

# UTILITY OF THE FUTURE

Taking water and sanitation utilities  
beyond the next level



Camilo Lombana Cordoba

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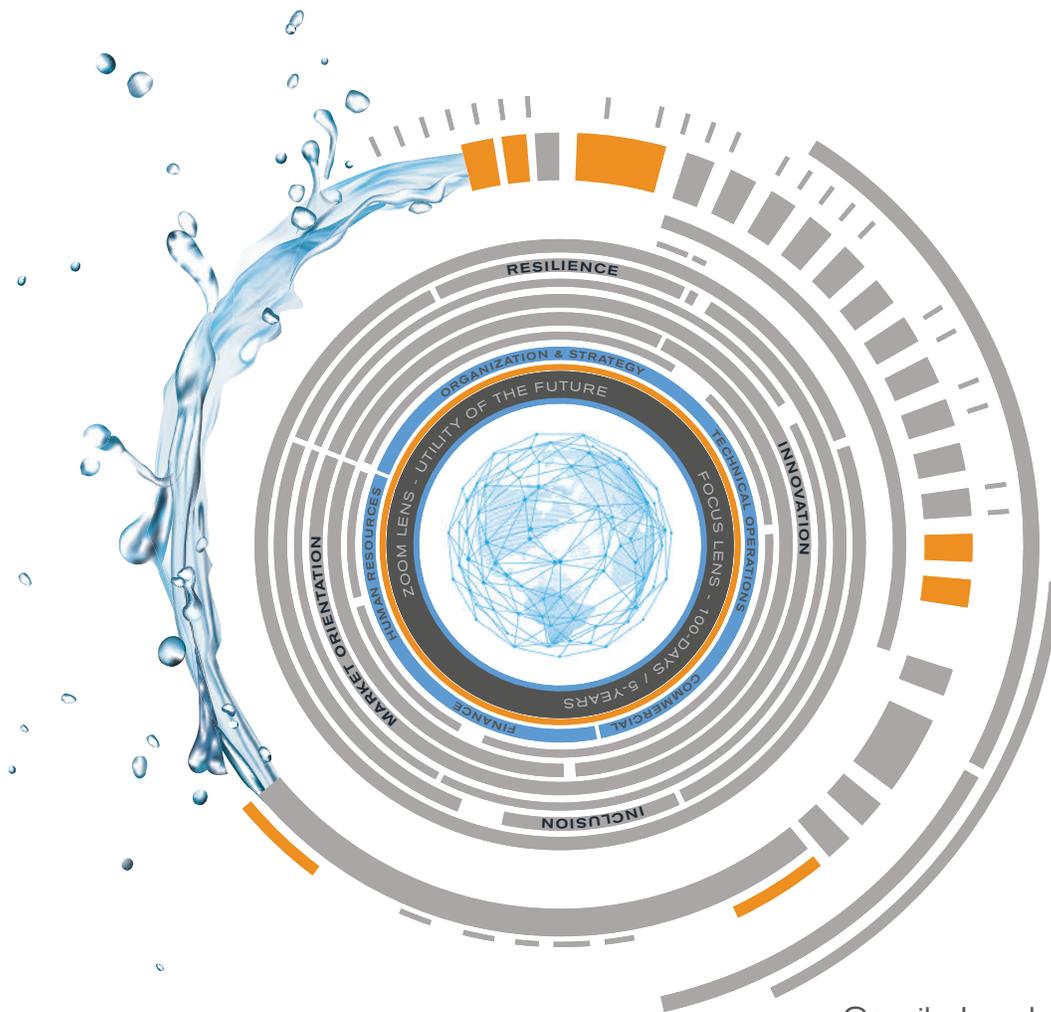
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This publication received the support of the Global Water Security & Sanitation Partnership (GWSP). GWSP is a multidonor trust fund administered by the World Bank's Water Global Practice and supported by Austria's Federal Ministry of Finance, the Bill & Melinda Gates Foundation, Denmark's Ministry of Foreign Affairs, the Netherlands' Ministry of Foreign Affairs, the Swedish International Development Cooperation Agency, Switzerland's State Secretariat for Economic Affairs, the Swiss Agency for Development and Cooperation, and the U.S. Agency for International Development.

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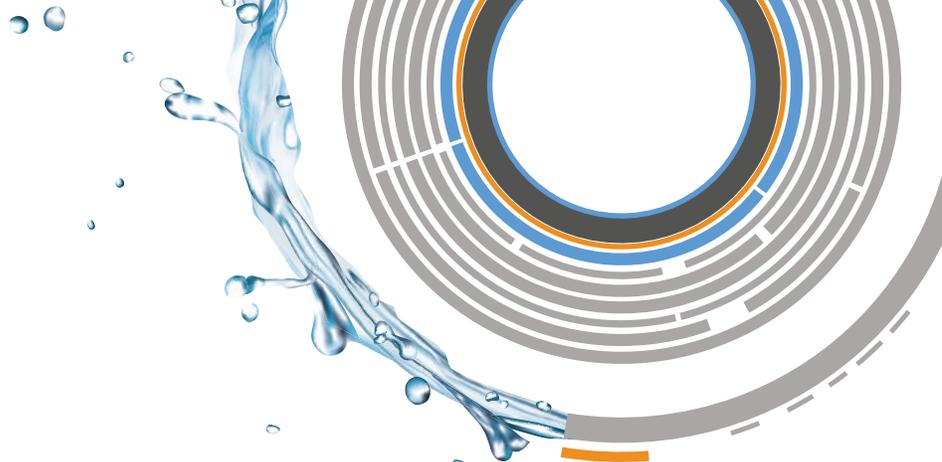
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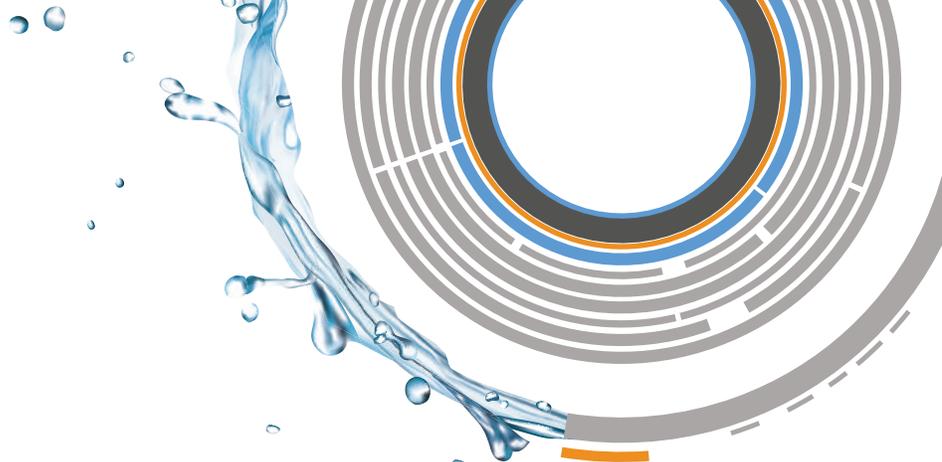
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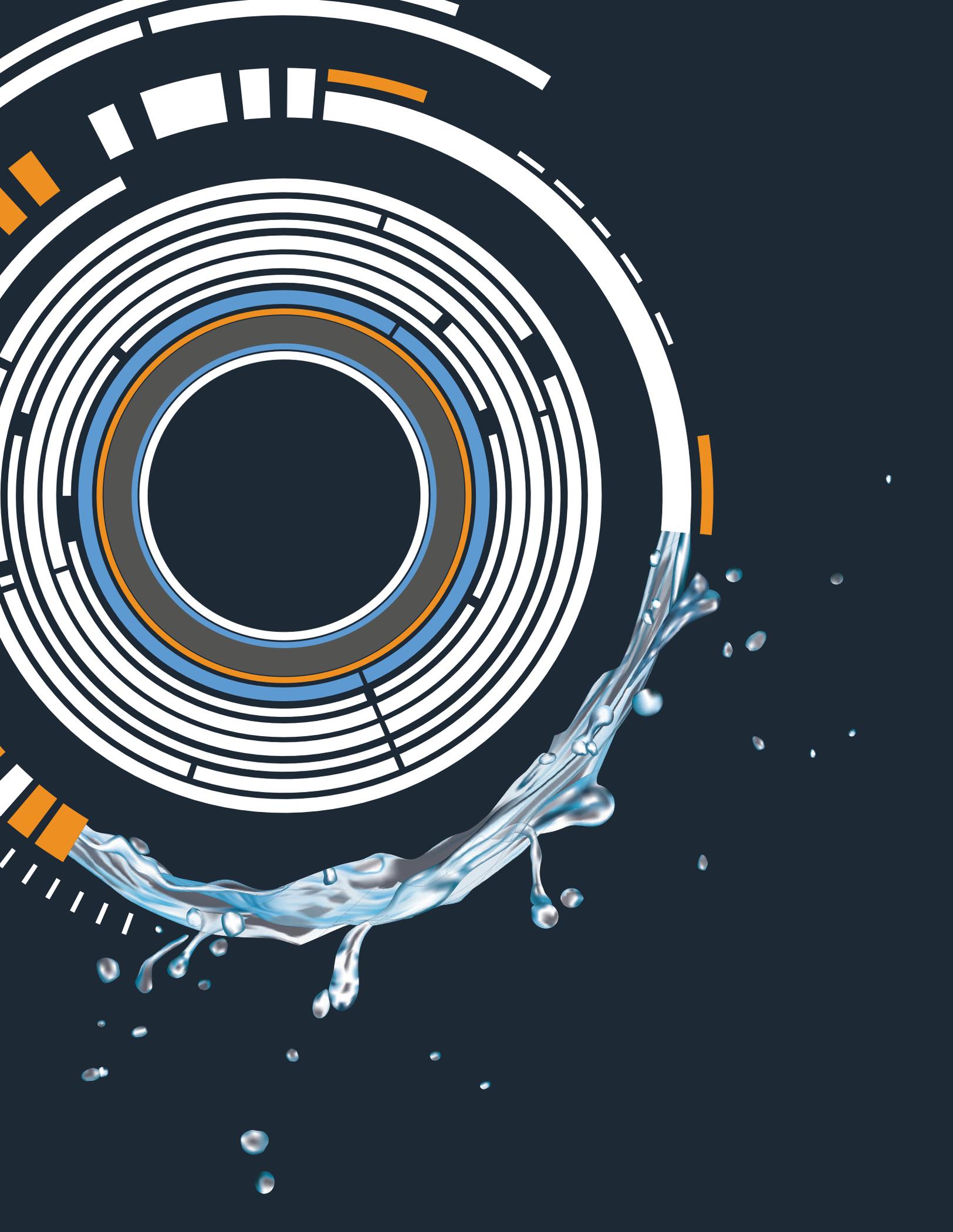
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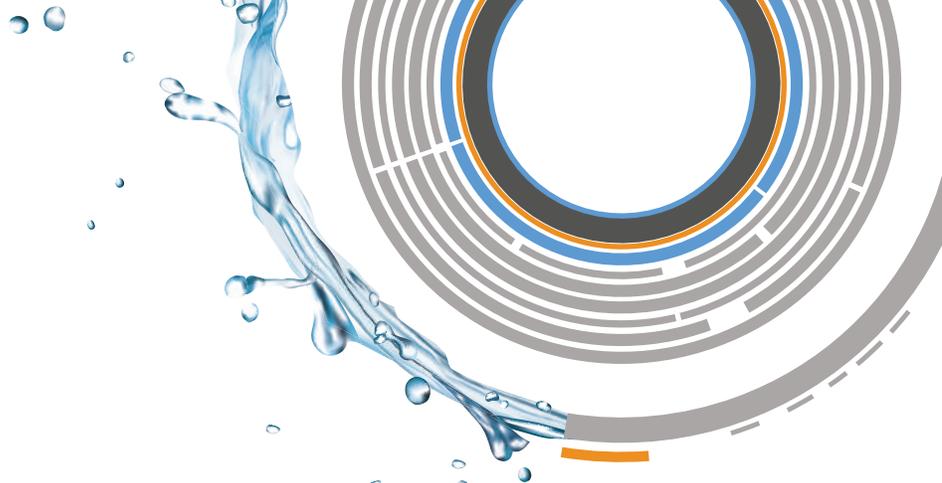


# ACKNOWLEDGMENTS

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This report is a product of the World Bank Water Global Practice's Utility of the Future initiative. This initiative is led by Camilo Lombana Cordoba (Senior Water Supply and Sanitation Specialist), Gustavo Saltiel (Global Lead Water Supply and Sanitation Specialist), Norhan Sadik (Water Supply and Sanitation Coordinator), and Federico Perez Penalosa (Senior Water Supply and Sanitation Consultant). The Utility of the Future Diagnostic and Action Planning Tool (UoF-Toolkit) was developed in a collaborative and participatory spirit and builds on the body of knowledge of the Water Global Practice. Special thanks goes to the following Water Global Practice staff members who provided valuable comments and inputs: Aileen Castro, Alex McPhail, Andreas Rohde, Antonio Rodriguez Serrano, Berta Macheve, Carolina Dominguez Torres, Chris Heymans, Christine Ochieng, Diego Rodrigues, Fadel Ndaw, Federico Perez Penalosa, Fernando Armendaris, Jemima T. Sy, Jessica Gesund Forero, Iain Menzies, Iris Marmanillo, Iyad Rammal, Jean-Martin Brault, Kamila Galeza, Kristoffer Welsien, Laura Bonzanigo, Lilian Pena, Maria Angelica Sotomayor, Maria Catalina Ramirez, Martin Gambrill, Midori Makino, Nandita Kotwal, Patricia Lopez, Pier Mantovani, Raghava Neti, Roohi Abdullah, Sanjay Pahuja, Sanyu Lutalu, Sarah Keener, Toyoko Kodama, Xavier Henri Maitre Robert, and Yitbarek Tessema. Special thanks to the teams at Isle Utilities and Castalia for their work on developing the UoF-Toolkit and methodology: Blanca Antizar, Benjamin Tam, Babi Uku, Ceris van der Vyver, David Ehrhardt, Elvira Serra, Lisa Nations, Matthew Stephenson, and Shannon Riley.





# EXECUTIVE SUMMARY

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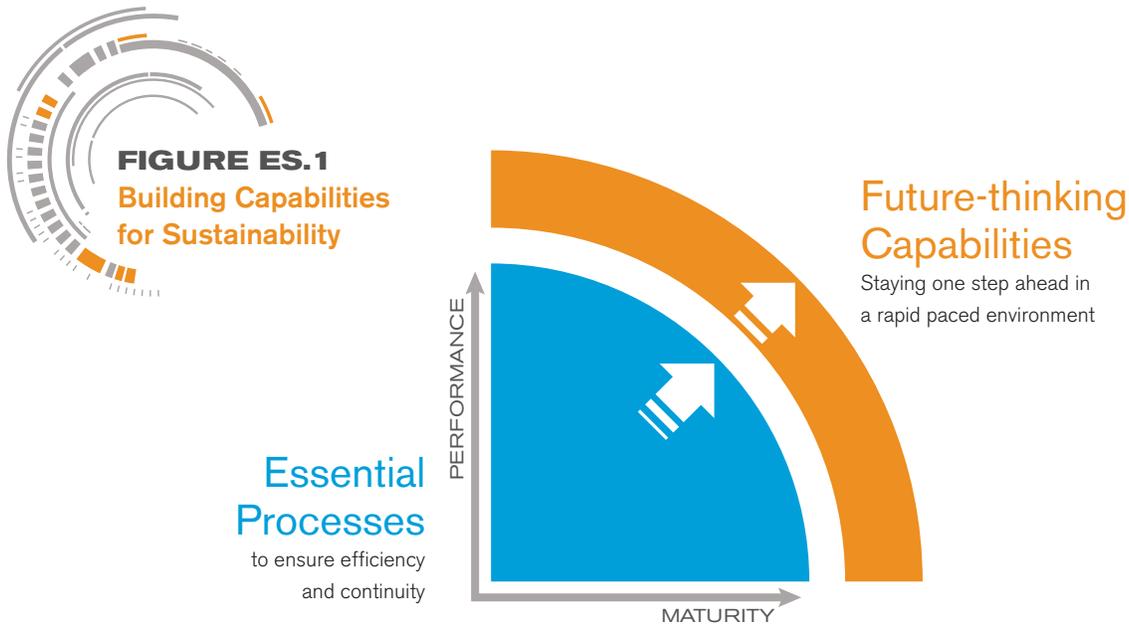
**THE SUSTAINABLE DEVELOPMENT GOAL FOR WATER AND SANITATION—“TO ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL”—IS A LOFTY GOAL (UNITED NATIONS N.D.[A]).** Worldwide, 2.4 billion people remain without access to improved sanitation and nearly 0.7 billion remain without access to improved drinking water sources. Those who have access to water supply and sanitation (WSS) services often must cope with intermittent water supply, sewerage system overflows, and poor customer service (Mumssen, Saltiel, and Kingdom 2018).

Poor service frequently stems from a vicious cycle of dysfunctional political environments and inefficient practices. Global forces—including climate change, water scarcity, population growth, and rapid urbanization—exacerbate these challenges in providing high-quality, sustainable WSS service delivery. Therefore, WSS utilities require a new approach to planning and sequencing reforms to provide WSS services in a sustainable manner. The Utility of the Future (UoF) program provides this new approach and was designed in a way that builds on the extensive body of knowledge on utility performance improvement.

## Objectives of the Utility of the Future Program

- Guide utilities in creating a vision of their desired future and develop strategic and forward-thinking capabilities to navigate a rapid paced environment (see figure ES.1).
- Develop concrete 100-day action plans and 5-year strategic plans informed by a rapid diagnostic assessment.

- Build capacity by working hand in hand with utility staff in the design and implementation of action plans.
- Connect utilities with peers globally to facilitate knowledge exchange and know-how.



