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Implementation of a Data Management System:

Why a Cradle to Grave Data Management System is Critical for Every Organization in the Environmental Industry and Some Considerations in Building One.

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Overview

- The Case for Cradle to Grave Data Management
 - Various Approaches to Implementation
 - Key Components of a Data Management System
 - Data Management Principles
 - Practical Considerations
 - Evaluation Metrics
- 



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THE CASE FOR CRADLE TO GRAVE DATA MANAGEMENT



The Case for Data Management

Organizations are increasingly realizing a need for Data Management Systems but a variety of factors stand in the way. Targeting specific business needs and developing a DMS around areas that will most benefit the organization allows for strategic implementation.



The Case for Data Management

- Data is the core product – we need quality data!
- Our organizations' reputations are founded on high quality data.
- Client expectations are ever increasing.
- Leveraging current technology + sound data management principles will continue to raise the bar across our industry.



The Case for Data Management

- Provides a documented, repeatable workflow for handling all data in the company.
- Forces adherence to defined rules and consistent terminology.
- Allows for quick report generation in standard formats.
- Reduces the opportunities for errors to be introduced.



The Case for Data Management

- Allows team members to spend more time analyzing data instead of moving it around!
- Data is all in one place and can be reviewed across organizations and even between organizations.
- Provides a value added service and impacts the bottom line.





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VARIOUS APPROACHES TO DATA MANAGEMENT SYSTEM IMPLEMENTATION



Approaches to Implementation

Implementations Vary Based On:

- Size & Scale of Organizations
- Data Needs
- Business Needs



Approaches to Implementation

DIY Entirely – Internal System

- Hire Staff
 - Data Manager
 - Data Analyst(s)
 - IT Administrator and Programmers
- Purchase Software & Hardware
- Develop and Maintain Hardware, Software, and Workflows



Approaches to Implementation

DIY Partial – Hosted System/Cloud Based

- Hire Some Staff
 - Data Manager
 - Data Analyst(s)
- Purchase or Rent Software, Rent Hardware (SaaS)
- Develop and Maintain Workflows
- Customize Software, as needed



Approaches to Implementation

Done For You – Externally Managed System

- Internal Point of Contact Still Required
 - May be able to utilize current staff
 - Data Management Service Provided
- Rent Software and Hardware
- Workflows and Customized System Developed in Collaboration with DM Service Company





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DATA MANAGEMENT PRINCIPLES



Data Management Principles

Industry Standard Data Management Principles:

A data management system (DMS) should...


- Define a data management plan
- Implement data lifecycle control
- Identify data ownership and stewardship
- Ensure data security



Data Management Principles

Industry Standard Data Management Principles (cont.):

A data management system (DMS) should...

- Maximize data usefulness to avoid re-collecting or re-processing data
 - Establish data quality standards (or identify standards that already exist)
 - Ensure proper documentation and tracking of data
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KEY COMPONENTS OF A DATA MANAGEMENT SYSTEM

