



The Texas Water Data Hub: Starting to Trot, Looking to Canter

Sam Marie Hermitte • June 2023

When last we met, back in September 2021, out in the [Internet of Water blogosphere](#), the Texas Water Data Hub was truly in its infancy. We were using our research with data users and producers to design an interface that would meet our stakeholders' needs. We were articulating our project's goals and looking to our community for input on which datasets to prioritize. We were crafting the backend architecture.

We were in the stage of building a hub when answering the most frequently received questions—*What is a data hub? What does it look like? Will I be able to see all the water data I'm interested in as soon as it's up and running?*—was difficult. We were still in the stable, looking for the gate to be unlatched so we could begin to show ourselves to the water world and knowing that once we had something to show, conversations about the Hub would get easier.

“The Texas Water Data Hub is a fantastic tool that provides connection to water data in its native format. The Texas Commission on Environmental Quality is excited to partner with the Texas Water Development Board to make water data available across the Texas water landscape.”

— Kim Nygren, Deputy Director, Water Availability Division, Texas Commission on Environmental Quality

OVERCOMING OBSTACLES TO DATA HUB DEVELOPMENT

Fast forward over a year and a half, and the beta version of the [Texas Water Data Hub](#) is out of the barn! Was it a smooth process to get to where we are? Well, no, not exactly. We've had a few missteps as log fences and other obstacles have popped up along our path, but we learn from those slips and get back on the trail each time. *What kinds of log fences, you ask...*

- **Not having a project manager in place from the get-go.** While our small-but-mighty team has passionately supported and advanced the project from its outset, not having a specific person dedicated to coordinating design, development, and data efforts proved challenging at turns. Now, with one barn manager making sure we're all on the same page, the full team operates more effectively.
- **Not pulling in a programmer perspective early enough.** The reality is, we all have to deal with our own realities. Our project's reality was that we couldn't build out our design, data, and development teams at the same time, so we started with data and design. Well, your shot at the triple crown would benefit from all three perspectives from the outset.
- **Hiring and turnover.** And I'm not talking about the tasty kind of turnover made from apples. It likely comes as no surprise that it's not always easy to hire and retain talented technical developers at state salary rates. Well, factor in being in a techie metropolis like Austin, Texas, and that challenge is significantly magnified.

WHAT WE'VE LEARNED BUILDING THE TEXAS WATER DATA HUB

So, what have we learned from jumping these obstacles and pressing on? What sugar cubes are worth sharing with others who may be interested in trotting this same path?

- **Establish a project workplan first.** This nugget clearly ties to that log fence about not having a project manager out of the gate. Scoping out milestones, projecting timelines, identifying the project's resource and budget needs, and establishing processes for project work all provide clarity and direction for the project team. The sooner you can effectively shape how the project will be executed, the sooner you're off to the races.
- **Team alignment is central to project success.** What are the fundamental truths of your project that all team members need to agree upon to achieve success? For us, it's quality over quantity, progress over perfection, and adding the features that will bring the most value to most of our stakeholders.



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- A robust foundation of user research provides strong project footing, allowing for confidence and flexibility in decision-making. As challenges arise and the team has to adapt, the understanding gained from user research serves as a guide. When we encounter constraints that require redesigns or cause us to reevaluate our approach, time and time again we turn to that foundational research that underpins our Hub. However, we don't stop there. When developing new features, we circle back to our user base, conducting additional user testing and growing the research base that we depend on.

- Clarity around decision-making moves the project forward. Knowing who the right folks are for decisions large and small allows for progress, as does understanding when feedback from others is required. Because building a hub is a multi-disciplinary effort, leadership input from multiple programs is typically required at key project milestones; however, the project's subject matter experts drive day-to-day progress and need to be enabled to do so.

- Diverse expertise and meaningful collaboration fuel the project. Building a hub requires skill in design, data, and development, as well as governance, policy making, communication, grant writing...and a whole slew of other things! The folks with expertise in each area serve as advocates for that aspect of the project and ensure its effective development while also keeping team members working in other areas informed. Without continual advances in each area, the Hub would not be successful.

