Integrating and Centralizing Data Management in an Autonomous Culture

2023 International Conference on Environmental Data Management

September 12, 2023

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W&C Data Management Initiative Overview

Initiative kicked off in mid-2020, with the goal of strengthening data management processes and capabilities within the remediation practice
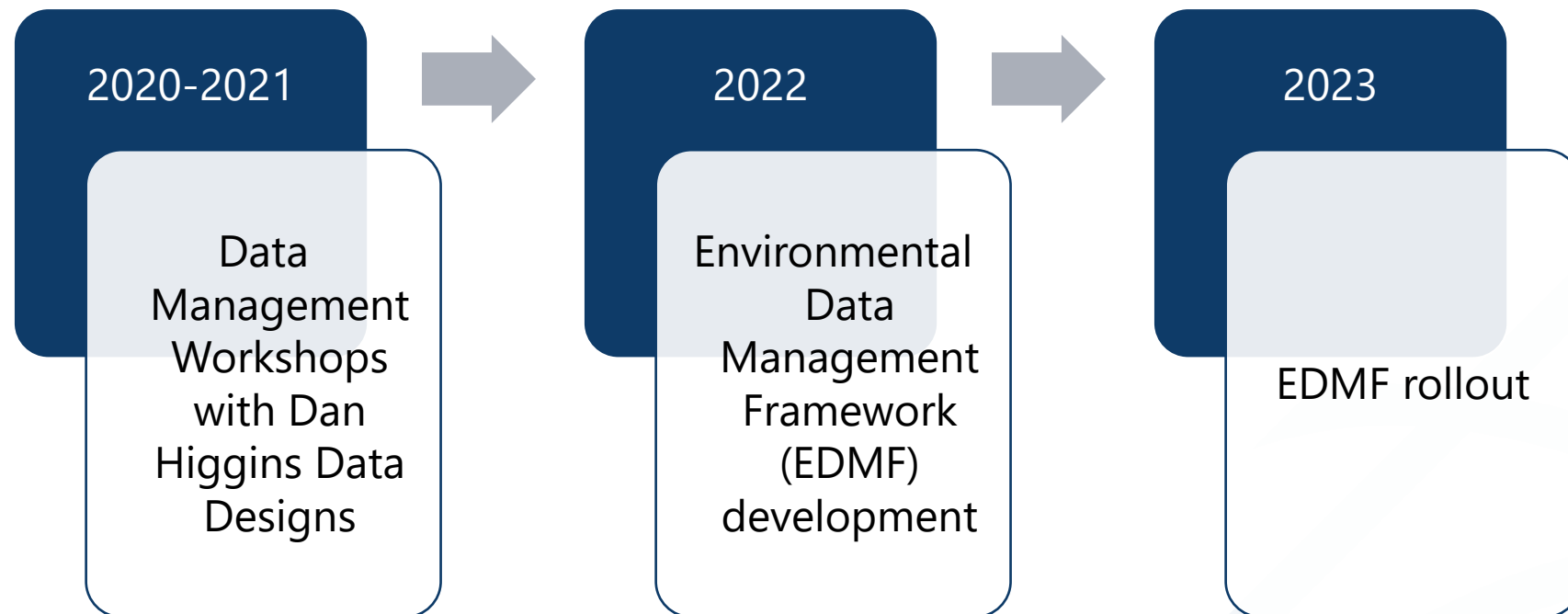
2020-2021

Data Management Workshops with Dan Higgins Data Designs

ITRC Tip – Identify key stakeholders and their goals at the beginning of data management planning

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W&C Data Management Initiative Overview