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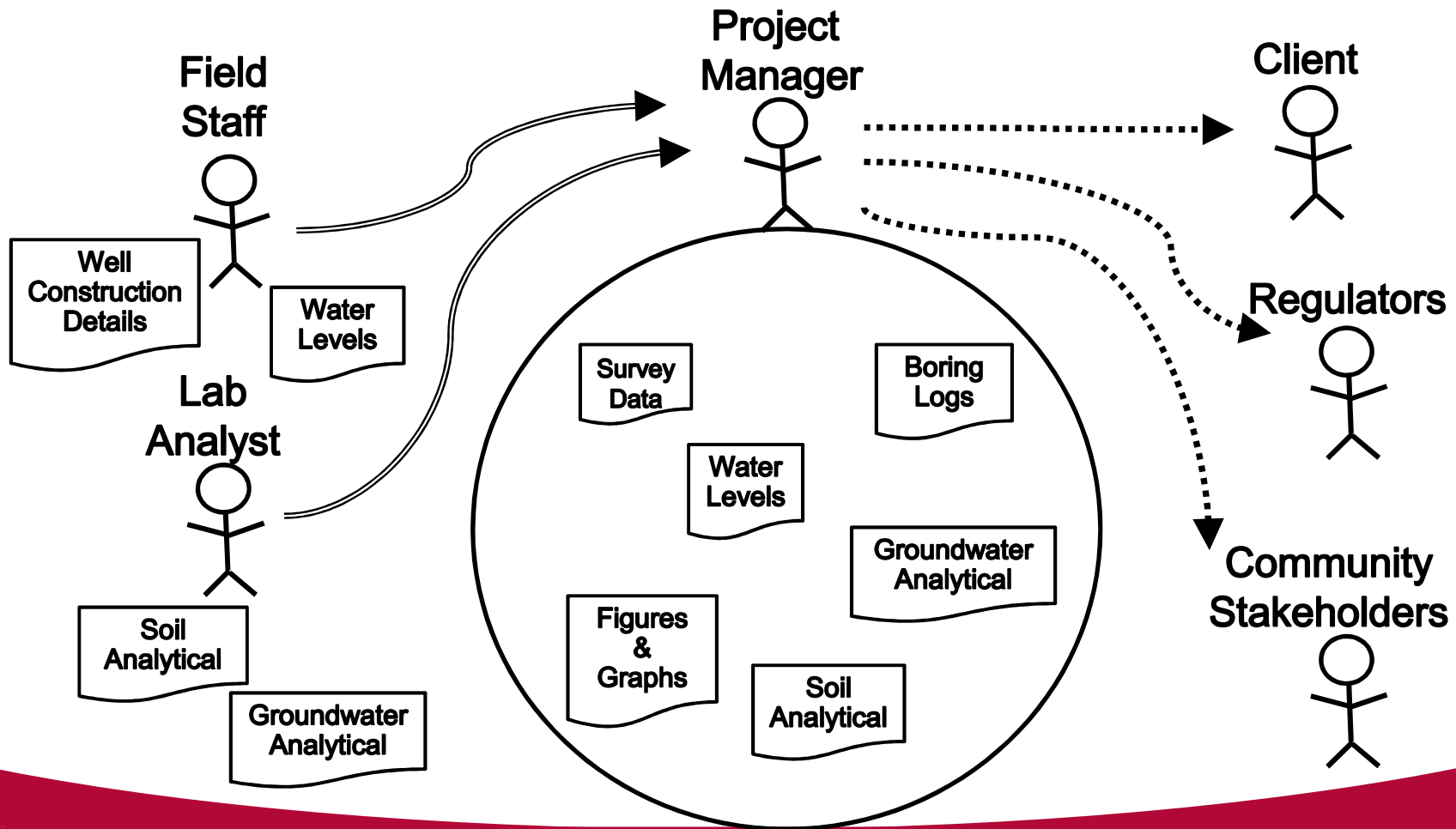
Key Components of a DMS

A DMS is NOT simply a software package, rather it is the integration of software, hardware, workflows, and the *culture* that is created around data management at an organization.



