

# *Nevada's Water Center of Excellence*

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*Nevada Governor's Office of*

**ECONOMIC DEVELOPMENT**

# Stakeholders of the Nevada Center of Excellence



Nevada Governor's Office of  
**ECONOMIC DEVELOPMENT**  
*Empowering Success*



SOUTHERN NEVADA  
WATER AUTHORITY



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Nevada Governor's Office of  
**ECONOMIC DEVELOPMENT**

# *A World in Need of Solutions*

As fresh water becomes increasingly scarce, water resource management and sustainability will be vital to maintaining quality of life and economic development in communities around the world, and right here in Nevada.

- 1/3 of the world's population lives in countries with moderate-to-high water stress, creating limited access to safe drinking water.
- By 2020, water use is expected to increase by 40 percent.
- By 2020, 17 percent more water will be required for food production.
- By 2025, 1.8 billion people will be living in regions with absolute water scarcity.

# Regional and global water systems are facing several interrelated challenges that lead to critical vulnerabilities

## Water Stress

Water **resources** worldwide are **diminishing** while **demand** for those resources is **increasing**



## Workforce

**Shortage** of workers with the right industry **skills**



## Infrastructure

Water infrastructure is **inadequate** and **aging**



## Quality

Water **quality** globally is **declining**



## Flooding

**Frequency** and **intensity** of **flooding** are increasing



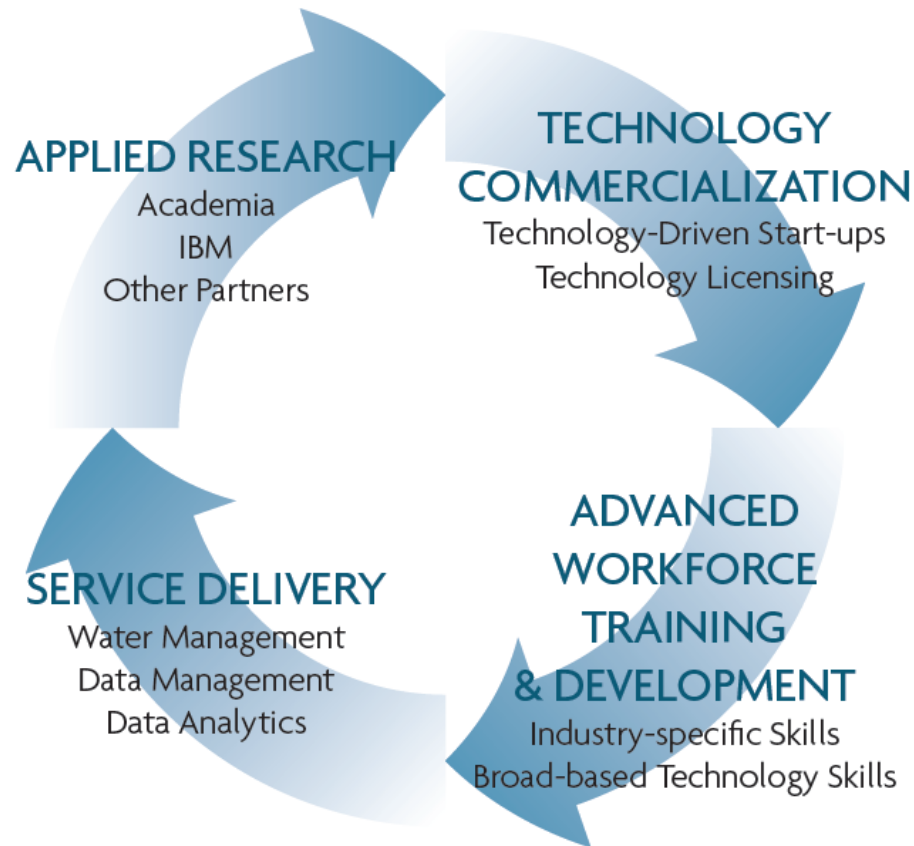
# *Nevada's Water Center of Excellence*

The COE was established to address these issues and more. With world-renowned experts at the helm, the COE is poised to become the leading resource for global and municipal water management and sustainability.

Nevada's Water COE is a public-private sector joint venture that was built on computing technology, a shared infrastructure and a common set of resources.

The COE leverages the expertise of many premier hydrologic science and technology institutions to deliver services in water resource management and big data analytics.

# *The COE Business Model*



# *Nevada's Water Expertise*

- **DRI:** With more hydrologists than any other U.S. academic institution, DRI uses advanced technologies for a variety of projects in water resource management, including water cycle modeling, energy-water sustainability research, multi-model ensemble and hyper-ensemble weather modeling and forecasting. DRI is also an important partner in water efforts across the state with SNWA, UNR and UNLV.
- **UNR:** The Graduate Program of Hydrologic Sciences (GPHS) has always been a true collaboration between UNR and DRI. GPHS is one of the largest such programs in North America and is consistently ranked among the Top 10 in the United States by U.S. News and World Reports.
- **UNLV:** Hydrological and environmental research at UNLV is balanced between field, laboratory and numerical studies. Investigations range in scale from continental hydrology to fundamental flow processes within individual pores and fractures.
- The Water Resources Management (WRM) program in the College of Sciences at UNLV is a technically- and scientifically-based program that blends the physical aspects of the hydrologic sciences with policy and management issues.