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2020-2021

Data Management Workshops with Dan Higgins Data Designs

2022

Environmental Data Management Framework (EDMF) development

2023

EDMF rollout

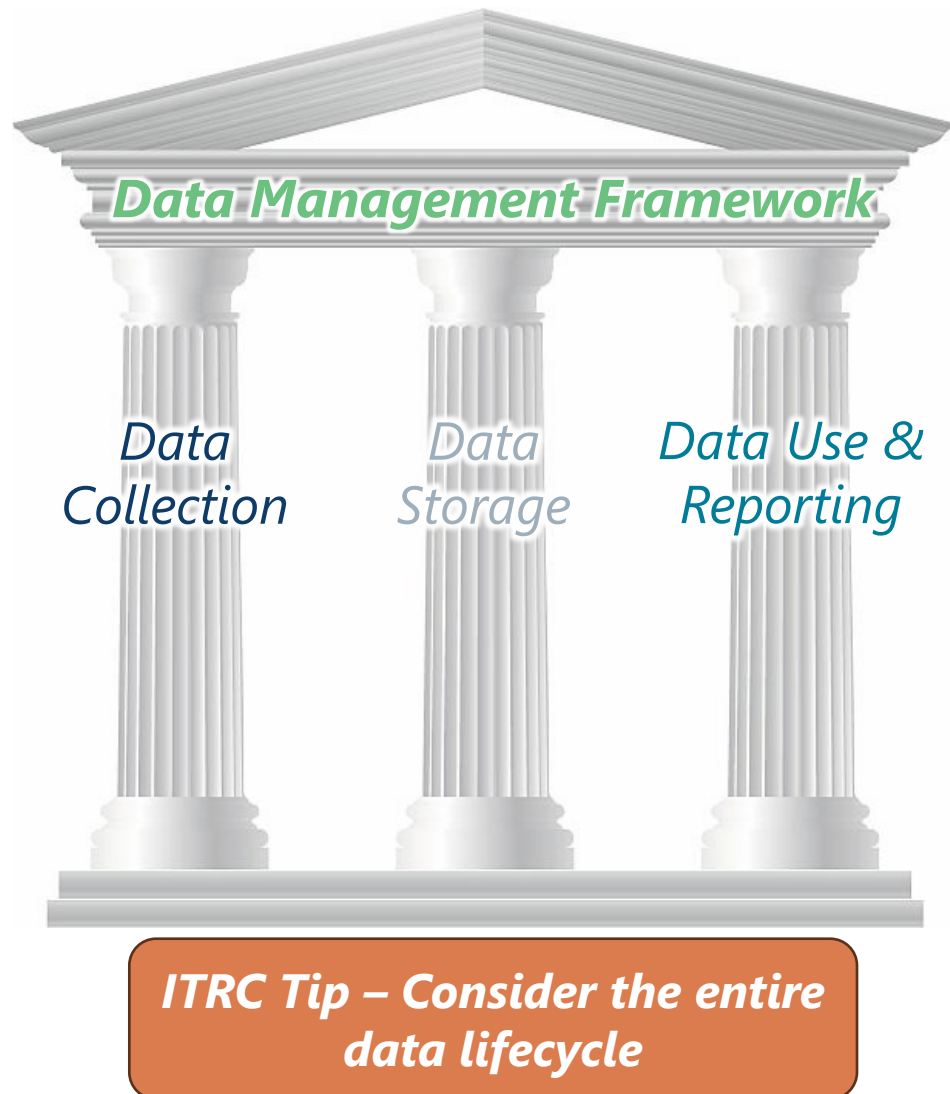Woodard & Curran

Purpose of the EDMF

Advanced analytics requires effective data management

EDMF is key foundational component of company's data analytics and data science strategy

