

Future Water Utilities and Skills Needs

Mark Pascoe, Chief Executive Officer

Hamilton, New Zealand, 19 September 2019

Some food for my thoughts!

WATER 2010
Four Scenarios for 21st Century Water Systems



By: Benjamin Peterson
and
Scott Ciminin
ROCKY MOUNTAIN INSTITUTE



BEYOND AGEING PIPES.
Urban Water Systems for the
21st Century.



Office of the
PARLIAMENTARY COMMISSIONER FOR THE ENVIRONMENT
Te Kaitiaki Taiaoa a Te Whare Pāremata



1
OUR HEALTHY
WATERS



2
INNOVATIVE WATER
SOLUTIONS



3
WATER-INSPIRED
DESIGN

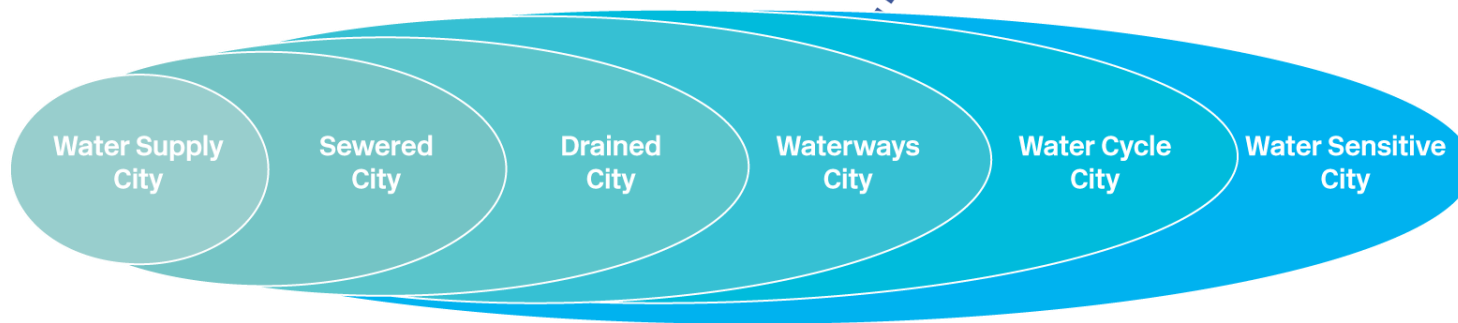


4
PARTNERSHIPS
FOR WATER

FUTURE

Research shows that cities transition through a number of stages

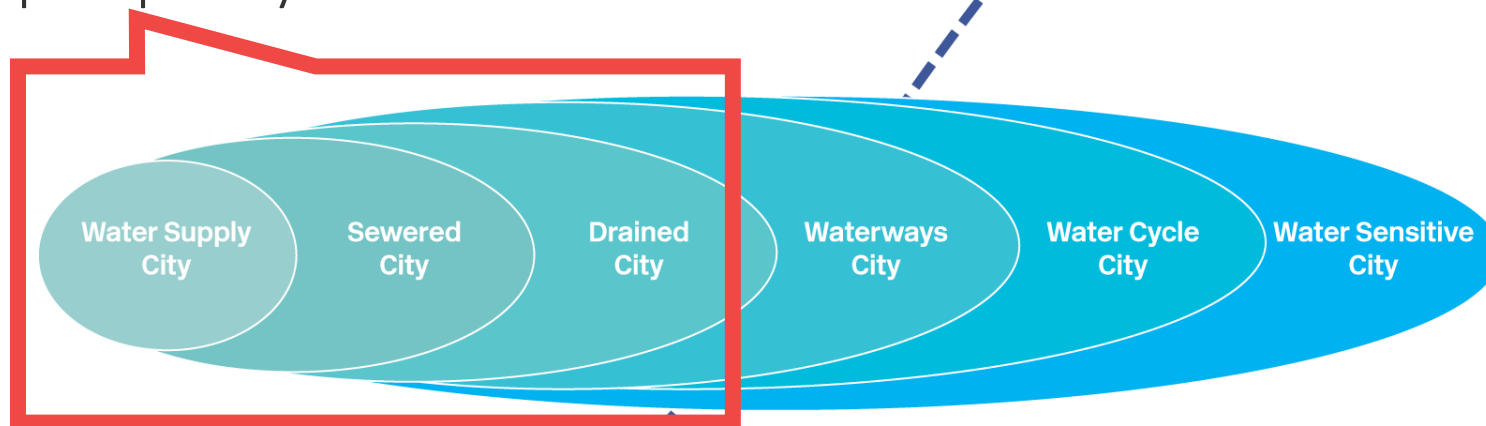
Water utilities play a critical role in creating sustainable, liveable, resilient and prosperous cities



TODAY

FUTURE

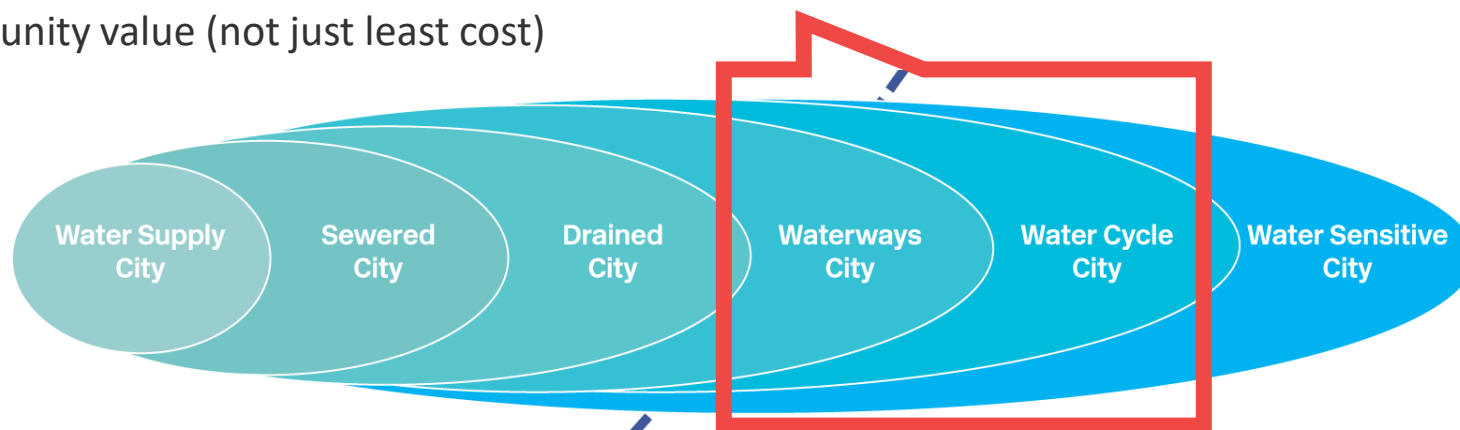
- Public health is a key driver
- Large centralised, publicly owned, utilities providing reliable supply
- Governance is often siloed and compliance driven
- Low community engagement and water literacy
- Private sector supports publicly owned utilities