## Target Audience of the Utility of the Future Program

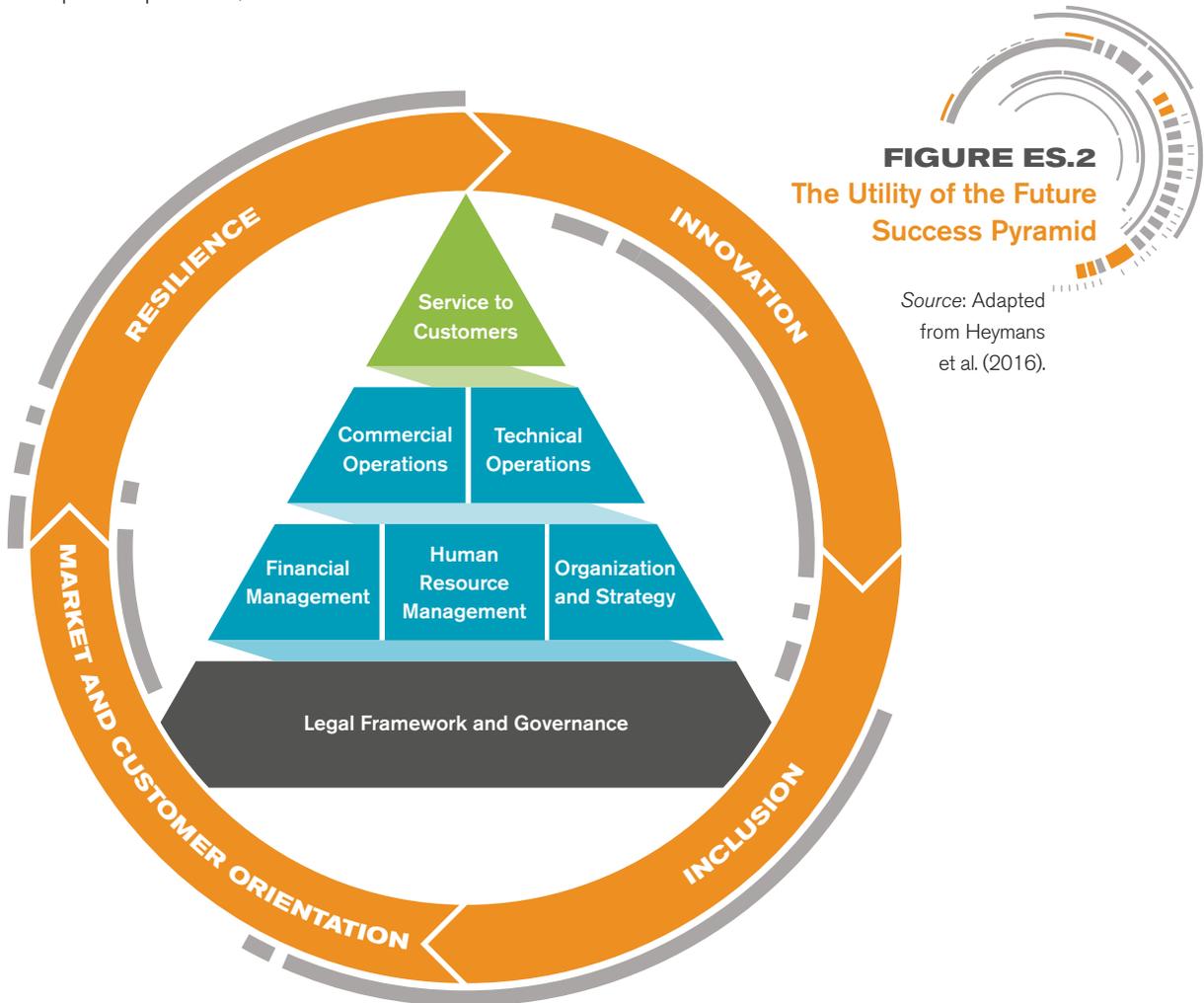
The main target audience of the UoF program comprises WSS utility managers, owners, and water practitioners.

## The Utility of the Future

In light of an unpredictable and rapidly changing operating environment, the World Bank has developed this program to guide utilities in initiating and maintaining reform efforts. The goal is to become a UoF—a future-focused utility that provides reliable, safe, inclusive, transparent, and responsive WSS services through best-fit practices in an efficient, resilient, and sustainable manner. The UoF is a new paradigm for providing WSS services, far beyond what most utilities have achieved—or even aimed for—today. A UoF provides high-quality services in a highly efficient manner while also being innovative, inclusive, market- and customer-oriented, and resilient. The success pyramid (see figure ES.2) illustrates the interdependencies and complexities of a UoF.

As shown at the top of the pyramid, service to customers is the ultimate objective, which clearly depends on technical and commercial operations, though not exclusively so. Other elements of sound utility management are organization and strategy, human resource management, and financial management. Together, these promote effective and efficient commercial and technical operations—for instance, by increasing staff productivity and reducing water losses. The legal framework and governance in which the utility operates shapes its governing environment.

In a rapidly changing world, success depends on more than these managerial and governance factors. As shown by the orange circle surrounding the pyramid, a UoF is also characterized by innovation (introducing novel methods); inclusion (improving the ability, opportunity, and dignity of people, disadvantaged on the basis of their identity, to take part in society); market and customer orientation (operating like a firm in a competitive market); and resilience (having capacity to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience).



**FIGURE ES.2**  
The Utility of the Future  
Success Pyramid

Source: Adapted from Heymans et al. (2016).

## The UoF Diagnostic Assessment and Action Planning Methodology

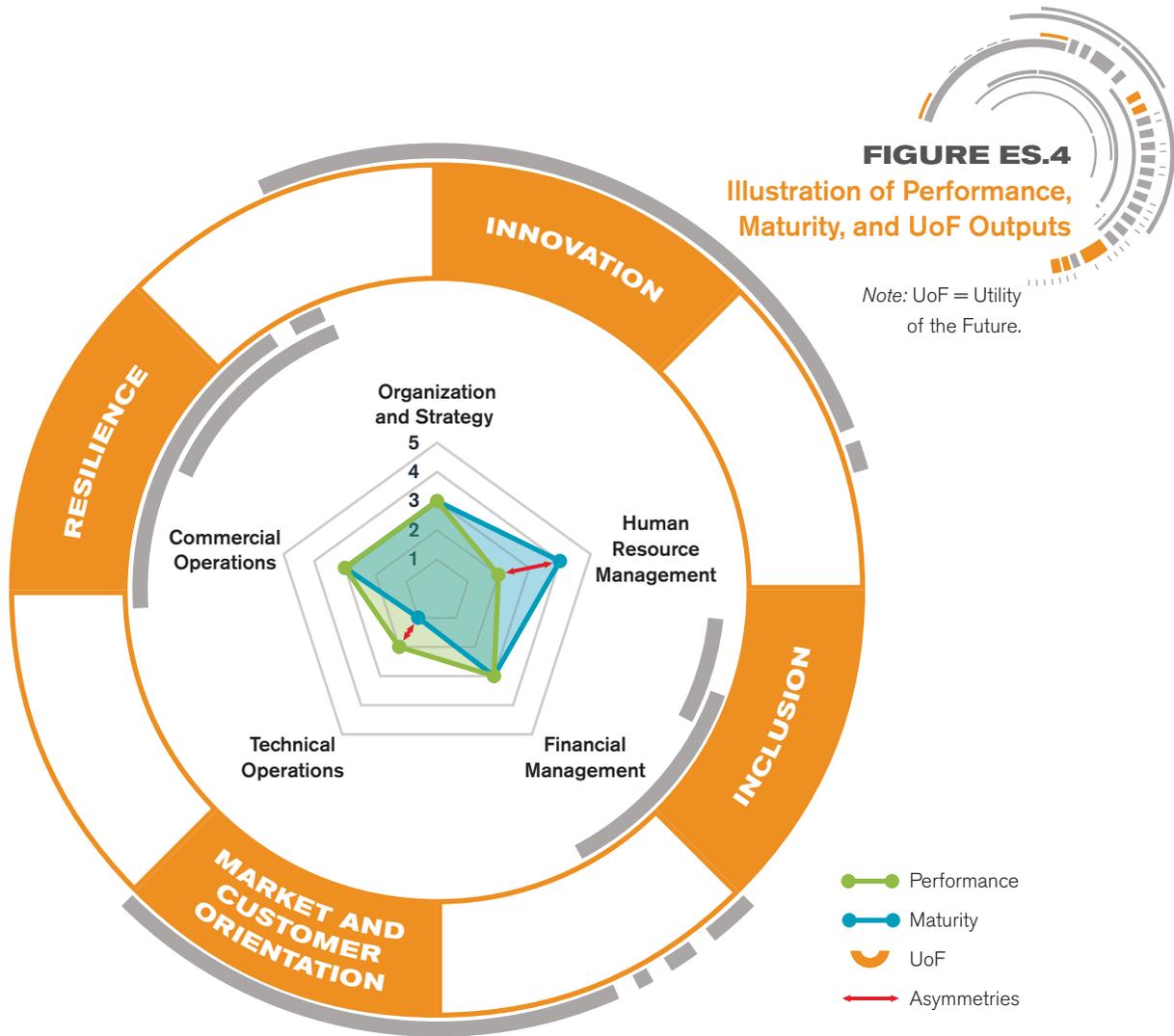
The UoF program is a phased approach comprised of the following:

1. **Diagnostic Assessment:** The diagnostic assessment analyzes where the utility stands today and its desired level of maturity in the future.
2. **Action Planning:** The action planning process provides both a 100-day action plan and a 5-year strategic plan.
3. **Implementation:** Long-term engagement with the utilities in implementation of the 100-day action plan and a 5-year strategic plan.



**FIGURE ES.3**  
Illustrative Service Assessment Output





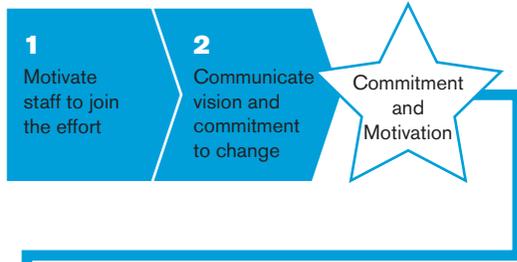
The action planning process is a 15-step approach to translate the results of the diagnostic assessment into a prioritized and sequenced action plan (see figure ES.5). By using the results from the diagnosis to assess the utility's current state and determining the desired level of maturity, the utility can produce two action plans:

- A fully resourced and implementable 100-day action plan, consisting of impactful actions to kick off and build support for the reform; and
- A five-year strategic plan, consisting of actions that build off momentum to accelerate reform and achieve the utility's long-term vision.

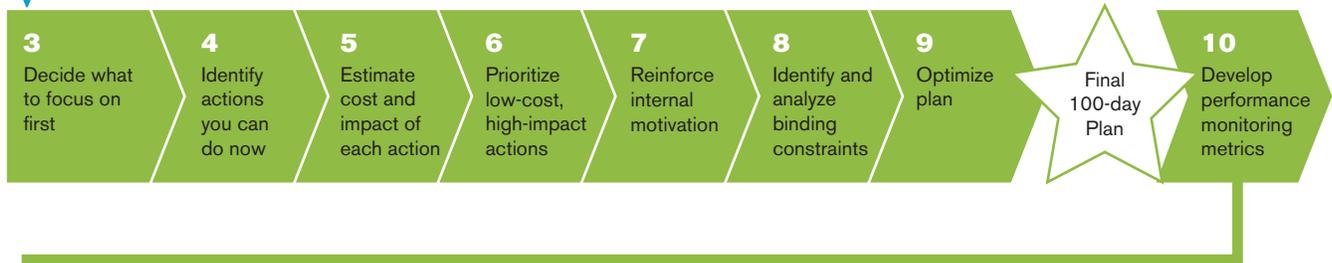


**FIGURE ES.5**  
**Overview of Action**  
**Planning Process**

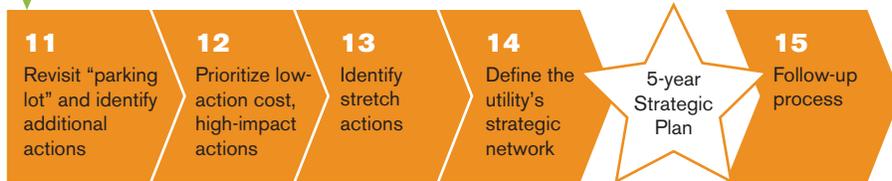
**PRE-PLANNING**



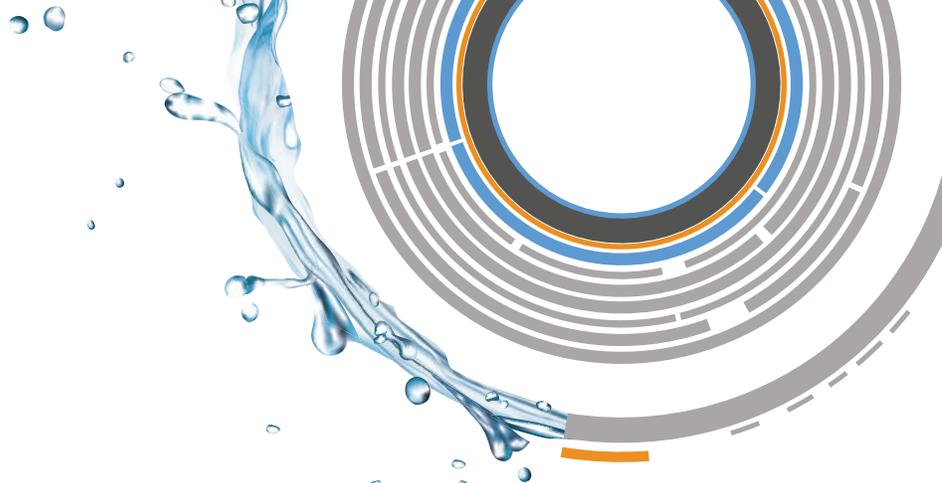
**100-DAY ACTION PLAN**



**5-YEAR STRATEGIC PLAN**



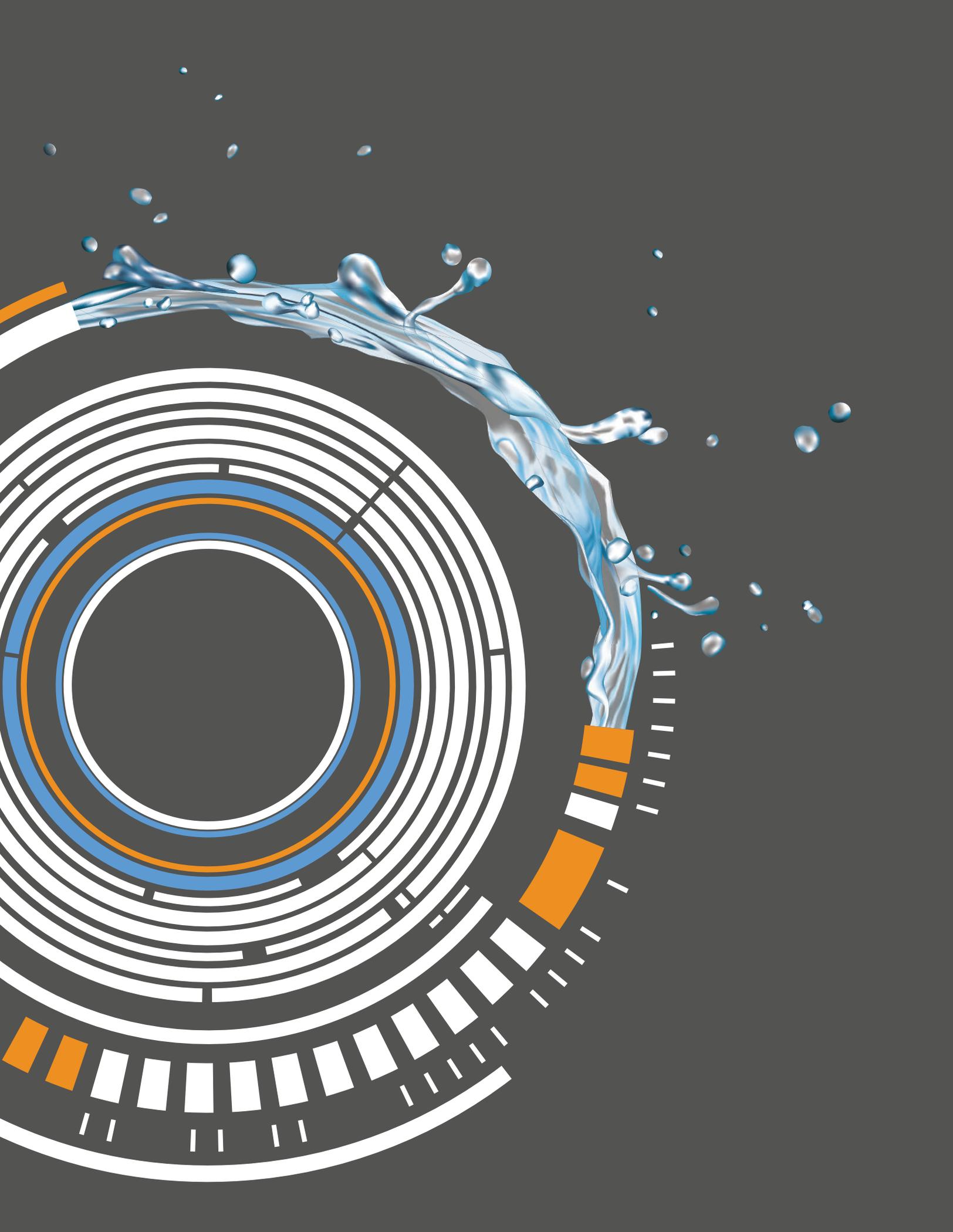
Note: The "parking lot" is a list of actions to be considered after a set of high-priority, initial actions have been undertaken.