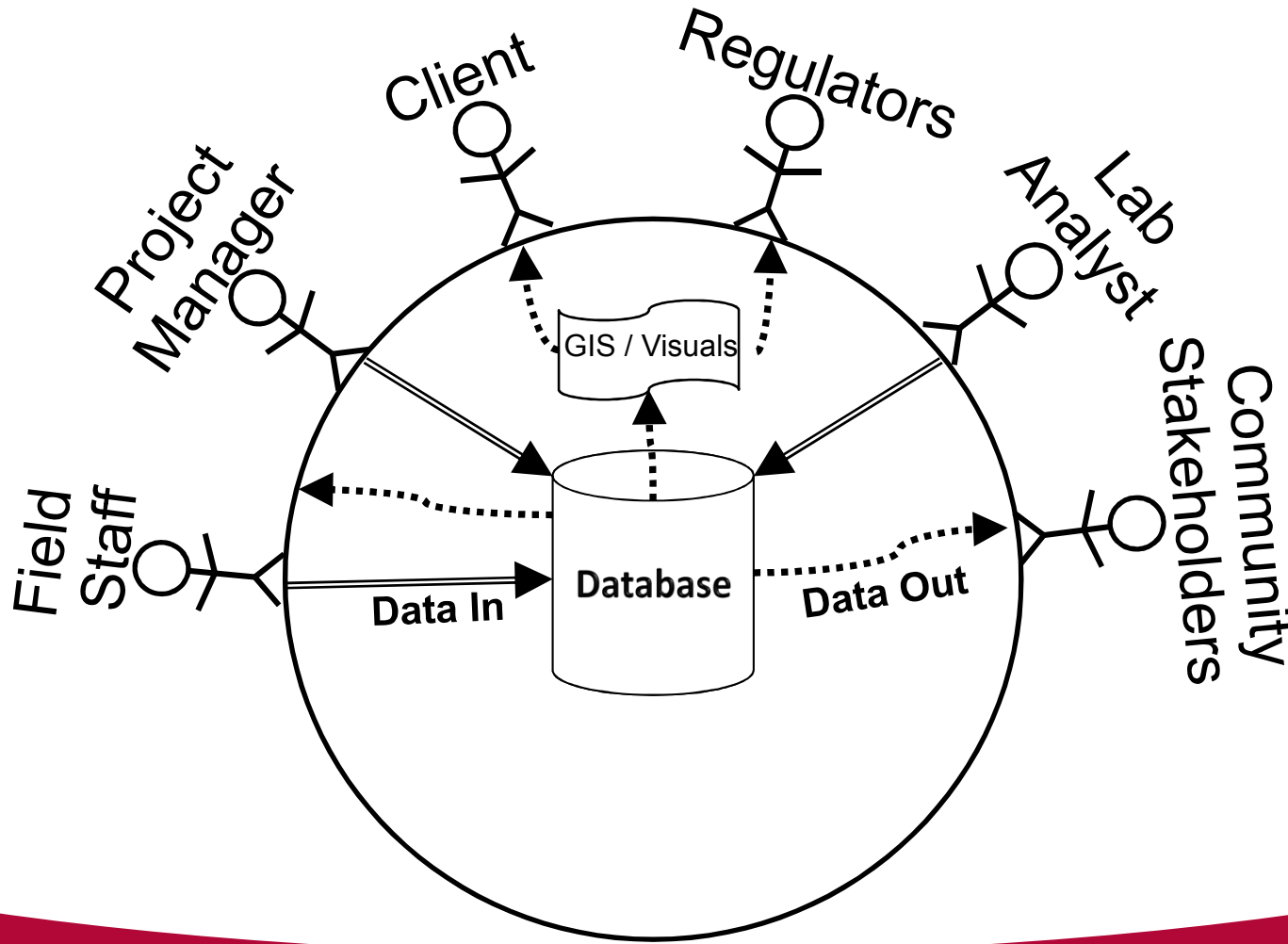
Key Components of a DMS

Independent Data Management (Silos)



Key Components of a DMS

Collaborative Data Management (No Silos)



Key Components of a DMS

- Software and Hardware
 - Database Software
 - Other Software: Excel, Access, AutoCAD, GIS, Tableau, etc.
 - Server System
 - Telemetry and Remote Data Loggers
- Personnel
 - Data Manager
 - Data Analyst
 - IT Support and Programmers
- Workflows
 - Usually written, allows for clear identification of who does what. “How-to” manual.
 - Frequently updated and based on best practices.
- Documentation of Data Management Culture
 - The official written record of the principles and processes
 - Outlines company-wide best practices.

Key Components of a DMS

- A Good DMS is a Team Effort!
- Garbage In = Garbage Out
- Maintaining a collaborative approach will provide the best results and benefit the most people.
- Encourage users to ask questions and make suggestions! Their perspective is important!






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PRACTICAL CONSIDERATIONS



Practical Considerations

Developing a Business Case

- Define Company Data Management Goals
 - Understand How a DMS Advances the Company's Mission
 - Understand the Types of Implementations and Benefits of Each
 - Evaluate Data Needs for Today and for Tomorrow
- 

Practical Considerations

*There is nothing so useless as doing efficiently
that which should not be done at all.*

Peter Drucker



Practical Considerations


Developing a Business Case

- Determine the Cost of Meeting Data Needs (or Not) Today and in the Future
- Consider, but Don't Be Overly Tempted by "the low hanging fruit"
- Create Your Implementation and Data Management Plans