TODAY

FUTURE

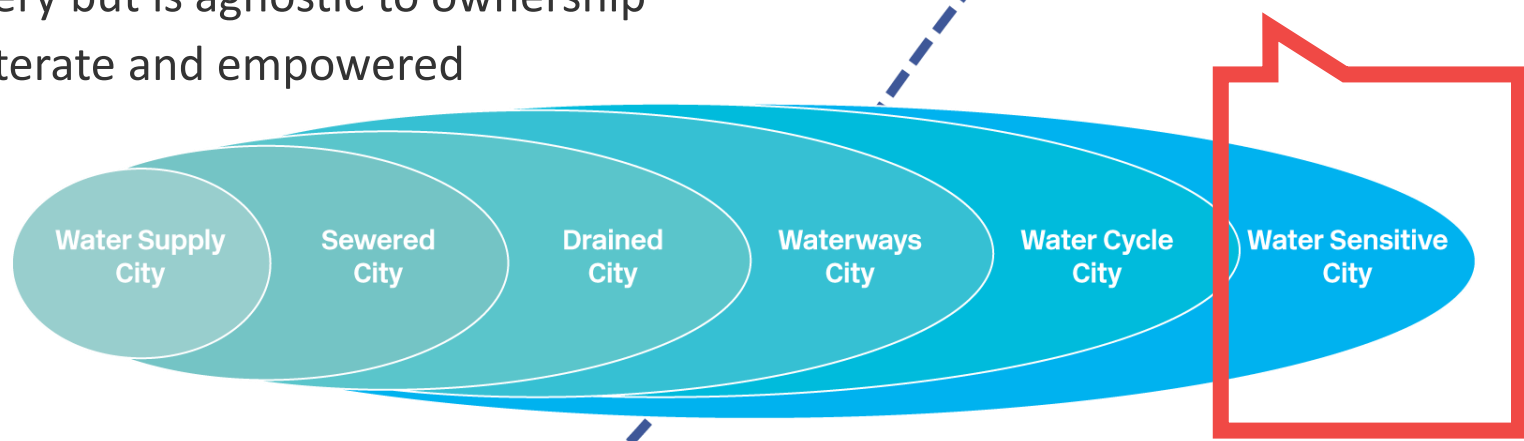
- Focus expanded to include waterway health, sustainability, resilience and liveability
- The water cycle planned as an integrated system
- Stronger focus on supply source diversity
- Governance is more risk based and outcome focused
- Increased partnerships with private and community sector support innovation and a focus on community value (not just least cost)



TODAY

FUTURE

- Water embedded as a critical element of city planning
- Man made and natural assets deliver value across multiple benefits
- Governance supports collaboration in long term planning as well as accountability in delivery but is agnostic to ownership
- Community is water literate and empowered



TODAY

FUTURE

In addition to identifying what each phase of the transition looks like, CRCWSC research has also identified how utilities can make the transition

EMBEDDING NEW PRACTICE

POLICY AND PRACTICE DIFFUSION

KNOWLEDGE DISSEMINATION

SHARED UNDERSTANDING & ISSUE AGREEMENT

ISSUE DEFINITION

ISSUE EMERGENCE

TODAY

CRCWSC Research shows there is a lot utilities can do internally, externally in partnership with others and to influence their authorising environment

