

EXECUTIVE SUMMARY

ICE INSTITUTE

INNOVATION COMMERCIALIZATION EXCHANGE

THE WORLD HAS WATER-RELATED CHALLENGES. RESEARCH & TECHNOLOGY SOLUTIONS EXIST. INDUSTRY STANDS READY TO BRING THEM TO MARKET.

ICE INSTITUTE MAKES THE CONNECTION.

Increasingly, it is understood that water is the lifeblood of the world's economy. It is the element that binds us together creating deep and complex inter-dependencies between companies, communities and natural ecosystems. Pressure is now growing for investors and companies to build long-term resilience to water security into their businesses.¹ But there are significant challenges:

- Research and innovations are everywhere from federal laboratories to universities and entrepreneurs, but they are not readily identified or classified as water-related.
- There is no single clearinghouse for research and innovations that may connect to water – they are fragmented, siloed or uncategorized and disconnected from those who could capitalize on the solutions.

The Water Council, an internationally acclaimed water technology accelerator leader, has launched the ICE Institute which serves as the aggregator, evaluator and connector of emerging technologies that address water issues across industry sectors.

THE ICE INSTITUTE TECHNOLOGY-VETTING PROGRAM WILL PROVIDE VALUE TO MEMBERS BY:

- Assembling a single clearinghouse for water and water-related research.
- Enabling access to innovations that have been pre-screened and categorized and have applications to a broad spectrum of industry users including manufacturers, utilities and agriculture.
- Saving time and financial resources by identifying research and innovations that have current opportunities.
- Providing comprehensive reports detailing the strengths and weaknesses of promising research and innovations.
- Expanding the scope of research evaluation to a diverse group of prestigious global experts for insightful technology assessments to augment a company's internal product development talent.

The Water Council will deliver this service to industry through the ICE Institute Strategy:

- Obtaining industry input for the most desired solutions.
- Developing and maintaining a clearinghouse and database, powered by IBM Watson, for technologies across all water-related fields.
- Accessing a broad spectrum of research labs.



THE WATER COUNCIL

HOW DOES ICE INSTITUTE WORK?

RESEARCH

FEDERAL LABS
R&D INSTITUTIONS
CORPORATE R&D
UNIVERSITIES
ENTREPRENEURS
SMES

ICE INSTITUTE

FILTERS & MATCHES
TO NEEDS OF
INDUSTRY SECTORS

TECHNOLOGY &
INNOVATION

INDUSTRY

UTILITIES
AGRICULTURE
MANUFACTURERS

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Of over 1,000 global companies surveyed, 65% reported that water poses a substantive risk to their business."

—2015 CDP Survey

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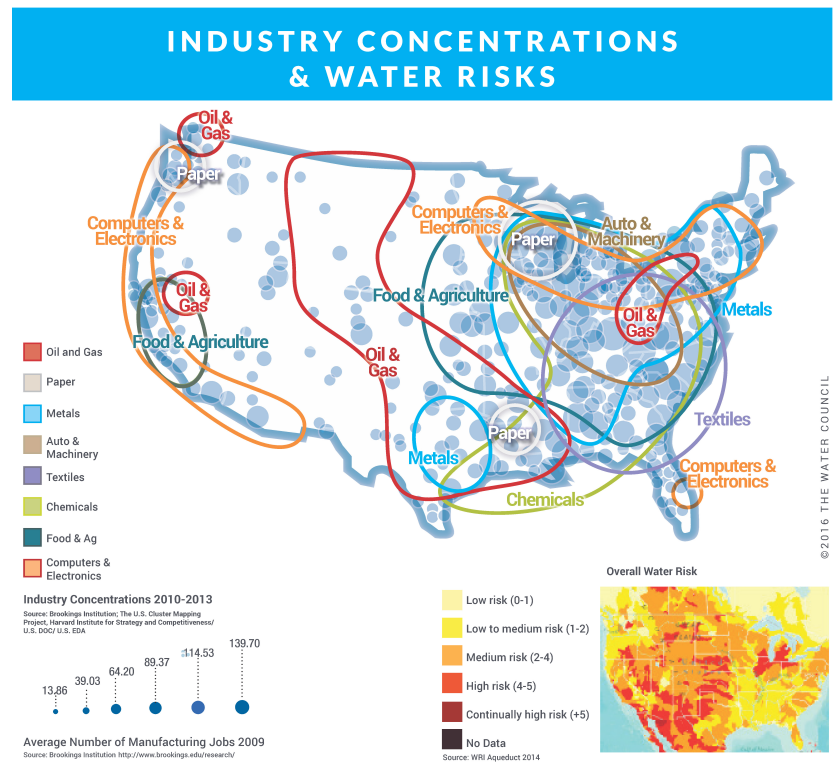
- Engaging a nationwide technology scouting team who will identify emerging technology/processes from federal, university, and private labs, as well as emerging entrepreneurial efforts.
- Deploying ICE Institute technical staff and experts that will apply a multi-faceted filtering process to evaluate promising research and innovations.
- Utilizing global experts who will identify promising innovations and to allow industry to select its priorities.

