

# ATI Water RIOT Kick-off

## Summary and Presentation Notes

Event date: May 9, 2017 UT Austin

### Kick-off Event Summary

The Austin Technology Incubator at the University of Texas at Austin officially kicked off public engagement for its Texas Smart Water Innovation Cluster, now being referred to as Water RIOT or WRIOT for short (Water Resiliency through Internet of Things), on May 9<sup>th</sup><sup>1</sup>.

The goal of this program is to help researchers and startups at Texas universities working on IoT, imbedded sensing, data analytics, and other information-driven technology, to problems in the water sector that could be addressed through smarter systems and more informed decision making.

The kick-off coincided with the Texas Water Research Network quarterly meeting, held at the Texas Advanced Computing Center at UT Austin. The event attracted over 60 attendees, including leaders from the local tech start-up communities, water researchers from around the state of Texas, and representatives from several Central Texas water utilities.

The kick-off event achieved four primary goals:

- 1) Formally announce our initiative to the stakeholder groups we are trying to bring together (water utilities, water regulators, water researchers, tech entrepreneurs)
- 2) Engage utilities to begin building a 'problem inventory' of pain points that IoT technology could help address
- 3) Begin establishing Texas-wide contacts for follow-up meetings at universities, utilities, local governments, and start-up communities across the state.
- 4) Kick off recruitment for 3 Day Startup: Water, happening November 3-5, 2017

Below are meeting notes of the presentations given at the event. If you are interested in more information from one of the speakers, please let us know, and we can help facilitate an introduction.

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<sup>1</sup> Event announcement: <https://www.eventbrite.com/e/texas-water-riot-kick-off-twrn-meeting-tuesday-may-9-100-300-pm-tickets-33879639915>

## Presentation Notes

### ATI Water and Water RIOT Introduction

Bart Bohn introduced ATI Water and the Water RIOT program

- Provided background on Austin Technology Incubator and ATI water history
  - ATI Founded in 1989, oldest university incubator in the country
  - ATI Water founded in 2016, support for water-related technology start-ups.
- Water RIOT stands for 'Water Resiliency through Internet of Things'
  - Goal: connect IoT tech researchers and startups with water utilities and agencies to build world-class water-related IOT tech ecosystem
  - Funded by 3-year grant through the Economic Development Agency (EDA), in conjunction with cash and in-kind matching
  - We are looking to gather a database of interested collaborators and stakeholders
    - Universities, labs, and governmental water researchers
    - IoT researchers and tech specialists
    - Other incubator and accelerator programs
    - Utilities, governments, water-related business, and other water-consumer stakeholder groups
  - putting together networking and start-up events to convene IoT tech entrepreneurs, researchers, and utility & other stakeholders

### Keynote Speaker: Assistant Professor Kasey Faust, UT-Austin

- Background on Water Issues:
  - 40% of World's population (3.9B) could be living in water-scarce regions by 2050
  - Failing US infrastructure, needs \$1 Trillion worth of repair in next 20-30 years
  - Smart water management can have a huge impact
  - Municipals are dependent on customers to tell them when & where there is a problem
  - Don't know water quality and pressure throughout the system
- Shrinking Cities
  - Cities like Detroit are experiencing massive emigration
  - Less people using system, but still spread out over same large area, is contributing to high service costs and degrading infrastructure
  - Less utility revenue coming in to pay for maintenance and replacement, leading to further degradation of infrastructure
  - 'Utility death spiral'

- Flint Michigan Water Crisis
  - Contributors: stagnant water, urban decline, mismanagement
  - Flint could no longer afford buying water from Detroit
  - Didn't have sufficient engineering staff due to budget cuts, didn't recognize potential issues
  - Didn't have technology to monitor leaks, didn't have data to predict issues and failures
  - Is there a way to effectively monitor and manage water quality better?
  
- Refugees and Water
  - Millions of refugees moving into European urban areas
  - Water demand cycle increases and changes from periodic to continuous
  - Large loads appearing in areas of system not designed to meet those loads
  - How do you adapt an old system to sudden influxes of people?
  
- Benefits of Smart Water System
  - Peer pressure affect, how much is your neighbor using
  - Customers can see potential savings

## Utility Problem Pitches

### Austin Water: Martin Tower

- Need help predicting failure of assets
- Predicting what investments will be needed in the future
- Need data management for housing and evaluating data to predict patterns and failures
- Need more awareness of system throughout distribution, to end-user
- Example idea: equipment service lease model – utility pays for equipment's service (e.g. cfm of pressurized air from aerator), and company monitors and maintains operation.

### San Antonio Water: Brandon Leister

- 40-60% of residential water use is outdoors (i.e. irrigation)
- Need to better understand customer (ex. Landscape vs household use)
- Current smart irrigation controllers on market are based on agricultural watering algorithms, not lawn/landscape. causing overwatering
- Want better interaction with customers (ex. Send a message on their lawn watering day)
- Need ability to send coupons directly to customers, track who has redeemed coupons/rebates

## Georgetown Utility: James Foutz

- Want better/more system diagnostics information
- Currently, utility loses visibility between treatment-storage, and storage-usage
- Usage information limited to billing data (volume). No quality/pressure information
- Wants real-time dynamic system info on flow, pressure, and quality
- Currently system feedback based on count/volume, not rate, e.g. 'X gallons left in storage tank' vs. 'Y hours of supply given current and projected consumption rates'
- Discussed potential for advanced metering and demand response analog for water utilities and water customers. Communicating with customers and large users about peak water consumption periods and rewarding those that shift/reduce consumption off-peak.

## ATI Water RIOT Partners

### 3 Day Startup (3DS): Cam Houser

- Started at UT by graduate students, has since grown into 501(c)3 that has run 340+ programs with 11,600+ participants at 150 universities and 119 companies
- Hands-on crash course on the whole start-up process:
  - Ideation, team formation
  - Customer research, business model dev, rapid prototyping
  - Pitching to investors, investor interaction and feedback
- Teaches entrepreneurship in hands-on manner, preparing participants for future ventures
- Participants gain relationships to fellow participants and big alumni and mentor network

### FATHOM: Chandler Vaughn

- HQ in Phoenix, Austin office opened 2 years ago and growing quickly
- Cloud-based platform for water system management.
- Goal: Introduce modern software into a water utility.
- Technology-agnostic meter data management and other data services
- Providing support to Water RIOT via platform access

### Pecan Street: Bert Haskell

- Have capabilities to make sensors, gateways; also have back-end data support (hosting and analytics)
- Have experience deploying data collection and back-haul in field, running demonstration pilots
- Currently have ongoing project working with retail electricity provider to identify air conditioners that will fail. Could do similar with water-related tech