FUTURE

TODAY

EMBEDDING NEW PRACTICE

POLICY AND PRACTICE DIFFUSION

KNOWLEDGE DISSEMINATION

SHARED UNDERSTANDING & ISSUE AGREEMENT

ISSUE DEFINITION

ISSUE EMERGENCE

Internal Initiatives

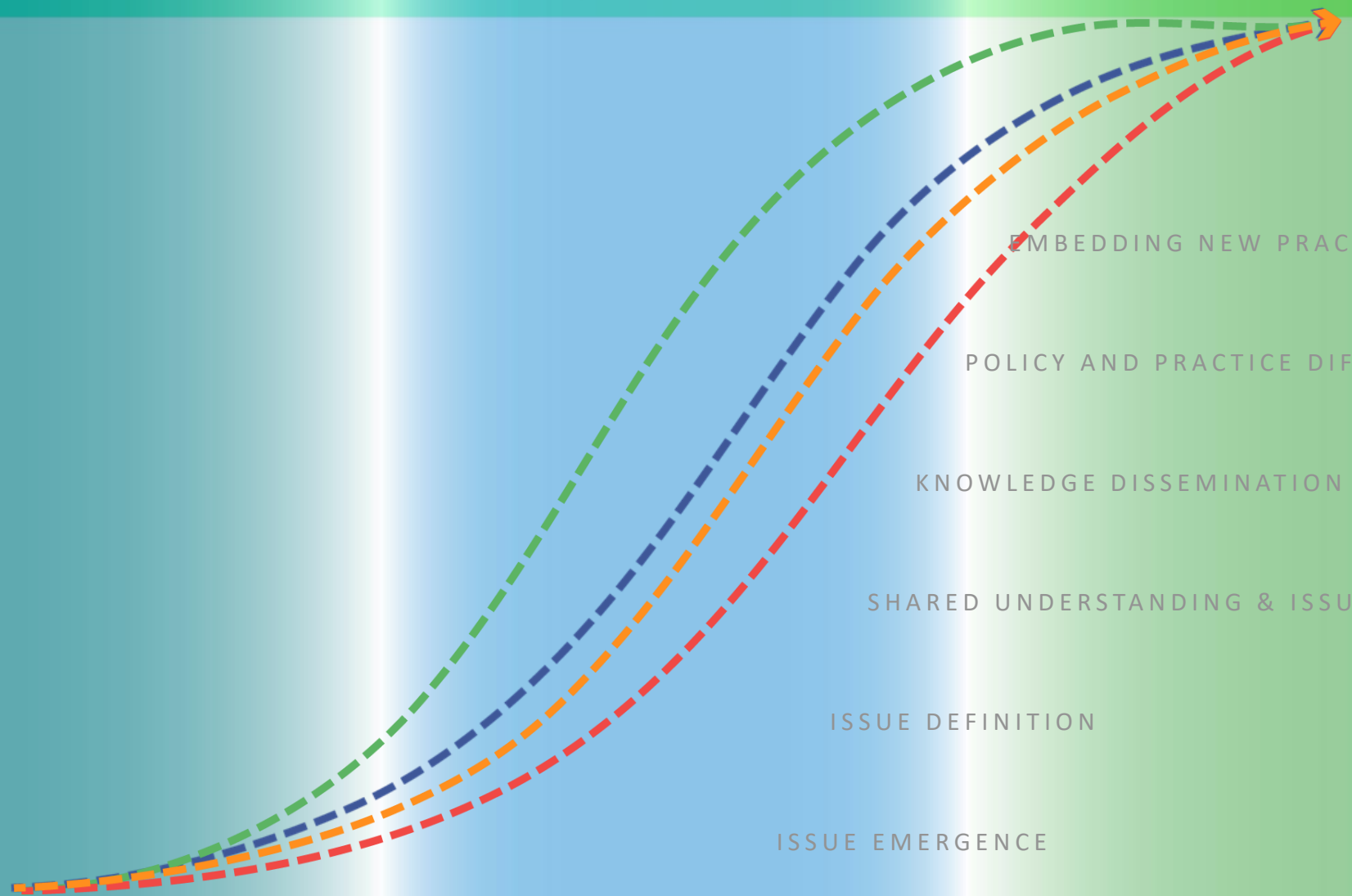
External Initiatives

New authorising environment



FUTURE

TODAY



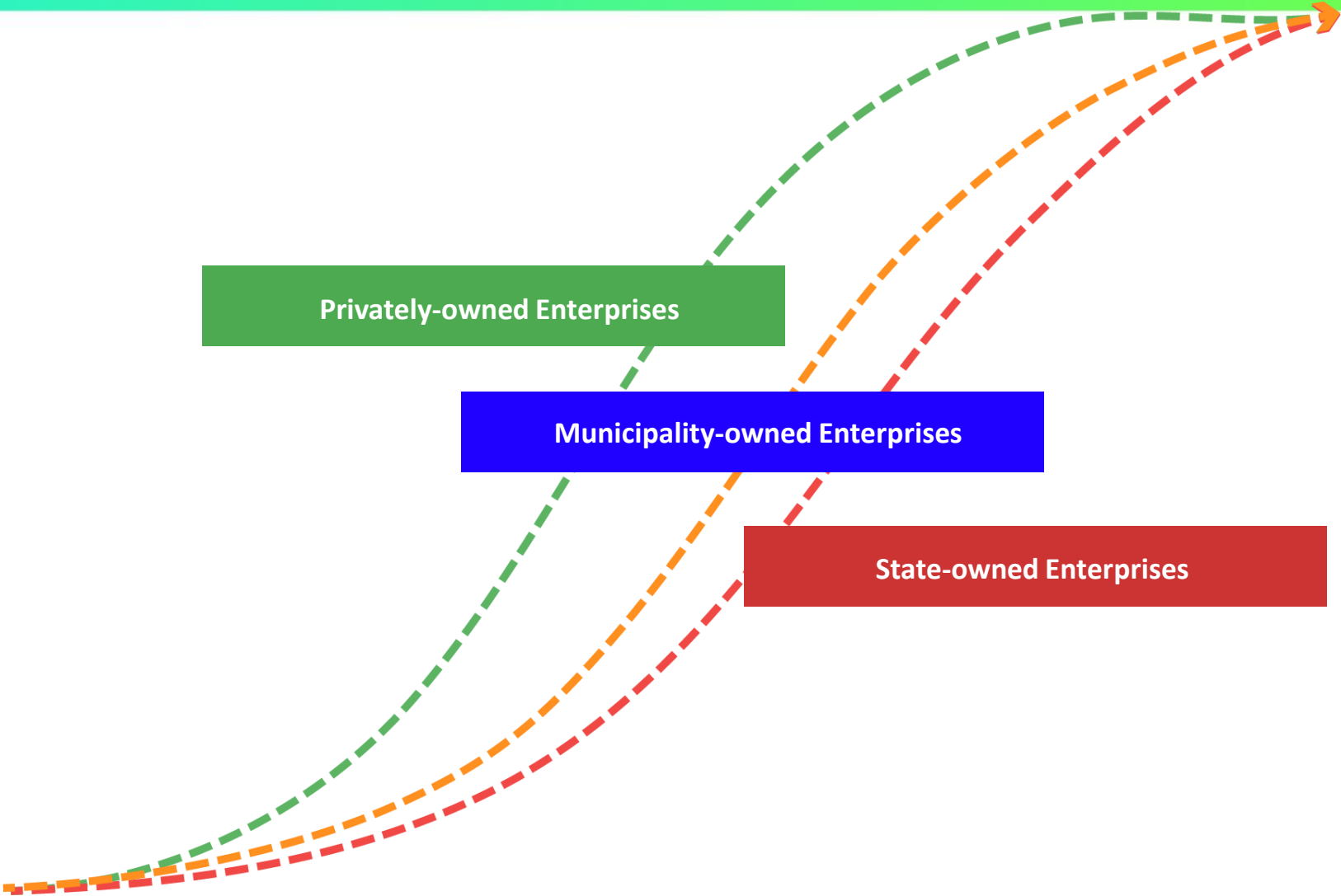
Internal Initiatives

External Initiatives

New authorising environment



FUTURE



Privately-owned Enterprises

Municipality-owned Enterprises

State-owned Enterprises

TODAY



For example – State Owned Enterprise

FUTURE

Working with community

- Involving community in setting prices and service levels
- Mobilising community action during extreme events
- Increasing access to assets to increase community value

Efficiency and innovation in core services

- Improving the efficiency of existing networks
- Digital innovation
- Diversifying and integrating water sources
- Establishing a culture of innovation and collaboration

EXISTING
WATER
UTILITIES

State-owned Enterprises

New business models

- Green waste to energy
- Partnering for innovative servicing solutions

“Activism” Demonstration, Proof-of concept and advocacy for policy reform

- Water sensitive urban design
- Precinct-scale stormwater harvesting

Building industry capacity to effect change

- Stormwater quality and flood management

Urban Water Policy Reform

- Water for Victoria

Internal Initiatives

External Initiatives

New authorising environment

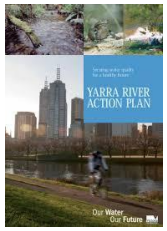
Case study – Water Sensitive Urban Design in Melbourne: Activism, Investment, Influence

FUTURE



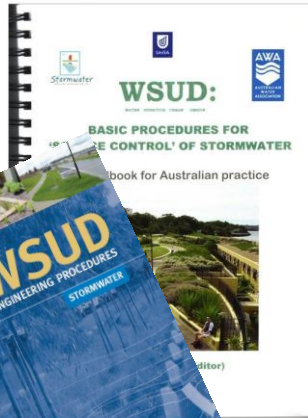
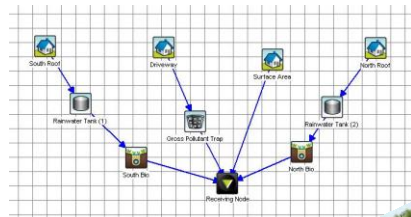
2017 State Water Plan

