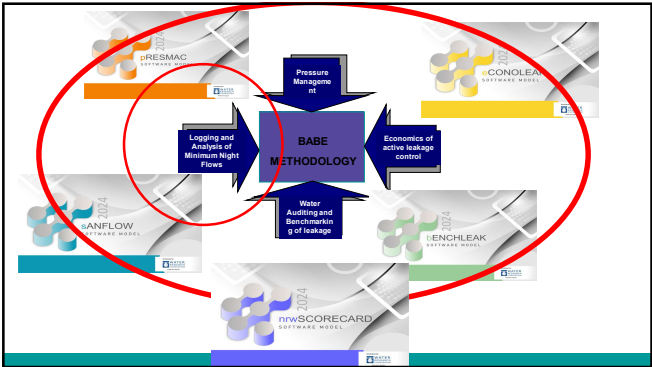
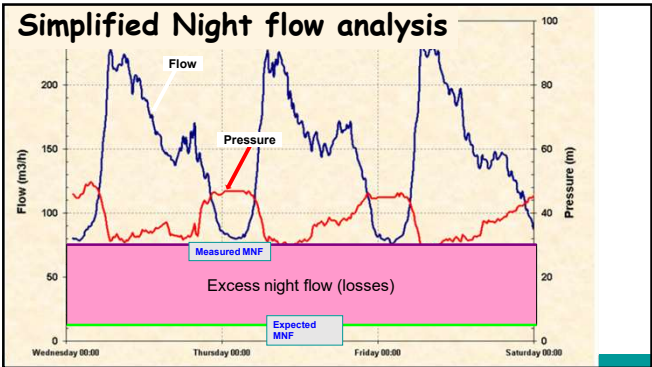




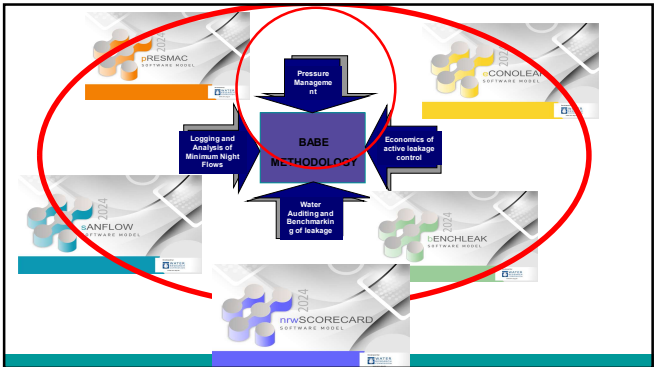
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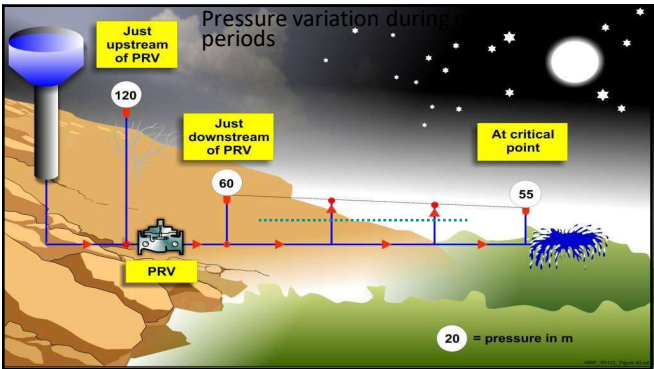
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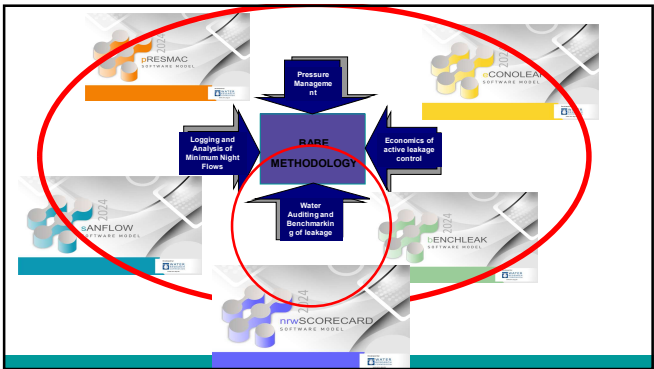
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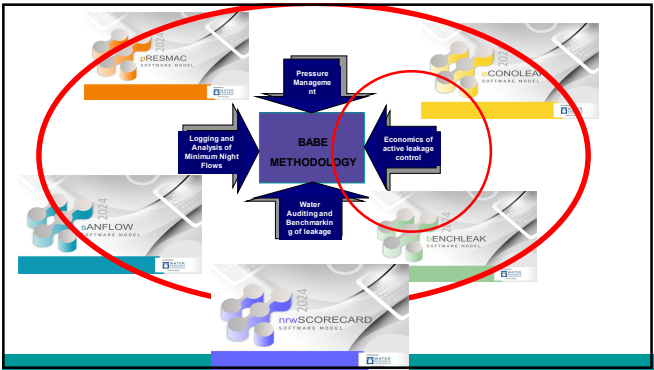
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Modified IWA Water Balance for RSA				
System Input Volume	Authorised Consumption	Billed Authorised Consumption	Billed Metered Consumption	Free Basic Recovered Revenue Non-Recovered
			Billed Unmetered Consumption	
	Water Losses	Unbilled Authorised Consumption	Unbilled Metered Consumption	Non Revenue Water
			Unbilled Unmetered Consumption	
		Apparent Losses	Unauthorised Consumption	
			Customer Meter Inaccuracies	
			Leakage on Transmission and Distribution Mains	
			Leakage and Overflows at Storage Tanks	
Real Losses	Leakage on Service Connections up to point of Customer Meter			

