





# H2ROI

## Facilitating Industrial Water Conservation Through Financial/ROI Analysis

Michigan Sustainability Conference

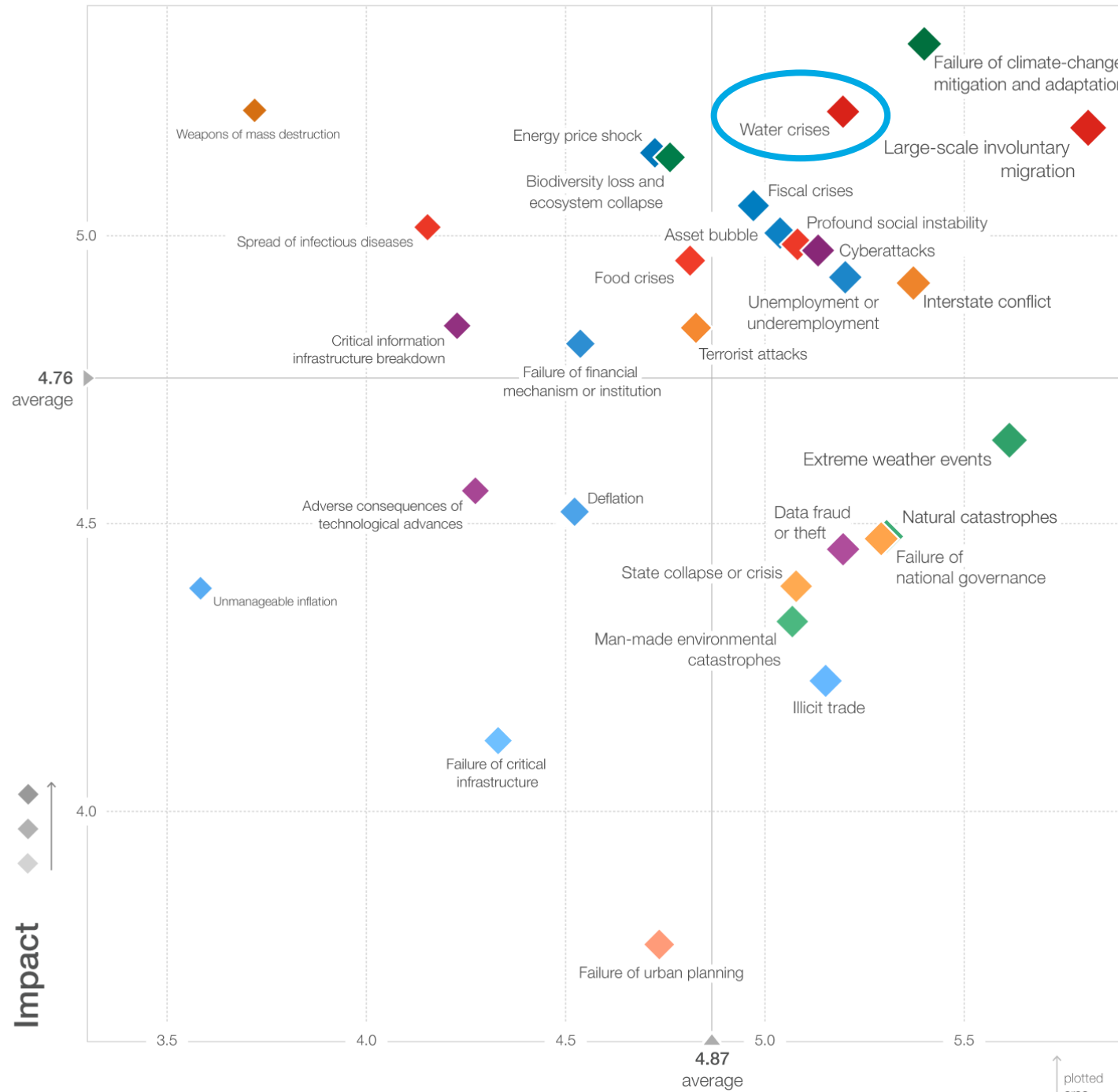
September 18, 2018

# Agenda

-  Importance of Industrial Water Efficiency
-  WRF Project Overview
-  Visualizing the True Cost Wizard and ROI Wizard Tools
-  H2ROI (Toolbox) Preview

