Internet of Water Findings and Principles

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The [Internet of Water Report](#) outlines three key findings and underlying principles. We briefly summarize those principles here.

Finding 1: The value of open, shared, and integrated water data has not been widely quantified, documented, or communicated

There needs to be clear articulation of the value of water data to address water management challenges in order for public agencies and organizations to be willing to invest in making public water data more discoverable, accessible, and usable. Articulating the value of data sharing to both data producers and users is necessary for there to be growing investment in, and acceptance of, water data sharing.

Principle

🔹 A user-based approach will maximize the value of water data.
- Prioritize data that can be mapped to a specific end use, or impact, to maximize the value of the data (Figure 1).
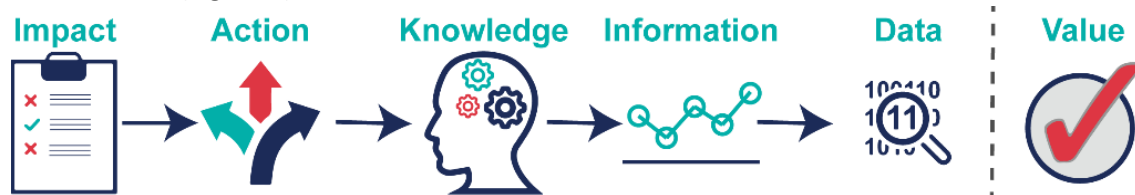

Figure 1: The value of data is more clearly articulated when mapped to specific impacts.

Finding 2: Making existing public water data open is a priority

Making public water data discoverable, accessible, and usable (open) is the most necessary step in using water data for sustainability. Without open data we cannot integrate water data to answer fundamental questions about our water systems. Many follow-on activities, from private sector analytics to inclusion of new types of data such as crowd-sourced or citizen science data, will be predicated on the availability of open water data. Thus, the focus is simply to "just get the data out there." Many of these principles are in-line with the [FAIR principles](#) (make data **F**indable, **A**ccessible, **I**nteroperable, and **R**eusable) (Figure 2).

Principles

- All public water data needed to characterize and forecast water budgets should be open by default, discoverable, and digitally, accessible.
- Water data standards to promote interoperability, efficiency, and user-flexibility will evolve in response to user demand.
- Data producers are responsible for sharing data of known quality and documenting essential metadata; end users bear final responsibility for determining whether the data are fit-for-purpose.
- Data should be shared as openly as possible, consistent with the principle that any security and privacy risks associated with sharing need to be balanced with potential benefits.

Findable

Accessible

Interoperable

Reusable

Figure 2: FAIR principles

Finding 3: The appropriate architecture for an "Internet of Water" is a federation of data producers, hubs, and users

Making public water data open does not unleash the power of data; rather it is in the integration of data, the inter-accessibility of data, and the iterative process between end-users and data producers that are the necessary components of making data powerful. The Internet of Water (IOW) envisions sharing open public water data are shared through a network of communities (Figure 3). While there is some transferability to private water data – an eventual goal of the IOW – the present focus is on public water data. Each component of the Internet of Water (producers, hubs, and users) have different roles and responsibilities.
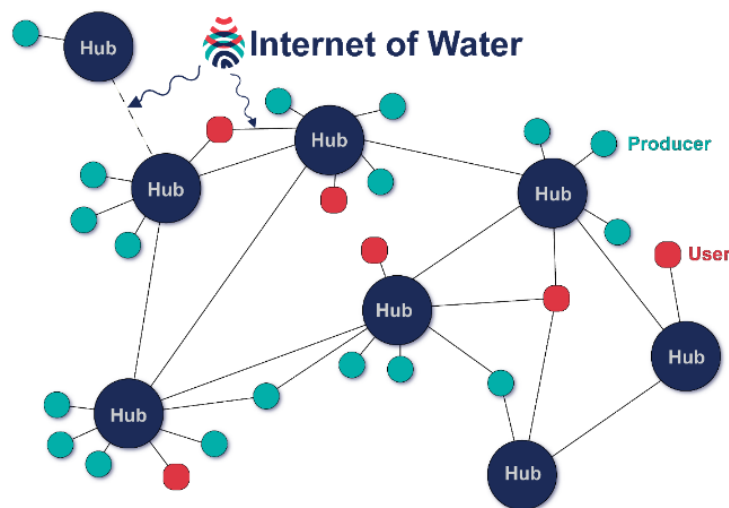

Figure 3: Components of an Internet of Water

Principles

- Control and responsibility over data is best maintained by data producer.
- A federated system of public water data hubs provides scalability and financial stability to better meet the diverse needs of data users.
- A backbone organization should link hubs and facilitate governance of the system, but not govern the production or use of data.

For more information:

Aspen Institute. 2017. Internet of Water: Sharing and Integrating Water Data for Sustainability