



1

**Re-Inventing Water: New  
Innovations in the Water  
Sector**

September 12, 2019

The Water Environment Federation logo, featuring a white stylized 'W' and the text 'Water Environment Federation the water quality people®', is positioned in the bottom left corner of the slide.

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## How to Participate Today

The screenshot shows the GoToWebinar interface. At the top, there's an 'Audio' section with 'Computer audio' selected and 'Phone call' as an option. Below that, there's a 'MUTED' indicator and dropdown menus for 'Transmit (Plantronics Savi 7xx-M)' and 'Receive (Plantronics Savi 7xx-M)'. A 'Talking: Liz Davis' indicator is visible. The 'Questions' pane is highlighted with a red box and contains the text '[Enter a question for staff]' and a 'Send' button. At the bottom, it says 'Webinar Housekeeping' and 'Webinar ID: 608-865-371'.

- **Audio Modes**
  - Listen using Mic & Speakers
  - Or, select "Use Telephone" and dial the conference (please remember long distance phone charges apply).
- **Submit your questions using the Questions pane.**
- **A recording will be available for replay shortly after this webcast.**

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## Today's Speakers:



**Water Environment Federation**  
the water quality people

**Bri Nakamura**  
Sr. Manager,  
Technical Programs



**BlueTech**  
RESEARCH

**Divya Inna**  
Client Relations  
Manager




**IMAGINE | H<sub>2</sub>O**

**Tom Ferguson**  
VP,  
Programming

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# Water Environment Federation®

the water quality people®

the water quality people  
the water quality people

## Idea's are everywhere, but where's the innovation?

Bri Nakamura, PE ENV SP  
Sr. Manager, Water Science & Engineering Center



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### SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY  
2 ZERO HUNGER  
3 GOOD HEALTH AND WELL-BEING  
4 QUALITY EDUCATION  
5 GENDER EQUALITY  
6 CLEAN WATER AND SANITATION  
7 AFFORDABLE AND CLEAN ENERGY  
8 DECENT WORK AND ECONOMIC GROWTH  
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE  
10 REDUCED INEQUALITIES  
11 SUSTAINABLE CITIES AND COMMUNITIES  
12 RESPONSIBLE CONSUMPTION AND PRODUCTION  
13 CLIMATE ACTION  
14 LIFE BELOW WATER  
15 LIFE ON LAND  
16 PEACE, JUSTICE AND STRONG INSTITUTIONS  
17 PARTNERSHIPS FOR GOALS

Think of innovative new ways to repurpose old material.



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## Innovation Resources at WEF



**LIFT**  
Leaders Innovation Forum  
for Technology

### Water Innovation Clusters

#### Utility-University Partnerships

#### Intelligent Water Technology (IWT) Committee



**The Water Reuse Roadmap**  
PRIMER

Essential practices to make water reuse an element of a diverse and resilient water management strategy



**The Nutrient Roadmap**  
PRIMER

A preview for smarter nutrient management



**The Energy Roadmap**  
PRIMER

A preview of more sustainable energy management



**Intelligent Water Systems: The Path to a Smart Utility**





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## 2019 LIFT Intelligent Water Systems Challenge





- Focus on leveraging data using the best available tools to help utilities better understand the dynamics of complex systems for making better decisions.
- Give students, professionals and technology aficionados the opportunity to showcase their talents and innovation.
- 2018
  - Xylem and Hach Sponsored
  - Winner: Great Lakes Water Authority/UMich (Detroit) - smart watershed
  - 2<sup>nd</sup>: MWRD (Chicago) runner up - odor complaint predictive management
  - 3<sup>rd</sup>: Clean Water Services (Portland OR) - energy management collection system and treatment
- 2019 has 14 teams and \$10,000 top prize
  - \$1000 to 2 finalists
  - Sponsored by The Water Council






The following organizations support the 2019 Challenge, and are currently being contacted for 2019

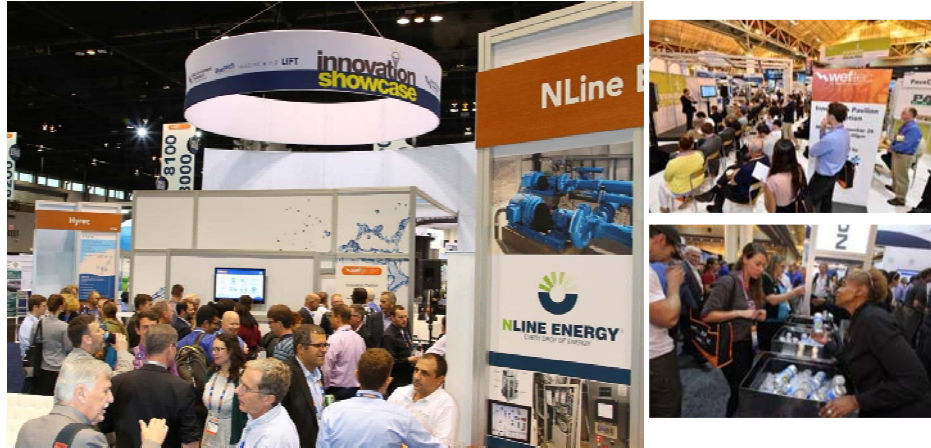







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# Innovation Neighborhood at WEFTEC