# Importance of Industrial Water Efficiency

# Global Risks Landscape



Impact

## Categories

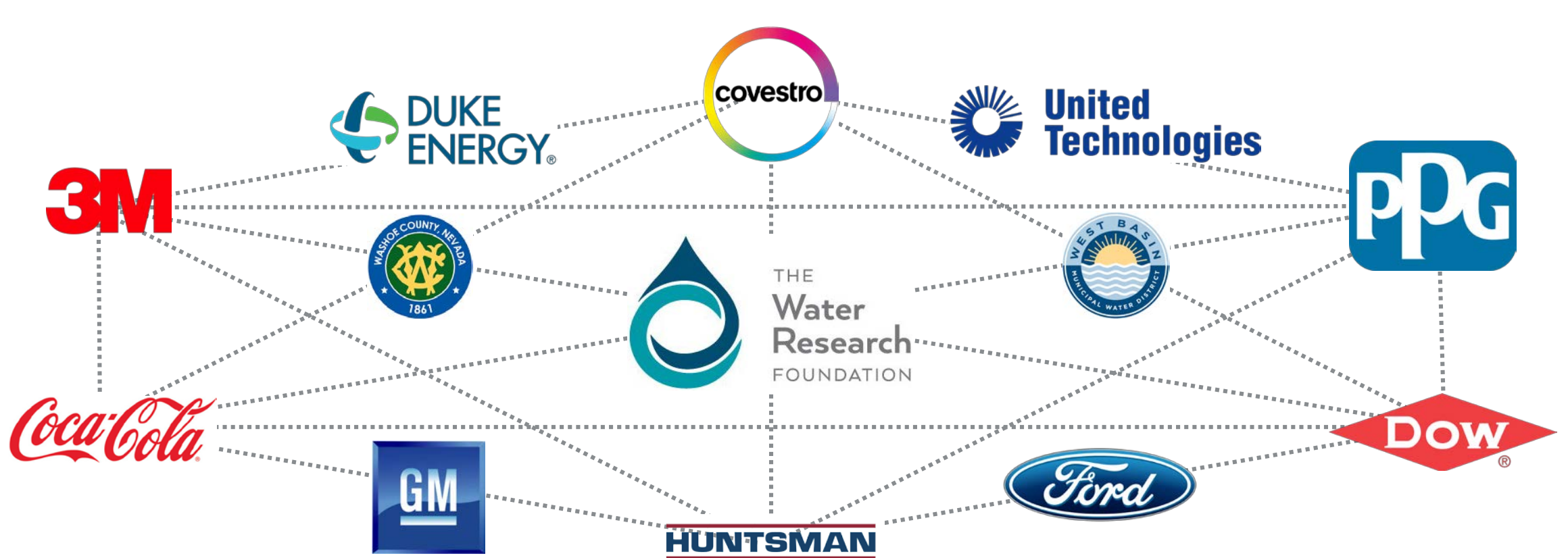
- ◆ Economic
- ◆ Environmental
- ◆ Geopolitical
- ◆ Societal
- ◆ Technological



