Benefits of RIVAS for Project Information Management

WHITE PAPER

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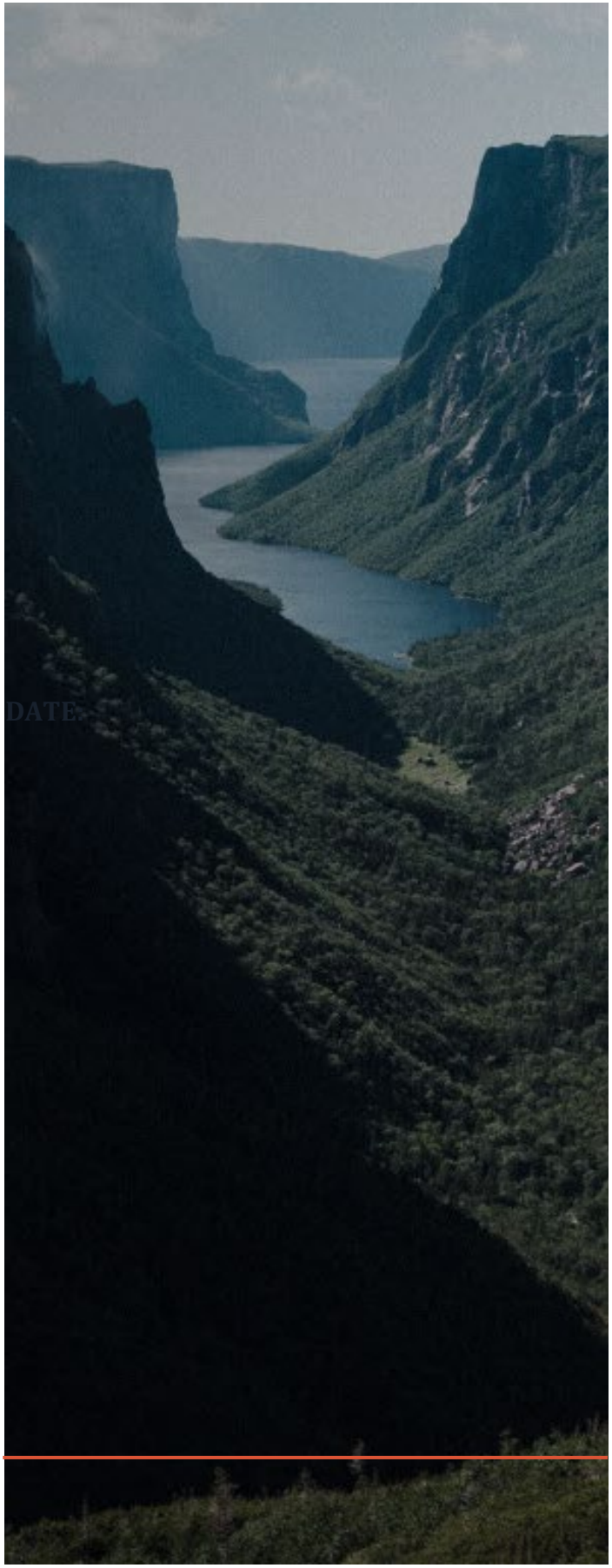

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Overview

What happens when a project combines the applications it uses to manage documents, engagements and data in a single platform that easily accesses the information needed, when you need it, at your fingertips? **Magic**. If your project's methods and tools for managing information fail to provide your staff and contractors with moments that appear as magic, then you need RIVAS. This paper will show how using a single system focused on making project information easy to find and communicate will save time and money, thereby reducing risk, which is critical to success.

Below are several examples from real projects where immediately available information made a positive impact:

- During a discussion between project team members and government regulatory staff reviewing a draft wetland management plan prior to its submission, a reviewer suggested that an excavated site, taking advantage of local topography, would be sufficient for a water settling pond. This would negate the construction of a planned dam/levy, which would require much more planning and construction. RIVAS ReportViz module was used to explain the project's design and explore the site in a detailed, yet ad-hoc manner, which led to the suggestion by the government staff member.