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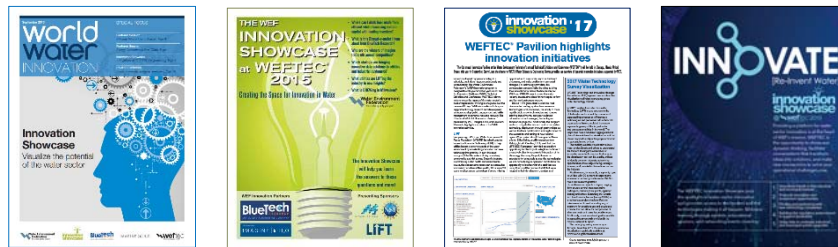
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Leaders Innovation Forum  
for Technology

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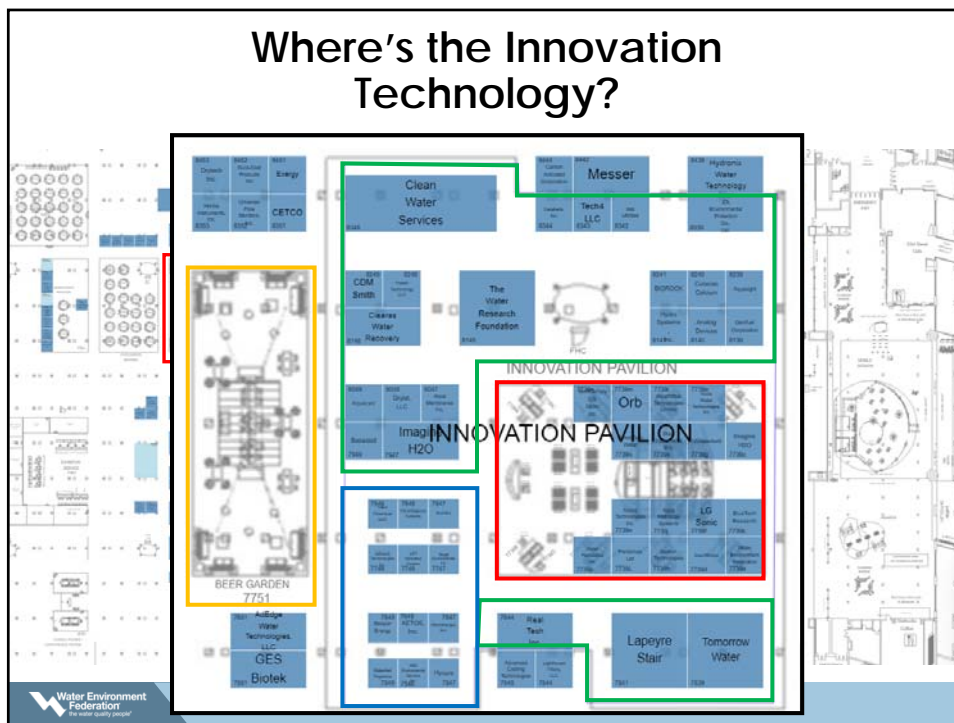


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# Where's the Innovation Technology?