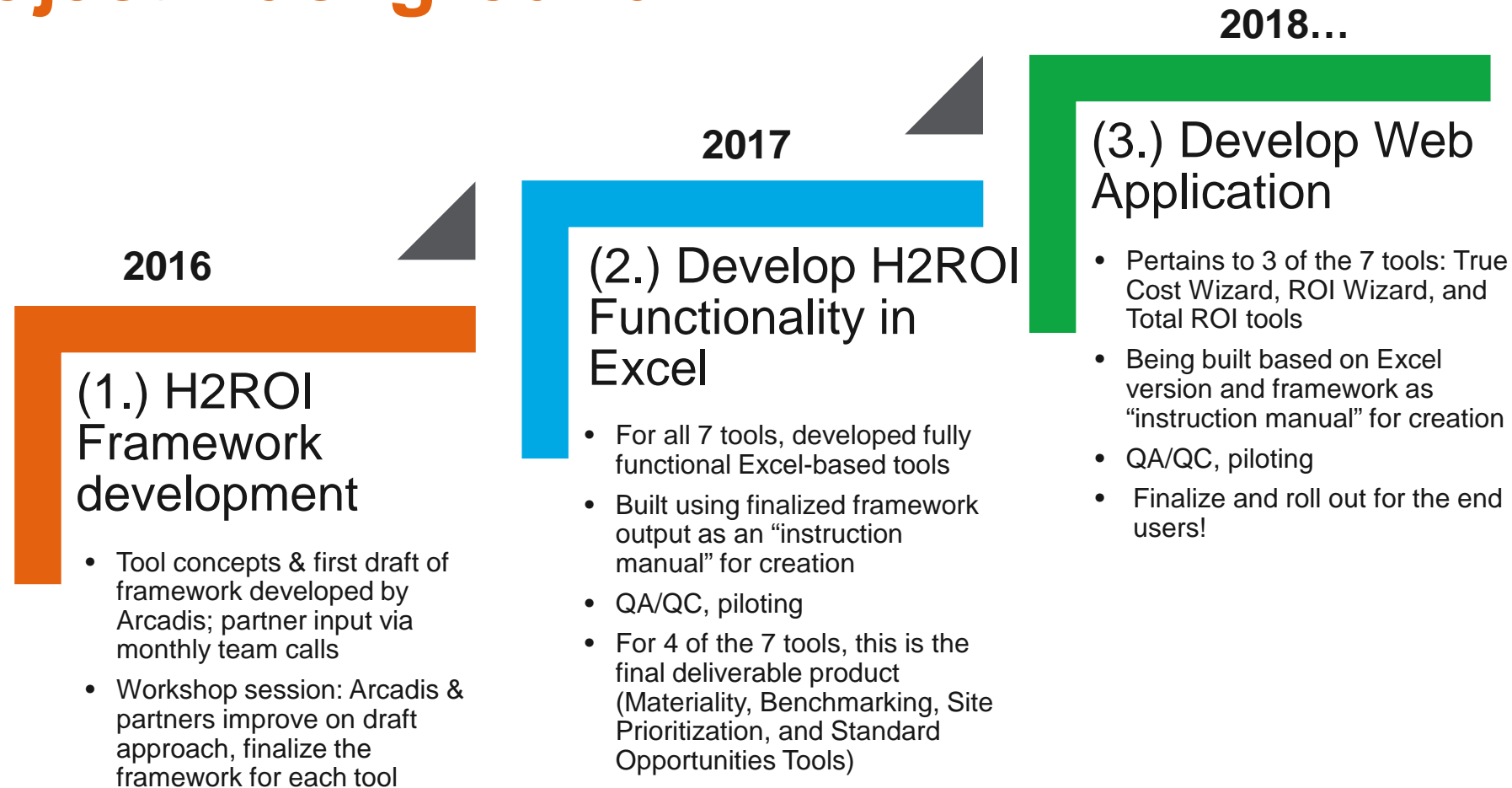
# WRF Project Overview



# Key Stakeholders



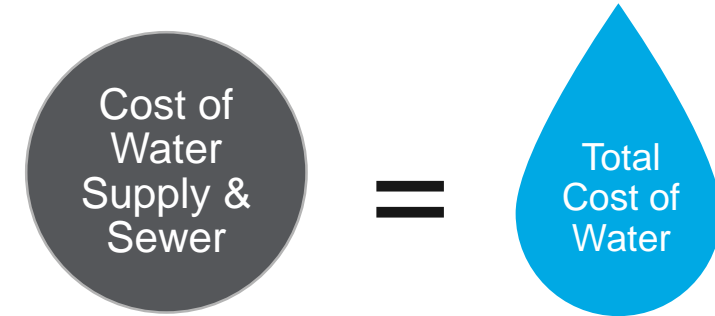
# Project Background



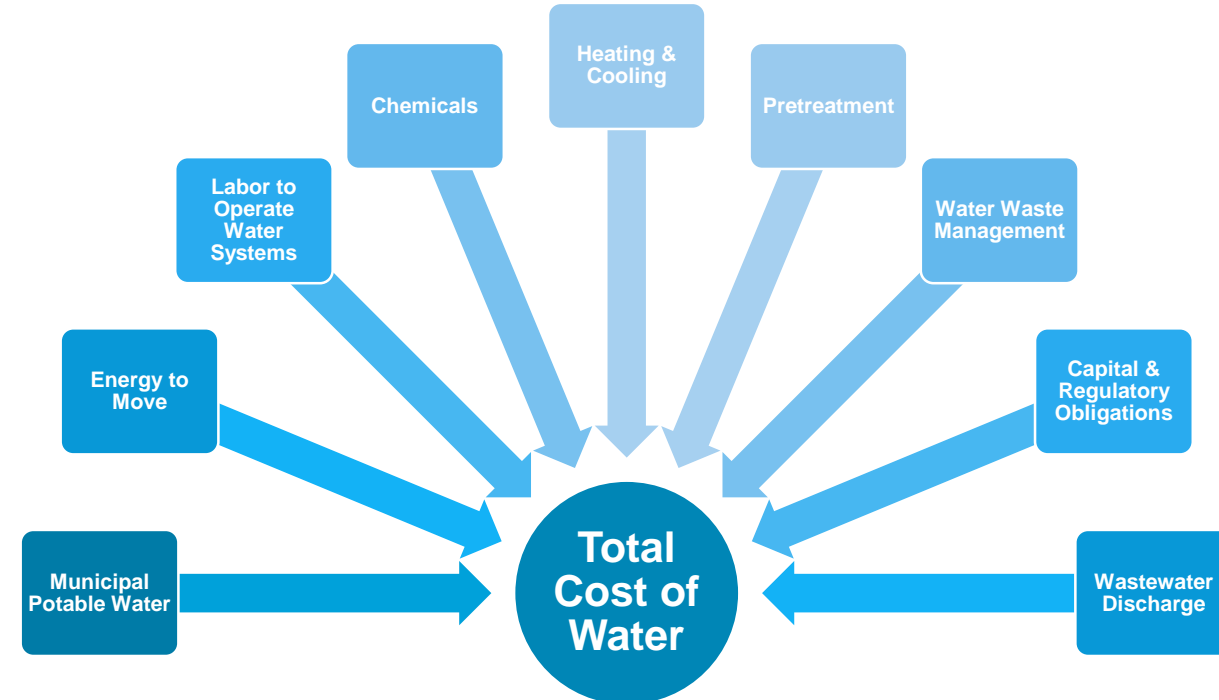
# H2ROI Introduction

- From 2015 WRF project, industrial water conservation implementation barriers were identified. Often, return on investment (ROI) or inability to demonstrate the “business case” was a barrier.
- See [A Framework for the Successful Implementation of Onsite Industrial Water Reuse -WRF](#)