NEED & VISION

Water security may well be the defining environmental issue of the 21st century. The potential impact is tremendous, the challenges posed are immediate and significant but the opportunities are great. While solutions may be complex, requiring coordinated action from businesses, individuals and governments, the costs of inaction – constrained social and economic growth – overshadow these complexities.²

In fact, the estimated cost to businesses from 2011 to 2040, as a result of breakdowns in water supply, inadequate treatment, and loss of water and wastewater capacity, is projected to be \$7.5 trillion in lost sales and \$4.1 trillion in lost GDP.³

In the United States, the concentration of industry and employment paired with the regional challenges in water management related to quality and quantity issues present an ever-intensifying threat for industry, utilities and agriculture.



THE CHALLENGES—THE SOLUTIONS

Despite industry pull, major factors limiting the growth of the water technology industry in the U.S. and adoption of innovative water technology solutions by U.S. manufacturers include the factors listed below. ICE Institute aims to address these limitations, bringing resources and solutions to members and to the market as a whole.

CHALLENGE	SOLUTION
Water technologies are often a generation behind. While U.S. government investments, such as federal laboratories and National Science Foundation Industry/University Cooperative research programs, have resulted in early-stage water technology development, much of it has not advanced to commercialization due to lack of federally-led channels or venture capital.	ICE Institute will evaluate technology from a multitude of sources through the tech scouting process to identify and categorize technologies as having incremental, significant or disruptive potential to industry.
Siloed research in university and federal labs. There is a lack of coordinated effort, mechanisms or incentive to identify and commercialize water and related research and technology in federal and university labs.	ICE Institute will actively engage with university and federal labs to identify latent technologies/research.

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Presidential directive on commercialization of federal laboratory research.

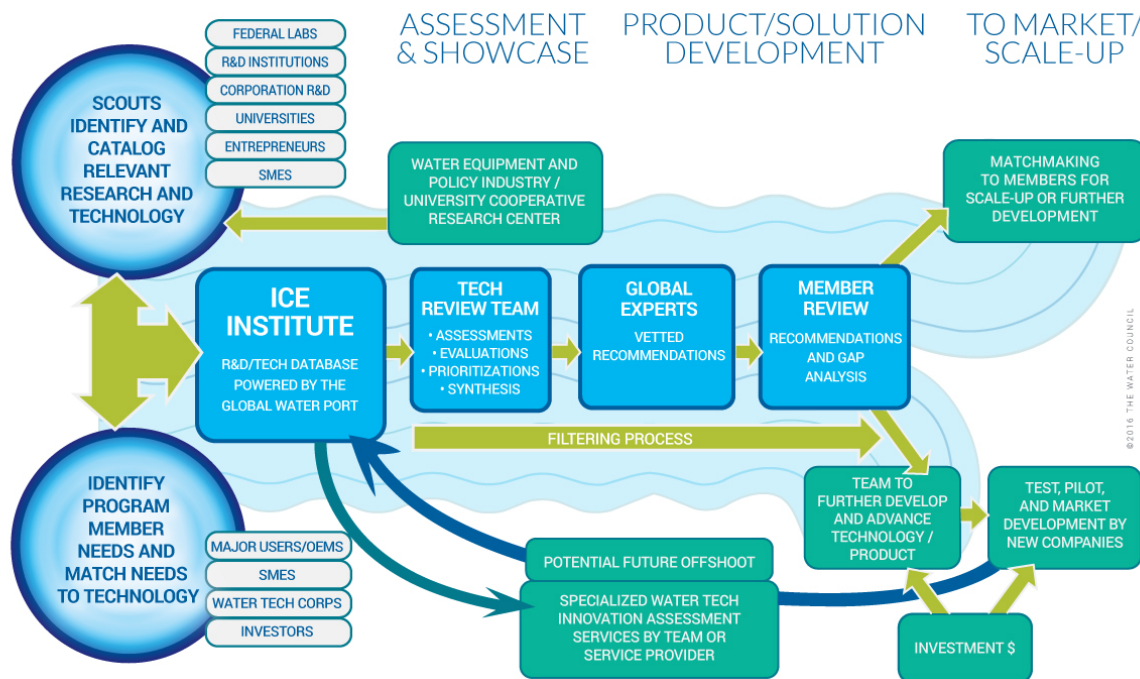
While President Obama directed federal labs in 2011 to expand the commercialization of all research, the actual results have been sporadic.

ICE Institute will serve as a partner to the federal labs to facilitate the commercialization of research.

Lack of awareness and resources among SMEs. Small- and mid-sized companies that make up the vast majority of U.S.-based companies cannot afford the steep cost to develop technology solutions. Neither do these companies have the staff or resources to implement them without help.

ICE Institute will enable SMEs to access emerging technologies and an ecosystem of experts to address their specific challenges.

ICE INSTITUTE FRAMEWORK



THE ICE INSTITUTE WILL CONNECT INDUSTRY TO VETTED TECHNOLOGIES TO PROVIDE SOLUTIONS FOR WORLD WATER CHALLENGES.

ICE Institute focuses on an array of water intensive issues and processes common to all industries and translates solutions between sectors. Its pipeline provides prioritized needs, assessed technologies and routes to market. The ICE Institute process provides opportunity for market/scale up by members or through continued technology development.

BECOME A MEMBER

Contact **Dr. David Garman**, Chief Technology Officer, at dgarman@thewatercouncil.com for more information.

thewatercouncil.com/ice



¹ CDP Global Water Report 2015

² Skroupa, Christopher P. and Lamb, Cate "Water Risk: The Business Impact", CDP Citizenship and Sustainability, www.skytopstrategies.com February 2016

³ EDR Group and LIFT Model, University of Maryland, INFORUM Group 2011