist support services. And as operations become more integrated, custody-of-transfer assurance becomes more demanding, and there may cover multi-site operations with growing supplier databases to manage.

Finally, operational “expectations” may also change with moving to a manufacturing environment: there may be tighter control of whole-of-site water balances through heat integration and reuse; or it may no longer acceptable to discharge water from site at all; and requirements for maintenance inspection records, and change documentation are likely to increase. This provides opportunity for better data management processes (e.g. AI) to deliver productivity gains.

As water organisations expand into manufacturing-like processes, success depends on deliberate adaptation of leadership, commercial frameworks, and operational discipline, and not technology adoption alone. Looking at three business areas: leadership and managing decision making, procurement contract processes, and operational expectations; this presentation illustrates where experiences with complex process facilities could be utilised to assist transitioning infrastructure organisations to operate confidently in more competitive and complex environments.

## KEY WORDS

*Cross-sector, collaboration, water, process industry.*

## BIOGRAPHY

Danielle is a chemical and process engineering graduate with over 25 years' engineering design and project management experience. She has worked in a range of roles from: environmental and process engineering support in process industries, to project strategy and delivery of major infrastructure upgrades in both private and public sectors. She is currently a Technical Director / Principal Project Manager for engineering consultancy Beca in Brisbane, supporting brownfield water infrastructure upgrades as well as greenfield renewables projects. She also volunteers for the Institute of Chemical Engineers on the Learned Society Committee covering global initiatives on Energy and Climate Change.

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