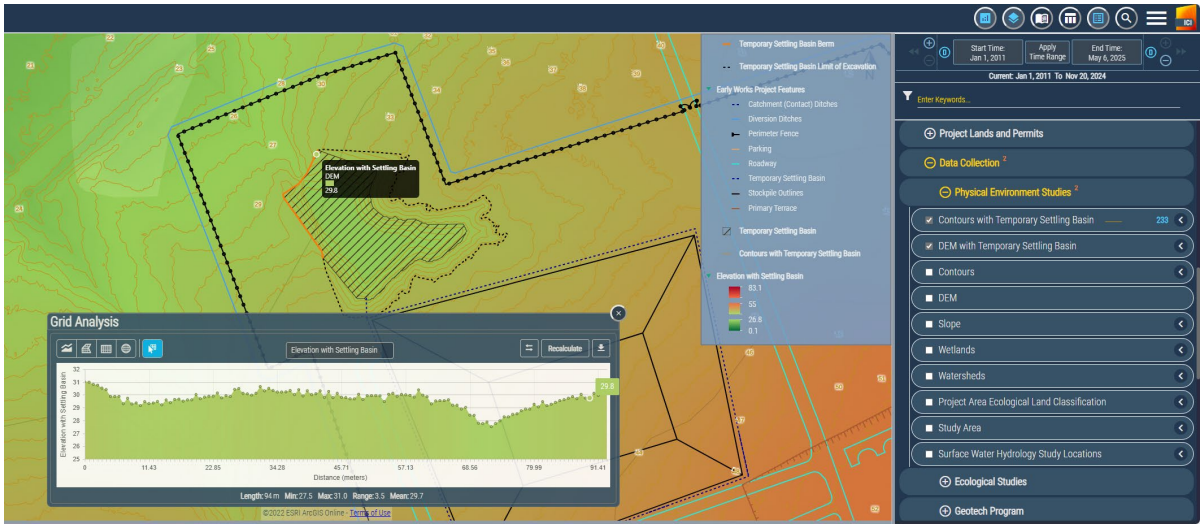

Figure 1. Detailed analysis of project features with local topography.

- While discussing a project with an attendee at a public information session, an issue was raised about the project's development impacting an area used for game hunting. Using ReportViz presented on a large screen, a project team member displayed the area of concern using high-resolution imagery acquired for the project and showed its distance to the proposed project area. This immediately addressed some concerns as to how the project may affect hunting in the area. The team member made a local knowledge entry on the map using information from the public meeting attendee, so the location details were captured. An issue was also added in Engagement Manager, which included concerns and the contact details of the public stakeholder, which will be used for communication as the project proceeds.

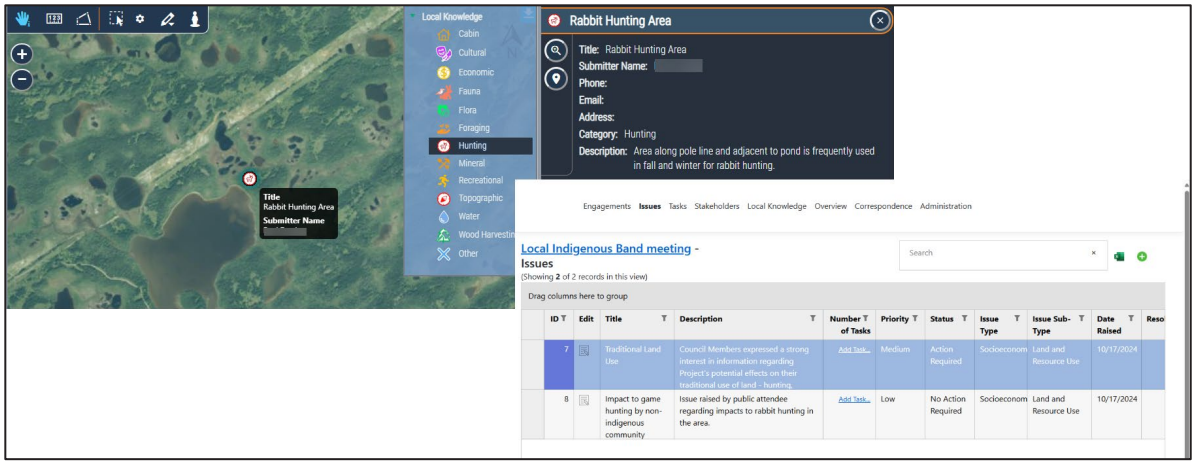

Figure 2. Example of collecting local knowledge during an engagement.