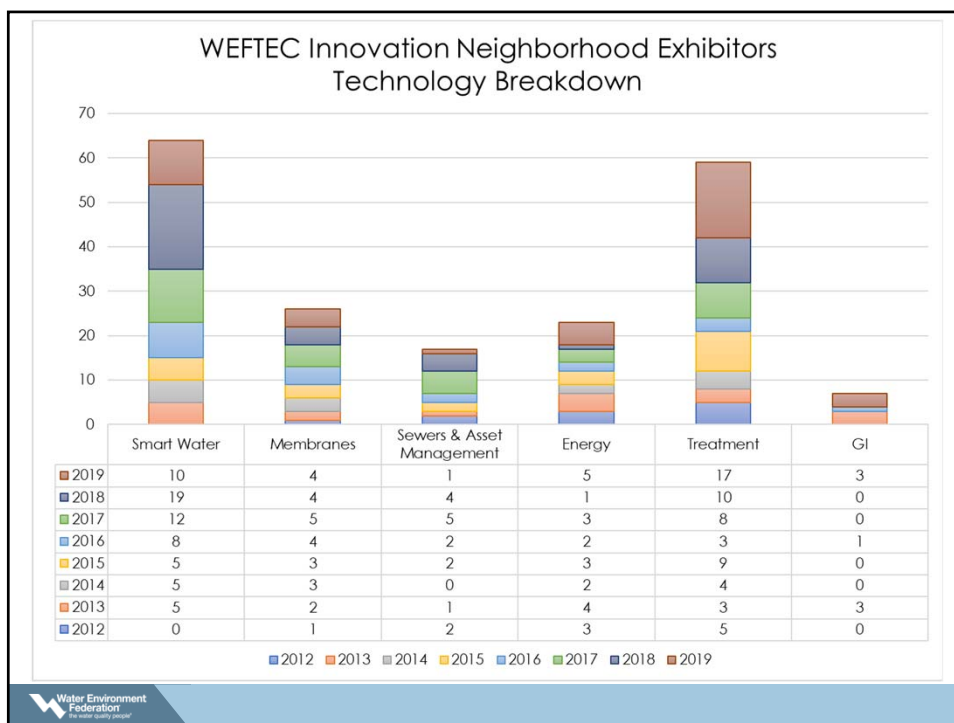


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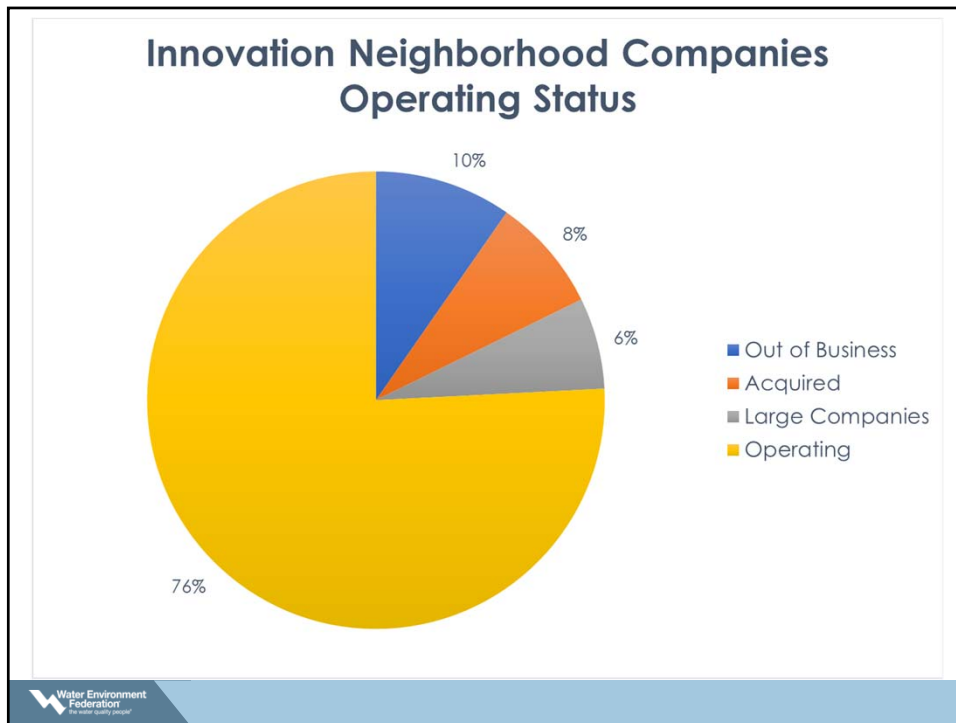
12



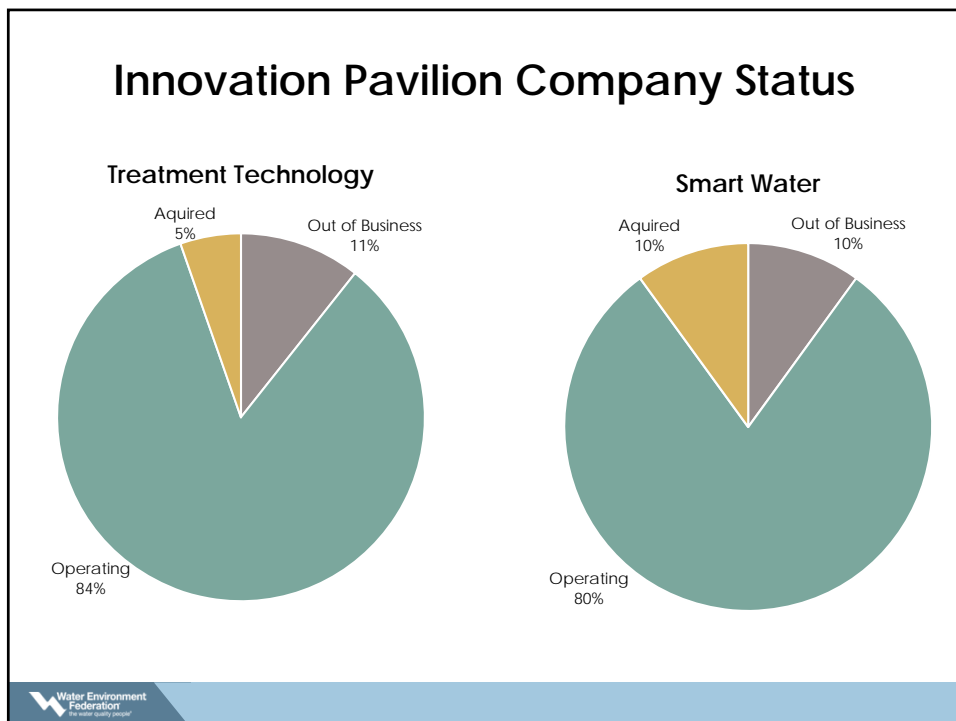
13



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# Innovation Pavilion Programming