- This helped form the motivation of the **H2ROI** Tool Development and one of the things to keep in mind...
- Crux is ROI and making the business case is imperative

## Perceived Cost of Water



## Actual Cost of Water





# H2ROI Components

**True Cost Wizard:** Helps site to understand the full cost paid for water

**ROI Wizard:** Calculates return on investment (ROI) for water projects using expanded cost of water

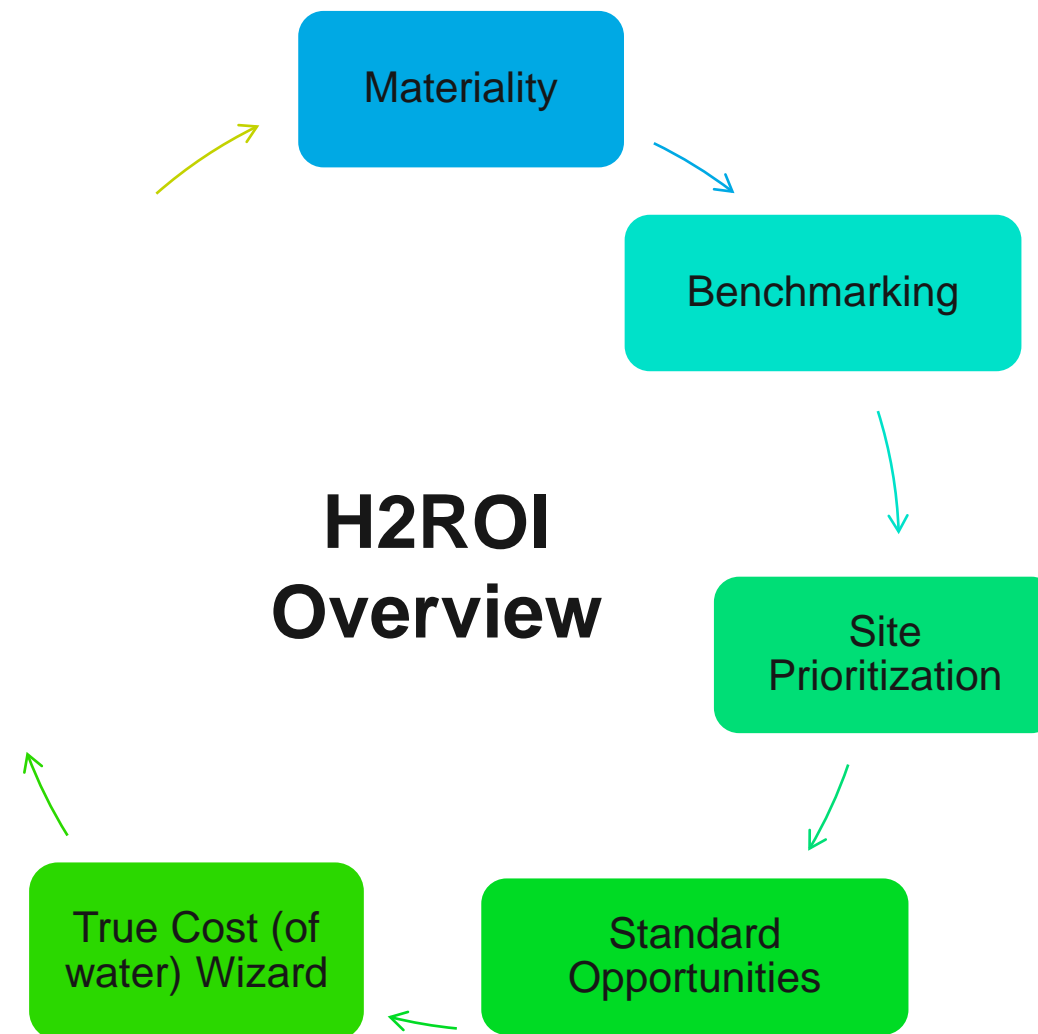
**Total ROI:** Expands the ROI calculation to include total economic value (i.e. water stress risk, etc.)