# ABBREVIATIONS

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<b>CAPEX</b>	capital expenditure(s)
<b>CEO</b>	chief executive officer
<b>CRM</b>	customer relationship management
<b>EBITDA</b>	earnings before interest, tax, depreciation, and amortization
<b>ESOP</b>	employee share ownership plan
<b>FSM</b>	fecal sludge management
<b>GDPR</b>	General Data Protection Regulation
<b>GIS</b>	geographic information system
<b>HRM</b>	human resource management
<b>IFRS</b>	international financial reporting standards
<b>IT</b>	information technology
<b>ISO</b>	International Organization for Standardization
<b>KPI</b>	key performance indicator
<b>NGO</b>	nongovernmental organization
<b>NRW</b>	nonrevenue water
<b>OPEX</b>	operating expenditures
<b>SCADA</b>	supervisory control and data acquisition
<b>SDG</b>	Sustainable Development Goal
<b>SOP</b>	standard operating procedure
<b>SMART</b>	Specific, Measurable, Achievable, Relevant and Time-bound
<b>SMS</b>	short message service
<b>WSS</b>	water supply and sanitation
<b>WTP</b>	willingness to pay
<b>UTF</b>	Utility Turnaround Framework
<b>UoF</b>	Utility of the Future



# INTRODUCTION

**THIS METHODOLOGY PROVIDES A PRACTICAL GUIDE TO IMPLEMENTING THE UTILITY OF THE FUTURE (UoF) PROGRAM.** Due to the practical nature of this program, this methodology and accompanying **UoF-Toolkit** are intended to be living documents. As implementation of the program progresses and new developments arise, the lessons learned, and new developments will inform updates to the methodology and **UoF-Toolkit** (updates will be available at [www.worldbank.org/uof](http://www.worldbank.org/uof)).

Chapter 2 defines the UoF concept, the determinants of success, and the analytical basis of the program. Chapter 3 presents the methodology developed specifically to conduct the diagnostic assessment and determine the utility's desired maturity level. The diagnostic assessment covers the following four areas:

- **Service**, measured by reliability, safety, inclusivity, transparency, and responsiveness.
- **Performance**, measured by quantitative indicators in each of the five elements of utility management (commercial operations, technical operations, financial management, human resource management [HRM], and organization and strategy).
- **Maturity**, measured by qualitative indicators in each of the five elements of utility management (commercial operations, technical operations, financial management, HRM, and organization and strategy); and the UoF dimensions (innovation, inclusion, market & customer orientation, and resilience).
- **Enabling environment**, measured by qualitative indicators of the utility's enabling environment against the categories of the system for setting service standards, system for setting tariffs, institutional setup, financing, and autonomy and accountability.

Chapter 4 presents a 15-step approach to translating the results of the diagnostic assessment into a prioritized and sequenced action plan. Using the results from the diagnosis, the utility can produce two action plans:

- A fully resourced and implementable 100-day action plan, consisting of impactful actions to kick off and build support for the reform; and
- A draft five-year strategic plan, consisting of actions that build off momentum to accelerate reform and achieve the utility's long-term vision.

Appendices accompanying this document contain the service assessment criteria; the performance assessment criteria; the enabling environment assessment table; and a representative sample of reform actions with corresponding estimates of cost, relative impact, and duration.

# CONCEPT OF THE UTILITY OF THE FUTURE

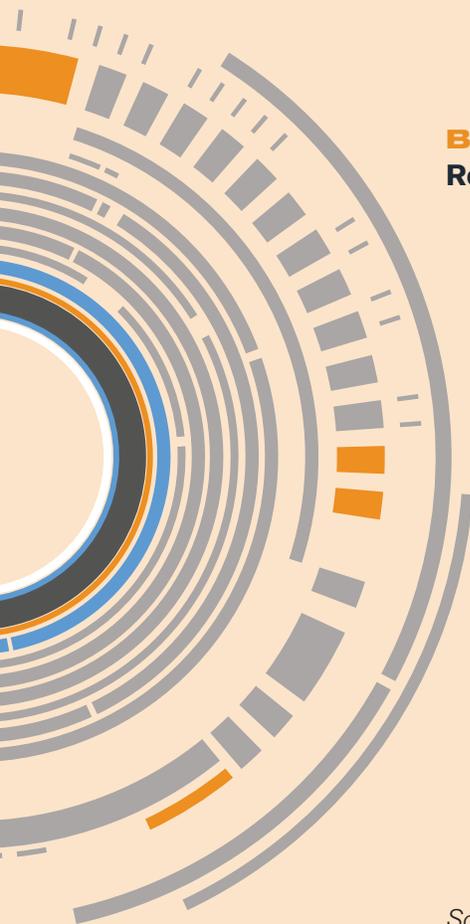
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**THIS CHAPTER DEFINES THE CONCEPT OF THE UoF, PRESENTS A FRAME-  
WORK FOR SUCCESS, AND SUMMARIZES THE ANALYTICAL FOUNDATION OF THE  
CONCEPT.**

## 2.1 Definition

A UoF is defined as a future-focused utility, which provides reliable, safe, inclusive, transparent, and responsive water supply and sanitation (WSS) services through best-fit practices that allow it to operate in an efficient, resilient, and sustainable manner.

The UoF will set for itself ambitious objectives, such as helping to meet Sustainable Development Goal (SDG) 6 to “ensure availability and sustainable management of water and sanitation for all” (United Nations n.d.[a]). Box 2.1 provides relevant SDG 6 targets.



## BOX 2.1

### Relevant Targets of Sustainable Development Goal 6 (SDG 6)

- **SDG 6.1:** By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
- **SDG 6.2:** By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- **SDG 6.3:** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.
- **SDG 6.4:** By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

Source: United Nations n.d.(b). Knowledge Platform.

Other relevant SDG targets include developing resilient infrastructure (SDG 9.1), increasing resource-use efficiency and adoption of clean and environmentally sound technologies (SDG 9.4), strengthening resilience and adaptive capacity to climate-related hazards and natural disasters (SDG 13.1), achieving universal access to basic services (SDG 1.4), reducing water pollution-related deaths (SDG 3.9), and improving energy efficiency (SDG 7.3) (United Nations n.d.[a]).

Providing “reliable, safe, inclusive, transparent, and responsive WSS services” for all is the ultimate goal of the utility, in which

- *Reliable* means 24/7 continuous supply.
- *Safe* means adhering to quality standards.
- *Inclusive* means not excluding any party or group in the provision of service.
- *Transparent* means auditing and publishing operational data.
- *Responsive* means dedicating personnel to customer engagement and prioritizing customer satisfaction.

To be a “future-focused utility” meeting goals “in a resilient and sustainable manner” means

- Having short-, medium-, and long-term strategies, which are all interconnected;
- Recognizing a responsibility to maintain the growth, development, and economic, social, and physical health of the utility and the utility’s service area;
- Having the ability to anticipate and withstand difficult conditions;
- Being aspirational, innovative, and adaptable; and
- Striving to implement best-fit practices to deliver efficient, resilient, and sustainable services.

## 2.2 The Success Pyramid

The UoF is a new paradigm for providing WSS services, far beyond what most utilities have achieved—or even aimed for—till today. A UoF provides high-quality services in a highly efficient manner while also being innovative, inclusive, market- and customer-oriented, and resilient. The success pyramid (see figure 2.1) illustrates the interdependencies and complexities of a UoF.

As shown at the top of the pyramid, providing reliable, safe, inclusive, transparent, and responsive services to customers is the ultimate objective, which depends on technical and commercial operations, though not exclusively so. Other elements of sound utility management are organization and strategy, HRM, and financial management. Together, these promote effective and efficient commercial and technical operations—for instance, by increasing staff productivity and reducing water losses. The legal and governance frameworks in which the utility operates shape its governing environment.

In a rapidly changing world, success depends on more than these managerial and governance factors. As shown by the orange circle surrounding the pyramid, a UoF is also **innovative, inclusive, market- and customer-oriented**, and **resilient**, in which

- **Innovation** means “a change made in the nature or fashion of anything; something newly introduced; a novel practice, method, and so on” (OED Online n.d.);
- **Inclusion** means “the process of improving the ability, opportunity, and dignity of people, disadvantaged on the basis of their identity, to take part in society” and “leveraging the utility’s assets and operations to benefit the larger community, lessen negative impacts

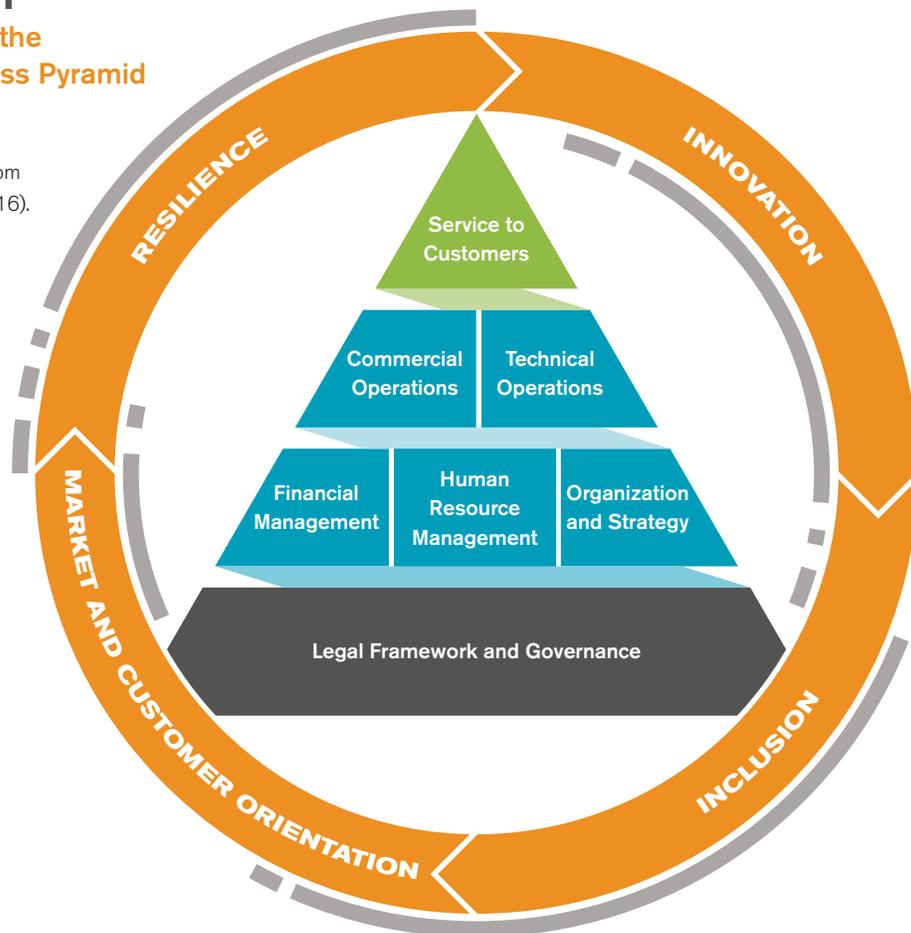
from utility activities, and provide service equitably across the service area, particularly for traditionally underserved neighborhoods” (World Bank 2013; AWWA 2019);

- **Market and customer orientation** means the utility operates like a firm in a competitive market, prioritizing efficiency and customers' wants and needs, and treating its customers as if they could change their service provider if unsatisfied; and
- **Resilience** means “the capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience” (Rodin 2014).



**FIGURE 2.1**  
The Utility of the Future Success Pyramid

Source: Adapted from Heymans et al. (2016).



## 2.3 Foundation of the Concept

The UoF builds on the work of two previous guidance documents: The Utility Turnaround Framework (UTF) and the Smart Water Utility. Together, they provide the foundational framework for the UoF diagnostic and action planning toolkit. A brief overview of each of these guidance documents is described below.

### Utility Turnaround Framework

The UTF offers guidance for turning around poorly performing WSS utilities and identifies five critical elements of sound management and performance for WSS utilities: technical operations, commercial operations, HRM, organization and strategy, and financial management. An *element* is defined as a pillar of sound management and performance for WSS utilities.

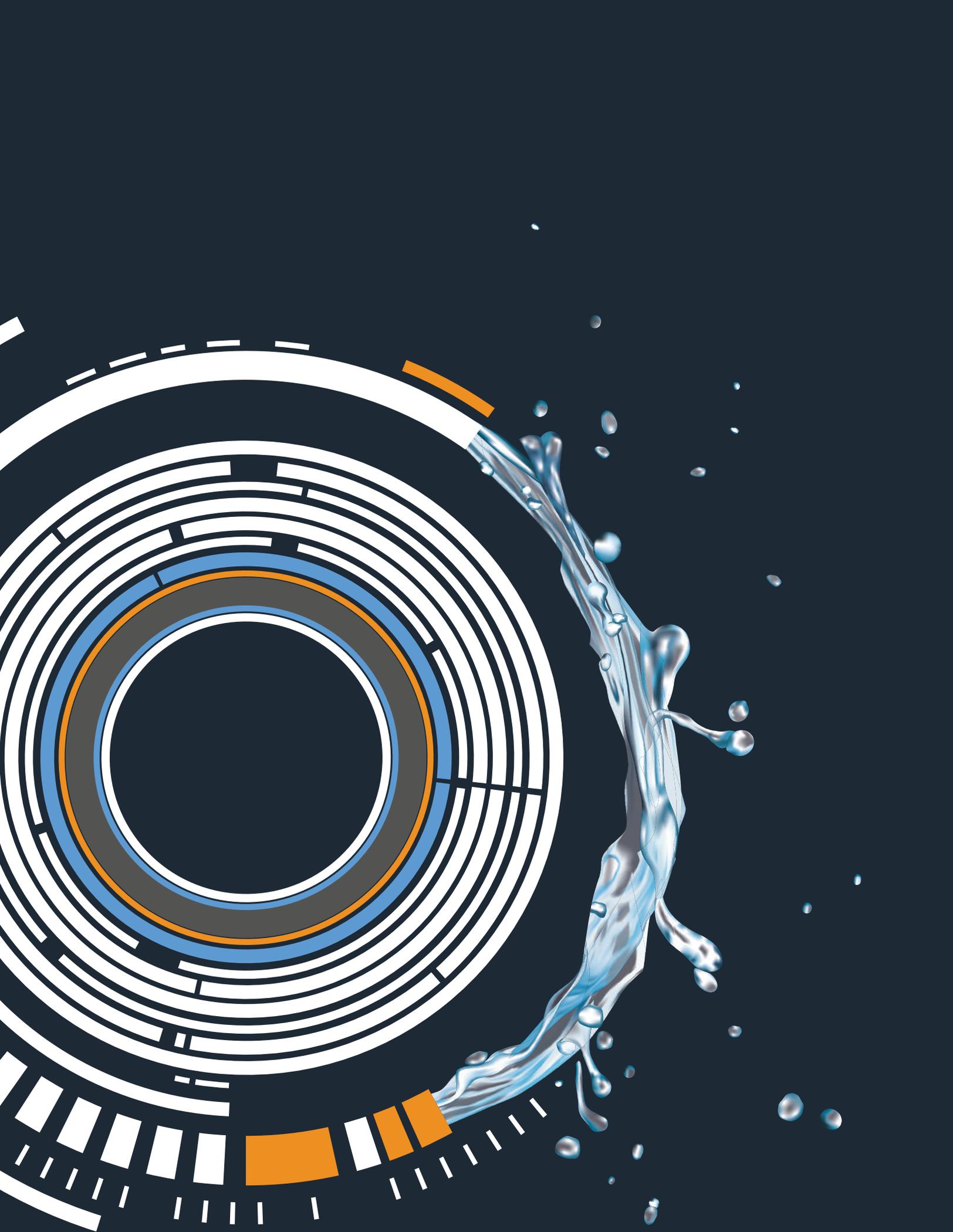
The framework allows users to conduct a comprehensive assessment of the utility's performance and maturity level in each of these elements through qualitative and quantitative indicators. The outputs of this assessment are a performance cobweb and a maturity cobweb, which present the level the utility scored in each of these elements (measured from 1 [elementary] to 5 [world-class]). Action matrices and guidance notes set out how to translate the assessment into a prioritized action plan to initiate and sustain the utility's turnaround.

### Smart Water Utility

The Smart Water Utility is a guide to defining what it means to be one, identifies key improvement opportunities for WSS utilities spread across the water cycle, and organizes the adoption of innovative approaches and technologies into three main themes:

- Create a resilient water supply.
- Provide effective wastewater management.
- Build a responsive utility.

This concept includes the principles of resilience, financial and operational efficiency, energy and water efficiency, inclusion, circular economy, innovation, and good governance.



# DIAGNOSE CURRENT STATE AND DETERMINE DESIRED MATURITY LEVEL

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**THE FIRST STEP OF THE UoF PROGRAM IS TO DIAGNOSE THE UTILITY'S CURRENT STATE AND DEFINE THE DESIRED NEXT LEVEL ACROSS FIVE AREAS—SERVICE, PERFORMANCE, MATURITY, UoF LEVEL AND ENABLING ENVIRONMENT—EACH OF WHICH RELATE TO DIFFERENT BLOCKS IN THE SUCCESS PYRAMID (SEE TABLE 3.1).**

Service to customers is at the top, as shown in figure 2.1, because it is the ultimate objective of the utility to provide reliable, safe, inclusive, transparent, and responsive services.

The five blocks in the middle of the pyramid are the essential processes—commercial operations, technical operations, financial management, HRM, and organization and strategy—and are assessed from three perspectives:

- The first is performance, which uses key quantitative indicators (such as liters per connection per hour of nonrevenue water and the earnings before interest, tax, depreciation, and amortization [EBITDA] margin).
- The second is maturity level, which uses a list of qualitative practices (such as what type of accounting system is used to prepare financial statements and how assets are managed). The legal framework and governance, which represent the enabling environment, are at the bottom of the pyramid because they shape the utility's governing environment.

- The third is UoF level (represented by the orange ring around the pyramid), which is defined by a set of emerging new practices that are ever more relevant for utilities in terms of innovation, inclusion, market and customer orientation, and resilience. These practices are to be periodically updated.

Table 3.1 summarizes the five diagnostic areas, the frameworks for analysis, the processes to conduct the analysis, and the outputs.



**TABLE 3.1**  
**Summary of Diagnostic Areas, Framework for Analysis, Processes, and Outputs**

Diagnostic Area	Framework for analysis	Process to conduct analysis	Output
<b>Service</b>	Service assessment table	Collect basic quantitative and qualitative data	Service assessment graph (Figure 3.2)
<b>Performance</b>	Performance assessment table	Collect basic quantitative and qualitative data	Performance cobweb graph (Figure 3.4)
<b>Maturity</b>	Maturity matrices	Use maturity matrices to select practices that match the utility's current state	Maturity Cobweb and UoF Dimensions graph (Figure 3.6)
<b>UoF level</b>	Maturity matrices	Use UoF elements to select emerging practices that match the utility's current state	Maturity Cobweb and UoF Dimensions graph (Figure 3.6)
<b>Enabling environment</b>	Enabling environment assessment table	Use enabling environment assessment criteria to select practices that match the utility's current enabling environment	Enabling environment assessment table (Figure 3.8)

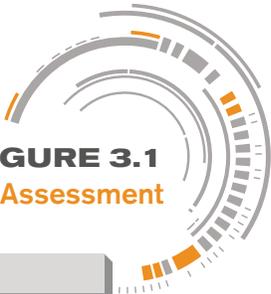
Note: UoF = Utility of the Future.