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Economic Level of Active Leakage Control

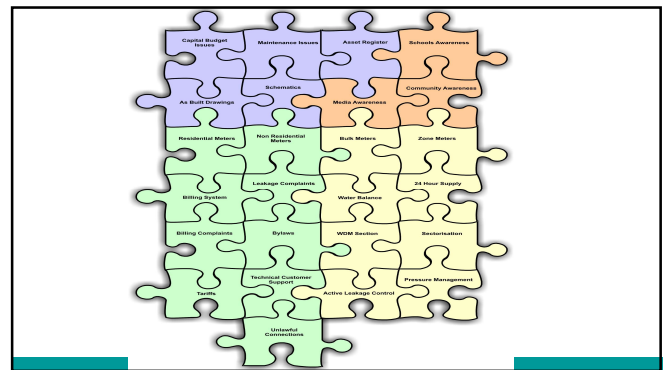
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Developing a 1st Order Water Demand Management Strategy

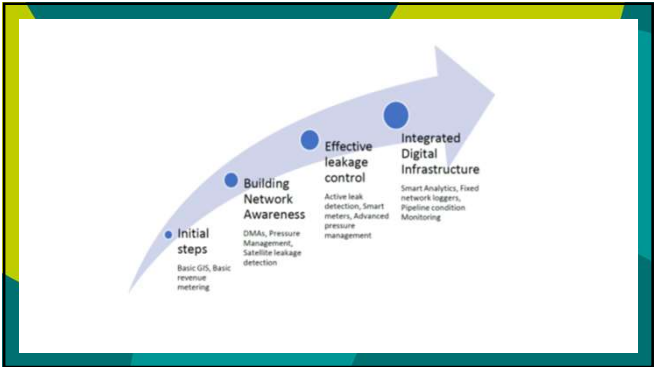
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Item No.	Description	Points
1.	Water Demand Management	
2.	Water Conservation	
3.	Water Efficiency	
4.	Water Recycling	
5.	Water Reuse	
6.	Water Treatment	
7.	Water Distribution	
8.	Water Collection	
9.	Water Disposal	
10.	Water Quality	
11.	Water Quantity	
12.	Water Cost	
13.	Water Access	
14.	Water Safety	
15.	Water Security	
16.	Water Resilience	
17.	Water Sustainability	
18.	Water Innovation	
19.	Water Leadership	
20.	Water Collaboration	
21.	Water Communication	
22.	Water Education	
23.	Water Training	
24.	Water Research	
25.	Water Policy	