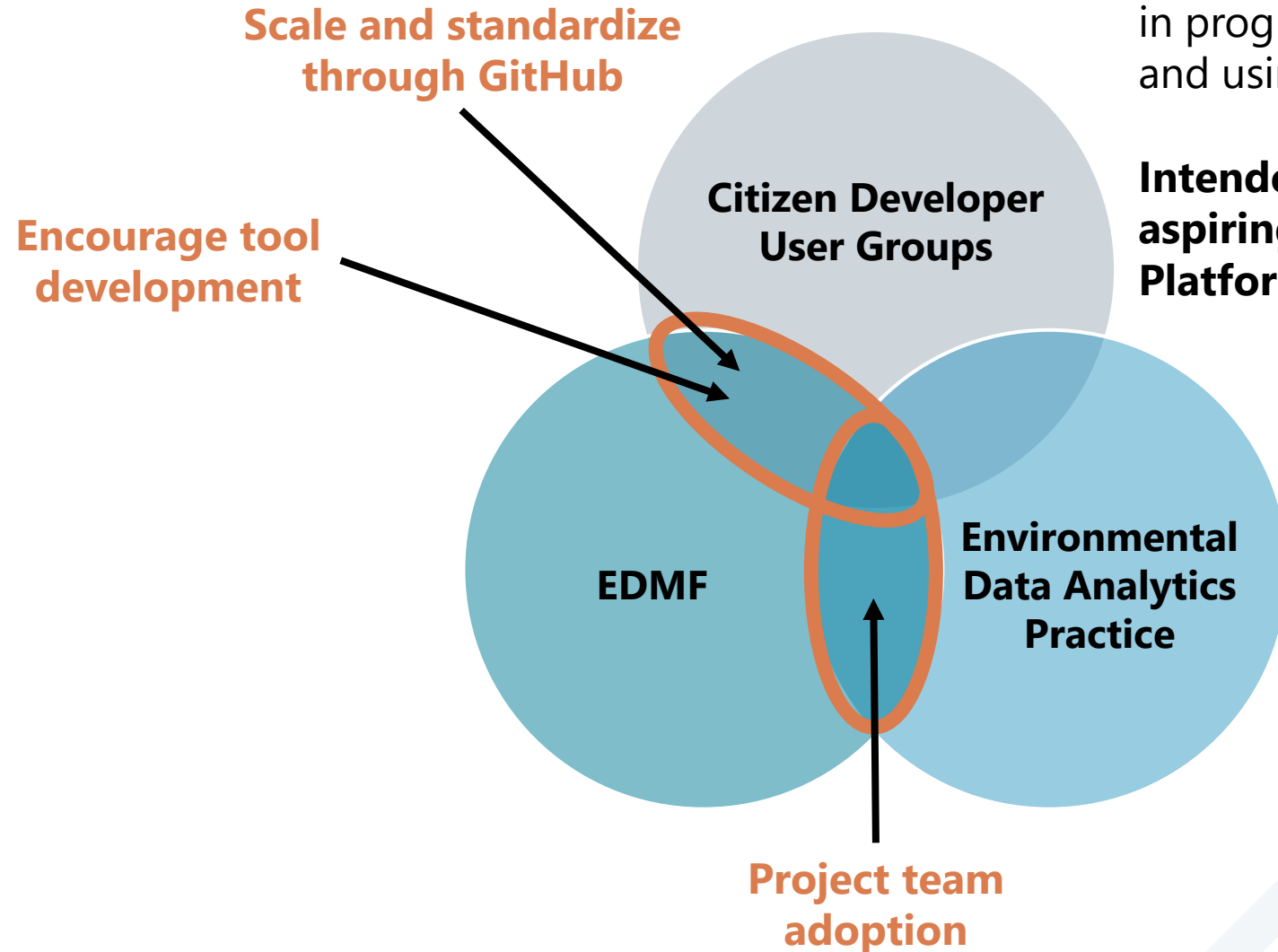Vision: Develop a fully embraced, sustainable, efficient, standardized, and scalable program

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EDMF Overview

Data Management Framework

Data Collection | Data Storage | Data Use & Reporting

ITRC Tip – Consider the entire data lifecycle

Key Considerations

▸ Modular and Platform Agnostic – encourage innovation

▸ Cultivate Autonomy – let project teams have control

▸ Standardize using scalability and best practices

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EDMF Integration with Other Company Groups