- Following a review and conditional approval of a mining project as part of a province's Environmental Assessment (EA) process, an early works mine development plan is required for final release from EA oversight. The management and diversion of water is critical to this plan, which required the expertise of a geologist and civil engineer for culvert design. During discussions of the plan with team members, geotechnical information collected during the project registration phase were quickly accessed from ReportViz. These features on the map (drilled boreholes) were linked to the project's document management system where records were uploaded. Recent photos collected by project team members provided further context. The photos were taken with their phones and automatically added to the map by email submission. This immediate access to documents and photos from an earlier project phase provided the information necessary to make quick decisions for the plan and avoided unnecessary data collection, delay and cost escalation.

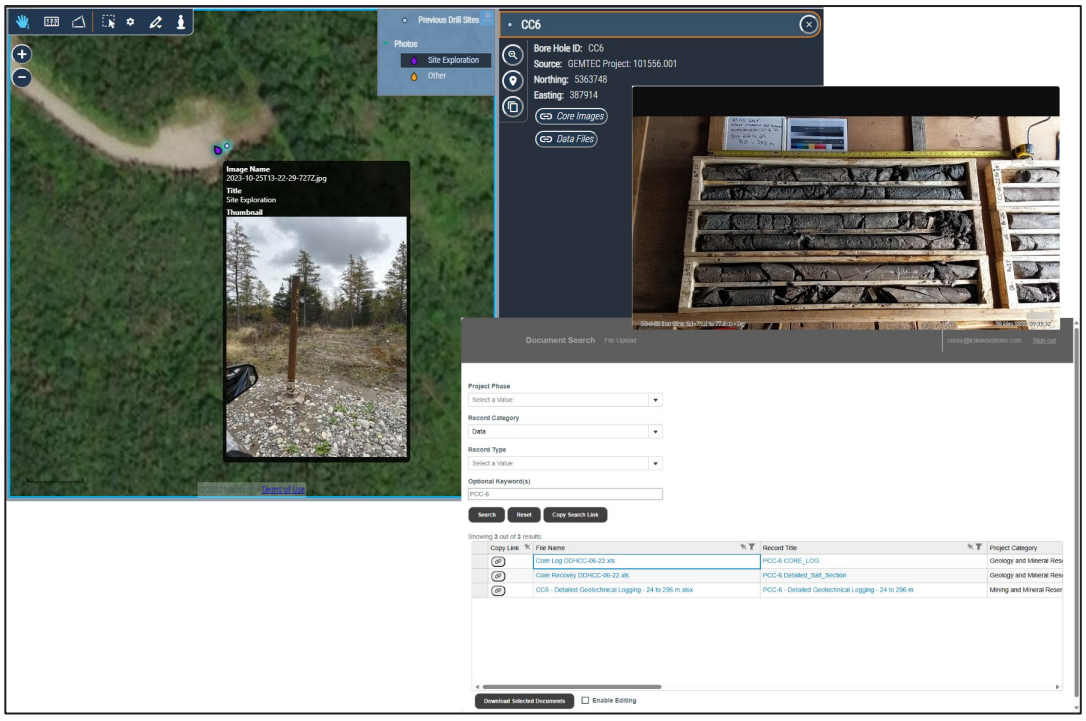

Figure 3. Viewing the location of a borehole along with linked information and photos.

Current Project Management

Natural resource development projects are complex initiatives, that typically involve the compilation and analysis of large swaths of information spanning multiple disciplines of engineering, science, and economics. All this is done to gain both regulatory and social approval from local stakeholders to proceed with a project. Project managers need to take this information, analyze it, and present it holistically to demonstrate that a developer has identified and planned for all potential interactions to reduce negative impacts and enhance positive ones.

The above statement is simple enough to write, but difficult to execute. The reality is that most project proponents have teams limited in size and resources and will need to contract out multiple scopes of work to complete the necessary tasks to move projects along. This results in multiple contractors and consultants, working on multiple scopes of work, in multiple file locations, with little coordination amongst themselves. Project managers, who despite their incredible skill and ability to organize and coordinate, are often stretched thin trying to fit the puzzle pieces together to tell the story for regulators and stakeholders.