### 3.1 Service Assessment

Per the UoF definition, service to customers should be reliable, safe, inclusive, transparent, and responsive. The service diagnostic area assesses quality of services against these five components, on a scale from 1 (elementary) to UoF. For example, when assessing performance in service, a utility with a drinking water coverage rate of less than 50 percent is assigned a level 1 (elementary) performance, whereas a utility with a drinking water coverage rate of 100 percent is assigned a UoF level of service.

## Framework for Analysis

The **service assessment (figure 3.1)** is comprised of five components (reliable, safe, inclusive, transparent, and responsive). Each component is assessed through one or more indicator—for example, reliable is assessed through continuity (hours per day of supply) and availability (average liters of domestic consumption per person served per day). Detailed indicators are included in appendix A.



**FIGURE 3.1**  
Service Assessment

<b>SERVICE TO CUSTOMERS</b>	<b>Reliable</b>	Continuity (hours per day on average)
		Continuity (customers with 24/7 supply) (%)
		Availability (l/pc/day)
		Availability of FSM emptying services (provided 24 hours after service requested) (%)
	<b>Safe</b>	Water quality (samples meeting all WHO guidelines for drinking water quality (%)
		Wastewater and fecal sludge treatment (%)
	<b>Inclusive</b>	Drinking water coverage (%)
		Sanitation service coverage (%)
	<b>Transparent</b>	Financial transparency
		Service and performance transparency
	<b>Responsive</b>	Percentage of sewer blockage complaints addressed within 48 hours (%)
		Customers satisfied with service (based on assessment in the past two years) (%)
		Grievance channels for submission
		Protocol/procedural guidance on grievance process and norms of service
		Dedicated personnel for customer engagement
		Complaints linked to MIS tracking responses
		Customer satisfaction linked to performance assessment
Grievances satisfactorily resolved within seven days (%)		

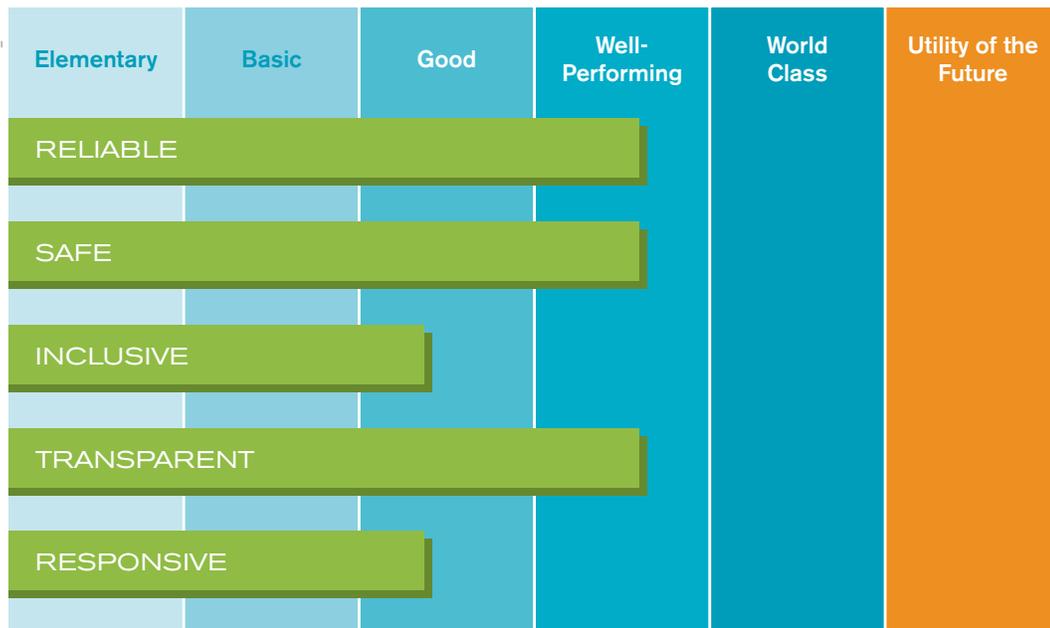
Note: Full table in appendix A. FSM = fecal sludge management; MIS = management information system; WHO = World Health Organization.

## Output

The output will be the **service assessment graph**. The table will show, using shaded bars, the utility's average performance against each service component. For example, a utility with a drinking water coverage rate of 87 percent and a sanitation service coverage rate of 17 percent would score an average of 3, placing it in the good level for inclusion.<sup>1</sup> An illustrative output is shown figure 3.2.



**FIGURE 3.2**  
Illustrative Service Assessment Graph



## How to Apply the Output

The service assessment provides a reminder of the big-picture goals of the utility but is not a direct input to the actions or action plan. This reflects the logic of the pyramid: The utility improves the elements included within the pyramid to improve services. At the same time, improving services should always be top of mind when determining quick wins and long-term actions.

<sup>1</sup> This is calculated by matching the numbers reported by the utility with the corresponding band from Appendix A and then taking the average score of each component. For example, drinking water coverage rate of 87 percent falls in the range between 85 and 95, so it is categorized as well-performing (4), and sanitation service coverage rate of 17 percent falls in the range between 0 and 20, so it is categorized as basic (2). Therefore, the total score for the inclusive component is the average of the two: good (3).

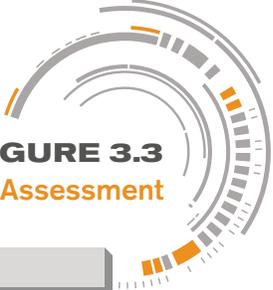
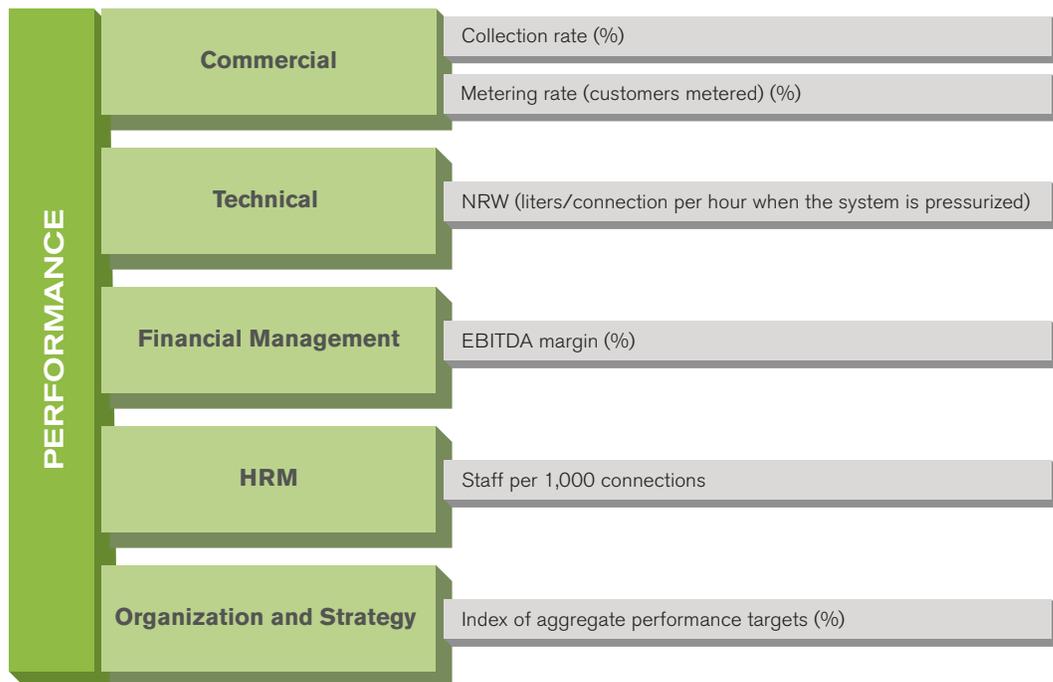
### 3.2 Performance Assessment

A UoF performs well under the elements of commercial operations, technical operations, financial management, HRM, and organization and strategy. The performance cobweb provides a picture of the utility's relative performance in each of these five areas on a scale from 1 (elementary) to 5 (world-class).

#### Framework for Analysis

In the **performance assessment table** (appendix B), shown in figure 3.3, each element is assessed through one or more indicators—for example, commercial operations are assessed through collection rate and metering rate.

**FIGURE 3.3**  
Performance Assessment

Note: Full table in appendix B. NRW = nonrevenue water; EBITDA = earnings before interest, tax, depreciation, and amortization; HRM = human resource management.

## Output

The aggregate scores for each element will be graphically depicted through a **performance cobweb** with five spokes, showing relative strengths and weaknesses across the five elements. For instance, in the example shown in figure 3.4, performance on commercial operations, organization and strategy, and financial management is relatively stronger than performance on HRM and technical operations.



**FIGURE 3.4**  
Illustrative Performance Cobweb



## How to Apply the Output

The relative strengths and weaknesses identified by the **performance cobweb** provide one method for prioritizing actions in the action planning process. For instance, a utility may choose to focus first on improving elements with lower scores (in this example, HRM and technical operations) and/or build on its strengths to continue consolidating and optimizing its processes (in this example, financial management).

Also, the performance cobweb can be superimposed on the **maturity cobweb** and **UoF dimensions** (described in the next section) to show asymmetries between performance and maturity. If performance has a higher score than maturity for a given element, this may indicate that the utility should strengthen its maturity to sustain current levels of performance.

### 3.3 Maturity

A UoF implements mature practices under the elements of commercial operations, technical operations, financial management, HRM, and organization and strategy. The maturity component of the diagnosis assesses a utility's maturity against five levels, from 1 (elementary) to 5 (world-class). A UoF also implements innovative, inclusive, market- and customer-oriented, and resilient practices under the same five elements. The UoF component of the diagnosis not only assesses a utility's progress in implementing UoF practices but also offers an opportunity for utilities to think strategically and decide on their vision of the future. UoF practices will be periodically updated in the UoF-Toolkit as new practices emerge.

#### Framework for Analysis

Maturity is assessed through the maturity matrices. There is one maturity matrix per element, each of which is divided into areas (such as billing) and topics (such as billing frequency). Each topic corresponds to one row in the matrix and includes one or more practices per level. The utility's maturity level for each topic is determined by the practice that best matches the utility's current state.

To provide an example, an excerpt of the commercial operations maturity matrix is shown in figure 3.5 for the areas of metering and billing. A utility that reads its meters through walk or drive remote metering would score a 4 (well-performing) and its desired level is to have a fully remote intermittent metering system (world-class).

For UoF, practices are categorized based on the four dimensions: innovation, inclusion, market and customer orientation, and resilience. For example, bill presentment methods, which accommodate the needs of different types of customers, fall under the dimension of inclusion. Not all dimensions apply to all topics (figure 3.5).

The complete maturity matrices can be found in the **UoF-Toolkit** and some useful resources and tools used to inform development of the matrices can be found in **appendix E**.



**FIGURE 3.5**  
Maturity and UoF Assessment

Area	Topic	Maturity Levels SELECT ONE					UoF Dimensions SELECT ALL THAT APPLY			
		Elementary	Basic	Good	Well-Performing	World-Class	Innovation	Inclusion	Market Orientation	Resilience
Metering	Type of meter	None	Mechanical meters, which do not meet ISO 4064 standards	Mechanical meters, which meet at least 3 ISO 4064 standards	Mechanical meters, which meet at least 4 ISO 4064 standards	Mechanical meters, which meet all ISO 4064 standards	Electronic meters with on-demand, remote readings (e.g. on mobile devices and control room) which meet all ISO 4064 standards; automatic check for consistency of meter reading, billing, and accounts data			
	Current Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Desired Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Meter reading	None	Manual	Manual input to electronic device	Walk or drive remote metering	Full remote intermittent		Methods for customers of all socioeconomic statuses to access readings themselves		Digital and secure backup of all records
	Current Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Desired Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Data reconciliation meter reading, billing and accounts data are consistent	No link; no check for consistency	No link; infrequent checks for consistency	Manual link; routine checks for consistency		Automatic link; routine checks for consistency				
	Current Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Desired Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Testing and replacement	Not tested nor calibrated; not replaced	Tested infrequently; not calibrated and not replaced	Tested and calibrated routinely; replaced infrequently		Tested, calibrated, and replaced in accordance with manufacturer guidelines	Proactive testing, calibration, and replacement based on exception reports from online meter data			Guaranteed service level agreements in place with meter manufacturers or suppliers
Current Level	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Desired Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Note: Full table in **UoF-Toolkit**. ISO = International Organization for Standardization; UoF = Utility of the Future.

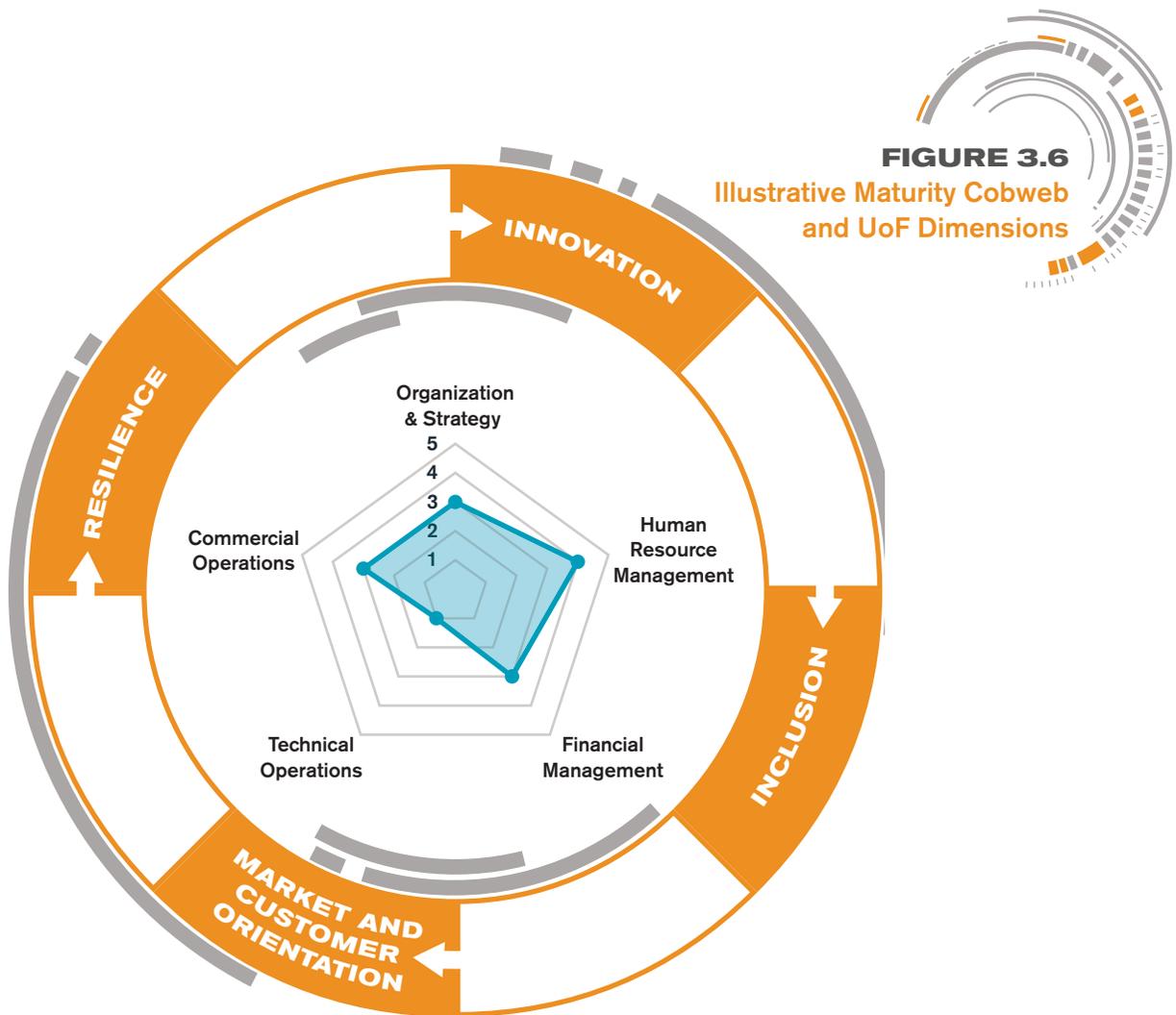
### Process to Conduct Analysis

**Maturity Assessment:** Select a maturity level that best reflects the utility's current state for each topic. Then, select the desired level of maturity for each topic. In total, there are 90 topics: 19 in commercial operations, 26 in technical operations, 14 in financial management, 12 in organization and strategy, and 19 in HRM.

**UoF Assessment:** To determine the extent to which the utility is implementing well-advanced actions as defined by the UoF concept, the utility should select any practice that it is currently implementing as well as desired UoF practices. There are 182 UoF practices: 63 in innovation, 45 in inclusion, 34 in market and customer orientation, and 40 in resilience. UoF practices will be periodically updated in the **UoF-Toolkit** as they emerge.

**Output**

Just like the performance cobweb, the aggregate scores for each element will be graphically depicted through a **maturity cobweb** and **UoF dimensions** with five spokes, showing relative strengths and weaknesses across the five elements. For instance, in figure 3.6,



performance on HRM, organization and strategy, commercial operations, and financial management is relatively stronger than performance on technical operations. The ring encircling the maturity cobweb depicts the progress toward implementing all UoF practices across all elements, with the amount of orange shading corresponding to the total percentage of UoF practices that the utility has implemented. For example, the utility in figure 3.6 has implemented about 50 percent of all inclusion practices.

### How to Apply the Output

Just like the **performance cobweb**, the relative strengths and weaknesses identified by the **maturity cobweb** and **UoF dimensions** provide one method for prioritizing actions in the action planning process. For instance, a utility may choose to focus first on improving elements with lower scores (in this example, technical operations), or strengthen elements with higher scores to continue consolidating and optimizing its processes (in this example, human resources).