Focus on learning/sharing tools developed in programming languages such as python and using the MS Power Platform

Intended audience: programmers and aspiring programmers, MS Power Platform users and aspiring users

Scale and standardize through GitHub

Encourage tool development

Citizen Developer User Groups

EDMF

Environmental Data Analytics Practice

Focus on understanding tools/technologies to improve data management and analysis for all phases of remediation projects

Intended audience: remediation practitioners

Project team adoption

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EDMF Rollout – SharePoint Page

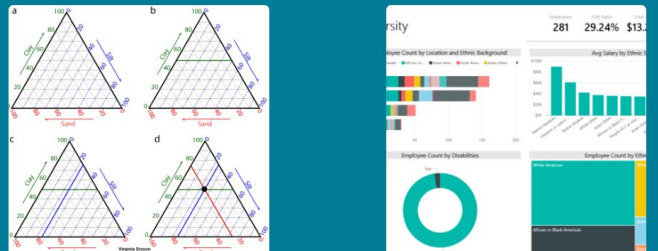Serves as a resource for **employees at all levels** to advance data management practices in their work

Data Use and Reporting Tools

Title ↑ ⌄	Tool Category ⌄	POC ⌄	Primary Use ⌄
Access	Tabulation		Relational database software that can be tables/summary statistics
BIOCHLOR	Subsurface Modeling	Ralph Simon	Simple groundwater fate and transport m
BIOSCREEN-AT	Subsurface Modeling	Ralph Simon	Simple groundwater fate and transport m
EnviroData Viewer	Tabulation	Sam Olney	Used to generate tables and summary sta
ESRI ArcGIS	2D and 3D Visua		

Data Use and Reporting

A summary of available data use and reporting tools is shown in the table below. The table can be filtered based on Tool Category in order to help identify tools applicable to your reporting needs. Additional information on each of the tools in each Tool Category can be found at the links below.

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Tool Description

↓

How to Choose a Tool

↓

Training/Guidance/Contacts

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Data Collection – ESRI Field Maps Standardization

Field Maps Intake Survey on Sharepoint

ITRC Tip – Bring in your GIS Professionals during planning

Field Maps Request Form

Hi, Katherine. When you submit this form, the owner will see your name and e

* Required

1. Project Name *

Enter your answer

2. Project Number *

Enter your answer

3. What is the intended use of Field Maps for this Project? *

☐ Event status tracking

☐ Soil sampling

6. Name of GIS Analyst or other project team member fam

Enter your answer

7. Confirm required standard Field Map Functions *

☐ Standard base map (publicly available aerial)

☐ Add existing features from GIS files (note - the GIS Team will r ditional information)

☐ Available for Offline Use

☐ Ability for field staff to add/draw new features (samples, obse

☐ Add Photos/Notes

8. Are any additional customized features requried? *

◉ Yes

○ No

▸ Survey lets project team keep **autonomy**

▸ Allows for current project team GIS members to remain involved and **embrace** data management tools

▸ Integrates GIS best practices and **standardization**

▸ Improves **scalability** by standardizing forms and widening staff resource pool

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Data Storage – Database Migration to Azure