2006
\$600M state
govt investment
in Yarra



~2005 New tools and guidance
to operationalise change

2002 Building
industry capacity



~2000 Lynbrook Estate
demonstration of
new practice

music BY eWater



1980s Issue
emergence

1996 Bay study
provides scientific
consensus on the
problem



EXISTING
WATER
UTILITIES

For example – Municipally Owned Enterprises

FUTURE

Municipality-owned Enterprises

Efficiency and innovation in core services

- Stormwater harvesting and ASR scheme

New business models

- Partnering with the private sector
- Regional collaboration

Building capacity to work in new ways

- Regional collaboration

Working with with the community

- Water Sensitive Cities Strategy

“Activism”, Proof-of concept and advocacy for policy reform

- Stormwater Offsets

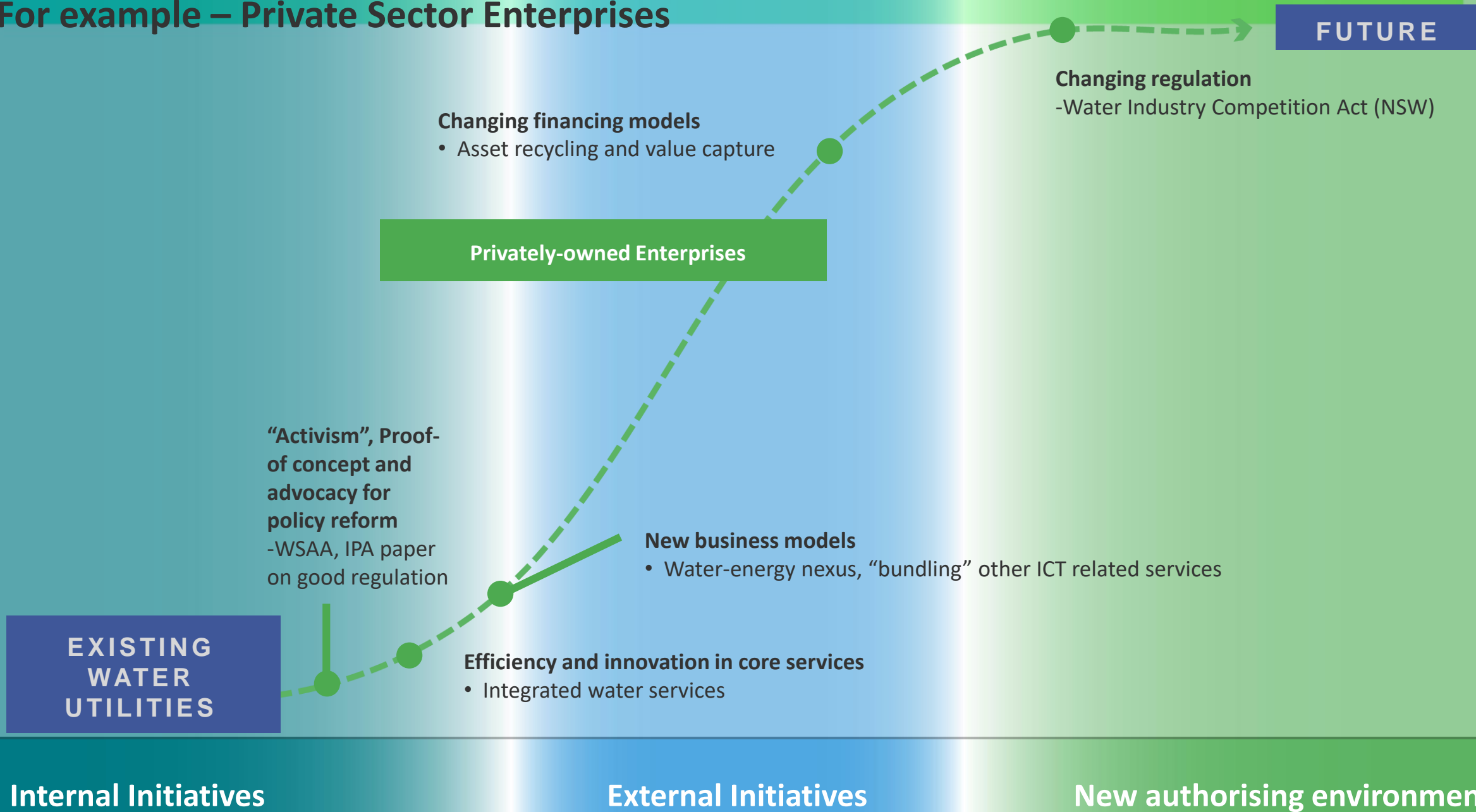
EXISTING WATER UTILITIES

Internal Initiatives

External Initiatives

New authorising environment

For example – Private Sector Enterprises



For example – Private Sector Enterprises

FUTURE

Changing financing models

- Asset recycling and value capture

Privately-owned Enterprises

Changing regulation

- Water Industry Competition Act (NSW)