The following outlines some of the above-mentioned pain points that project managers and other decision makers face when trying to advance projects using current methods:

- Inconsistent and, at times, unreliable locations of documents, data, and information within an organization.
- Administrative overhead and time / money spent on project managers attempting to shepherd all parties (consultants, subs, scientists, engineers, etc.) in a coordinated manner to move projects forward by gathering bits of information from many groups that often do not adhere to common standards.
- While managers collect information, they seldom have the opportunity to see everything in a central place to inform project direction / decisions. The time taken from the project schedule by efforts to simply organize and bring data into a document often reduces the ability for project managers to pause, process and critically think about the information they have.
- The current approach to project information management results in a long, arduous process when creating permit documents. This may require multiple revisions, meetings and review by government regulators, who are also only looking at a static report with no ability to interact with the information to help answer their own questions.

Table 1 provides an impact analysis related to some of the issues highlighted above, and the resulting impacts to overall projects and schedule that can result from them.

Table 1: Overview of Potential Impacts from Traditional Project Management of Resource Developments

Project Phase	Associated Activities	Pathway of Effect	Potential Impact on a Project
Design and Planning	• Permit applications (e.g., federal and provincial approvals) • Report writing (e.g., environmental assessments, project updates) • Engagement activities (e.g., government, Indigenous, public) • Presenting data internally and externally • Data and information management	• Project information spread out over folders and sub-folders	• **Time** - More is needed for project management tasks
Construction		• Lack of communication between consultants / contractors on project work	• **Cost** - Additional cost to project budgets to complete tasks
Operations		• Static documents and images that may miss information needed by regulators or the public	• **Risk** - To project schedule due to inefficiencies
Decommissioning and Closure		• Low flexibility to adjust information (e.g., stakeholder materials, presentations)	• **Trust** - Lack of buy-in from stakeholders via static images and reports
		• Multiple document versions within project folders, impacting document control	• **Scope** - Additional Requirements from Regulators that may not be fully necessary due to fragmented / static provision of data and information

RIVAS Solution

ICI's RIVAS solution has evolved from the company's experience designing, configuring and implementing custom project information management systems. ICI believes that RIVAS can help reduce the potential impacts identified above through two overarching principles:

1. **Centralization of Information**
    - Gives managers and others the ability to access all information in one place and see how datasets interact with each other. This reduces overall dependencies on other groups for small tasks and gives managers more insight into project activities.
    - Provides access, rather than creating and embedding static images that need repeated iterations. Data can be turned on/off at will in a dynamic web-based application to view different scenarios and interactions of data to aid project planning and design.
    - Associates information (e.g., reports, images, etc.) linked to map features for direct and easy access. Reducing time and effort to find information that may be in various locations or folders. The ability to easily access information from a single solution reduces administrative burden.
    - Provides increased oversight on projects. Managers can see what is happening in real time on projects and the teams they manage.

2. **Increased Transparency and Effective Communication of Information**
    - Map and visualize where engagement activities have taken place.
    - Easily link stakeholders to engagement activities for better tracking of stakeholder involvement.
    - Organized Stakeholder metrics that avoid having to manually search inboxes for email counts for specific stakeholders.
    - Link issues raised to specific engagements, as well as assign tasks to project team members to resolve.
    - Interactive data visualization versus static images allows for more effective collaboration with stakeholders and government. The ability to enable or disable data based on the current conversation facilitates effective dialogue and issue resolution in real-time.
    - Dynamically adding local knowledge to a map and engagement repository reduces the burden and potential for lost local knowledge from standard means (e.g., post-it notes, photos, lost notebook entries).
    - Many stakeholders are visual learners. Displaying their data on a map with other information increases buy-in and improves the overall effectiveness of a project's engagement activities.

Table 2. Benefits of RIVAS

Benefit of RIVAS		Identified Impact				
		Time	Cost	Risk	Trust	Scope
Centralization of Information	• Better oversight for managers • More efficient access to relevant information	●	●	●	●	●
Increased Transparency of Information	• Interactive engagements vs static images and reports • Track and record engagements and local knowledge easily in real time	●	●	●	●	●

Table 3 provides a summary of real-world examples of day-to-day scenarios faced in resource development projects, and the difference between addressing them using standard practices comparative to RIVAS.