**Materiality:** Helps companies integrate water risks into materiality assessments

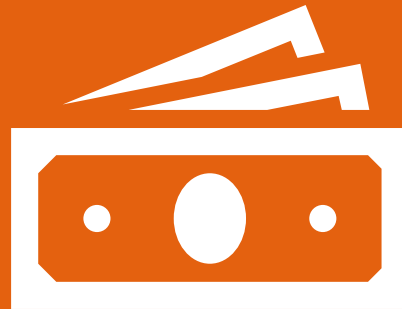
**Benchmarking:** Help companies compare water footprint and goals versus competitors and customers

**Site Prioritization:** Assists companies with ranking facilities based on water risks

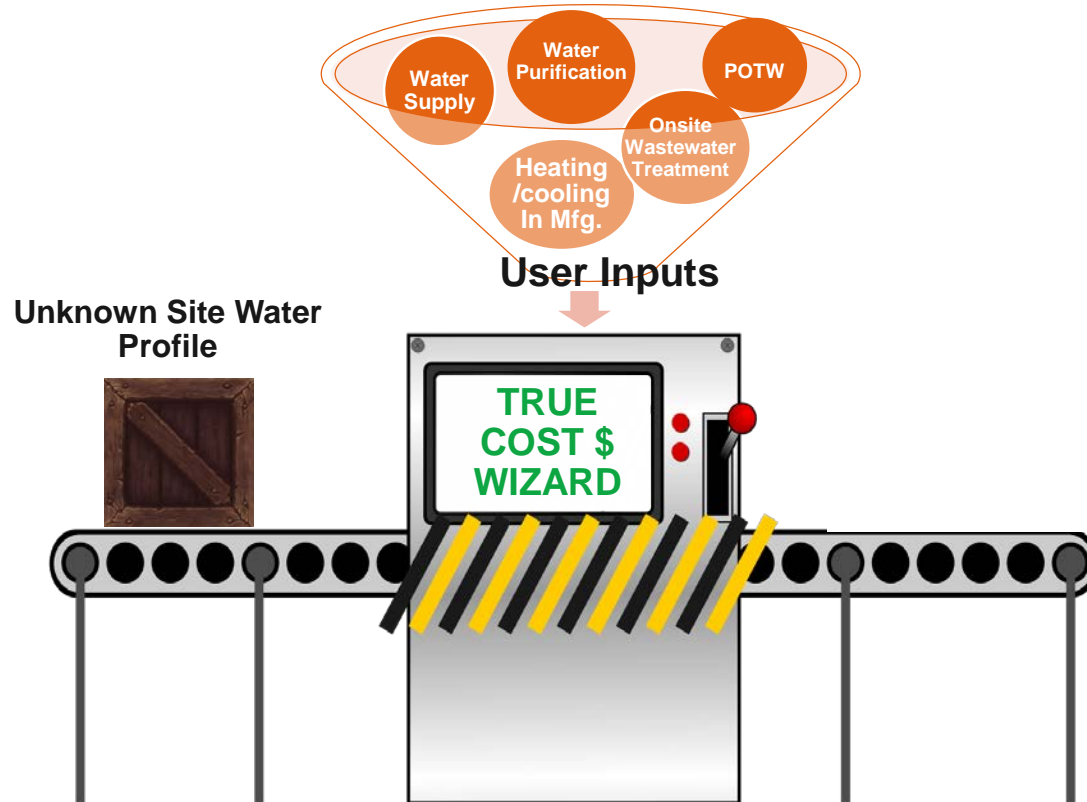
**Standard Opportunities:** Provides inventory of common industrial water conservation solutions