“Activism”, Proof-of concept and advocacy for policy reform

- WSAA, IPA paper on good regulation

New business models

- Water-energy nexus, “bundling” other ICT related services

EXISTING WATER UTILITIES

Efficiency and innovation in core services

- Integrated water services

Internal Initiatives

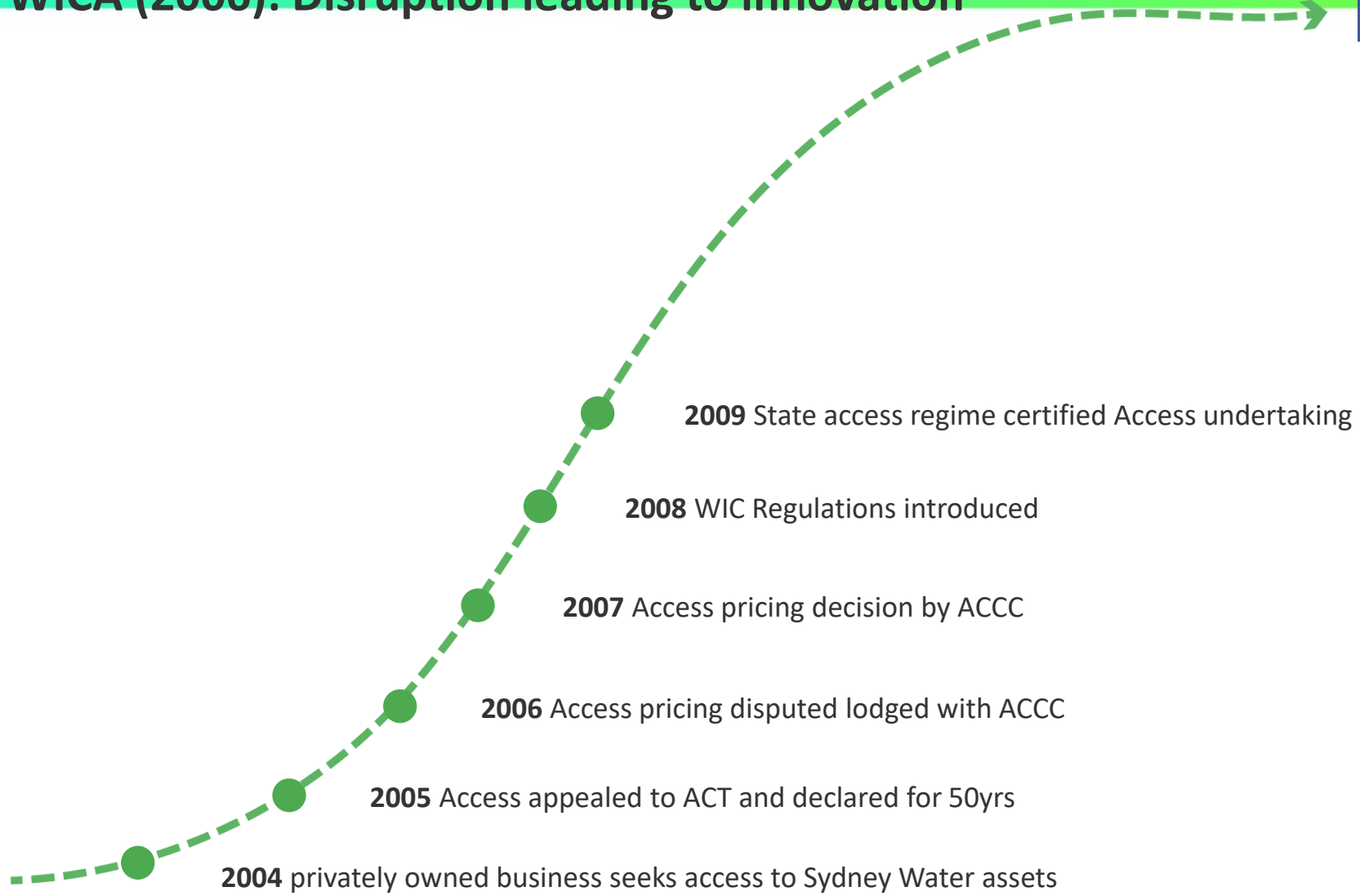
External Initiatives

New authorising environment

For example – WICA (2006): Disruption leading to innovation

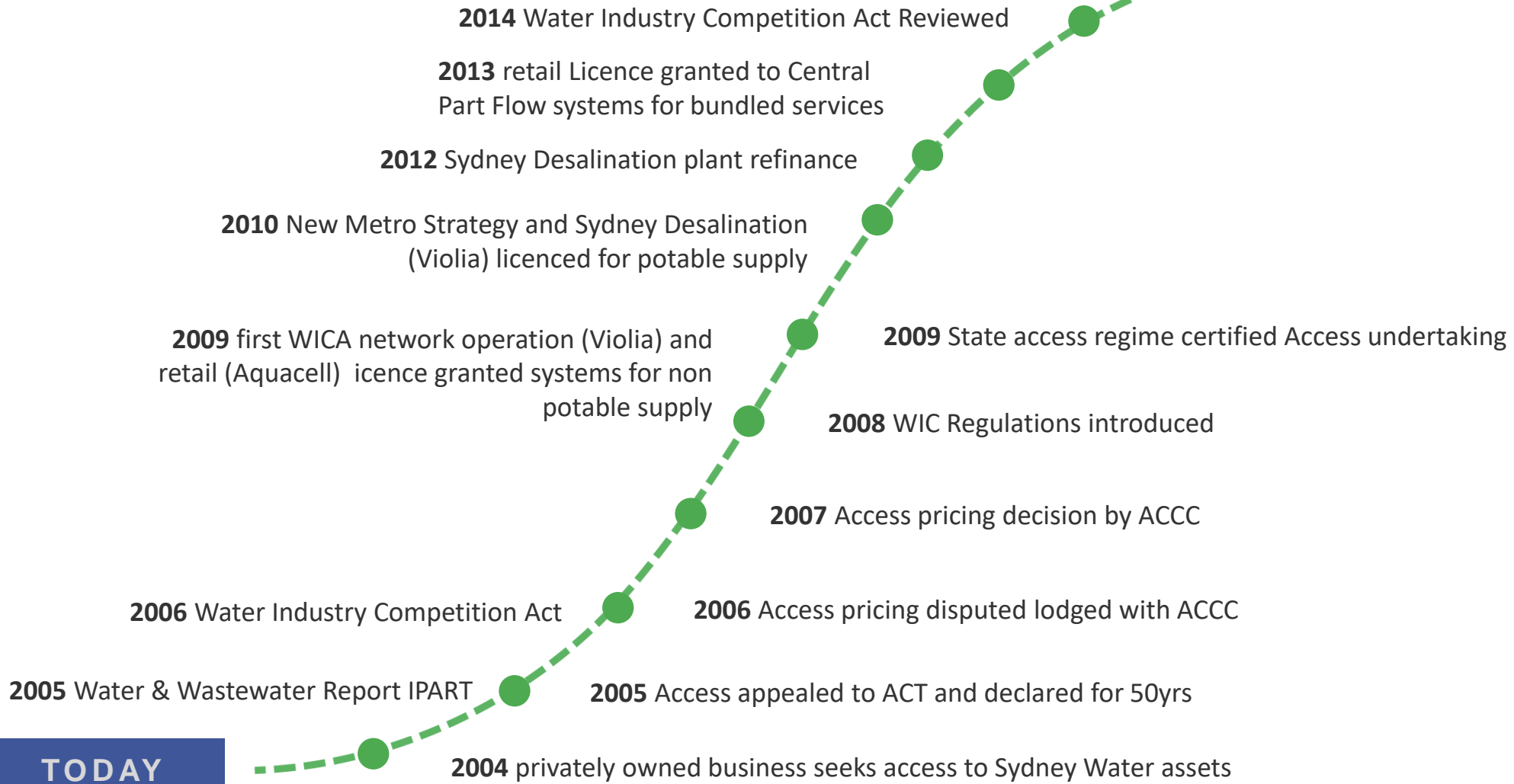
FUTURE

TODAY



For example – WICA (2006): Disruption leading to innovation

FUTURE



TODAY

Governance & Regulatory Interface

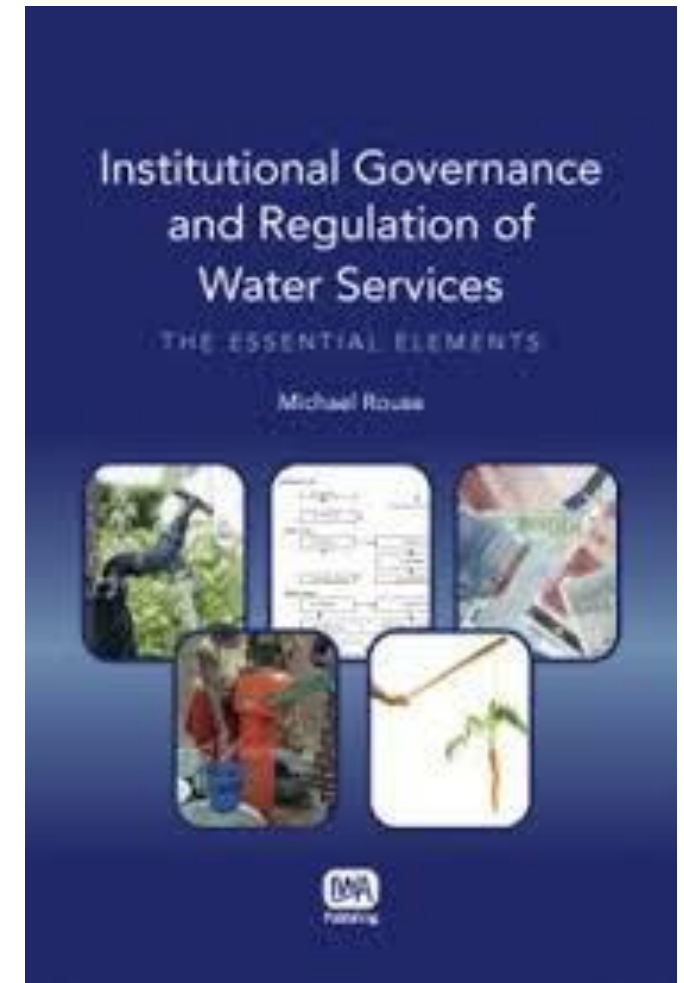
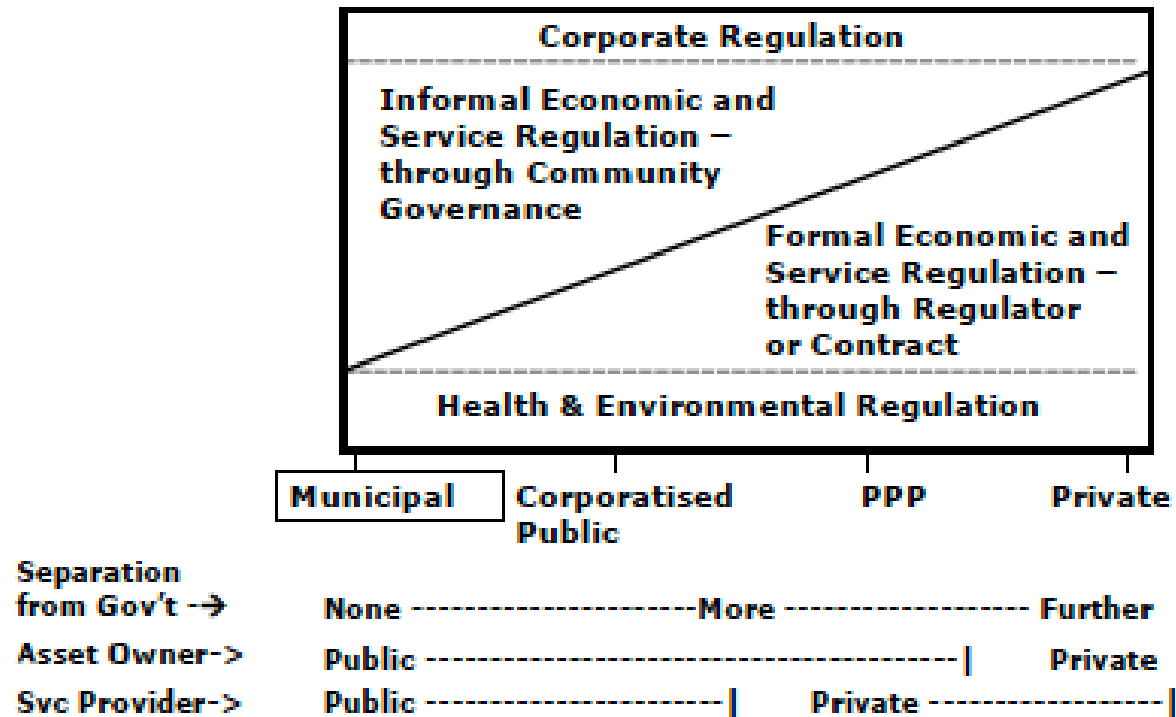