# *Nevada's Water Expertise*

- IBM's PureSystems: A powerful, cloud-based infrastructure that manages big data projects, PureSystems and other innovative technology housed in Nevada supplement the work done by the Water Center of Excellence.
- SNWA and Mekorot, Israel's national water company and one of the world's most advanced water companies, have forged a partnership to address emerging water issues in Israel, Nevada and the southwest United States.
  - The arid conditions present in both Israel and Nevada have made SNWA and Mekorot world leaders in water desalination, water reclamation, water project engineering and water safety and quality.
  - Mekorot's WaTech beta testing facilities allow for the input of diverse geographical data to simulate climates around the world to provide the perfect conditions for experiments in the field of CleanTech.
  - This partnership will allow these two entities to build upon their expertise to share scalable solutions and scientific data to develop strategic initiatives to help improve the quality of water for consumers.



# Smarter Water Management means enabling higher levels of collaboration and innovation across the entire water lifecycle

## Data Integration & Analytics

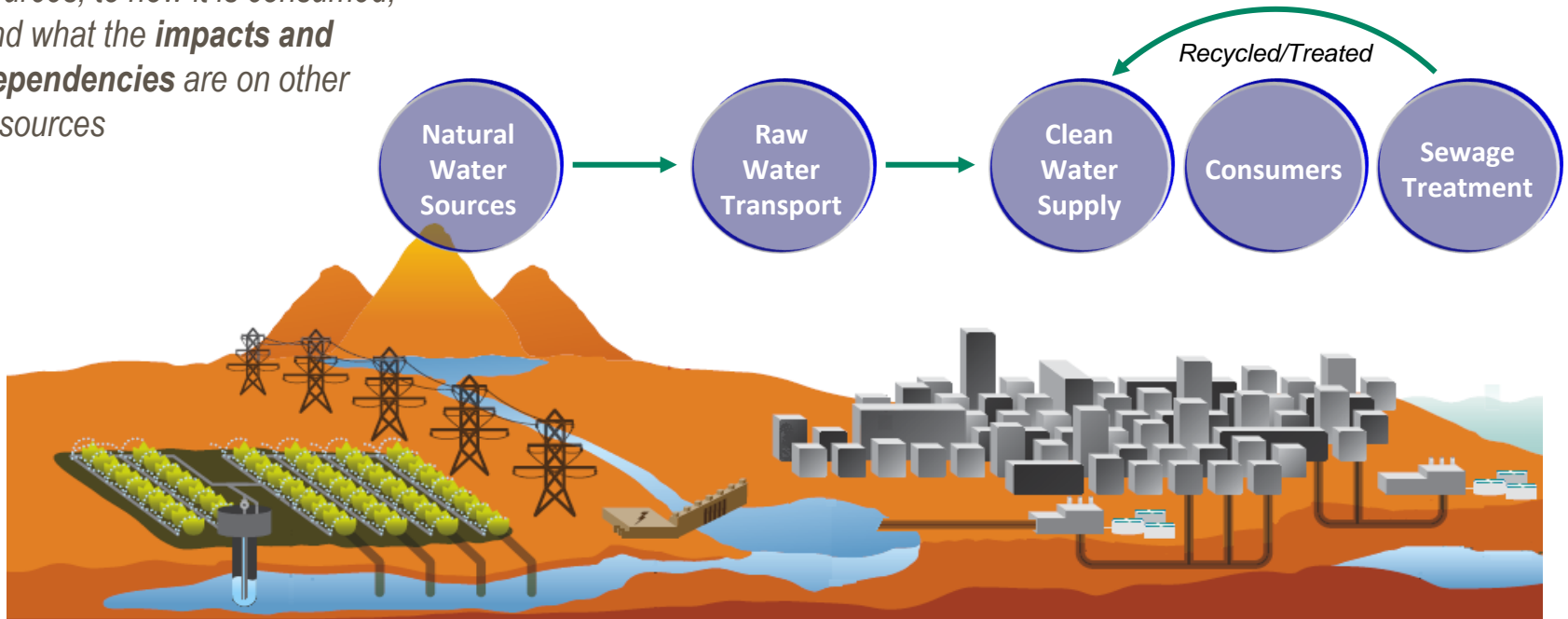
A lot more **data** is needed to fully **understand, model and predict** how water flows around this planet – from natural water sources, to how it is consumed; and what the **impacts and dependencies** are on other resources

## Visualization & Insights

**Access to this information** will ensure that we don't just fix or rebuild existing infrastructure, but to do it better and smarter