Table 3: Comparison of Standard Practices in Resource Development, versus the RIVAS system

Project	Scenario	Traditional Method	Using RIVAS
Mining Development EA	Meeting with a Government Department – Who asked to see additional information on a local stream that was not previously disclosed or identified as of interest	• Commit to a follow-up meeting / email. • Identify the data that would need to be included on a new map. • Reach out to GIS staff to request map to be developed and then iterations to final version. • Develop map and include any additional information (photos, studies, etc.) as an additional report. • Send email to government department and wait for response.	• Zoomed in directly to the stream in question, during the meeting. • Accessed georeferenced site photos identifying the stream, which was a small creek with little waterflow. • Showed images and data in real-time with government agency to show there was little potential impact on stream from project. • Government department was satisfied within the meeting, and the stream was not included within the scope of the EA.
Mining Development – Planning and Design	Internal discussion with engineers trying to determine a culvert location and whether it could be done. Needed more information related to geotechnical and environmental data.	• Reach out to Project Manager for information. • Project Manager formulates another email to group for follow-up meeting. • Maps need to be prepared / GIS team needs to be brought into the meeting to facilitate map creation / analysis. • Project team needs to search project folder to try and find reports that might have the needed information.	• Project Manager set up a call with relevant team members of the project • Team was able to go into ReportViz, turn on the relevant data and have a conversation to undertake real time analysis of the area in question. • Construction engineers were able to quickly talk with other team members and get the data and information needed in real-time to make their decision.

Energy Development – Engagement Activities	Conducting open house engagements in a local community to receive feedback from stakeholders.	• Large printed static images • No ability to zoom into the map, which makes it difficult for participants to give accurate feedback. • Participants encouraged to write notes on a map, or project staff need to try and write notes to keep up with multiple conversations. • Manual entry of sticky notes or feedback logs entered after the fact.	• ReportViz displayed on a large screen at the venue, running a presentation showing curated maps. • Could zoom into certain scales on a map as needed and turn on different data layers for participants based on their interests. • Interactive experience that helped effectively convey information to the public. • Local knowledge recorded in real-time as points on a map. • Local knowledge automatically entered into database for record-keeping.

Conclusion

While traditional processes associated with natural resource development (e.g., permitting and environmental assessment) have helped facilitate responsible development, the methods of progressing from concept to construction have not evolved for decades. While projects are still able to move forward, there are small efficiencies along the way that can have a significant cumulative impact to project budgets and schedules. RIVAS is a solution to help clients and teams collaborate more efficiently on all facets of a project so they can move smarter, faster and help make informed decisions.

About ICI Innovations

ICI is a 100% Canadian owned software solutions company based in Newfoundland & Labrador with deployments across Canada and the USA in the following markets:

Renewable Energy
Oil and Gas
Mining
Transportation and Logistics
Utilities and Infrastructure
Interactive Data Visualization and Reporting

Since 2014, ICI has implemented custom Interactive Data Visualization and Reporting solutions for government (e.g. Impact Assessment Agency of Canada - Regional Assessment), NGOs (e.g. Maritime Exchange for the Delaware River and Bay) and industry alike (e.g. Oilco - Oil and Gas Corporation of Newfoundland and Labrador, Atlas Salt Inc, TriplePoint Resources). ICI has developed tools, procedures and custom user interfaces leveraging existing technology and platforms (e.g., Microsoft 365) to serve our customers better. RIVAS has emerged as ICI's evolved solution for project information management, providing software, implementation, and professional support services as a complete solution. RIVAS is purpose-built to be implemented quickly, flexible, and configurable, with the ability to evolve and scale to the needs of the project stage whether at planning, engagement, environmental assessment, permitting or through to construction. Backed by ICI's multi-disciplinary team with collective experience on hundreds of projects, ICI has the professional support services expertise to scale with project requirements.

RIVAS increases the flow of content within an organization, while meeting information management objectives that are often not easy to achieve. Its easy-to-use tools for data visualization and information management facilitate the exploration and understanding of vast amounts of disparate data from many sources using a single system. ICI's goal is to make information flow better, so its customers achieve their goals faster.