Figure 7.1: The four basic models of water service provider. (Source: Paul Reiter).

A grayscale photograph of a worker in a hard hat and safety vest working in a trench. The worker is positioned in the center-right of the frame, leaning over a large pipe. The trench is filled with water, and several large pipes run parallel to each other. A bright green horizontal line is overlaid across the top of the image. The text 'Skills Needs' is written in white, sans-serif font on the left side of the image.

Skills Needs

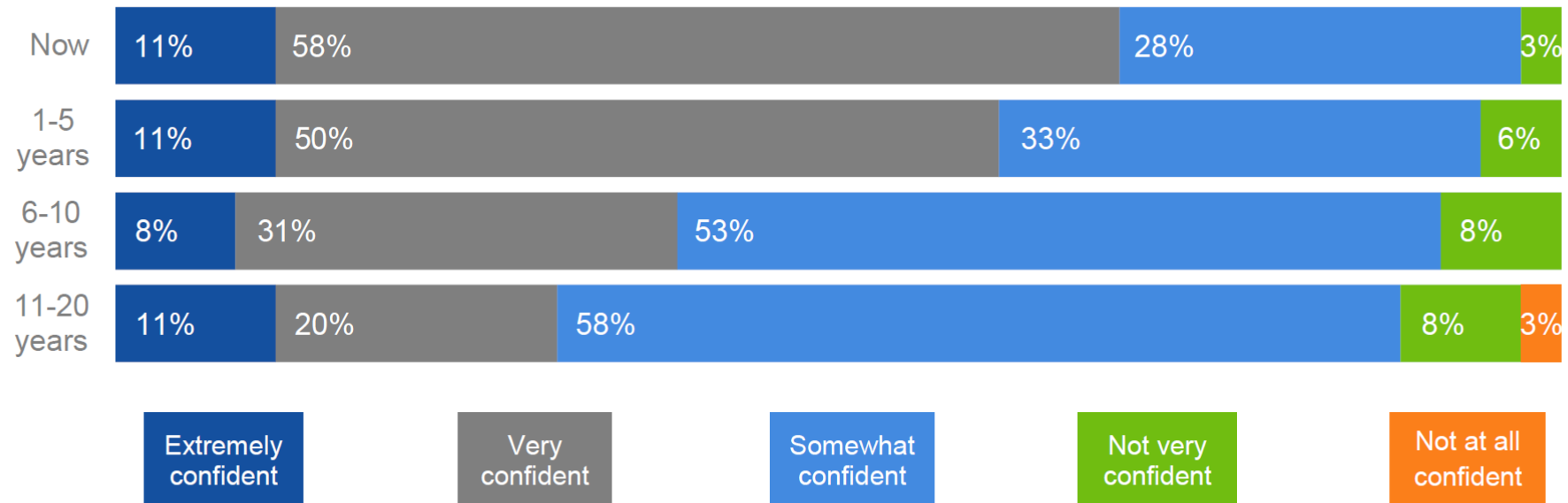
Do we have the skills we need?



Figure 1 Confidence to deliver business objectives with current skills and capabilities, Australian 'Workforce Skills of the Future' Survey Results