MONDAY, SEPTEMBER 23		TUESDAY, SEPTEMBER 24	
10:00 am- 11:00 am	IP01 Don't Hate, #Innovate: What's Happening in the Innovation Neighborhood	9:00 am-9:30 am	IP12 DOE Accelerator Update
11:00 am- 11:30 am	IP02 The SDGs, Circular Economy, and ReNEW	9:30 am-10:00 am	IP13 LIFT SEE IT: Seeing the World of Innovation
11:30 am- 12:30 pm	IP03 Pure Water Brewing Alliance and the World's Most Sustainable Beer	10:00 am- 11:00 am	IP14 Innovation With the Dutch: Connection the Hubs
12:30 pm- 1:00 pm	IP04 Considerations to Successfully Supply Water in One of the Fastest Growing Metro Areas in the US: The San Antonio to Austin Corridor	11:00 am- 11:30 am	IP15 Water Crisis in Global Markets or Opportunity for Innovation?
1:00 pm- 1:30 pm	IP05 Hydrofaction Advanced Renewable Transportation Fuels From Sewage Sludges and Urban Organic Solids	11:30 am- 12:00 pm	IP16 Imagine H <sub>2</sub> O's Urban Water Challenge: Tomorrow's Solutions Today
1:30 pm- 2:00 pm	IP06 Accelerating Innovation in the Water Sector Using Utility-University-Industry Partnerships	12:00 pm- 1:00 pm	IP17 Challenging the Status Quo: Smart Water Technology Advancements
2:00 pm- 2:30 pm	IP07 Out of Industry, Pivoting Into Water	1:00 pm- 2:00 pm	IP18 What's BREWing in Milwaukee?
2:30 pm- 3:00 pm	IP08 We Got Bought, Now What? Stories from Innovation Pavilion Alumni	2:00 pm- 2:30 pm	IP19 Brave Blue World: The Journey of Bio-Inventing Water
3:00 pm- 3:30 pm	IP09 C Suite View on Fostering Innovation	2:30 pm- 3:00 pm	IP20 TWENTY65: Achieving Sustainable Clean Water for All by the Year 2065
3:30 pm- 4:00 pm	IP10 Disruptive Innovation in Water Technology: A Meaningful or Meaningless Term?	3:00 pm- 3:30 pm	IP21 Utility Watershed Management Smackdown
4:00 pm- 5:00 pm	IP11 The CROC Tank: Imagine H <sub>2</sub> O Water Start-Ups Pitch to Our Experts	3:30 pm- 4:00 pm	IP22 Controversial Questions: Three Water Luminaries Take on Some of the Biggest and Most Controversial Questions Facing the Industry Today
		4:00 pm- 5:00 pm	IP23 The CROC Tank: BlueTech Water Start-Ups Pitch to Our Experts
		WEDNESDAY, SEPTEMBER 25	
		9:00 am- 10:00 am	IP24 Israel - US Water Initiative
		10:00 am- 11:00 am	IP25 Water Reuse in Israel and the US: Lessons Learned and Opportunities
		11:00 am- 11:30 am	IP26 CMCP Awards: Excellence of Mission Critical Operations
		11:30 am - 12:30 pm	IP27 Operator Excellence: Operations Ingenuity Contest Winners
		12:30 pm - 1:00 pm	IP28 ABC Professional Operator Pinning Ceremony

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**BlueTech**  
RESEARCH  
Actionable Water Technology Market Intelligence

# BlueTech Research

Insights to future proof your water strategy

[www.bluetechresearch.com](http://www.bluetechresearch.com)

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## BLUETECH RESEARCH COMPANY OVERVIEW

*We support leading Water Technology Companies, Strategic Investors, Water Hubs, Utilities, Consultants and Fortune 500 Corporations*

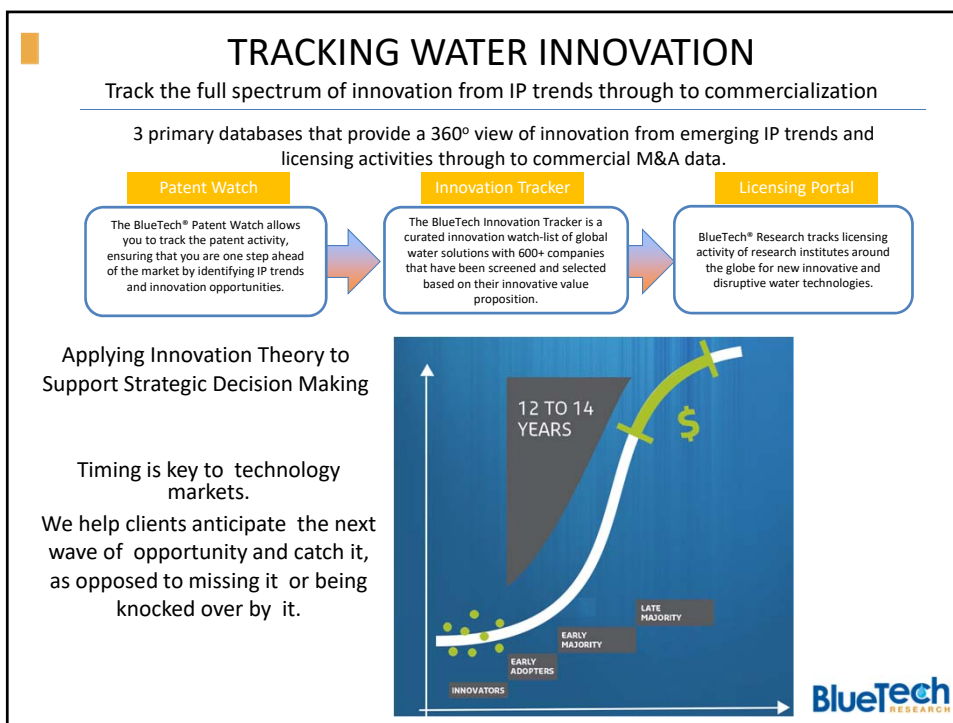
The overview slide features a grid of logos for various companies and organizations. The logos include:

- evoqua WATER TECHNOLOGIES
- Sydney WATER
- Kurita
- Canada MC-CMC
- XPV making a difference in water
- PWN
- SEVERN TRENT WATER
- Nestlé
- L'ORÉAL
- HITACHI Inspire the Next
- TRUE NORTH VENTURE PARTNERS
- nijhuis WATER TECHNOLOGY
- BARRICK
- PICTET
- SIEMENS
- HRSD
- DENVER WATER
- FUJIFILM Value from Innovation
- skion
- MEKOROT ISRAEL NATIONAL WATER CO.
- SINGAPORE'S NATIONAL WATER AGENCY
- OPUB
- dc water is life
- Dow
- South East Water
- Pentair Water
- Aquatech
- xylem Let's Solve Water
- emerald Technology Ventures
- DANAHER
- PEPSICO
- arjako السعودية Saudi Aramco
- Scottish Water Always serving Scotland
- Hutchison Kinrot WATER & CLEANTECH VENTURES
- IDE Technologies
- MANILA WATER CARE IN EVERY DROP
- BlueTech RESEARCH

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## ■ DEFINING DISRUPTIVE INNOVATION

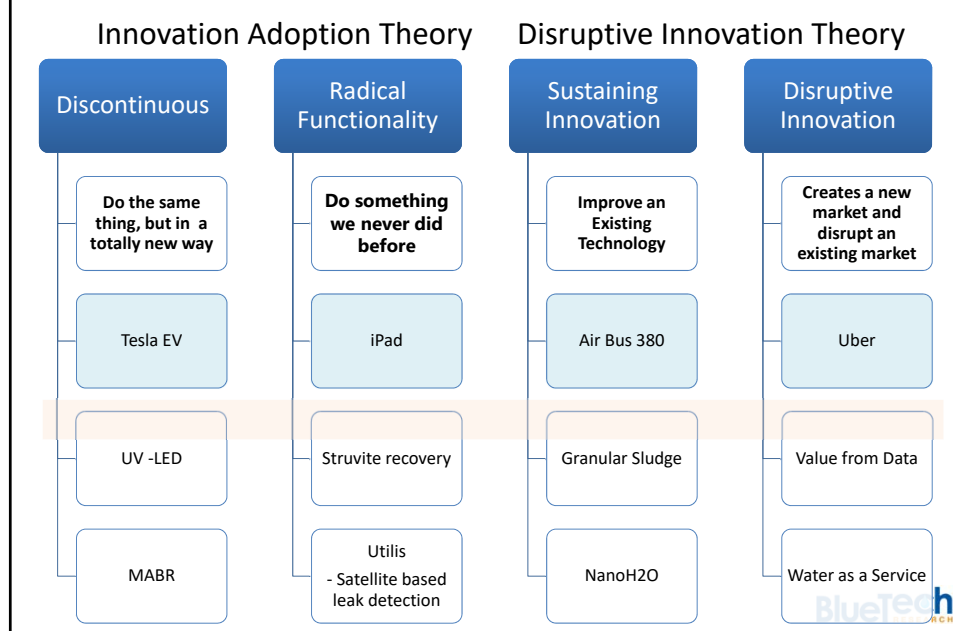
In business, a **disruptive innovation**:

- creates a **new market and value network**
- and
- eventually **disrupts an existing market and value network, displacing established market-leading firms, products, and alliances.**