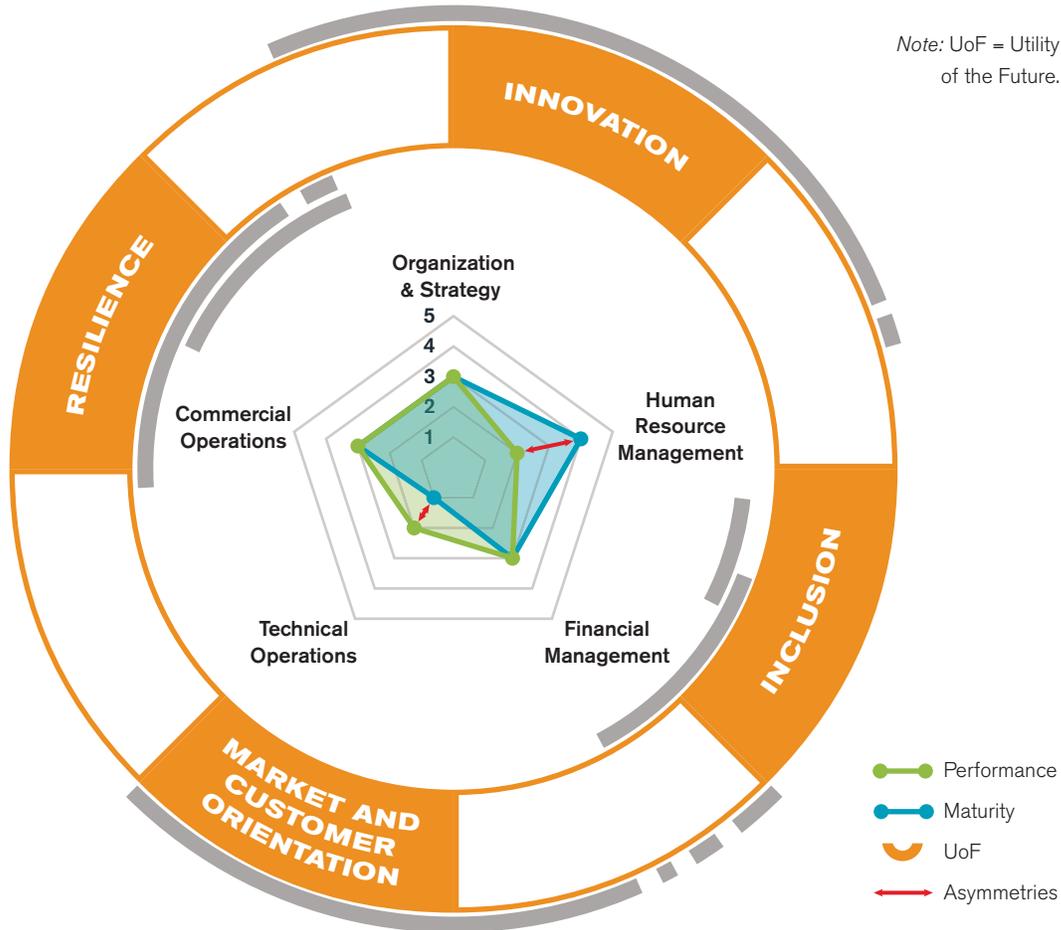
Also, the **performance cobweb** can be superimposed on the **maturity cobweb** and **UoF dimensions**, as shown in figure 3.7, to show asymmetries between performance and maturity. If performance has a higher score than maturity for a given element (for example, technical operations in this figure), this may indicate that the utility should strengthen its maturity to sustain current levels of performance.



**FIGURE 3.7**

**Illustration of Superimposed Maturity and Performance Cobwebs, and UoF Dimensions**

Note: UoF = Utility of the Future.



### 3.4 Enabling Environment

A utility's enabling environment, characterized by its legal and governance framework, affects what actions the utility can take and when. Thus, it is important to know the current state of the utility's enabling environment to better understand binding constraints preventing the utility from taking action.

## Framework for Analysis

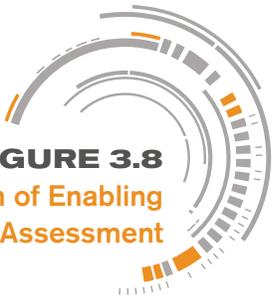
In the **enabling environment assessment**, there are five categories of assessment: system for setting service standards, system for setting tariffs, institutional setup, financing, and autonomy and accountability.

For each row, one cell should be selected that best characterizes the utility's enabling environment today. The cells on the left characterize a weaker enabling environment, and cells on the right characterize a stronger one. This assessment does not use the same scoring rubric as the other diagnostic areas because having a strong enabling environment is partially outside of the utility's control.

## Process to Conduct Analysis

To complete the enabling environment assessment, one cell in each row should be selected that best corresponds to the utility's current level of enabling environment.

This information should be inserted into the UoF-Toolkit. Figure 3.8 provides an excerpt of how the enabling environment assessment looks. To conduct the analysis, the utility selects the option that corresponds most closely to its current enabling environment. In this figure, the utility operates in a context in which a regulatory and accountability system exists but involves only a few customers in the service area.



**FIGURE 3.8**  
Illustration of Enabling Environment Assessment

Weak 					Strong	Select
System for Setting Service Standards						
Regulatory and accountability system does not exist	Regulatory and accountability system exists but involves only a few in the service area	Regulatory and accountability system involves some in the service area	Regulatory and accountability system involves most in the service area	Regulatory and accountability system involves all in the service area	3	
Regulatory and accountability system does not exist	Regulatory and accountability system exists but is neither transparent nor responsive	Regulatory and accountability system is somewhat transparent and responsive	Regulatory and accountability system is mostly transparent and responsive	Regulatory and accountability system is transparent and responsive to needs of all in the service area	2	
No service standards are set	Minimum service standards are set	Service standards are set appropriately but not predictably	Service standards are set somewhat appropriately and predictably	Service standards are set appropriately, responsively, and predictably	1	

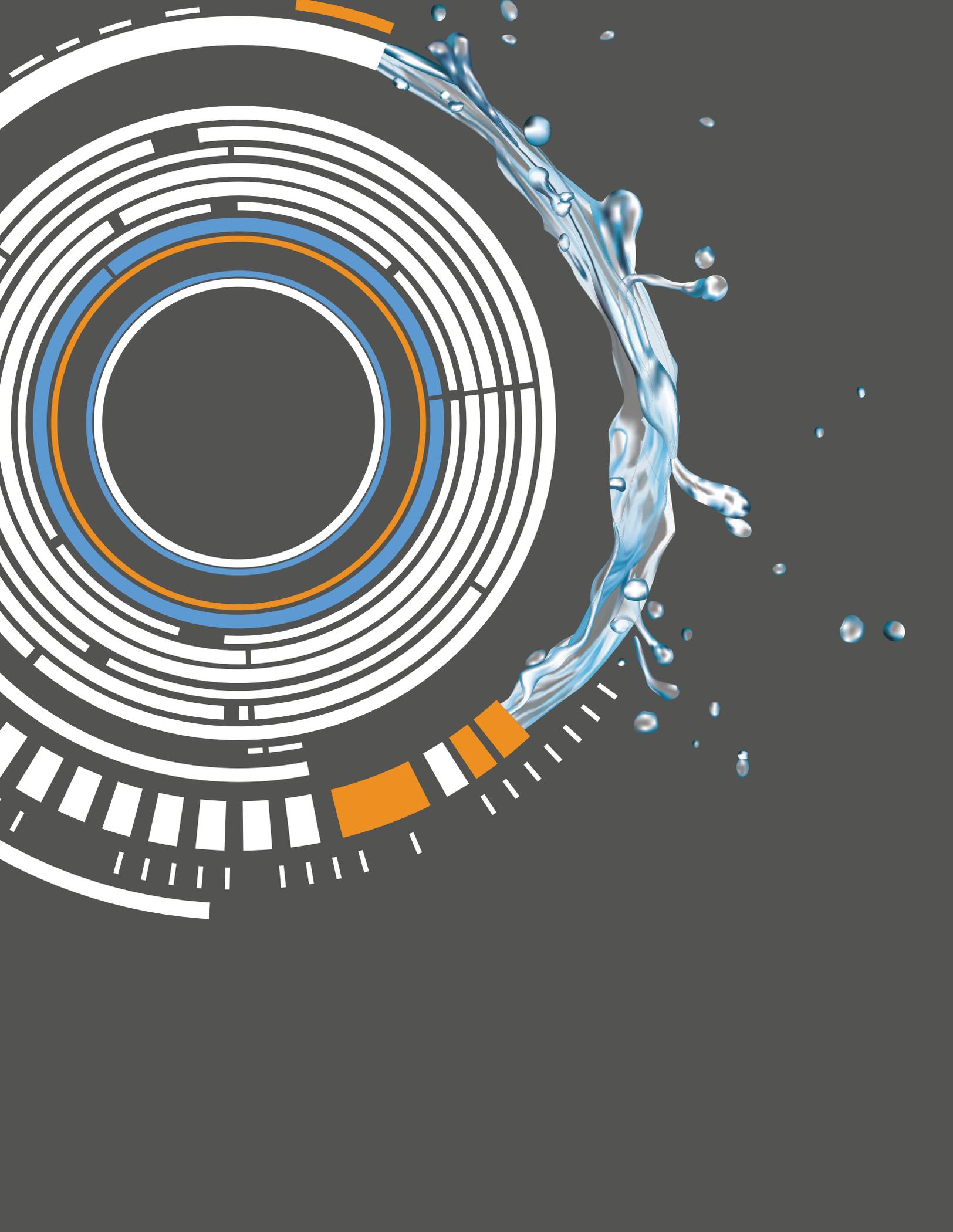
Note: Full table in appendix C.

## Output

The output is the same **enabling environment assessment table** used for the analysis, this time with green shading to indicate where the utility falls now and red shading to indicate levels not achieved yet, as in figure 3.8.

## How to Apply the Output

The output of the enabling environment assessment is used in step 8 of the action planning process: Identify and analyze binding constraints and come up with actions to remove them from the action planning process.



# ACTION PLANNING

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## THE ACTION PLANNING PROCESS USES THE RESULTS OF THE DIAGNOSIS TO DEVELOP TWO OUTPUTS:

- A fully resourced and implementable 100-day action plan, consisting of impactful actions to kick off and build support for the reform; and
- A five-year strategic plan, consisting of actions that build off momentum to accelerate reform and achieve the utility's long-term vision.

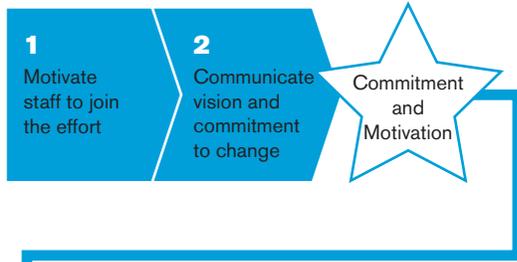
Figure 4.1 summarizes the 15 steps included in the action planning process. The 100-day action plan is prepared in detail so that it is ready to implement. The draft five-year strategic plan should also be developed immediately after conducting the diagnosis but in increasingly less detail. As the 100-day plan nears conclusion, the utility should turn the five-year plan from a draft to a final plan, incorporating lessons learned from the 100-day plan and securing resources. This step is not fully addressed in this framework, which focuses on the initial planning immediately after the diagnostic.

Steps are presented sequentially to guide the utility or practitioner through the action-planning process. In practice, the process is likely to be iterative, with some steps repeated or implemented in a different order. Most utilities are likely to need support in this process from a water sector specialist, particularly in developing a sensible sequencing of actions and deciding which UoF practices to implement and when.



**FIGURE 4.1**  
Overview of Action  
Planning Process

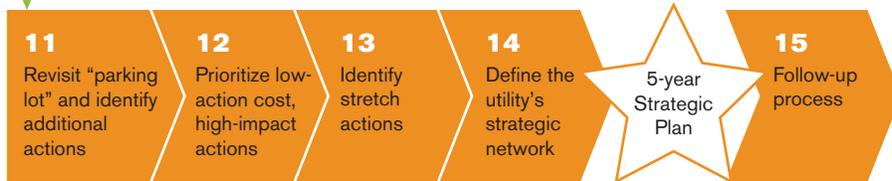
**PRE-PLANNING**



**100-DAY ACTION PLAN**



**5-YEAR STRATEGIC PLAN**



Note: The "parking lot" is a list of actions to be considered after a set of high-priority, initial actions have been undertaken.

## 4.1 Preplanning: Force-Multiply

### STEP 1: Motivate Staff to Join the Effort

In a typical WSS utility, many staff have a low level of engagement with their employer. They are not motivated to help, and they typically cannot be forced to do more with the threat of penalization (because at most utilities, dismissal or other sanctions are hard to impose) or incentivized to do more with the promise of money (because lack of funds and externally imposed pay scales prevent it). Alternative techniques to incentivize and empower staff to join the reform may include the following:

- Asking for volunteers and forming a mutually reinforcing group of people who commit to change and build esprit de corps
- Leading by example
- Creating a shared vision
- Appealing to a mission of public service
- Uniting to defeat a threat if self-driven improvements are not possible
- Showing the utility cares by leading with health and safety initiatives
- Building momentum, demonstrating that change is happening, and creating the belief that more change is possible
- Putting in place nonmonetary recognition and awards systems for staff and teams making strategically relevant improvements, and committing to the reform

Positive incentives should be used in combination with measures such as

- Credible promises that improvements in performance will lead to increases in pay—for example, through a profit-sharing scheme or an employee share ownership plan that will be implemented once certain targets are met; and
- Demonstrating that skills acquisition and career progress is possible for those who participate in pushing the change agenda through training, on-the-job training, certification, and promotion.

## **STEP 2: Communicate Vision and Commitment to Change to External Stakeholders**

Utilities should seek the support of external stakeholders too by communicating their vision and commitment to change. This can be just as important as creating internal allies—and even more difficult. The early communication of a commitment to change serves to build credibility and accountability. For example, if a utility communicates its goals for reform to customers, these could become a “pressure group” and hold the utility accountable in initiating and maintaining the reform and ultimately delivering on its goals.

Building credibility is one of the best ways to bring in support from the outside, as discussed further in step 8.

### **4.2 100-Day Action Plan: Impactful Actions to Kick Off and Build Support for the Reform**

The seven steps presented here will result in a 100-day action plan for the utility, including fully resourced and ready-to-implement actions.

## **STEP 3: Decide What to Focus on First**

The utility should use the outputs from the performance and maturity assessments described in chapter 3 to begin the 100-day action planning process. In examining the results, the utility should identify imbalances. For example:

- Where any element in the maturity cobweb has a score significantly lower than the others, as shown in figure 3.7 with the low-performing technical element.
- Where any one element has a significantly lower score on performance than maturity, or vice versa, as shown in figure 3.8 with HRM performance lower than maturity and technical operations maturity lower than performance.
- Where any one topic within an area in a single element has a significantly lower score than other topics in that same area. For example, in the metering area of the commercial operations maturity matrix, if the utility has a high score for type of meter, meter reading,

and data reconciliation but a low score for meter testing and replacement, as shown in figure 4.2, then this should be marked as an imbalance so that it can be considered in the action planning steps.

Note that focus points for action planning could be an element(s), an area(s), or a topic(s).



**FIGURE 4.2**  
Example of Imbalance within an Area of Maturity

Area	Topic	Maturity Levels SELECT ONE					UoF Dimensions SELECT ALL THAT APPLY			
		Elementary	Basic	Good	Well-Performing	World-Class	Innovation	Inclusion	Market Orientation	Resilience
Metering	Type of meter	None	Mechanical meters, which do not meet ISO 4064 standards	Mechanical meters, which meet at least 3 ISO 4064 standards	Mechanical meters, which meet at least 4 ISO 4064 standards	Mechanical meters, which meet all ISO 4064 standards	Electronic meters with on-demand, remote readings (e.g. on mobile devices and control room) which meet all ISO 4064 standards; automatic check for consistency of meter reading, billing, and accounts data	TBD	TBD	TBD
	Current Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Desired Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Meter reading	None	Manual	Manual input to electronic device	Walk or drive remote metering	Full remote intermittent	TBD	Methods for customers of all socioeconomic statuses to access readings themselves	TBD	Digital and secure backup of all records
	Current Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Desired Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Data reconciliation meter reading, billing and accounts data are consistent	No link; no check for consistency	No link; infrequent checks for consistency	Manual link; routine checks for consistency		Automatic link; routine checks for consistency	TBD	TBD	TBD	TBD
	Current Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Desired Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Testing and replacement	Not tested nor calibrated; not replaced	Tested infrequently; not calibrated and not replaced	Tested and calibrated routinely; replaced infrequently		Tested, calibrated, and replaced in accordance with manufacturer guidelines	Proactive testing, calibration, and replacement based on exception reports from online meter data	TBD	TBD	Guaranteed service level agreements in place with meter manufacturers or suppliers
	Current Level	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Desired Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Note: ISO = International Organization for Standardization; UoF = Utility of the Future.

Key: Blue = selected level of maturity; green = selected level for desired UoF action.

## STEP 4: Identify Actions That Can Be Taken Now

Once the focus points are identified, the utility should look at the maturity matrices to identify actions that the utility can take now. This means actions that are not significantly constrained by the utility's

- Authorizing environment.
- Political economy.
- Autonomy.
- Staff capability.

For example, at the beginning of the reform, a utility may not be able to hire a competent financial manager due to challenges within a given political context. However, a utility may be able to train its financial department in basic accounting skills so that it can begin to get the utility's financials in order. Note that availability of funds is not a filter in step 4 but will be addressed in steps 5 to 6.

### INTERIM OUTPUT: Preliminary List of Feasible Actions

## STEP 5: Estimate Cost and Impact of Each Action

Once the utility has a preliminary list of feasible actions, it should estimate the cost and impact of each action. These will depend on a utility's specific context. Some actions may cost more to implement in one country compared with another. The impact of a given action may vary depending on what existing systems and processes already exist.

## STEP 6: Prioritize Low-Cost, High-Impact Actions

Using the cost and impacts estimated in step 5, the utility should rank the actions so that the lowest-cost, highest-impact actions are listed at the top and the highest-cost, lowest-impact actions are at the bottom. Moving down the list, the utility should add actions to the plan to the point that funds are no longer available. Remaining actions can go in the "parking lot" for later (these actions will be revisited in step 11 [revisit "parking lot" and identify additional actions]). If more funds are available than needed, steps 1 to 6 can be repeated, this time considering other focus points.