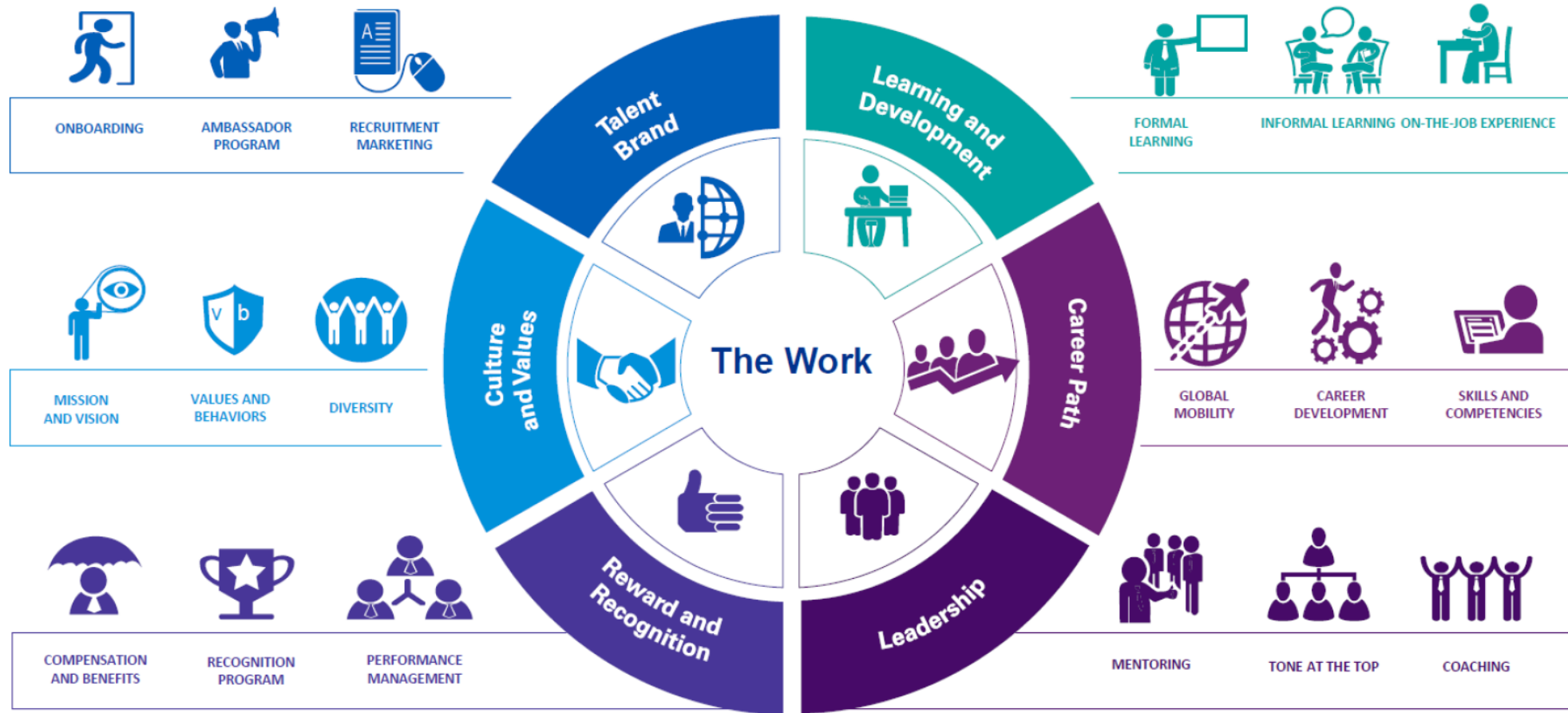


And in the US...



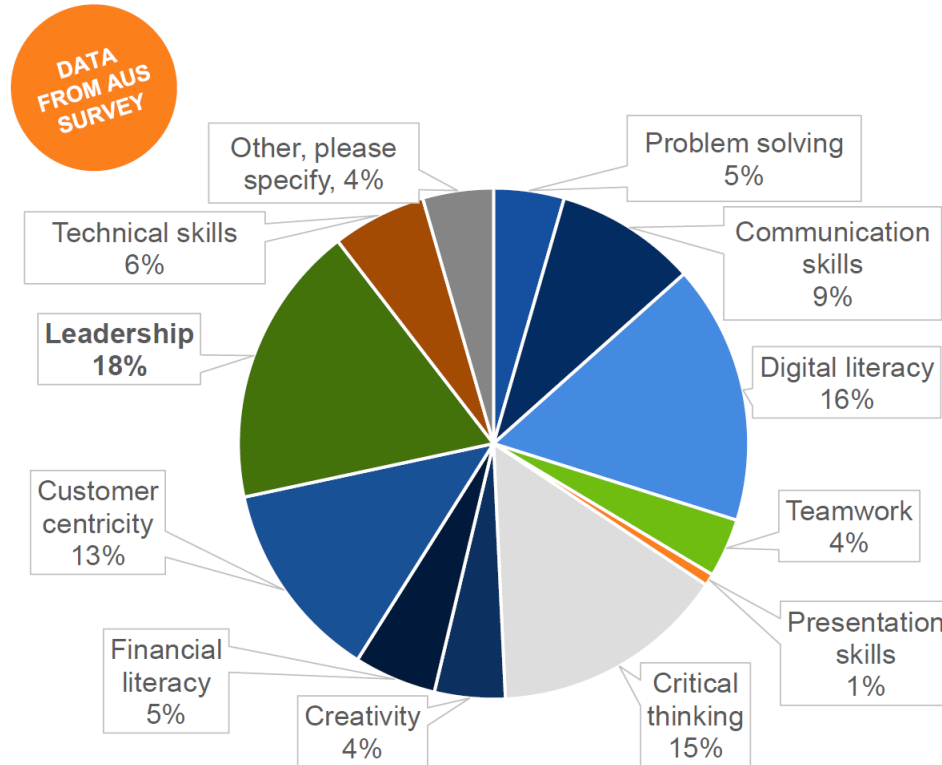
Useful models/ methodologies

What workers are looking for



Workforce skills of the future survey

What current or potential future gaps do you see in the following skills and capabilities?



Top AUS results:

1. Leadership
2. Digital Literacy
3. Critical Thinking

Similar results
in AUS & US

Top results for same
question in US Survey:

1. Critical Thinking
2. Leadership
3. Communication Skills

Key enablers for success

During the Industry Workshops, participants identified their top 10 skills and capabilities for the Water Utility of the future

DATA FROM
THE AUS
WORKSHOP

Top Skills and Capabilities



Key enablers for success

- 1 **Resilience** – Flexibility, agility, critical thinking
- 2 **Data and Analytics** – Digital literacy, internet of things
- 3 **Leadership** – Change management, strategic planning, learning mindset, communication, culture
- 4 **Customer** – Service, culture, experience, focus
- 5 **Technical Skills** – Network operation skills, engineering, general operations, risk management, knowledge management
- 6 **Delivery Models** – Contracting, commissioning, outsourcing, insourcing
- 7 **Entrepreneurship** – Innovation
- 8 **Collaboration** – Partnerships within the water sector, partnerships with other sectors

COMBINED
FROM THE
AUS & US
WORKSHOP

Key enablers for success

The key enablers have given rise to a series of 34 recommended initiatives for the Water Sector.