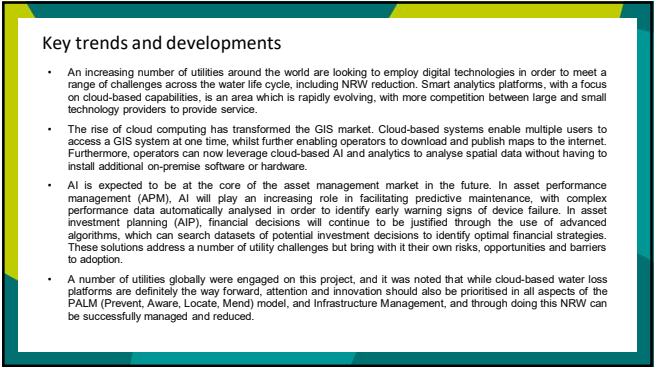
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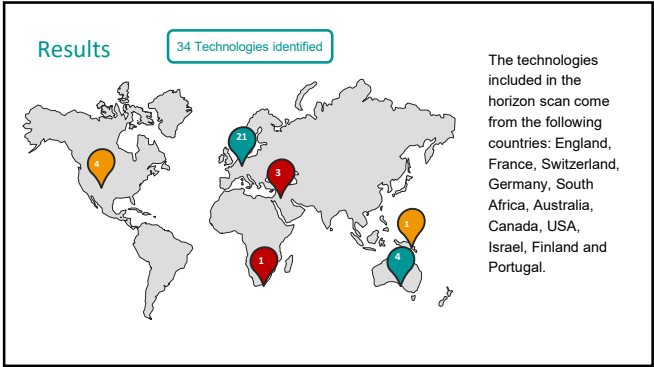
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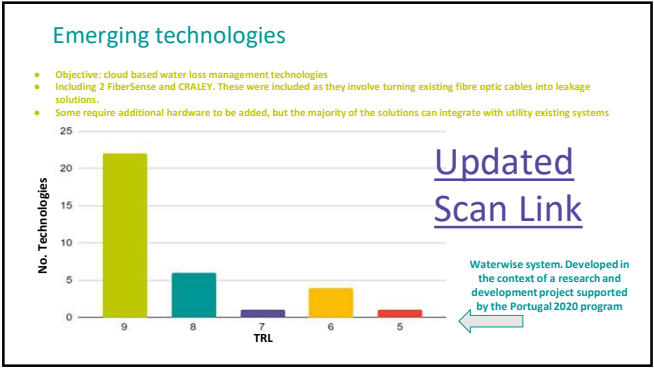
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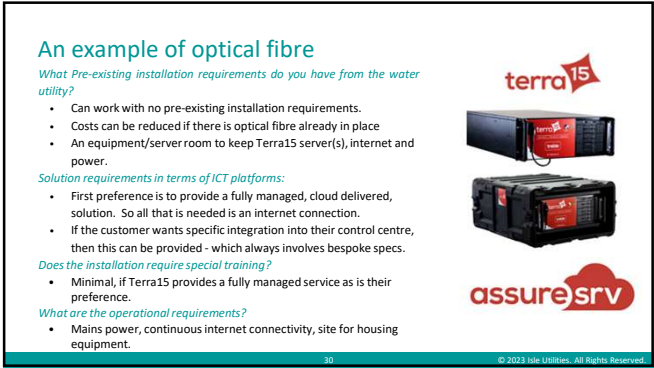
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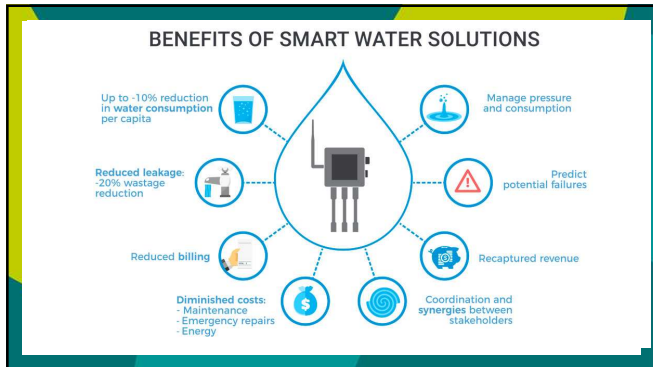
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Key Opportunities	Key Barriers
Real-time Monitoring and Predictive Maintenance	General Conservatism of utilities
Data integration and overcoming siloes	Resistance to change within utility staff
Public perception	Cybersecurity threats
Using data for multiple purposes	Lack of clear ROI
Enhanced decision making	Lack of Good Data
Feedback on incidents for better awareness	Skills Gap
Digital Maturity and 4IR Workforce	Uncertainty over technology costs

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A cluster of NRW projects helping to connect the existing solutions and advice to practice

WRC Baseline NRW Data mapping

DSU/WRC NRW Portal and Gap analysis

SALGA/WRC performance based contract database

DBSA/WRC performance based contracts case studies

DWS/Danish NRW No drop Guideline

WDM software update and training

- The NRW management portal—essentially puts all the existing NRW knowledge and tools in one online space for easy practitioner access. This has been supported by a project that Jey managed (undertaken by Isle utilities) that did a tech scoping of existing solutions. The project's more detailed objectives are to:
 - Source and consolidate the body of existing work that supports implementation partners to address non-revenue water challenges. This must include software solutions, guidelines, reports, innovations and technologies sitting in the proven and emerging pipeline related to non-revenue water (commercial and physical loss aspects).
 - Undertake a gap analysis of the research and innovation derived knowledge products (what is being used, what has been well tested, what needs further refinement/repackaging, what new things need to be developed).
 - On the existing process and technological solutions part of the analysis, determine what next steps will be required to position the public sector to be able to adopt or implement the solutions and tools base and provide way forward (e.g. demonstrations, etc.)
 - Identify and develop a series of illustrative case studies that provide practical insight into how different municipalities are implementing the identified tools, technologies, or processes to more optimally manage non-revenue water (provide practical insights into how interested municipalities could improve their own processes)

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South African Non-Revenue Water Management Portal

- A 'one stop shop' for municipalities and other practitioners looking for guidance on managing NRW.
- The portal packages the existing advisory packages, solutions, guidelines, reports, innovations and technologies sitting in the proven and emerging pipeline related to non-revenue water.

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