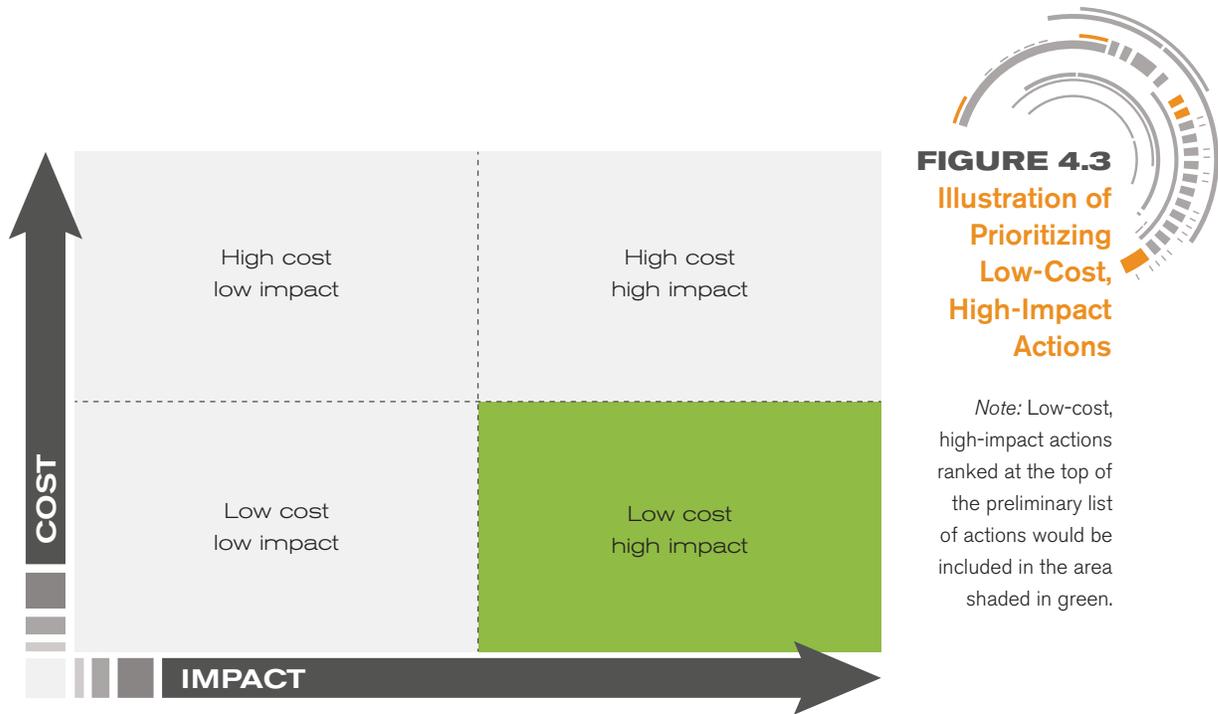


Figure 4.3 sets out a visual representation of the variety of impact-cost combinations that the utility may find on its preliminary list of actions. The actions ranked at the top of list would fall in the bottom-right quadrant (shaded in green).

The **UoF-Toolkit** also includes an action prioritization tab, which can assist the utility in completing steps 4 to 6.

**INTERIM OUTPUT: First Cut of 100-Day Action Plan**

**STEP 7: Reinforce Internal Motivation**

Using the first cut of the action plan, the utility should build on step 1 (motivate staff to join the effort) to motivate individuals who will be tasked with carrying out the plan, as well as others the plan may affect. New techniques to motivate and empower staff to move the reform forward may include the following:

- Assign specific responsibilities to different team members with accompanying targets and checkpoints, then provide compensation (direct or nonfinancial, such as awards and recognition) for meeting targets; and
- Establish teams that compete against one another to complete actions and provide compensation (direct or nonfinancial) to the winning group.

**STEP 8: Identify and Analyze Binding Constraints and Come up with Actions to Remove Them**

Having prioritized actions that are within the utility's power, the utility now needs to develop a plan for implementing desired high-impact actions that are not currently possible because of constraints (for example, imposed by the authorizing environment or the political economy context). To begin, the utility should list the actions that it would like to take but that were filtered out in step 4 due to constraints, and identify bottlenecks for each one. Then the utility should identify a few constraints that, if relieved, would enable important improvements to be made.

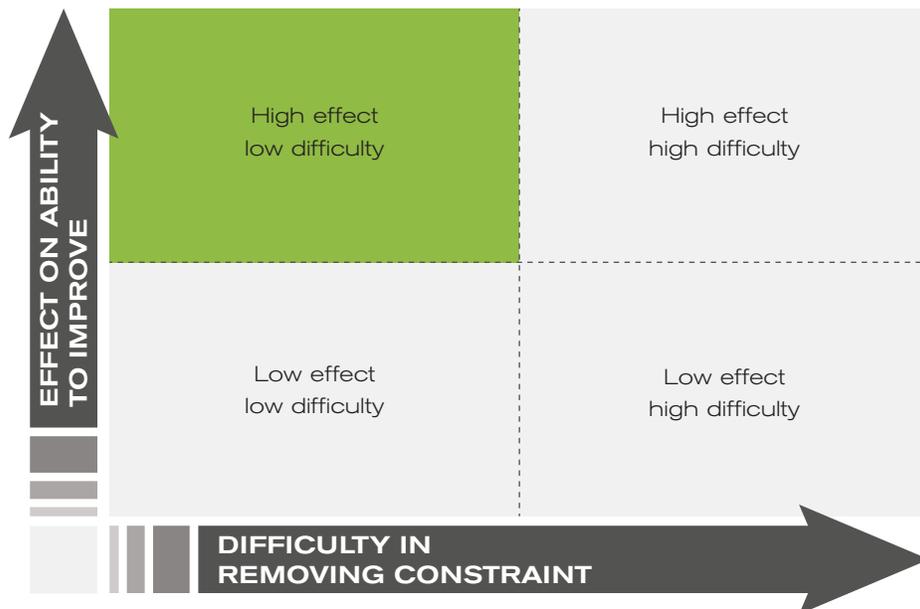
Figure 4.4 sets out a visual representation of the variety of combinations that the utility may generate in its first-cut list of constraints. Those identified as immediate priorities would fall in the top-left quadrant (shaded in green).

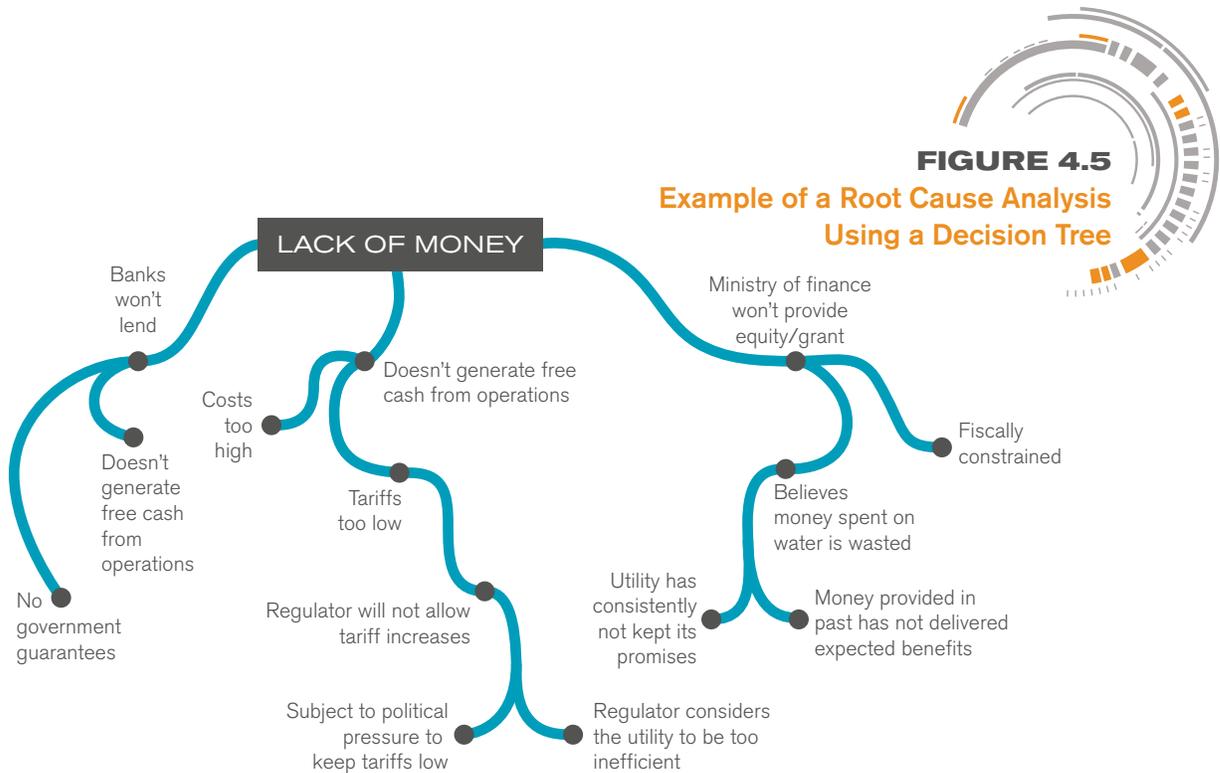
Then the utility can consider the constraints that would be the most important to relieve and conduct a root cause analysis. In the example in figure 4.5, the constraint is lack of money and the analysis finds seven root causes (for example, the utility does not generate free cash from operations).



**FIGURE 4.4**  
Illustration of Analysis of Binding Constraints

*Note:*  
High-effect, low-difficulty actions to be included in the action plan are shaded in green.





Once the utility determines the root causes, it should then determine actions that will address them and, ultimately, relieve the binding constraints. For example:

- Collect arrears by outsourcing the collection of past-due receivables on a successive fee basis or by motivating staff to collect them using a bonus system.
- Find illegal connections and meter tampering among industry and high-end residential customers; negotiate settlements for lump sum payment with them (and be prepared to threaten prosecution if they will not settle).
- Sell scrap metal.
- Sell treated wastewater to industrial customers.
- Weed out ghost workers.
- Rebid contracts for major supplies (such as chemicals) and have trustworthy people supervise delivery and storage.

To complement these actions, the utility should select additional actions that entail embedding other stakeholders. Inviting stakeholders into the reform-planning process increases transparency and helps build cooperation, which are necessary both immediately and in the future.

Box 4.1 details general guidance on how to build credibility, the lack of which is a common root cause of low performance in many utilities.



### **BOX 4.1**

#### **Lack of Credibility as a Root Cause**

A common root cause of low performance in many utilities is a lack of credibility. It is not the doing alone that builds credibility; what is also important is to promise to complete an action, and then keep that promise. This means the promise must be clear, measurable, and time bound. Also, reporting on the achievement of the goal must be clear and accepted as true by the relevant stakeholders.

## INTERIM OUTPUT: Updated 100-Day Plan

### **STEP 9: Optimize Plan**

Finally, the utility needs to submit its 100-day plan through checks to ensure that it is implementable and aligned with existing priorities and ongoing initiatives. Examples include:

- Resource leveling to check that it is possible to perform all the tasks within the time frame, using the current resources.
- Dependency check to verify that actions are sequenced accordingly, given that some tasks will be most effectively implemented after the utility completes another task.
- Synergy check to ensure that actions that complement one another are sequenced together. For example, if a utility is planning to replace an old main, install water vending machines, and check for illegal connections in a single area, then group these tasks into a single works program for that area.
- Consistency check to verify seamless integration of the implemented action, particularly for information technology systems that need to interface with one another. For example, if a billing system is to be replaced, the utility needs to first conduct a consistency check with the financial accounting system to ensure that the two are compatible.

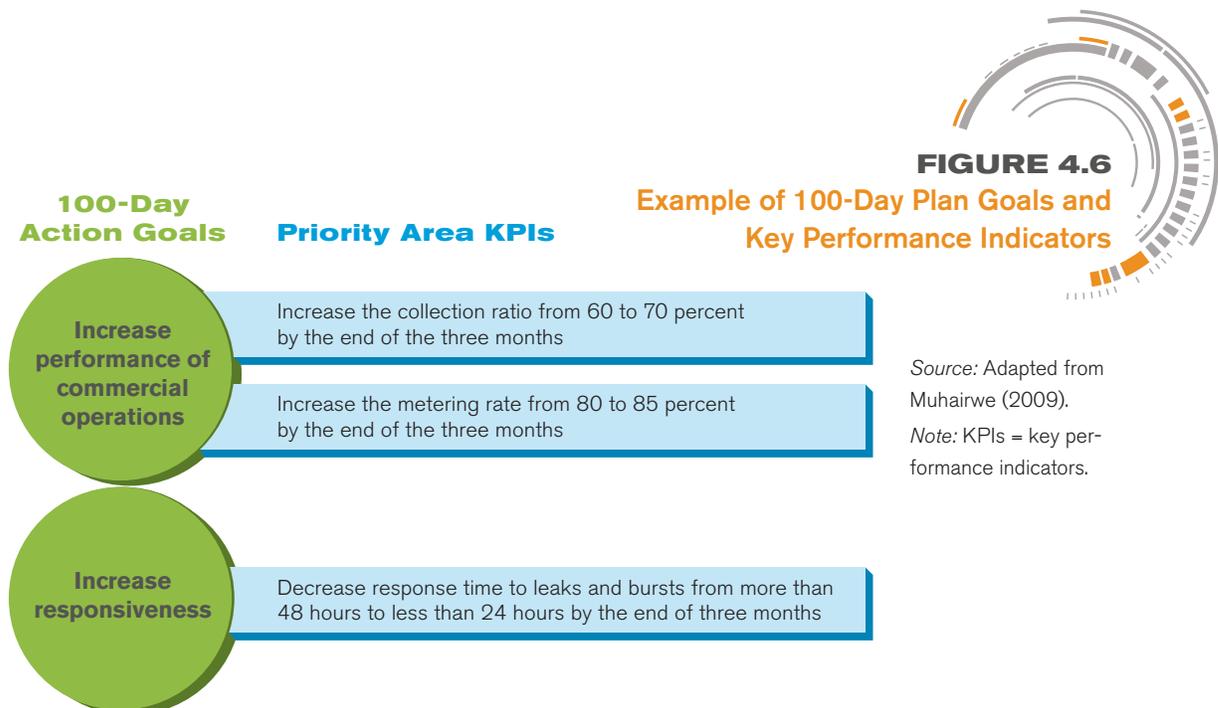
## OUTPUT: Final 100-Day Plan

## STEP 10: Develop Performance Monitoring Metrics

Define a set of specific, measurable, attainable, relevant, and time-bound objectives stated as key performance indicators (KPIs) for each action, in which

- **Specific** means focusing on the who and what of the activity.
- **Measurable** means selecting indicators that have the capacity to be counted, observed, analyzed, challenged, and tested.
- **Attainable** means the indicator should be achievable as a result of the program and as a measure of realism.
- **Relevant** means that the indicator should hold a valid link to the result; and
- **Time-bound** means that the indicator sets out the time frame within which achievement of the indicator should be realized.

Ideally, the KPIs for the 100-day plan would be indicators from the service and performance assessment. In some contexts, however, it may not be possible to obtain reliable data for these indicators in the first 100 days. In these cases, alternative indicators offer a better way to measure performance against the plan. Furthermore, a general principle is to select indicators that do not overburden staff with data collection requirements that may impede their ability to implement the reform actions. Figure 4.6 provides an example of goals set for a 100-day action plan and accompanying KPIs.



Once KPIs are determined, the utility should develop a well-defined and transparent process for reviewing and evaluating progress against the KPIs.

## OUTPUT: Performance Monitoring Metrics for 100-Day Plan

### 4.3 Draft Five-Year Strategic Plan: Actions That Use Momentum to Accelerate the Reform

The next four steps result in a five-year strategic plan draft. In drafting, the objective is to formulate actions that could build off the expected momentum from implementing the 100-day action plan and to develop a strategic vision for the utility.

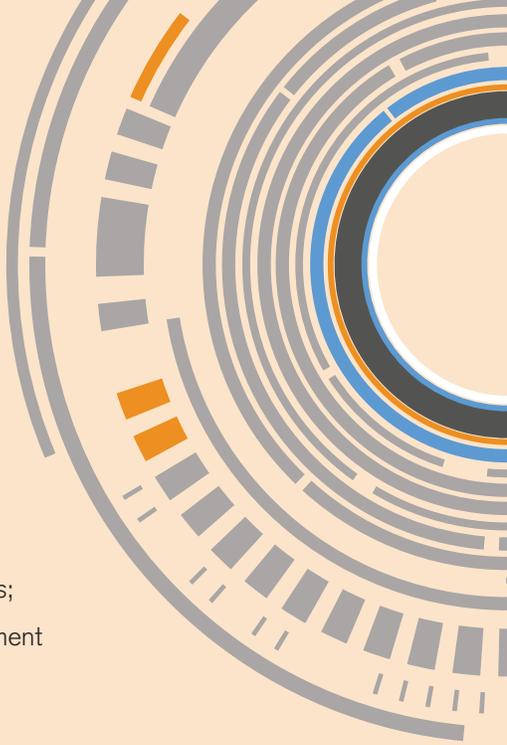
#### **STEP 11: Revisit “Parking Lot” and Identify Additional Actions**

Now that the 100-day plan is a final, fully resourced, implementable plan, the utility should turn its attention to developing a draft of the five-year strategic plan. To begin, the utility should revisit actions identified during the 100-day action planning that were filtered out because of financial constraints and consider any actions that may be implementable on a five-year time horizon. Then the utility should repeat step 4 (identify actions it can do now) for other topics, areas, and elements as well as step 8 (identify and analyze binding constraints and come up with actions to remove them), including the root cause analysis. Finally, the utility should also consider actions that aim to mitigate or adapt to the effect of key threats through a vulnerability assessment.

#### **STEP 12: Prioritize Low-Cost, High-Impact Actions That Build on the 100-Day Plan**

The goal of the five-year planning process is still to prioritize low-cost, high-impact actions. This step also includes checking for synergies between the 100-day plan and the five-year plan, including

- Ensuring that the five-year plan is building off actions implemented in the 100-day plan and aligned with the mission and vision of the utility; and



## **BOX 4.2**

### **Review of Five-Year Strategic Plan**

Once the 100-day plan is nearing completion, the utility should review the five-year plan, augment it with more detail, and secure resources. In this process, the utility should also review implementation of the 100-day plan in order to identify lessons learned that can be applied moving forward, such as successes and challenges from actions taken to remove binding constraints; incentives that worked to get the buy-in of management and teams; and assessment of the prioritization of actions, cost estimates, and performance metrics used.

