We will start in a couple minutes.
Thank you.
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Developing the Digital Water Workforce of the Future

Andrew Sawyers, Director, U.S. EPA Office of Wastewater Management
Webinar Logistics

- This webinar is being recorded
- Participants will be in listen-only mode
- To submit a question, use the Q&A function
- Presenters will monitor these questions and respond to as many as possible during the “Q&A” session at the end of the presentation.

- Webinar slides and recording information will be sent out to all participants following the webinar
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Webinar ID: 160 437 6554
Opening Poll: Please indicate the sector that you work in:

- Utility
- State or Local Government
- Federal Government
- Consultant
- Academia/Educator
- Other

If you do not see a poll window pop up, please use the Chat function to type in your answer.
Water Sector Workforce at EPA

• Reminders:
  • Check out our website for resources and updates: https://www.epa.gov/sustainable-water-infrastructure/water-sector-workforce
    • Workforce Initiative
    • Past Workforce Webinars
    • Workforce Case Studies
  • Stay tuned for information on our next webinar. If you are registered for this webinar you are automatically on the email list for future webinars!
Developing the Digital Water Workforce of the Future

Jim Horne, Sustainable Utilities Program Manager, U.S. EPA Office of Wastewater Management
Webinar slides and recording will be sent to registrants within a week after the webinar.

Speakers:

Catherine Curtis, San Francisco Public Utilities Commission

Shane Zondor, City of Fort Worth, Texas
Digital Transformation and the Workforce

Shane Zondor
Workforce Initiatives Manager
Shane.zondor@fortworthtx.gov
(817) 392-7814

Revitalizing the way we attract, develop, retain and manage our people.
Begin with the End...Vision!
Where are we going?
Why do we need to go there?
What will it do for me and the utility?

Communicate
What's happening...when?
Transparency, timeliness and multi-modal

Make it Personal
What's in it for them?
What do they need stop, start and keep doing?
What conditions have to be met for this to happen?

Evolve
Job design, knowledge, skills, abilities, qualifications, workflows and processes
Co-create the future

Empower
Easiest path towards acceptance
Diversity in perception, approach and problem solving

Normalize Digital Transformation
Recognize the impact...normalize the approach
Encourage unconstrained BIG thinking
Recognize, value and reward digital transformation
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**From the Neuro-Leadership Institute (NLI)**

- **Threat (Away State)**
  - Anxious
  - Distracted
  - Stressed
  - Angered
  - Scared
  - Skeptical

- **Reward (Toward State)**
  - Positive
  - Open
  - Creative
  - Innovative
  - Resilient
  - More focused

- **Status**
  Our relative importance to others

- **Certainty**
  Ability to predict outcomes

- **Autonomy**
  Sense of control

- **Relatedness**
  In-group or out-group

- **Fairness**
  Perception of fair exchange

* From the Neuro-Leadership Institute (NLI)
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MOVING FROM AND MOVING TO WORKSHEET

Describe the change and write down specific results and actions that you are moving from and moving to.

Describe the Change

Moving From

Moving To

Results

Actions

KEEP, STOP, START WORKSHEET

List all of the things you need to keep doing, stop doing, and start doing in your new role.

Keep Doing

Start Doing

Stop Doing

What needs to happen to make this change in your role? Identify who or what is going to happen to the tasks you stop doing and identify any needs you may have in order to start doing new things.

What needs to occur to make this happen?
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From the Neuro-Leadership Institute

C urrent

ACKNOWLEDGE THE PAST

R eality

TAKE ADVANTAGE OF TODAY

E xplore

CREATE ALTERNATIVES

A lternatives

CO-CREATE THE FUTURE

T ap

CREATE ENERGY

E nergy

* From the Neuro-Leadership Institute

WE ARE CREATING THE FUTURE
Executive Team identified need for a concerted effort to better utilize data across all aspects of utility.

Data Management Working Group formed with key stakeholders to chart path forward.

Assessment enabled working group to create a compelling reason for change.

Working Group assessed data usage across utility to identify gap and establish vision.

Begin with the End...Vision!
Where are we going?
Why do we need to go there?
What will it do for me and the utility?
Three Phases of Change

**Phase I**
Plan

It’s all about the planning…from the strategic down to the tactical level.

- Creating the need for change
- Change vision & objectives
- Change Management Team
- Change Management Plan
- Communication Plan

**Phase II**
Prepare

Set the team up for success. Once plans are complete focus on empowerment and inclusion.

- Initiate Communication Plan
- Moving from & Moving to
- Stop, Keep, Start
- Measures

**Phase III**
Execute

Implement the plans...achieve the vision & objectives

- Make the change
- Implement and monitor the measures
- Be accountable
- Celebrate successes

Communicate

What’s happening…when? Transparency, timeliness and multi-modal
Communicate the approach as well as the impact

Diversify the way you communicate

Communicate often

Celebrate small wins and recognize participants

---

**Daybreak Dialogue**

**Sign up for breakfast with Director Chris Harder**

No computer access? Complete a paper form & give it to your supervisor.