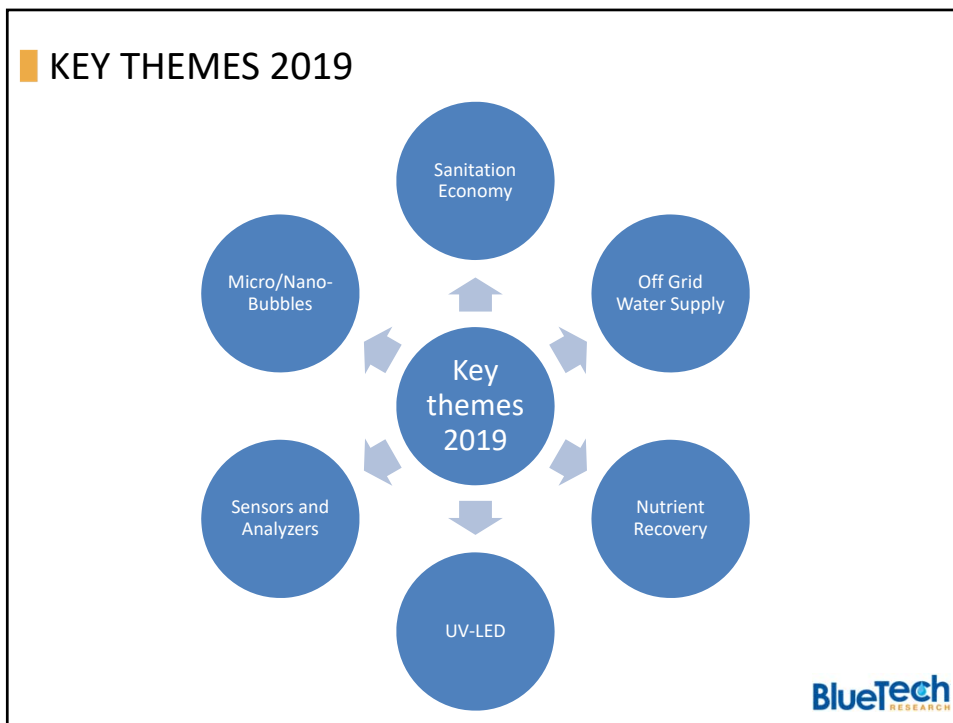
BlueTech  
RESEARCH

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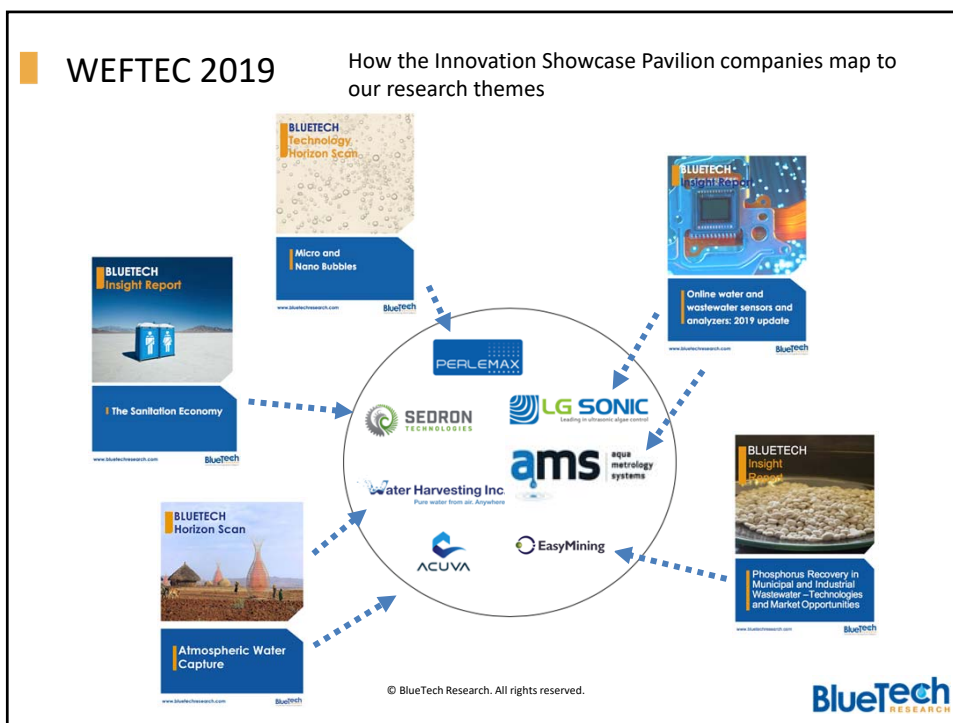
## ■ DEFINING DISRUPTIVE INNOVATION



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## WEFTEC PAVILION COMPANIES

### Innovation Pavilion showcase company profiles

#### Perlemax (UK)

Use of fluidic oscillators to economically produce microbubbles & small plasma micro-reactors for ozone production

#### Sedron Technologies (USA)

Utilises the Rankine cycle to process faecal sludge and other waste streams into water, ash, and electricity

#### LG Sonic – (The Netherlands)

Chemical-free algal bloom monitoring and control solutions

#### Water Harvesting Inc. (USA)

Atmospheric water harvesting systems based on metal organic frameworks

#### Easy Mining (Sweden)

Phosphorus recovery from sewage ash

#### Acuva (Canada)

Designs and manufactures advanced UV-LED drinking water disinfection systems

#### Aqua Metrology Systems (USA)

Sensors for the detection of THM's and metals in drinking water supplies



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## INNOVATION PAVILION PROGRAMMING

Key sessions at the innovation Pavilion

### 1) Innovation Showcase Preview – Guided tour of companies

Hosts: Tom Ferguson (Imagine H2O) and Jeff Guild (BlueTech Research)

Time: 10-11am

Location: BlueTech Innovation Pavilion (@respective booths)

### 2) The CROC Tank: Water Start-Ups Pitch to Experts

Hosts: Tom Ferguson (Imagine H2O) @ 4-5pm Monday

Hosts: Divya Inna (BlueTech Research) @4-5pm Tuesday

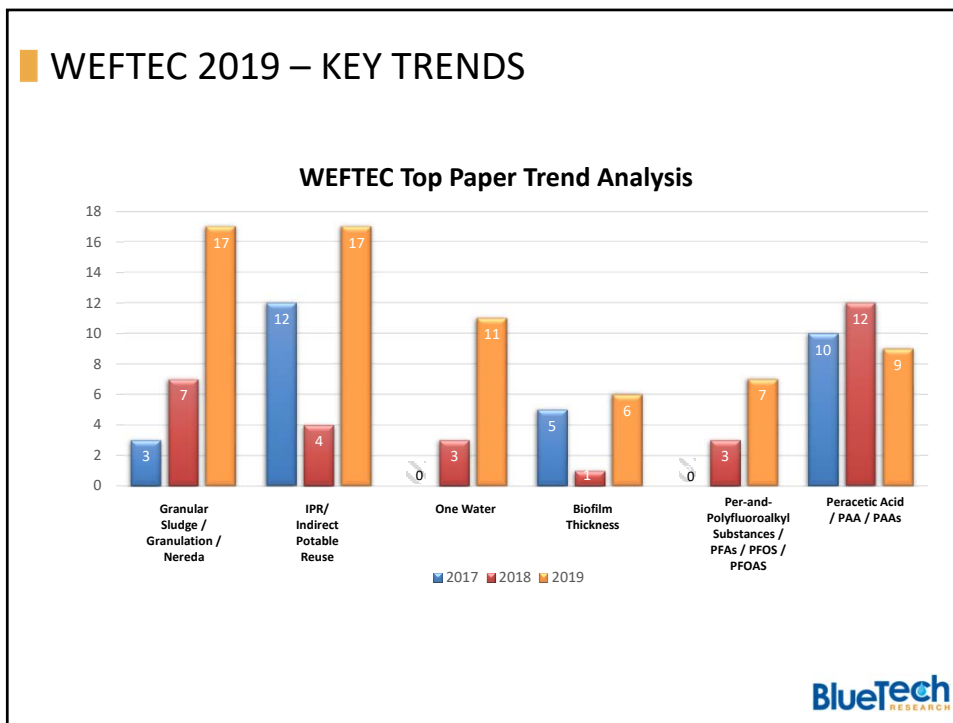
### 3) Disruptive Innovation in Water Technology - a Meaningful or Meaningless Term? Moderator: Paul O'Callaghan, BlueTech Research @3.30-4pm Monday