- Ensuring that the 100-day plan appropriately lays the groundwork for success in the five-year plan. For example, if, in the five-year plan, the utility would like a fully comprehensive, implementable nonrevenue water reduction strategy, then in the 100-day plan, it should consider implementing actions that will gather the required data for developing that strategy (such as setting up district metered areas).

## **OUTPUT: Draft Five-Year Strategic Plan**

### **STEP 13: Identify Stretch Actions That Can Be Feasible When Constraints Do Not Apply**

The five-year planning process is when the utility can begin to brainstorm actions that will make it a UoF. For example, the utility may include

- Integrated, autonomous operating systems
- Resilient infrastructure and resiliency plans
- Fully recovered resources
- Inclusive policies, procedures, and facilities

## STEP 14: Define the Utility's Strategic Framework

The five-year planning process will be based on the utility's strategic framework that should have, among others, the following:

- Strategic vision
- Mission and values
- Strategic goals
- Strategic objectives (and KPIs)
- Programs, projects, and initiatives
- Resources and high-level budget
- Timeline

## STEP 15: Follow-up

The utility must define a plan for monitoring, updating, and evaluating adjustments to the five-year strategic plan, at least twice a year, reviewing variations in the plan, changes in the environment that may affect the plan, and new emerging technology, among others. The plan is a roadmap that defines a line of action, but it is not a static document; it is a living document that must be periodically reviewed and updated.

### OUTPUT: Outline of a Five-Year Strategic Plan

#### BOX 4.3

#### Review and Update of Five-Year Strategic Plan

Once the five-year plan is nearing completion, the utility needs to review, augment with more detail, and potentially adjust it considering changed priorities or the external environment. The utility should conduct this review-and-update exercise routinely to maintain the usefulness of the plan and incorporate lessons learned from implementation.

# CONCLUSION

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## Utility of the Future

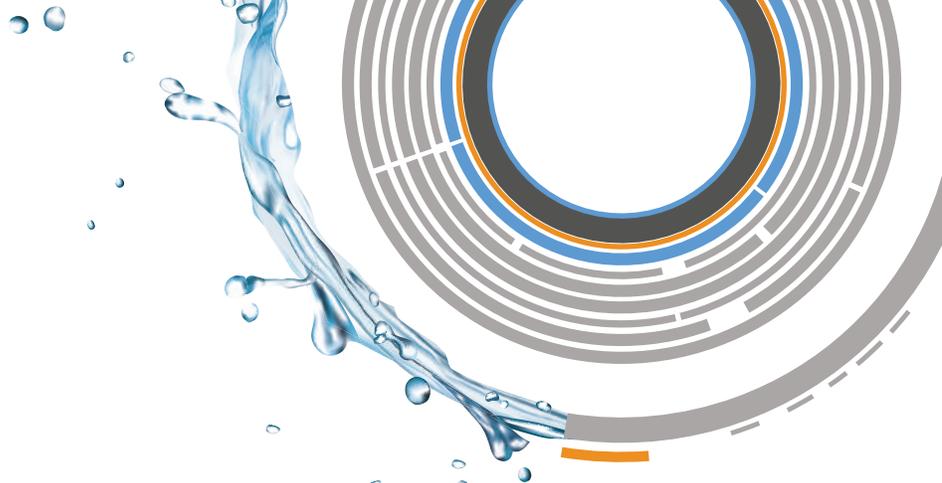
The UoF is a new paradigm for providing WSS services, far beyond what most utilities have achieved—or even aimed for—today. The UoF provides reliable, safe, inclusive, transparent, and responsive WSS services through best-fit practices in an efficient, resilient, and sustainable manner. The UoF will set for itself ambitious objectives, such as meeting SDG 6. Initiating and maintaining improvements will be neither quick nor easy. However, the UoF framework presented here will facilitate the process by which utilities set themselves on the path to reform.

## To Initiate Reform, Utilities Must Identify Areas of Focus

This new approach to planning and sequencing begins by diagnosing the current state of a utility's service, performance, maturity, and enabling environment. Then the utility identifies its areas of focus for reform by identifying imbalances within and across assessments, such as an individual element (for example, technical operations) scoring remarkably lower in the performance assessment than the others.

## The UoF Action Plan Lays the Groundwork for Becoming a UoF

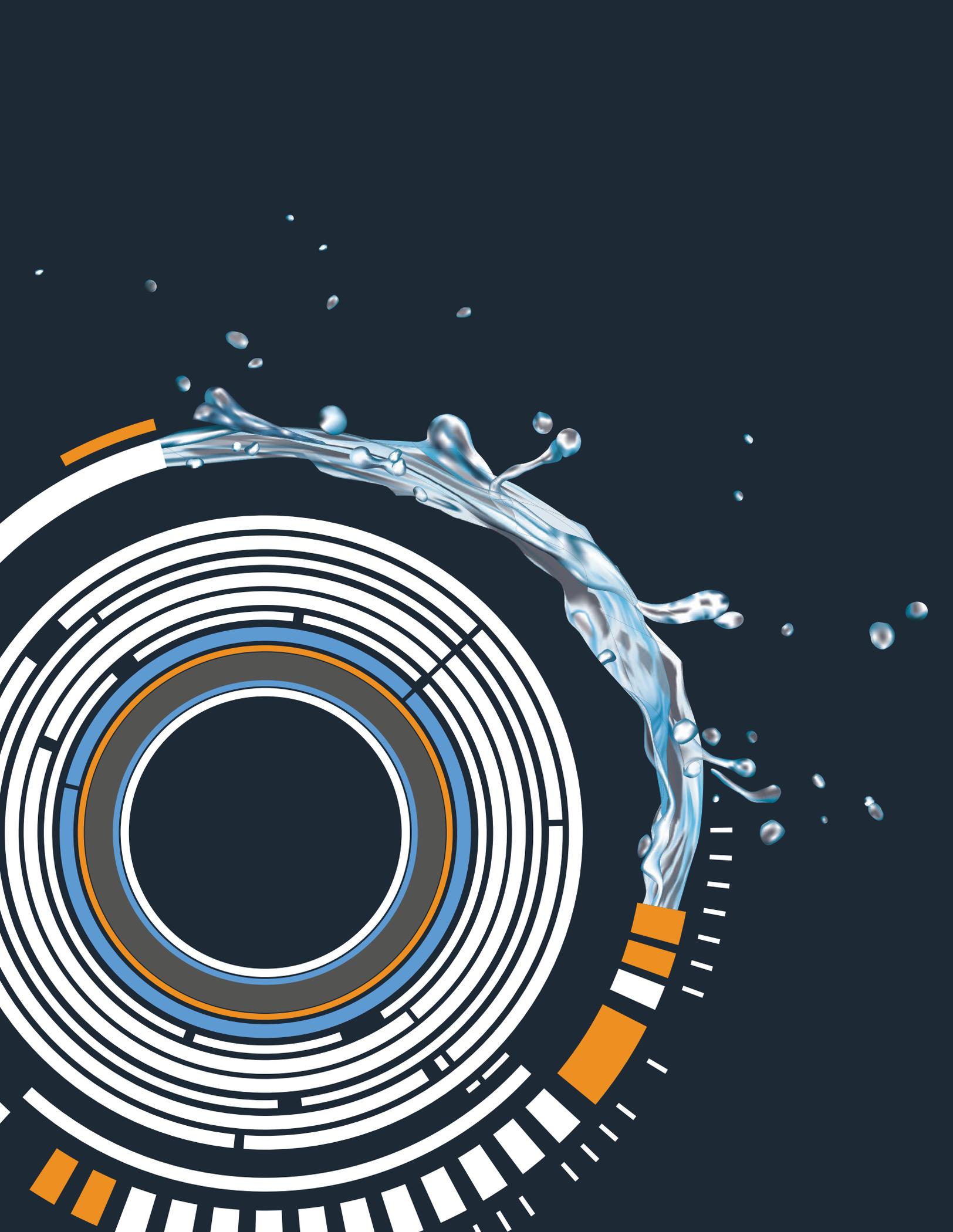
Across the globe, utilities operate in a multitude of contexts. Furthermore, utilities will have unique long-term goals for innovation, inclusion, market and customer orientation, and resilience. Therefore, action plans cannot be standardized. The UoF framework aims to guide utilities and practitioners in developing action plans, taking into account the identified areas of focus and long-term vision for the utility. The result is a customized action plan that includes detailed actions in the short term, draft actions in the medium term, and an outline of actions in the long term.

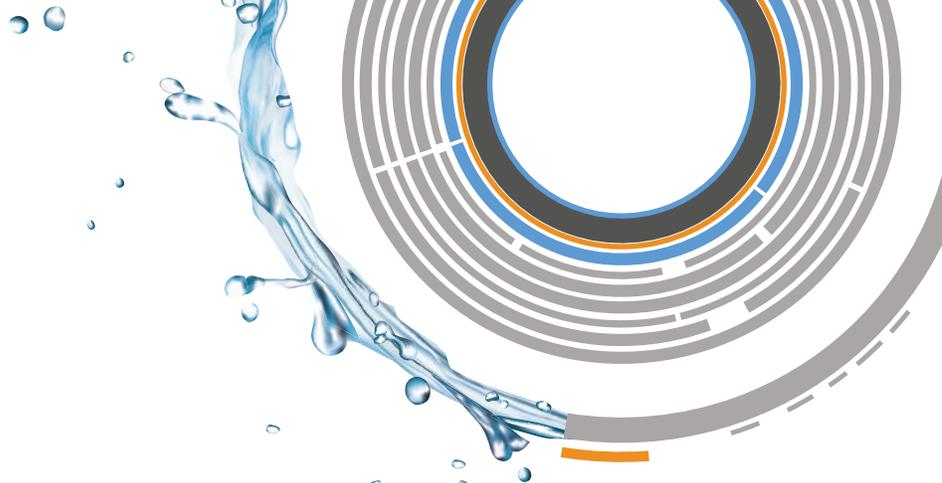


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# APPENDICES

## APPENDIX A Service Assessment Criteria

Component	Elementary (1)	Basic (2)	Good (3)	Well-performing (4)	World-class (5)	Utility of the Future
<b>Reliable</b>						
Continuity (hours per day on average)	<8 or cannot be measured	≥8–15	>15–20	>20–24	24	24
Continuity (customers with 24/7 supply) (%)	<5	≥5–25	>25–60	>60–<100	100	100
Availability (l/pc/day)	<30	≥30–50	>50–120	>120–240	>240	Enough water is available to meet customers' needs (and has a pricing structure that discourages wasteful use)
Availability of FSM emptying services (provided 24 hours after service requested) (%)	No data available	<50	≥50–75	>75–90	>90–<100	100

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Component	Elementary (1)	Basic (2)	Good (3)	Well- performing (4)	World- class (5)	Utility of the Future
<b>Safe</b>						
Water quality (samples meeting all WHO guidelines for drinking water quality) (%)	<50	≥50–85	>85–95	>95–97	>97–<100	100
Wastewater and fecal sludge treatment (%)	No data available	<50	≥50–75	>75–90	>90–<100	100
<b>Inclusive</b>						
Drinking water coverage (%)	<50	≥50–75	>75–85	>85–95	>95–<100	100
Sanitation service coverage (%)	No data available	<20	≥20–50	>50–80	>80–<100	100
<b>Transparent</b>						
Financial transparency	Accounts not published	Audited accounts published more than 12 months after the end of the financial year	Audited accounts published within 12 months of the end of the financial year	Audited accounts published within 9 months of the end of the financial year	Audited accounts published within 6 months of the end of the financial year	Audited accounts published within 3 months of the end of the financial year
Service and performance transparency	No data published	Some data published but more than a year old	Some data published but more than 6 months old	All data published each month	All data published each week	All data published online and in real time

(continues on next page)

Component	Elementary (1)	Basic (2)	Good (3)	Well-performing (4)	World-class (5)	Utility of the Future
<b>Responsive</b>						
Percentage of sewer blockage complaints addressed within 48 hours (%)	No data	<50	≥50–75	>75–90	>90–<100	100
Customers satisfied with service (based on assessment in the past two years) (%)	No data	<40	≥40–55	>55–70	>70–90	>90
Grievance channels for submission	Limited—complaints box or basic form in person only	At least two mediums for submission, including one electronic (for example, email and phone)	At least two social media avenues to submit to (for example, Facebook, Twitter, SMS, app)	3 or more channels	4 or more channels	More than 80% of customers are satisfied with the grievance process, which includes automatic questions; channels are accessible and available in local languages
Protocol/procedural guidance on grievance process and norms of service	No protocol	Basic protocol/SOP exists but lacks jurisdictional clarity and socialization among staff	Basic protocol/SOP exists with jurisdictional clarity	Basic protocol/SOP exists with: (i) jurisdictional clarity and (ii) new staff trained on protocol	Basic protocol/SOP exists with (i) jurisdictional clarity, (ii) new staff trained on protocol, and (iii) clear evidence of public socialization of procedures and customer rights to escalate	Basic protocol/SOP exists with (i) jurisdictional clarity, (ii) new staff trained on protocol, (iii) clear evidence of public socialization of procedures and customer rights to escalate, and (iv) procedures to follow up with customers on their level of satisfaction with how the complaint was treated and resolved

(continues on next page)

Component	Elementary (1)	Basic (2)	Good (3)	Well-performing (4)	World-class (5)	Utility of the Future
Dedicated personnel for customer engagement	No dedicated staff	Small number of dedicated staff but no unit	Dedicated unit but minimal staffing	Dedicated unit that is adequately staffed and trained	Dedicated unit that is adequately staffed, trained, and evaluated based on independent customer feedback	Dedicated unit that is adequately staffed, trained, and evaluated based on independent customer feedback and quantitative metrics of customer service performance (that is, response times, satisfaction with service based on systematic post call polling, and so on)
Complaints linked to MIS tracking responses	No link	Manual link but updated only periodically	Utility has CRM system linked to complaints, so responses are automatically tracked	Customer can access code to track status of response to complaint	Response rates by unit or service are publicly accessible	Complaints and responses are publicly accessible; hotspots and trends can be viewed by customers
Customer satisfaction linked to performance assessment	No link	Data on complaints received and resolved provided to regulator (or equivalent) at least once per year	Data on complaints received and resolved tracked by employee or unit	Negative or positive feedback considered in employee or unit performance review	Negative or positive feedback per employee or unit quantified and automatically tied to HR systems	Regularly generated management reports on the average time to resolve complaints, by unit or by complaint category, are used to inform business decisions
Grievances satisfactorily resolved within seven days (%)	No data	<25	≥25–50	>50–70	>70–<100	100

Note: CRM = customer relationship management; FSM = fecal sludge management; HR = human resource; MIS = management information system; SOP = standard operating procedure; WHO = World Health Organization.

**APPENDIX B****Performance Assessment Criteria**

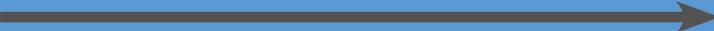
Element	Elementary (1)	Basic (2)	Good (3)	Well-performing (4)	World-class (5)
<b>Commercial</b>					
Collection rate (%)	<60	≥60–70	>70–90	>90–95	>95
Metering rate (customers metered) (%)	<25	≥25–60	>60–85	>85–95	>95
<b>Technical</b>					
NRW (liters/connection per hour when the system is pressurized)	>50	>25–50	>12–25	>6–12	≤3–6
<b>Financial Management</b>					
EBITDA margin (%)	Negative	<5%	≥5–19	>19–30	>30
<b>Human Resource Management</b>					
Staff per 1,000 connections	>10	>6–10	>5–6	>3–5	≤3
<b>Organization and Strategy</b>					
Index of aggregate performance targets (%)	No performance targets	<40	≥40–80	>80–90	>90

Note: NRW = nonrevenue water; EBITDA = earnings before interest, tax, depreciation, and amortization.

**APPENDIX C**  
**Enabling Environment Assessment**

Weak		Strong		
<b>System for Setting Service Standards</b>				
Regulatory and accountability system does not exist	Regulatory and accountability system exists but involves only a few in the service area	Regulatory and accountability system involves some in the service area	Regulatory and accountability system involves most in the service area	Regulatory and accountability system involves all in the service area
Regulatory and accountability system does not exist	Regulatory and accountability system exists but is neither transparent nor responsive	Regulatory and accountability system is somewhat transparent and responsive	Regulatory and accountability system is mostly transparent and responsive	Regulatory and accountability system is transparent and responsive to needs of all in the service area
No service standards are set	Minimum service standards are set	Service standards are set appropriately but not predictably	Service standards are set somewhat appropriately and predictably	Service standards are set appropriately, responsively, and predictably
<b>System for Tariff Setting</b>				
No system to set cost of service	System exists but is not used	System is used but does not ensure cost of service is set reasonably	System ensures cost of service is set at reasonable levels, but this is done slowly	System ensures cost of service is set at reasonable levels efficiently
No system to set tariffs	System exists but is not used	System is used but does not ensure that tariffs or subsidies are set in a reliable and predictable manner	System ensures tariffs and subsidies are set in a reliable and predictable manner but not equal to the cost of service	System ensures tariffs and subsidies are set in a reliable and predictable manner equal to the cost of service
Performance on service and costs is neither monitored nor reported	Performance on service and costs is irregularly monitored and not reported	Performance on service and costs is irregularly monitored and reported	Performance on service and costs is regularly monitored but irregularly reported	Performance on service and costs is regularly monitored and reported

*(continues on next page)*

Weak  Strong				
<b>Institutional Framework</b>				
Sector entities have unclear responsibilities with significant overlap, covering no required responsibilities	Sector entities have mostly unclear responsibilities with significant overlap, covering few required responsibilities	Sector entities have somewhat clear responsibilities with some overlap, covering some required responsibilities	Sector entities have mostly clear responsibilities with minimal overlap, covering most required responsibilities	Sector entities have clear responsibilities without overlap, covering all required responsibilities
<b>Financing</b>				
Financing for necessary CAPEX is not available	Financing for necessary CAPEX is usually not available	Financing for necessary CAPEX is sometimes available	Financing for necessary CAPEX is usually available	Financing for necessary CAPEX is freely available in necessary amounts
<b>Autonomy and Accountability</b>				
Utility CEO or executive management team has no autonomy	Utility CEO or executive management team has some autonomy but is subject to frequent political direction	Utility CEO or executive management team has some autonomy and, every now and then, is subject to political direction	Utility CEO or executive management team has sufficient autonomy for most, but not all, decisions (no political direction)	Utility CEO or executive management team has sufficient autonomy to make appropriate decisions
Utility CEO is selected noncompetitively	Utility CEO is sometimes subjected to competitive hiring processes	Utility CEO is subjected to competitive hiring processes but not selected on merit	Utility CEO is subjected to competitive hiring processes and sometimes selected on merit	Utility CEO is selected competitively and on merit
No system in place to incentivize utility CEO or executive management team to perform well	Informal incentive system in place	Formal incentive system in place but not implemented	Formal incentive system in place but irregularly implemented	Utility CEO or executive management team is systematically incentivized to perform well

Note: CAPEX = capital expenditure; CEO = chief executive officer.