Skills Tests	e.g. Skills investment plans; data skills; general enterprise skills, including leadership, learning mindset and cultural charters; and customer and stakeholder skill
Competency Frameworks	e.g. Recruitment and performance management; and digital
Strategic Workforce Plans	e.g. Career pathways; learning & development interventions; performance management; and employee engagement
Sector Specific Organisational Development	e.g. Career pathways; employee value propositions; and external branding
Collaboration	e.g. Innovation fund and accelerator program; secondment programs; and digital marketplace
Use Technology	e.g. Automation and robotics; tools; digital roadmap

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FIGURE 8

**TECHNOLOGY VS.
ECONOMY**

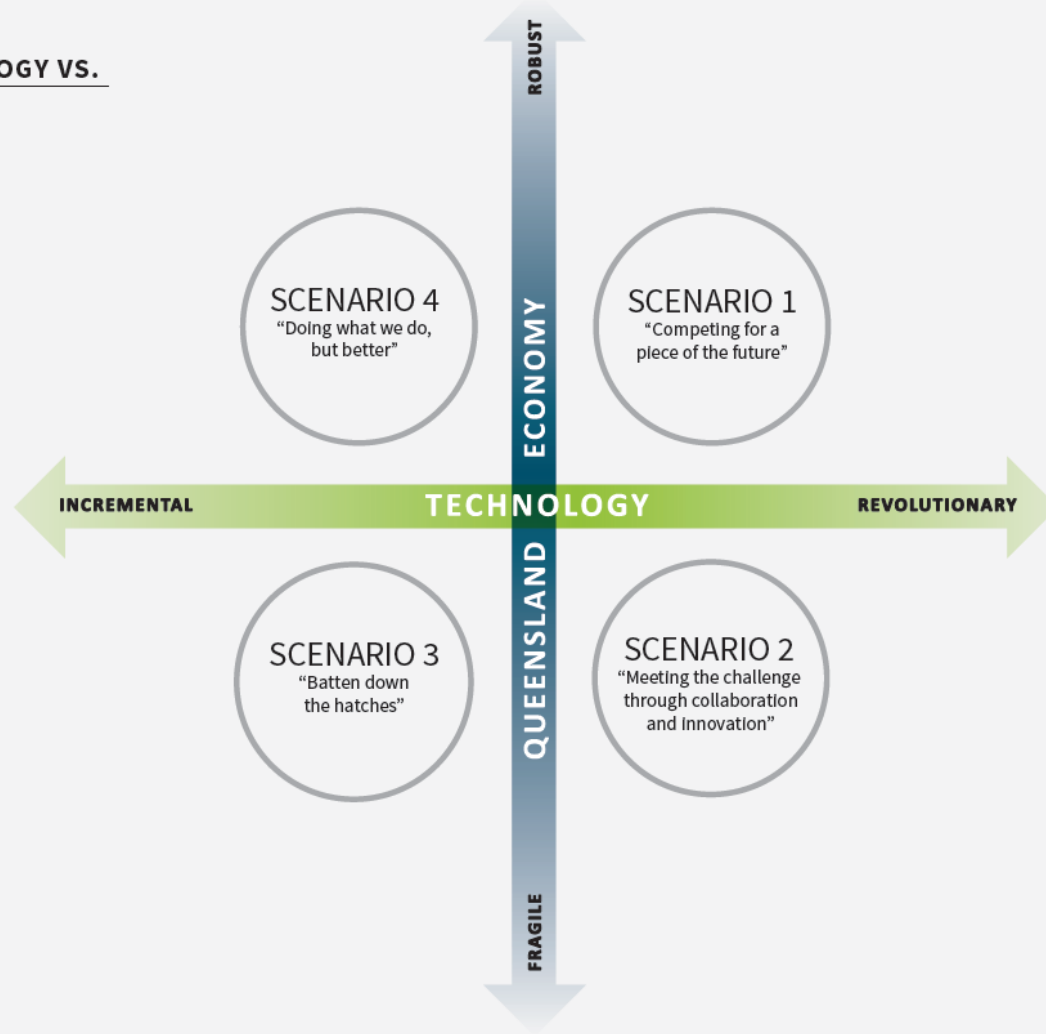


FIGURE 9

SERVICES SUPPLY MODEL VS. GOVERNANCE

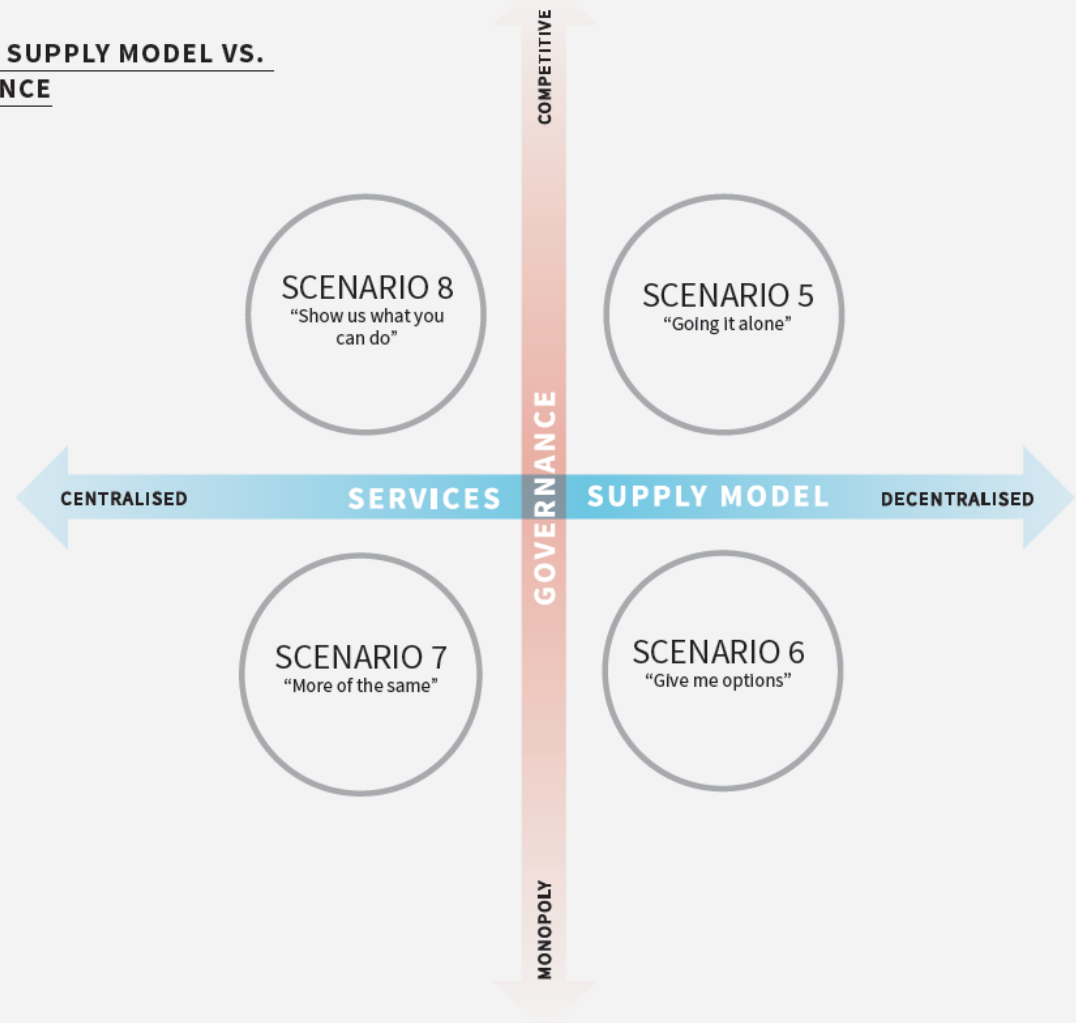


FIGURE 10

**SERVICES SUPPLY MODEL VS.
UTILITIES INTEGRATION**