# Visualizing the True Cost Wizard and the ROI Wizard



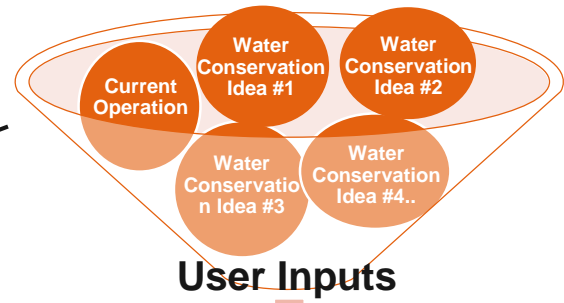
# Visualizing the True Cost Wizard



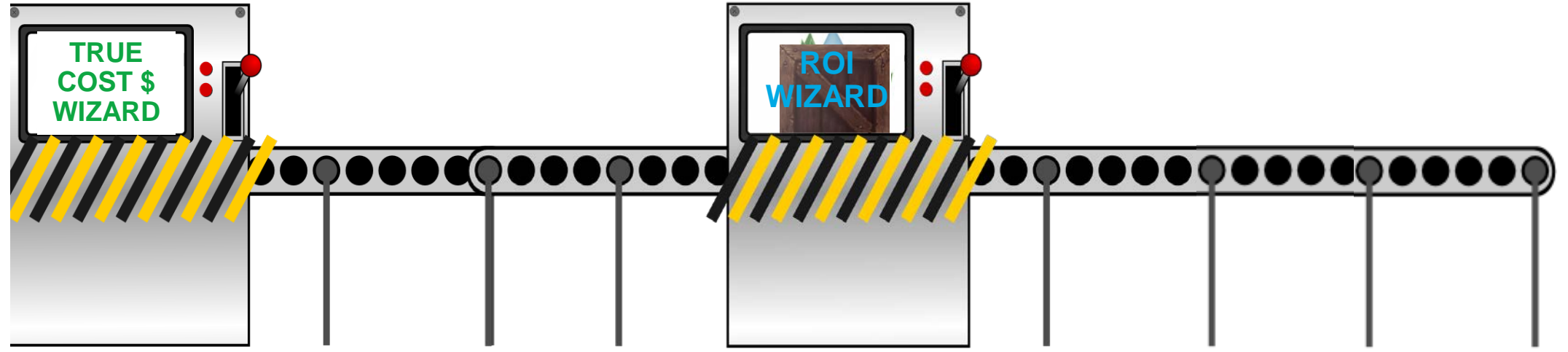
1. Provides perspective on total water-related costs for site
  - Can foster plant leadership's interest in water conservation
2. Standard site costs (e.g. water costs (\$/kgal)) serve as input for "ROI Wizard"

# Visualizing the ROI Wizard

- User provides inputs to define (a.) current situation as well as (b.) each water conservation idea (e.g. type of water used, volume used, destination of effluent from process, extent of heating/cooling, chemicals used in process, CapEx, etc.)



- For each Water Conservation Idea, tool will output:**
- Annual water & OpEx savings
  - Project CapEx
  - Return on Investment



# Wizard Mockups



# True Cost Wizard

This tool...

- Assists the user in creating a “**water profile**” for a specific site/facility
- It walks user through tabulating water usage/purification/discharge and associated costs
- User must complete the True Cost Wizard to access the ROI Wizard
- Is Gandalf approved

Mockups, Subject to change

**TRUECOSTWIZARD** Step 1 of 3

**Water Source(s)**


Enter water source data using the forms below. You may have more than one source of water for your facility. A green check next to the water source indicates your data was saved successfully.