“By connecting people with reliable and up-to-date data, we empower decision-makers to take proactive measures, mitigate risks, and make informed choices. These initiatives underscore the value of partnerships and the shared responsibility we have in leveraging data for a resilient water future.”

— Russell Blessing, Associate Research Scientist,
Institute for a Disaster Resilient Texas

A WATER DATA HUB BUILT ON POWERFUL PARTNERSHIPS

While all of the above points hold true throughout the process of building a Hub from scratch, there are also some specific things that we've been reminded of and have newly learned since stepping out into the pasture with the beta launch of the Hub earlier this year. Most importantly, *the success of the Texas Water Data Hub*

is contingent on partnerships. We can build the best darn backend and slickest interface around, but if we don't have willing partners who want to jump into this thing with us, the project will just be collecting whatever the internet equivalent of mothballs is. We don't have legislation compelling anyone to jump onto the track with us, so we are 100 percent driven by voluntary partnerships. Yup. You read that right. One hundred percent.

Thankfully, we've had great support from willing partners since before the beginning. Before the beginning? Well, yes. The [Cynthia and George Mitchell Foundation](#) started convening stakeholders to discuss challenges in the Texas water data space before a data hub for the state had even been conceived. Since then, philanthropy has continued to play a vital role in the development of the project, with the Mitchell Foundation, [Lyda Hill Philanthropies](#), and the [Water Table](#) all continuing to support the project, most notably when it wasn't yet visible to the public. This support from the philanthropic sector during the project's infancy was essential to its launch and early growth.

Now, as we move into growing the Hub and work toward full launch in late 2024, we know that buy-in and participation from an early group of data producers is key to the project's success. These folks test the Hub's functionality and offer feedback, critical components of the ongoing user research that has guided our efforts throughout, and—most importantly—they contribute their data and applications to the project. [The Texas Commission on Environmental Quality](#), [Texas General Land Office](#), [Texas Water Foundation](#), [San Antonio River Authority](#), and the [U.S. Geological Survey](#) are a handful of Texas' early adopters who are setting the example for others in the water space.

“TWDB’s Texas Water Data Hub is a significant step towards democratizing access to data crucial to anyone thinking about water in Texas, and we hope it will continue to offer meaningful partnership opportunities for others like us working in this space.”

— Sarah Schlessinger, CEO, Texas Water Foundation

SCALING THE TEXAS WATER DATA HUB

We also now understand that getting the buy-in and feedback we need is a slow and time-intensive process. Often, the data producers themselves may be conceptually onboard with contributing data to the Hub, but these individuals need

to get approval from their management chains in order to do so. New questions frequently arise during this process, particularly given that the Hub is a relatively novel concept in Texas. Not surprisingly, the back and forth with folks who already have full-time jobs and are doing this work in addition to their regular duties takes time. Thus, while we're chomping at the bit to build out the Hub quickly, we realize that doing so won't happen fast and requires patience.

At the same time that we're developing external partnerships to grow the Hub we're also developing the application itself. Turns out this is no simple task, and often times, even the elements of the work that we think will be simple turn out to be complex. We're using [CKAN](#), an out-of-the-box platform that, understandably, was not designed based on the needs of Texas water data stakeholders. This means that our developers are in the nether space between the platform itself and our users' needs, working to build extensions and customizations that will meet the project's goals but doing so within the constraints of the platform. This development work takes time and requires flexibility, as technical roadblocks are not uncommon.

WHAT'S NEXT FOR THE TEXAS WATER DATA HUB?

So, what's next? At this point, the Texas Water Data Hub is trotting along nicely. We're working to grow our founding group of data producers, building out enhancements, and hoping to find funding to support a communications and outreach plan that could take us up to a canter. We're also building on what we've learned so far and realizing efficiencies in scheduling, task execution, and feature work prioritization. Additionally, we plan to build on the special sauce that has driven the project thus far: user research. By periodically and holistically reviewing user feedback and soliciting additional input when needed, we will look at the project from new and different perspectives and consider this input in the context of the project's mission and vision. Lastly, we're also planning some intermittent downtime that will allow us to reflect on the project and let what is transpiring in the Hub space guide our future work. In other words, we're going to let our horse sense guide us while our mission continues to motivate us.

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