



Date Posted: Tuesday, May 16, 2023

REQUEST FOR PROPOSALS (RFP)

Preparing the Water Sector to Embrace Technology: Skillsets and Enterprise Management Approaches for the Digital Age (RFP 5178)

Due Date: Proposals must be received by **3:00 pm Mountain Time on Tuesday, July 25, 2023**

WRF Project Contact: Stephanie Fevig, sfevig@waterrf.org

Project Sponsors

This project is funded by The Water Research Foundation (WRF) as part of WRF's Research Priority Program.

Project Objectives

- Introduce new skillsets, training opportunities, processes, procedures, or methodologies that would enable the digital transformation of the water sector and its workforce.
- Develop practical guidance and/or frameworks to help a diverse set of utility sizes (large, medium, and small) with specific business needs navigate the implementation of digital transformation.

Budget

Applicants may request up to \$150,000 in WRF funds for this project.

Background and Project Rationale

To address issues and barriers to digital transformation across their enterprises, utilities need to understand what functions and roles will be required moving forward and adapt their workforces and cultures accordingly. They need to implement new procurement strategies/language, management approaches, recruiting and retention strategies, and best-in-class training programs that support digital transformation based on short- and long-term implementation strategies.

Desired outcomes:

- Demonstrate the commitment of the water sector to the adoption of digital tools by modernizing the processes necessary to procure and leverage digital tools and technology.
- Identify key function/functional areas, skillsets, training, development strategies, and hiring approaches needed to support digital technology and digital outputs to optimize utility processes and decision making.
- Encourage partnering with consultants/vendors while still procuring and championing efforts within the utility to enable affordable talent solutions.
- Build confidence for the people and organizations that need digital solutions to solve the complex challenges they are facing.

- Understand utilities' digital transformation levels of maturity to help utilities identify a list of short- and long-term actions and pass the test of time.

Research Approach

For the proposing team to be successful, a strong and diverse team of partners including workforce organizations, utilities, federal agencies, academics, organizations outside the water sector, technology vendors, etc., is strongly encouraged. Equal consideration from large, medium, and small utilities is recommended. The team will be tasked with developing a framework and matrices focusing on the business needs, including functions, roles, and maturity levels for varying sizes of utilities.

The proposal must include the following elements in the research approach:

- Clarity around digital transformation definition and potential levels of maturity, building upon recent work (per the references section below). This should leverage and complement similar WRF studies, including projects 4663, 5039, and 4797.
- Explore the evolving and emerging digital skills required to support the water sector, by business function within the utility, including how traditional "IT" paradigms are changing (e.g., shadow IT and/or low-code solutions will break apart the traditional IT structure).
- Research ideas to attract, retain, and/or outsource the required talent. This should include research on relevant best practices to retain and engage a digital workforce, including recommendations for managing hybrid teams.
- List general skillsets and positions that have equivalent salaries needed to attract the talent to the water sector, particularly within utilities, to champion digital transformation.
- Describe service delivery models available to the sector, exploring their applicability, where appropriate, to utilities of all sizes.
- Include change management needs and approaches, including specific human resource procedures to attract skilled staff.
- Develop or harness available training resources/categories (online training, webinars, conferences, etc.) and approaches to support skillsets needed (upskilling, on the job training by doing, etc.).

Expected Deliverables

The goal of this project is to provide a practical framework to support utilities of all sizes in addressing their organizational and staffing needs in a digital era. The expected deliverable(s) should not be trendy or focused on a singular technology, but rather should account for the skillsets associated with the technology. The outputs of this project are left up to the proposer to allow for creativity, flexibility, and originality, and the proposals should include specificity around each deliverable. Expected deliverables include:

- Limited literature review on the digital transformation definition and potential levels of maturity (including references and links).
- Level of maturity framework that assists small, medium, and large utilities in understanding their digital transformation plans and future actions.
 - Digital functions framework with corresponding roles and responsibilities, and options regarding who does what and where.
 - Change management strategy and guidance for wider adoption.
 - Relevant business cases with associated benefits to generate support with key stakeholders.
 - Criteria to build a case around technologies, processes, and people.
- Reproducible case studies that include a road map, with associated benefits and business cases, for implementing digital transformation in small, medium, and large utilities.

Communication Plan

Please review WRF's *Project Deliverable Guidelines* for information on preparing a communication plan. The guidelines are available at <https://www.waterrf.org/project-report-guidelines#project-deliverable-guidelines>. Conference presentations, webcasts, peer review publication submissions, and other forms of project information dissemination are typically encouraged.

Project Duration

The anticipated period of performance for this project is 18 months from the contract start date.

References and Resources

The following list includes examples of research reports, tools, and other resources that may be helpful to proposers. It is not intended to be comprehensive, nor is it a required list for consideration. For WRF project 4797, currently in progress, a draft report can be requested from the Research Program Manager if available.

- Oxenford, J., D. Hughes, S. Karasik, and Z. Bukhari. 2019. *Building Workforce Skills for Intelligent Water Operations*. Project 4663. Denver, CO: The Water Research Foundation.
- Thompson, K., and C. Macintosh. 2020. *Intelligent Water Networks Summit*. Project 4714. Denver, CO: The Water Research Foundation.
- Hughes, D. M., R. Goeltz, and Y. Liu. 2017. *Defining Attributes and Demonstrating Benefits of Intelligent Water Systems*. Project 4614. Denver, CO: Water Research Foundation.
- Harris, D. W., E. Azagra, R. van Buskirk, and C. Williams. 2013. *High-Performing Information Systems Aligned with Utility Business Strategy*. Project 4316. Denver, CO: Water Research Foundation.
- Lehman, G., P. Chandrasekeran, K. Johnson, M. Loria, C. Cherchi, and Z. Vitasovic. 2022. *Definition, Framework, and Maturity Assessment for Intelligent Water Systems*. Project 5039. Denver, CO: The Water Research Foundation.
- Thompson, K. Forthcoming. *Designing Sensor Networks and Locations on an Urban Sewershed Scale with Big Data Management and Analytics*. Project 4797. Denver, CO: The Water Research Foundation.