Site Name: Facility A

Once you have completed all water sources, click [save and continue](#).

How would you like to account for volume?\*  Absolute  Percent of Total

[SAVE and CONTINUE](#) [SAVE for LATER](#)

- City Water
- Well Water
- Surface Water 
- External Purchased
- Other - External Reuse
- Other - Internal Reuse
- Other - User Defined

**Surface Water**

Elevational difference between water source and pump:  ft.

Average water pressure exiting pump:  psi

Electricity rate:  \$/kWh

Annual surface volume pumped:  mmgal/yr.

OPTIONAL

Overall efficiency of pump:  %  
(80% is typical)

Annual maintenance cost:  \$

[SAVE](#) [DELETE](#)

Mockups, Subject to change



## Welcome

**Welcome to your site summary page.** Click "[Add New Facility](#)" to enter the basic information for the site you want to evaluate. After site data and costing information is complete, you will be able to access the Report and ROI Wizard for evaluating specific cost-saving suggestions.

**Data Required for the tools:** If you would like printable lists of the data that will be required for tool use, click "[Download Data Collection List](#)".

ADD NEW FACILITY

DOWNLOAD DATA COLLECTION LIST

Show  entries

Facility Name	Date Created	Last Modified	Source Water	Water Purification	Wastewater	True Cost	Water Use	Actions
<a href="#">Facility A</a>	9/2/2018	9/4/2018	Complete	In Progress	No Data			Edit  Report  ROI  Delete
<a href="#">Facility B</a>	9/2/2018	9/4/2018	Complete	Complete	Complete	\$ Value	Value km or gallons	Edit  Report  ROI  Delete
<a href="#">Facility C</a>	8/15/2018	8/15/2018	In Progress	No Data	No Data			Edit  Report  ROI  Delete
<a href="#">Facility D</a>	8/12/2018	9/3/2018	In Progress	No Data	No Data			Edit  Report  ROI  Delete
<a href="#">Facility E</a>	8/10/2018	9/1/2018	In Progress	No Data	No Data			Edit  Report  ROI  Delete
<a href="#">Facility F</a>	7/27/2018	9/4/2018	In Progress	No Data	No Data			Edit  Report  ROI  Delete
<a href="#">Facility G</a>	7/22/2018	9/2/2018	Complete	Complete	In Progress			Edit  Report  ROI  Delete



Mockups, Subject to change

## True Cost Report

The True Cost Report below details all the information entered into the True Cost Wizard. If you wish to edit this data, return to the True Cost Wizard.

You may now proceed to the ROI Wizard to receive actionable suggestions for water optimization.

Edit Facility info and Data:

**TRUE COST WIZARD**

Launch ROI Wizard:

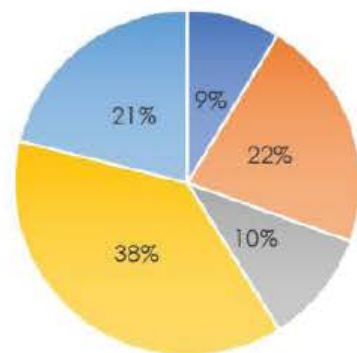
**ROI WIZARD**

CREATE PDF

Site Name: Facility A

Water Use: Value per annum

True Cost: \$Value /vol  
(weighted average)



Water Supply	\$ / annual
Water Purification	\$ / annual
Manufacturing	\$ / annual
Onsite WWTP	\$ / annual
Wastewater Management	\$ / annual

Manufacturing Use	
Heating	\$ Value
Cooling	\$ Value
Chemicals	\$ Value
<b>Totals</b>	<b>\$ Total</b>

Water Supply		
Water Source	Annual Use	Cost
Cooling	\$ Value	

Water Purification			
Purification System	Annual Production	Annual Fresh Water	Cost
System 1	Value	Value	\$ Value

Wastewater	
Purification System	Cost
POTW	\$ Value

## Tool 2: ROI Wizard

- Guides user through conceptualizing potential water conservation opportunities and their ROI, based on the true cost
- Provides streamlined approach to developing budgetary costs estimates to implement opportunities

## Final Comments

- The free, publicly available version of H2ROI is expected to be released some time in late 2019.
- To receive updates and notification on the tools functionality, availability, and release, please visit [www.H2ROI.com](http://www.H2ROI.com) to sign up.

# Discussion



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