- ▸ EDMS **agnostic**
- ▸ **Embraced** by project teams by allowing choice of schema (**autonomy and innovation**)
- ▸ Allows for **standardized and scalable** workflows
- ▸ **Best practices** implemented for data security, retention, governance
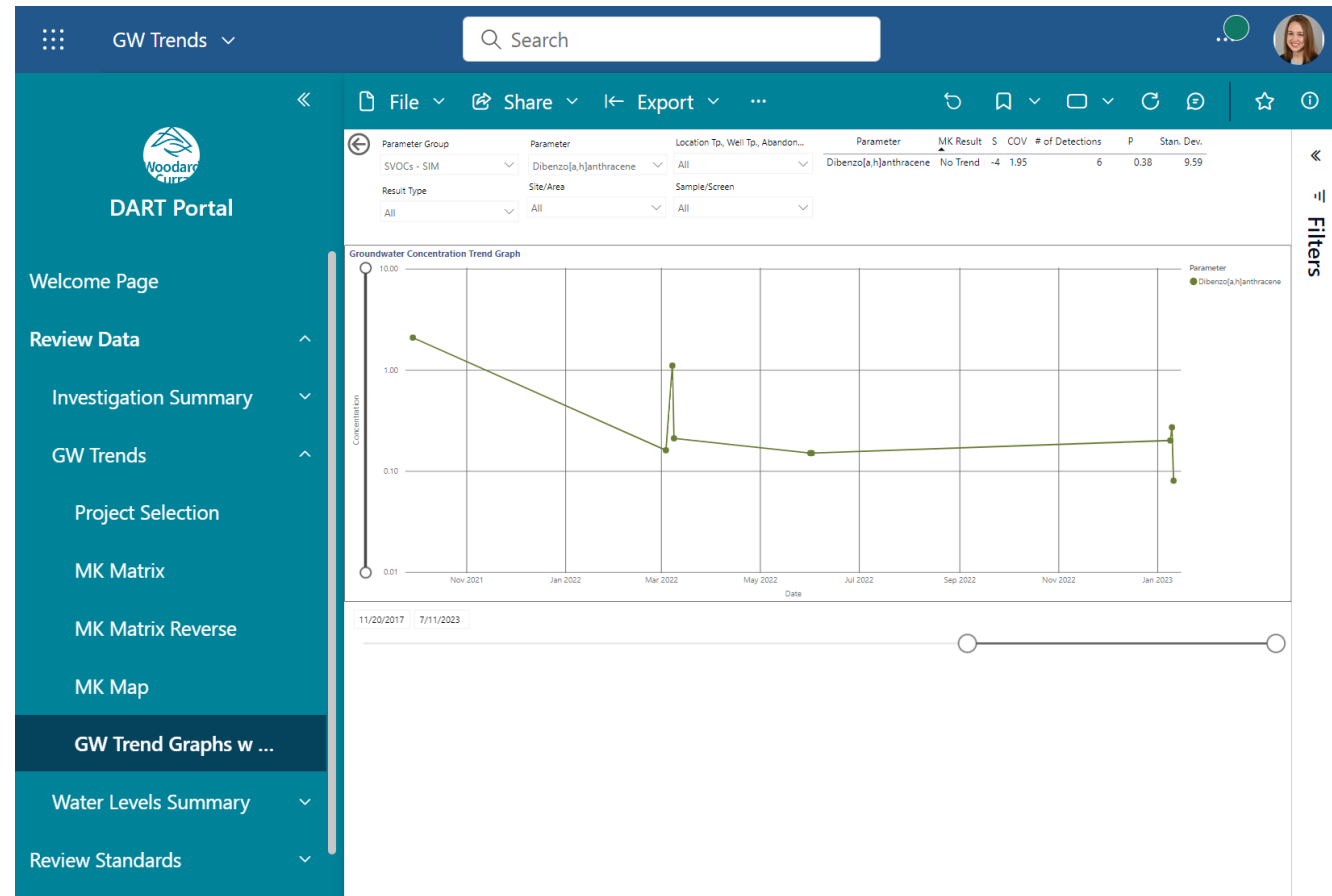
ITRC Tip: Choose EDMS based on program needs

ITRC Tip: Evaluate automated vs manual migration

ITRC Tip: Data should be managed in accordance with Organization's Data Governance Policy

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Data Use & Reporting – Remediation Dashboard

- Platform **agnostic** backend
- PowerBI frontend gives project teams **autonomy**
- **Modular** approach improves **scalability**
- Designing for multiple backends has led to more collaboration and **innovation**

ITRC Tip: Keep the data end user in mind

Thank you!

kelich@woodardcurran.com

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