## APPENDIX D

### Action Prioritization Tool and Examples

This appendix presents how the **UoF-Toolkit** can be used for action planning purposes and showcases example actions for each element.

Table D.1 presents an excerpt from the action prioritization tab in the **UoF-Toolkit**. The white-shaded columns populate automatically when the desired maturity level on the maturity tabs is selected. The next step is to define the action that corresponds to the desired level of maturity. This must be defined by the utility and inserted in the cells shaded in yellow.

For example, the first row of table D.1 demonstrates that the utility aspires to implement “digital and secure backup of all records”; therefore, the action to “establish digital and secure backups of all records” is defined in the last column. The excerpt shows eight other example actions, corresponding to each of the five elements.

After defining actions to achieve desired levels of maturity, the next step is to identify actions that the utility is able to implement now (step 4), meaning those that are not significantly constrained by the utility’s authorizing environment, political economy, autonomy, and staff capability.

Consistent with step 5 of the action planning process, the utility should now estimate the cost, level of implementation difficulty, and impact of each action. In the UoF-Toolkit, these should be selected in the yellow-shaded cells in the corresponding columns. This enables the tool to filter actions that are low-cost, high-impact, and relatively easy to implement to include in the 100-day plan and identify actions to be included in the 5-year strategic plan.

Table D.2 is a theoretical example of prioritized actions. The costs and impacts of various actions will depend on the utility’s context.

**TABLE D.1**  
Utility of the Future Framework Example Actions



Element	Area	Topic	Essential processes		Desired UoF level(s)			Define the action
			Desired level of maturity	Desired level of maturity	Innovation	Inclusion	Market orientation	
Commercial	Metering	Meter reading						Establish digital and secure back-up of all records
Commercial	Collections	Payment methods	Paid at office, in multiple locations, convenient times, long queues					Develop mechanisms so that customers can pay their bills at places other than utility premises
Operations	Distribution and Non-Revenue Water (NRW)	Strategic for managing NRW	Basic strategy to address real losses in priority areas of the network, developed by assessing the utility's service area					Develop basic strategy for managing NRW
Operations	Distribution and Non-Revenue Water (NRW)	Pressure management system in the distribution network			Automated pressure management system in the distribution network			Install automated pressure management system in the distribution network
Finance	Accounting and Financial Reporting	Organizational structure	Finance department is qualified to perform full accounting function; Senior executive responsible for finance has accounting expertise					Hire expertise financial manager to lead finance and accounting functions

(continues on next page)

Element	Area	Topic	Essential processes		Desired UoF level(s)			Define the action
			Desired level of maturity		Innovation	Inclusion	Market orientation	
Finance	Accounting and Financial Reporting	Asset Register			Automated system which is fully populated with accurate asset data			Put in place automated asset register system which is fully populated with accurate asset data
HR	Human Resources Management and Development	HR management and development strategy						Develop a contingency plan in the event of a significant disruption to utility staff (e.g. disease affecting the majority of staff)
Strategy	Strategic and Business Planning	Strategy		Utility is implementing a Strategic Plan to help achieve SDGs within 10 years and an accompanying communication strategy				Develop a Strategic Plan for achieving SDG's for water and sanitation
Strategy	Organizational structure and leadership	Organizational structure			Organizational responsibility clearly defined for finding, assessing, and supporting innovation (e.g. an Innovation Manager or Innovation Department)			Institute organizational responsibility clearly defined for finding, assessing, and supporting innovation (e.g. an Innovation Manager or Innovation Department)

Note: HR = human resources; SDG = Sustainable Development Goal; UoF = Utility of the Future.

**TABLE D.1**  
**Utility of the Future Framework**  
**Prioritization of Actions**

Define the action	Impact level of the action	Action cost (additional to fixed costs)	Ease of implementation	Observation
Establish digital and secure back-up of all records	3-High	0 - Very High	3-Easy	To be considered in the 5-year strategy plan
Develop mechanisms so that customers can pay their bills at places other than utility premises	3-High	0-Very High	1-Complex	To be considered in the 5-year strategy plan
Develop basic strategy for managing NRW	4-Very High	2-Low	3-Easy	To be considered in the 100 day action plan
Install automated pressure management system in the distribution network	4-Very High	0-Very High	1-Complex	To be considered in the 5-year strategy plan
Hire expertise financial manager to lead finance and accounting functions	4-Very High	2-Low	4-Very Easy	To be considered in the 100 day action plan
Put in place automated asset register system which is fully populated with accurate asset data	3-High	0-Very High	0-Very Complex	To be considered in the 5-year strategy plan
Develop a contingency plan in the event of a significant disruption to utility staff (e.g. disease affecting the majority of staff)	3-High	3-Very Low	3-Easy	To be considered in the 100 day action plan
Develop a Strategic Plan for achieving SDG's for water and sanitation	2-Low	2-Low	3-Easy	To be considered in the 5-year strategy plan
Institute organizational responsibility clearly defined for finding, assessing, and supporting innovation (e.g. an Innovation Manager or Innovation Department)	3-High	2-Low	4-Very Easy	To be considered in the 100 day action plan

Note: NRW = nonrevenue water; SDG = Sustainable Development Goal.

**APPENDIX E****Useful Resources and Tools**

Outlined below are useful references and resources that were used to inform the development of the UoF Program and UoF-Toolkit in addition to the review and inputs provided by colleagues from the World Bank Water Global Practice.

**Enabling Environment and Finance**

1. High Level Panel on Water Financing: Easing the Transition to Commercial Finance for Sustainable Water and Sanitation
2. Ministers of Finance Meeting Summarizing Recommendations: Financing Options for the 2030 Water Agenda
3. ODA in Water: Aid Flows to the Water Sector
4. Financial Inclusion: Fintech for the Water Sector Advancing Financial Inclusion for More Equitable Access to Water
5. Working paper on Accessing Financial Resources for Climate Adaptation in Transboundary River Basins: Financing Climate Change Adaptation in Transboundary Basins: Preparing Bankable Projects
6. Working paper on Capital Subsidies: Capital subsidies Implicit in Concessional Finance
7. Urban Water Synthesis: Reform and Finance for the Urban Water Supply and Sanitation Sector
8. Blended Finance: Achieving Universal Access to Water and Sanitation by 2030: The Role of Blended Finance Blended Finance
9. Policies, Institutions, and Regulations: Aligning Institutions and Incentives for Sustainable Water Supply and Sanitation Services
10. Discussion Paper on Regulation: Regulation of Water Supply and Sanitation in Bank Client Countries : A Fresh Look
11. Utility Turnaround: Water Utility Turnaround Framework
12. Subsidies: Doing More with Less: Smarter Subsidies for Water Supply and Sanitation
13. Capital Expenditure Efficiency: Better Use of Capital to Deliver Sustainable Water Supply and Sanitation Services: Practical Examples and Suggested Next Steps
14. PPP in the Water Sector: Delivering Universal and Sustainable Water Services: Partnering with the Private Sector
15. Commercial Finance: Introducing Commercial Finance into the Water Sector in Developing Countries

16. Foundational MFD (joint publication with IRC and Water.Org): Mobilizing Finance for WASH: Getting the Foundation Right
17. Cases in Blended Finance:
  - a. Facilitating Access to Finance for Household Investment in Sanitation in Bangladesh
  - b. Facilitated Access to Finance for Domestic Private Water Operators in Cambodia
  - c. Institutional Blending via Second-Tier Lender FINDETER in Colombia
  - d. Scaling Up Blended Financing for Water and Sanitation in Kenya
  - e. Pooled Municipal Bond Issuance in Tamil Nadu (India)
  - f. Blended Financing for the Expansion of the As-Samra Wastewater Treatment Plant in Jordan
  - g. Municipal Bond Issue by the Municipality of Tlalnepantla de Baz (Mexico)
  - h. Water Revolving Fund in the Philippines
  - i. Municipal Project Finance in the Municipality of Rustenburg (South Africa)

### **Energy Efficiency**

18. Energy Efficiency Guidance Note: Mainstreaming Energy Efficiency Investments in Urban Water and Wastewater Utilities
19. Energy Management for Water Utilities in Latin America and the Caribbean – Case Studies
20. Exploring Energy Efficiency and Energy Recovery Potential in Wastewater Treatment Plants
21. Primer on Energy Efficiency for Municipal Water and Wastewater Utilities

### **Resilience**

22. Building Resilience of WSS Utilities to Climate Change and Other Threats: A Roadmap
23. Resilient Water Infrastructure Design Brief
24. Efficient and Effective Management of Water Resource Recovery Facilities
25. From Wastewater to Resource
26. Wastewater to Resource Initiative—Case Studies

### **Inclusion**

27. World Bank. 2019. “Women in Water Utilities: Breaking Barriers.” World Bank, Washington, DC.

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For other relevant Water GP publications, please visit the World Bank Water Global Practice Knowledge Highlights 2019–2020.

## APPENDIX F

### Glossary of Terms

**Accounts receivable (days):** The average number of days that a customer invoice is outstanding before it is collected. It equals accounts receivable (net of provisions for doubtful accounts) divided by revenues and then multiplied by 365. This indicator allows an organization to evaluate the effectiveness of its credit and collection efforts.

**Action planning process:** A 15-step approach to translate the results of the Utilities of the Future diagnostic assessment into a prioritized and sequenced action plan.

**Area:** Broad categories in the maturity assessment of the five elements of water utilities management under which specific topics are covered. Examples of areas include: metering, billing, and collection (commercial operations); expansion and rehabilitation planning, asset management, and water treatment and quality (technical operations); budgeting, cash flow management, and accounting and financial reporting (financial management); human resource management and development, recruitment, and compensation (human resource management); and organizational direction, strategic and business planning, and monitoring and reporting (organization and strategy).

**Collection rate:** The percentage of the total amount billed that is actually collected. It is calculated as cash collected divided by revenues.

**Commercial losses (or apparent losses):** Includes all types of inaccuracies associated with customer metering as well as data handling errors (meter reading and billing), plus unauthorized consumption (theft or illegal use).

**Commercial operations:** One of the key water utility management areas, which deals with topics related to cost-recovery and customer engagement in the utility (including metering, billing, collections, and customer records).

**Connections:** The fixtures, joints, and pipes connecting the main to the measurement point or the customer curb stop, or where several registered customers share a physical hookup.

**Continuity:** A period of uninterrupted water distribution to customers divided by the maximum possible period (24 hours per day, 365 or 366 days per year).

**Coverage:** The population with access to water services (either with direct service connection or within reach of a public water point) as a percentage of the total population under the utility's service responsibility.

**Customer:** An individual or organization that is an authorized recipient of water services from the utility.

**Earnings before interest, tax, depreciation, and amortization (EBITDA):** A measure of an organization's operating performance, evaluated without factoring in financing decisions, accounting decisions, or tax environments. EBITDA is calculated by adding back the noncash expenses of depreciation and amortization to an organization's operating income.

**Economic level of nonrevenue water (NRW):** The level of water losses that results from a policy under which the marginal cost of each individual activity for managing losses can be shown to be equal to the marginal value of water in the supply zone (Pearson, David, and Trow 2005).

**Element:** A pillar of sound management and performance for WSS utilities.

**Enabling environment:** Characterized by the legal and governance framework, the enabling environment affects what actions the utility can take and when. It is important to know the current state of a utility's enabling environment to better understand binding constraints preventing the utility from taking action. Indicators of the quality of the enabling environment are measured against the system for setting service standards, system for setting tariffs, institutional setup, financing, and autonomy and accountability.

**Financial management:** The process of establishing procedures and mechanisms to ensure that the utility is financially sustainable. A financially sustainable utility covers its reasonable costs with a relatively predictable income stream, primarily derived from tariffs charged to its customers. It uses that income stream efficiently by controlling expenses and managing cash flow.

**Human resource management:** The process of developing and managing human resources effectively. This entails, for example, developing and implementing a staffing plan that is consistent with the utility's multiyear strategy, and incorporates staff evaluations and training, as they relate to performance management.

**Inclusion:** “The process of improving the ability, opportunity, and dignity of people, disadvantaged on the basis of their identity, to take part in society” (World Bank. 2013) and “leveraging the utility’s assets and operations to benefit the larger community, lessen negative impacts from utility activities, and provide service equitably across the service area, particularly for traditionally underserved neighborhoods.” (A Water Utility Manager’s Guide to Community Stewardship. AWWA. 2019)

**Innovation:** “A change made in the nature or fashion of anything; something newly introduced; a novel practice, method, and so on.” (OED Online, 2020)

**Market and customer orientation:** The utility operates like a firm in a competitive market, prioritizing efficiency and customers’ wants and needs, and treating its customers as if they could change service provider if unsatisfied.

**Maturity:** The state of a water utility ranging from 1 (elementary) to 5 (world-class). Measured by qualitative indicators in each of the five elements of utility management (commercial operations, technical operations, financial management, human resource management, and organization and strategy).

**Nonrevenue water (NRW):** The difference between the volumes of system input and billed authorized consumption. Nonrevenue water includes not only real and apparent losses (that is, physical and commercial water losses), but also unbilled authorized consumption.

**Organization and strategy:** An overview that accurately diagnoses the utility’s financial, operational, and commercial situation. A well-developed organization and strategy provide the most accurate picture possible for setting yearly targets and overall objectives for the utility. As the utility improves its performance, the information it has available will increase and become more precise. A utility should define a multiyear plan based on the current situation and desired performance. The plan should clearly define multiyear targets, the actions required to meet those targets, and the resources needed to finance those actions.

**Performance:** Measured by quantitative indicators in each of the five elements of utility management (commercial operations, technical operations, financial management, human resource management, and organization and strategy)

**Physical losses (or real losses):** Actual water losses from the system and the utility’s storage tanks, up to the point of customer use. In metered systems, this is the customer meter. In unmetered situations, this is the first point of use (tap) within the property.

**Reliable:** 24/7 continuous water supply.

**Resilience:** “The capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience” (Rodin, Judith. The Rockefeller Foundation National Disaster Resilience Competition Summit. 2014).

**Responsive:** Dedicating personnel to customer engagement and prioritizing customer satisfaction.

**Safe:** Adhering to quality standards.

**SDG 6:** Sustainable Development Goal for water—“to ensure availability and sustainable management of water and sanitation for all.”

**Service:** Measured by reliability, safety, inclusivity, transparency, and responsiveness.

**Smart Water Utility:** A utility that adopts innovative approaches and technologies to (1) create a resilient water supply, (2) provide effective wastewater management, and (3) build a responsive utility. This concept includes the principles of resilience, financial and operational efficiency, energy and water efficiency, inclusion, circular economy, innovation, and good governance. Maturity depends on a list of qualitative practices (such as what type of accounting system is used to prepare financial statements and how assets are managed). The legal framework and governance, which represent the enabling environment, are at the bottom of the pyramid since they shape the utility’s governing environment.

**Subsidies:** A subset of funding flows between governments, service providers, and customers. Subsidies occur when a user/customer pays less for a product or service than the service provider’s cost, leaving a third party (e.g., government, other users, future generations) responsible for covering the difference.

**Tariff:** The price or prices a water provider charges its customers for water services.

**Technical operations:** One of the five elements of water utility management, involving areas related to infrastructure and tangible components of the water supply process. These areas include expansion and rehabilitation planning, asset management, water treatment and quality, distribution and nonrevenue water, wastewater and fecal sludge management, energy efficiency, and circular economy.

**Topic:** There is one maturity matrix per element, each of which is divided into areas (such as billing) and topics (such as billing frequency). Each topic corresponds to one row in the matrix and includes one or more practices per level. The utility's maturity level for each topic is determined by the practice that best matches the utility's current state. Each topic also includes practices that are characteristic of a Utility of the Future (UoF), which are categorized based on four dimensions: innovation, inclusion, market and customer orientation, and resilience. Not all dimensions apply to all topics.

**Transparent:** Auditing and publishing operational data.

**Utility of the Future (UoF) framework:** Provides a step-by-step approach to initiating and maintaining reform efforts that set a utility on a path toward achieving this goal.

**Utility of the future:** A future-focused utility, which provides reliable, safe, inclusive, transparent, and responsive WSS services through best-fit practices that allow it to operate in an efficient, resilient, and sustainable manner.

**Utility Turnaround Framework (UTF):** The UTF offers guidance for turning around poorly performing WSS utilities and identifies five critical elements of sound management and performance for WSS utilities: technical operations, commercial operations, human resource management, organization and strategy, and financial management.

**Utility:** A formal provider of water or sanitation services through a network.

**Water balance:** A top-down audit of physical (real) losses of the whole system, starting with the total system input. A well-established water balance requires estimates of water volumes to be made at each measurement point applicable to the system being evaluated. Where actual measurements are available, these data should be used. In the absence of meters, a "best estimate" based on other, related available data and sound judgment may be required. A water balance is normally computed over a 12-month period, and thus represents the annual average of all components.

**Water losses:** The difference between system input and authorized consumption. Water losses can refer to the total volume for the whole system, for partial systems (such as transmission or distribution schemes), or for individual zones. Water losses consist of physical and commercial losses.

**Water services:** Services involving the supply of water to people and organizations, the removal of wastewater from their premises, and the drainage of water from areas where it is not wanted.







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