- Second Friday of each month
- 8-9 a.m.
- Employees selected & supervised notified the prior Monday

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**MyH2O PRONTO Report**

**SPECIAL EDITION**

*Twitter:* MyH2Oreport *Facebook:* FortWorthWater

**October 8, 2021**

**Water IT gearing up for deep dives into MyH2O data**

By: Jessica Baker, MyH2O Report

The benefits of centrally-read water meters are vast and members of Water’s IT section are diving into selecting a taxonomy of information.

When the utility began exploring a changing the meters years ago, discussions also focused on what information we’d possibly glean from the water readings and how we would use that information, said Tim Oyarzun, water IT solutions manager.

At that time, figuring out how to go through collected data and find trends posed a list of quandaries. Technology, though, is a rapidly changing field and deemed the best IT solutions programs that ran without the need for data engineers on staff.

In addition, water IT is working with the company’s hydrant system, to find ways to make the customer experience seamless when they call the utility call center. For example, how do we go from the phone call to getting the issue addressed that brings in the divisions involved together?

---

**The Tap**

**INFRASTRUCTURE**

**OUR FUTURE READINESS**

---

*Agnes Barnes, water IT data administrator, and Hardy Sosa, water IT solutions manager, have started using MyH2O through a new software cloud solution. From a softer way to ensure an accurate and user-friendly platform to give greater access to management showed their use whatsoever and their success here.*
Shift the Focus

1. Vision
2. Planning
3. Detail
4. Problem
5. Drama

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We must understand...

Change is personal and reactions are instinctive...IT'S NORMAL

Use Cases / Exploration

Management Retreat

98% of water consumption charges due to outdoor watering

BILL IMPACT OF 2-WEEK WATERING PATTERN
Questions?

Begin with the End... Vision!
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What is BAYWORK?

A consortium of water/wastewater agencies and stakeholders with a shared commitment to workforce reliability
Develop qualified candidates for mission-critical jobs

Provide staff with the information they need to do quality work

Modify work to optimize use of staff available

Maximize investments through collaboration
Mission-Critical Job Categories

- Electrician
- Wastewater Treatment Operator
- Electronic Maintenance Technician/Instrument Technician
- Water Distribution Operator
- Engineer
- Water Treatment Operator
- Machinist/Mechanic
- Wastewater Collections Operator
BAYWORK’s Digital Worker Initiative

To help water/wastewater utilities everywhere make more effective use of digital tools
BAYWORK’s Digital Worker Initiative

2019
Research on utility use of digital tools
Workshop on Workforce Implications of Digital Tools – Workforce Convening

2020
Focus group meetings with utilities on challenges and lessons learned
Workshop on The Digital Worker – Utility Management Conference
Launched White Paper Initiative

2021
Published The Digital Worker: Effective Use of Digital Tools to Deliver Water Services
Webinar on The Digital Worker – BAYWORK Event
Presentations to World Bank, Training Buffet, SWIM Conference
BAYWORK Project Advisory Group

33 members from across the US and Canada

14 representatives of water/wastewater utilities, including operations staff and information technology experts (including 6 representatives from BAYWORK Signatories)

7 representatives of Professional Associations and Community Based Organizations

12 consultants
BAYWORK Project Advisory Group

<table>
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<th>BAYWORK</th>
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<td>IT Specialists</td>
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<tr>
<td>Water Research Foundation</td>
<td>Consultants</td>
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**Role of Advisors:**
- Provide written input on experiences, questions, and lessons learned in relation to topic areas
- Contribute to a discussion of these topic areas in an Advisory Group videoconference
- Review and provide feedback on a Draft White Paper on The Digital Worker
- Participate in Possible Next Steps Discussions
- Option to attend the BAYWORK Digital Worker Workshop
The Digital Worker: Using Digital Tools to Deliver Water Services

**Selection of Digital Tools**

**Organizational Culture**

Coordination with Existing Workflows and Systems

Information Technology Support

Human Resource Services

**Initial and Ongoing Staff Training**

**Developing Qualified Candidates for Digital Jobs**

Artificial Intelligence

Cybersecurity
Significant Challenges for the Water Industry

- Specialized market
- High consequences of failure
- Details matter
- Many failed implementations
Planning Challenges

- Does the utility have a clear idea of the problem it is trying to solve?
- Will the utility invest the time and resources to obtain sufficient input from staff?
- Will the utility analyze the capabilities of its organization as carefully as the capabilities of the tool?
Planning Challenges

• Will the utility map the impacts and effects of implementing the new tools?

• Will the utility identify and commit to providing the resources required for the organization to make effective use of the new tools?