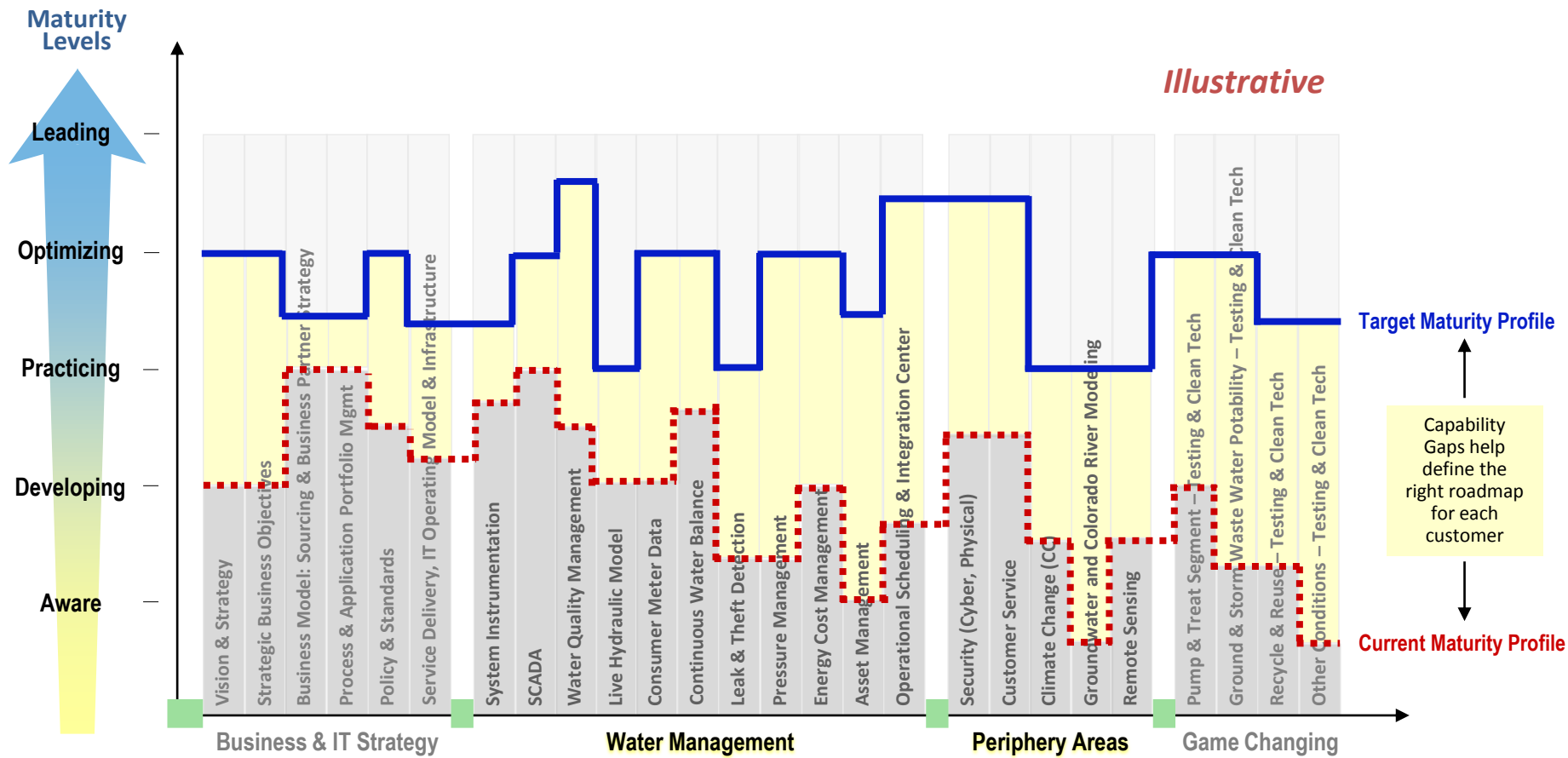
## Decision Support & Action

Allowing us to **become smarter in how we treat, distribute, consume and pay for water**

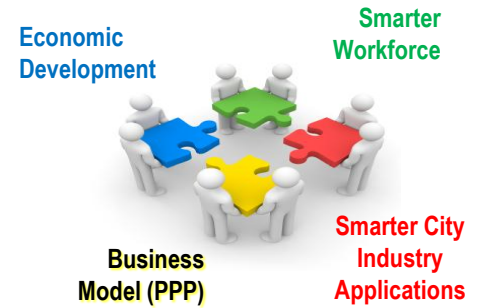


# Water Mgmt: Information Engineering for Water Maturity Model

## Water Management Maturity Model (WMMM)



# Using the COE to Drive Regional Economic Development



Regional Economic Development through collaboration-driven innovation

Sustainability thru ecosystem connections that count

Collaborative Innovation Centers for Applied Research

Commercialization Engine for Business & Technology Solution Incubation

Multi-tenant Delivery Environment with Competency-based Workforce Incubation