### 4) Brave Blue World: The Journey of Re-Inventing Water

Moderator: Paul O'Callaghan, BlueTech Research @2-2.30 pm Tuesday

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**BlueTech** RESEARCH  
Actionable Water Technology Market Intelligence

**BlueTech Research**  
**Breakfast Briefing**  
**at WEFTEC 2019**

Tuesday 24th September at 7:30 AM  
Invite Only

BlueTech RESEARCH

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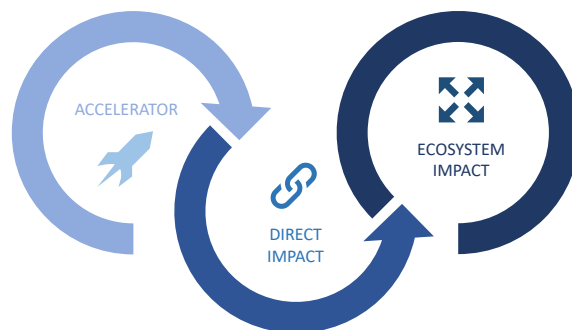
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**Empower people to develop and  
deploy innovation to solve water  
challenges globally**

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We've been at this a while...

**10 Years**  
**141 Companies**  
**1500+ Applicants**  
**\$450m+ Investment**

[www.imagineh2o.org](http://www.imagineh2o.org)

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Our alumni are quite the crew...



**2019: 28 companies**

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## ...with a global network of end-users at their fingertips

**Select Industry Partners**

**Select Water Utility Partners**

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## Schedule of IH2O Events across 3 IH2O Programs

Event	Participants
<b>The CROC Tank</b> Monday 4:00 PM – 5:00 PM <i>Innovation Pavilion</i>	<b>IH2O Companies:</b> 120WaterAudit, Aquafortus, Noria Water Technologies, Orb, PowerTech Water, Staal Instruments, SwiftComply, Water Warriors <b>IH2O Asia Companies:</b> MicroHAOPs, Puraffinity, StormHarvester, Veracet <b>Judges:</b> Lynn Broadus (President, Broadview Collaborative), Ifetayo Venner (Water Sustainability Leader, Arcadis), Peter Gross (Water Skipper, Emerson Collective), Snehal Desai (Chief Growth Officer, Evoqua), Vinod Ramachandran (Global Open Innovations Leader, Suez)
<b>Imagine H2O Asia</b> Tuesday 10:00 AM – 11:00 AM <i>Global Center</i>	<b>IH2O Companies:</b> MicroHAOPs, Puraffinity, StormHarvester, Veracet, Water Warriors <b>Panelists:</b> Dr Pang Chee Meng (CEO, PUB), Vinod Ramachandran (Global Open Innovations Leader, Suez), Dr Zeynep Erdal (Water Business Integrated Solutions Leader, Black & Veatch)
<b>Urban Water Challenge</b> Tuesday 11:30 AM – 12:00 PM <i>Innovation Pavilion</i>	<b>Moderator:</b> Kelly Trott (Senior Director – imagine H2O) <b>Panelists:</b> Tyler Mantel (CEO & co-founder, WatchTower Robotics), Erin Rothman (CEO & co-founder, StormSensor)
<b>Controversial Questions</b> Tuesday 3:30 PM – 4:00 PM <i>Innovation Pavilion</i>	<b>Moderator:</b> Tom Ferguson (Vice President of Programming – Imagine H2O) <b>Panelists:</b> Orianna Bretschger (CEO & founder, Aquacycl), Cam Davis (Commissioner, MWRD Chicago), Joone Lopez (GM, Moulton Niguel Water District)
<b>The Innovators Forum</b> Wednesday 10:00 AM – 10:45 AM McCormick Place *Requires Registration	<b>Moderator:</b> Tom Ferguson (Vice President of Programming – Imagine H2O) <b>Panelists:</b> Emily Hicks (President – FREDsense), Megan Glover (CEO & co-founder – 120WaterAudit), Jodi Glover (CEO & co-founder – Real Tech Inc.), Christine Boyle (CEO & founder – Valor Water Analytics (a Xylem company))

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THE WATER INNOVATION ACCELERATOR

# URBAN WATER CHALLENGE 2019

A GLOBAL STARTUP COMPETITION TO REIMAGINE A WATER-RESILIENT FUTURE

FOUNDING CHALLENGE PARTNERS




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The background of the slide features a scenic view of a European city with colorful buildings and a canal.