Practical Considerations

Moving from Cost to Profit Center

- Identify Current (pre-Implementation) Costs
 - Integrate Accounting Tracking Systems with DMS
 - Evaluate Workflows Carefully and Review Regularly
 - Set Bench-Mark Expectations and Timeframes
 - Ensure the Right People are in the Right Seats at the Right Price
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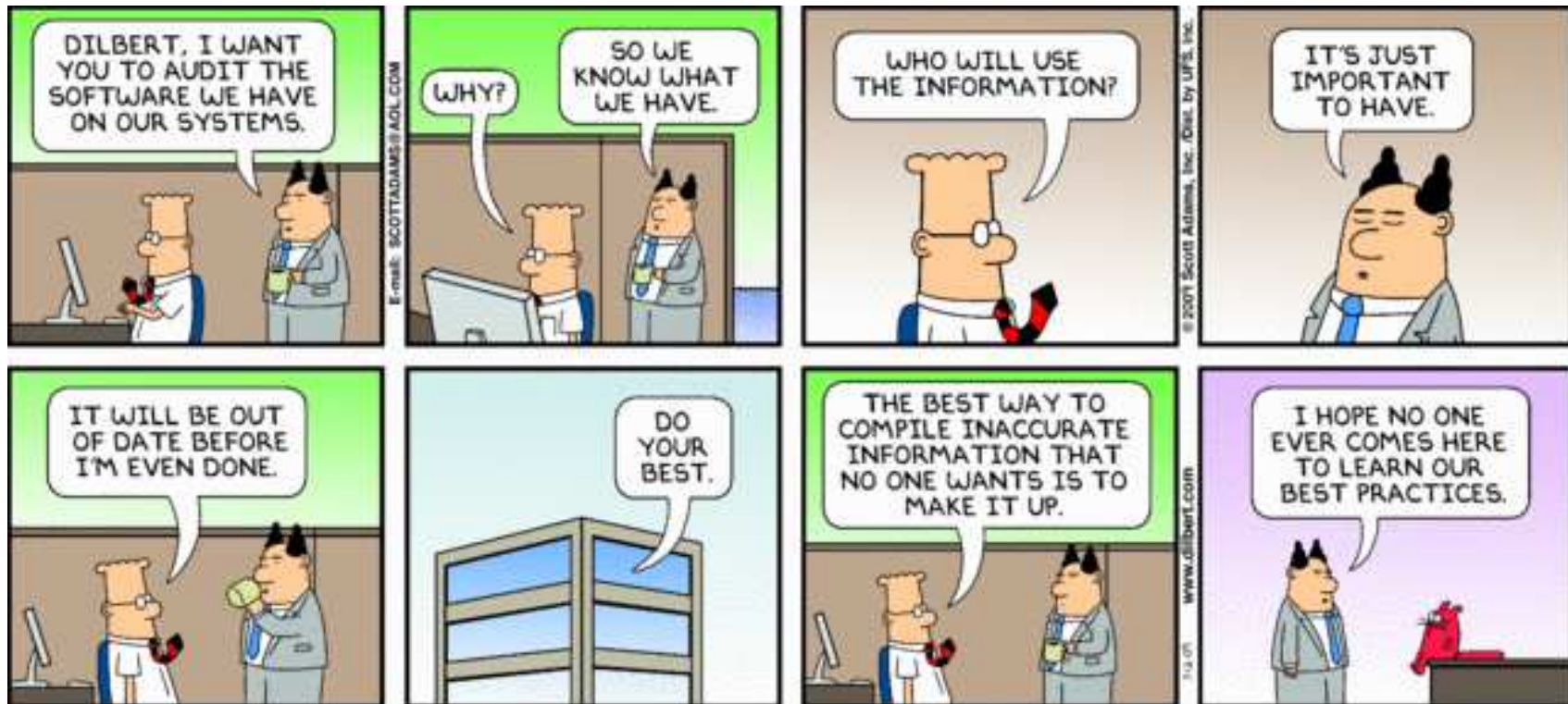
Practical Considerations

Gaining Buy-In At All Levels

- Who Has Responsibility and Authority for Implementation?
 - Have a DMS Brand Ambassador – Learn How to Be Your Own Best Advocate
 - Provide Regular Opportunities for Dialogue and Sharing Information
 - Communication is Vital
- 


Practical Considerations

How (not) to Support a DMS...



Practical Considerations

How to Support a DMS

- On-going Review and Communication of Goals and Priorities
 - Regular Audits and Workflow Reviews
 - Strategic Maintenance and Upgrades
 - Ensure Documentation is Maintained
 - Establish a Culture of Constant Improvement, Innovation, and Creativity
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EVALUATION OF A DATA MANAGEMENT SYSTEM

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Evaluation of a DMS

Qualitative Metrics:

- Ease of Use
 - Accessibility of Data
 - Client Satisfaction
 - Staff Engagement
 - Company Brand Growth
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Evaluation of a DMS

Quantitative Metrics:

- Efficiency in Data Entry and Report Generation (Ratio of Time Spent vs. Previous)
- Accuracy of EDDs (% of Errors)
[Note that this may initially go up as data is being more closely evaluated.]
- Revenue Growth (i.e., Increased Business Due to DM Capabilities)

Evaluation of a DMS

Post-Implementation Evaluation:

- Determine Evaluation Intervals (e.g. every 6 months for first two years, then yearly there after)
- Establish Evaluation Tools
 - Questionnaires (Staff and Clients)
 - Accounting Reports and Time Logs
 - Anecdotal Reports

Evaluation of a DMS

Post-Implementation Evaluation:

- Commit to Regular, On-going Performance Evaluation and Updating of the DMS.
- The DMS Should Always Serve the Organization.



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Any intelligent fool can make things bigger, more complex and more violent. It takes a touch of genius – and a lot of courage – to move in the opposite direction.

E. F. Schumacher





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Questions, Comments, and Discussion...

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