Proposal Evaluation Criteria

The following criteria will be used to evaluate proposals:

- Understanding the Problem and Responsiveness to RFP (maximum 20 points)
- Technical and Scientific Merit (maximum 30 points)
- Qualifications, Capabilities, and Management (maximum 15 points)
- Communication Plan, Deliverables, and Applicability (maximum 20 points)
- Budget and Schedule (maximum 15 points)

Proposal Preparation Instructions

Proposals submitted in response to this RFP must be prepared in accordance with the WRF document *Guidelines for Research Priority Program Proposals*. The current version of these guidelines is available at <https://www.waterrf.org/proposal-guidelines>, along with *Instructions for Budget Preparation*. The guidelines contain instructions for the technical aspects, financial statements, indirect costs, and administrative requirements that the applicant must follow when preparing a proposal.

Proposals that include the production of web- or software-based tools, such as websites, Excel

spreadsheets, Access databases, etc., must follow the criteria outlined for web tools presented in the *Web Tool Criteria and Feasibility Study for The Water Research Foundation Project Deliverables* at <https://www.waterrf.org/project-report-guidelines#webtool-criteria>.

Eligibility to Submit Proposals

Proposals will be accepted from domestic or international entities, including educational institutions, research organizations, governmental agencies, and consultants or other for-profit entities.

WRF's Board of Directors has established a Timeliness Policy that addresses researcher adherence to the project schedule. The policy can be reviewed at <https://www.waterrf.org/policies>. Researchers who are late on any ongoing WRF-sponsored studies without approved no-cost extensions are not eligible to be named participants in any proposals. Direct any questions about eligibility to the WRF project contact listed at the top of this RFP.

Administrative, Cost, and Audit Standards

WRF's research program standards for administrative, cost, and audit compliance are based upon, and comply with, Office of Management and Budget (OMB) Uniform Grants Guidance (UGG), 2 CFR Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, and 48 CFR 31.2 Contracts with Commercial Organizations. These standards are referenced in WRF's *Guidelines for Research Priority Program Proposals* and include specific guidelines outlining the requirements for indirect cost negotiation agreements, financial statements, and the Statement of Direct Labor, Fringe Benefits, and General Overhead. Inclusion of indirect costs must be substantiated by a negotiated agreement or appropriate Statement of Direct Labor, Fringe Benefits, and General Overhead. Well in advance of preparing the proposal, your research and financial staff should review the detailed instructions included in WRF's *Guidelines for Research Priority Program Proposals* and consult the *Instructions for Budget Preparation*, both available at <https://www.waterrf.org/proposal-guidelines>.

Budget and Funding Information

The maximum funding available from WRF for this project is \$150,000. The applicant must contribute additional resources equivalent to at least 33 percent of the project award. For example, if an applicant requests \$100,000 from WRF, an additional \$33,000 or more must be contributed by the applicant. Acceptable forms of applicant contribution include cost-share, applicant in-kind, or third-party in-kind that comply with 2 CFR Part 200.306 cost sharing or matching. The applicant may elect to contribute more than 33 percent to the project, but the maximum WRF funding available remains fixed at \$150,000. **Proposals that do not meet the minimum 33 percent of the project award will not be accepted.** Consult the *Instructions for Budget Preparation* available at <https://www.waterrf.org/proposal-guidelines#RPP-instr-budget-prep> for more information and definitions of terms.

Period of Performance

It is WRF's policy to negotiate a reasonable schedule for each research project. Once this schedule is established, WRF and its sub-recipients have a contractual obligation to adhere to the agreed-upon schedule. Under WRF's No-Cost Extension Policy, a project schedule cannot be extended more than nine months beyond the original contracted schedule, regardless of the number of extensions granted. The policy can be reviewed at <https://www.waterrf.org/policies>.

Utility and Organization Participation

WRF encourages participation from water utilities and other organizations in WRF research. Participation can occur in a variety of ways, including direct participation, in-kind contributions, or in-

kind services. To facilitate their participation, WRF has provided contact information, on the last page of this RFP, of utilities and other organizations that have indicated an interest in this research. Proposers are responsible for negotiating utility and organization participation in their particular proposals. The listed utilities and organizations are under no obligation to participate, and the proposer is not obligated to include them in their particular proposal.

Application Procedure and Deadline

Proposals are accepted exclusively online in PDF format, and they must be fully submitted before 3:00 pm Mountain Time on Tuesday, July 25, 2023.

The online proposal system allows submission of your documents until the date and time stated in this RFP. To avoid the risk of the system closing before you press the submit button, do not wait until the last minute to complete your submission. Submit your proposal at <https://forms.waterrf.org/cbruck/-rfp-5178>.

Questions to clarify the intent of this RFP and WRF's administrative, cost, and financial requirements may be addressed to the WRF project contact, Stephanie Fevig at (303) 347-6103 or sfevig@waterrf.org. Questions related to proposal submittal through the online system may be addressed to Caroline Bruck at (303) 347-6118 or cbruck@waterrf.org.

5178 Utility and Organization Participants

The following utilities have indicated an interest in possible participation in this research. This information is updated within 24 business hours after a utility or an interested organization submits a volunteer form, and this RFP will be re-posted with the new information. **(Depending upon your settings, you may need to click refresh on your browser to load the latest file.)**

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