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FOUNDING PARTNERS




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The background of the slide shows a man in a white shirt and cap filling blue water jugs from a yellow hose. A woman and a child are visible in the background.

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Making lead free drinking water a reality



GET TO KNOW YOUR WATER



Lead program compliance **made better.**

LEAD SERVICE LINE REPLACEMENT

LEAD SAMPLING IN SCHOOLS

LEAD & COPPER RULE

CONSUMER REQUEST

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What if you could close the loop on fertilizer?



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**Miniaturized and low power Radar**





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**Streamlined and automated FOG compliance**




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Scan & detect total microbiological load in 3 secs.



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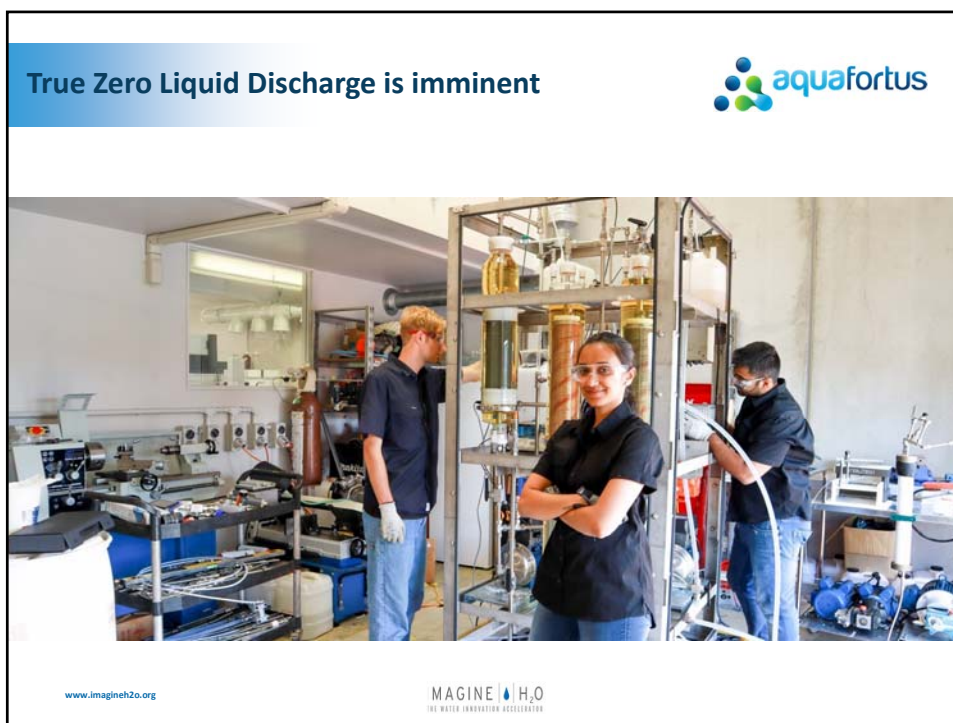
LET'S TRY A FEW SIMPLE STEPS TO HELP TRACK IT DOWN

FOUND ONE CONTAMINANT: E. COLI - 97% CONFIDENCE

SUCCESS!  
PROCESSING RESULTS...

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True Zero Liquid Discharge is imminent



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aquafortus

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Pedal to the (removal of) metal





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Visibility inside the membrane system



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Phosphorus removal at scale

MicroHAOPs



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This slide features a blue header with the text 'Phosphorus removal at scale' and the MicroHAOPs logo. The main image is an aerial photograph of a large-scale water treatment facility, showing various basins and structures. A small boat is visible on the water in the lower-left portion of the image. The footer contains the website 'www.imagineh2o.org' and the 'MAGINE | H2O THE WATER INNOVATION ACCELERATOR' logo.

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The global PFAS crisis is here

Puraffinity





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This slide has a blue header with the text 'The global PFAS crisis is here' and the Puraffinity logo. The main image shows an industrial facility with several tall smokestacks emitting white smoke, situated near a body of water. The footer includes 'www.imagineh2o.org' and the 'MAGINE | H2O THE WATER INNOVATION ACCELERATOR' logo.

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**Smarter stormwater infrastructure**





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**23andMe of fecal contamination. You heard me.**



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**Things for you to keep in mind**

- 1. Come find us**
- 2. Help us to help you help us to help you**
- 3. Help these founders**
- 4. Try and throw a few grenades**
- 5. Tell your story (and help others tell theirs)**

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**tom@imagineh2o.org**

*@imagineh2o*

*@inverynefarmer (I know)*

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# Any questions?

Come and see us at WEFTEC (booth 7739)



**Bri Nakamura, PE, ENV SP**  
Sr. Manager, WSEC  
[bnakamura@wef.org](mailto:bnakamura@wef.org)  
@BrizeeWater



**Divya Inna**  
Client Relations Manager  
[Divya.Inna@BluetechResearch.com](mailto:Divya.Inna@BluetechResearch.com)

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**Tom Ferguson**  
VP, Programming  
[tom@imagineh2o.org](mailto:tom@imagineh2o.org)  
@imagineh2o  
@inverynefarmer (I know)