“It is common for utilities to discover workflows that will be impacted when they are already in the middle of a software implementation project.”
Lessons Learned

• Define the problems you are trying to solve

• Seek input from across the organization

• Assess the preparedness of staff to use new tools

• Implement a structured process for mapping what already exists and consider the potential impact of any new digital tool

• Create a realistic business case that considers not only the cost of the tool, but the investments that will be needed for the organization to fully utilize the tool
Preparedness Checklist/How To Guide to help utilities evaluate their digital preparedness (e.g., ability to analyze current work processes and potential modifications, staff digital and maintenance skills, and organizational culture)

Mapping what digital tools already exists
Case Study – Ross Valley Sanitary District (RVSD)

RVSD – 34 Employees
196 Miles of Pipe
19 Pump and Lift Stations

Mobile Apps for Operators

- Operators identified functionality needed
- Ops collaborated with Patrick – Business System Analyst
- Patrick researched options – brought back to operators
- Operators worked with Patrick to develop custom apps to use in field – tested apps in field – Manager oversight of project.
- Apps modified by Patrick – saved about 20 hours per week time.
- Operations skillset – data entry, analyzing functionality needed, learning apps, giving feedback, and being a team player.
- Total buy in as operators collaborated on solution. Very proud of result.
Creating Dashboards – Integrating several systems on one platform

**Need**: right person, right skillset, understanding technology, coding and research, being a team player

**Result** – Easy for manager to understand what is happening from dashboard instead of accessing separate systems.

Patrick – Business Systems Analyst – No IT Department

- **Prioritize Live Dashboards**
  - CMMS/AMS
  - KPI’s
  - Fleet Management
  - SmartCovers
  - SCADA
  - Weather
  - Vehicle GPS
  - Tidal
  - Creek Levels
  - Social Media
Organizational Culture

Challenges

• In situations where organizational culture does not support innovation, continuous learning, or accountability, successful implementation of new digital tools can be difficult.

• Employees are often concerned that digital tools will replace them and/or radically modify the way they will need to perform their work.
Organizational Culture

Lessons Learned

• Organizational cultures conducive to innovation have open communication, are supportive, respectful, and exhibit both a willingness to listen and a willingness to learn.

• Digital tools don’t solve problems with organizational culture; only people can.

“The greatest factor is trust--of management, vendors, consultants, colleagues, and trust in their own abilities.”
Possible Next Steps
Workshops, webinars, and publications (with case studies showing strategies for change) could be provided on how organizational culture impacts the ability of organizations to make effective use of digital tools.
Initial and Ongoing Training

Challenges

• Training on use of digital tools is not a one-time or one-size-fits-all effort.

• Current training programs inadequate and out of date. Utilities under-estimate the training time and investment required.

• Internal training capacity is often limited.
Lessons Learned

• Some staff members will pick up how to use the tool much more quickly than others. Utilities should define power users who can serve as trainers, guides, and mentors for their peers.

• Research is needed on how best-in-class utilities and other industries provide staff training more effectively (e.g., through on-line access to training materials, digital twins, video-game-like learning tools, and mentoring)

• Address training barriers (e.g., union agreements and organizational culture)
Possible Next Steps

• Provide more guidance to utilities on the digital and maintenance skills required in order to use and maintain software, hardware, and data collection instruments associated with different digital tools.

• Conduct competency analysis of mission-critical job to identify the digital tools staff must be able to use in order to perform their work effectively.

• Provide more assistance to utilities in development of training programs required, partner with educational institutions.
• What type of digital tools do workers in different job categories need to be able to use?
• What core reading, math, science, and analytical skills do they need in order to use the tools?
• What kind of training does the utility need to be prepared to offer?
• What training is available in the community on both core skills and tool-specific information?
Candidate Development

Challenge

• Common perceptions of the knowledge and skills required by mission-critical workers are out-of-date and do not reflect the need for digital and technical maintenance skills.

• Educational resources in the community (unions, community colleges, and other training programs) may not provide training on the skills needed.
Lesson Learned

Utilities should support technical training by providing on-site learning opportunities like internships and apprenticeships.
BAYWORK is developing regional apprenticeship programs for the water sector, beginning with an Instrument Tech apprenticeship in January 2022.

Combining classroom and on-the-job training ensures that new candidates have the opportunity to learn the full range of digital skills needed in their trade.
Possible Next Steps

• Provide support to utilities in upgrading job descriptions and salaries

• Strengthen ability of utilities to help educational Institutions prepare qualified candidates

• Install internship programs so people in community college water programs can see the digital tools and learn how utilities utilize them

• Identify utilities with apprenticeship programs to learn from each other
Next Steps for The Digital Worker Initiative

Advisory Members Participated in two sessions to discuss possible next steps that others could use as a resource.

The product of those discussions is an attachment that has a list of ideas:

- National Level Collaboration
- Regional Level Collaboration
- Agency Level Collaboration

Effective use of digital tools is a major challenge and responsibility of the water industry. BAYWORK hopes that the ideas offered by Advisory Group members will contribute to a broad expansion of the level of effort and attention that the water industry brings to this work.

Digital Connection Group – Sample of what Shane and I did as a next step.
Contact and Questions

Catherine Curtis
BAYWORK Board
San Francisco Public Utilities,
Workforce Reliability
San Francisco, CA
ccurtis@sfwater.org
Webinar slides and recording will be sent to registrants within a week after the webinar.
Closing Poll #1

On a scale of 1-10, with 10 being the best score and 1 being the worst, how would you rate today’s webinar?

If you do not see a poll window pop up, please use the Chat function to type in your answer.
Thank you!
Finally, what other topics would you like to see covered in subsequent webinars?

*Please type a brief response in the chat box.*