ENERGY & MINES
DIGITAL TRUST

ENERGY & MINES DIGITAL TRUST: PILOT PROJECT REPORT 2022-2023

BC DIGITALTRUST

The moment I learned about Energy & Mines Digital Trust, I knew the project had immense potential. The Government of British Columbia was actively investigating the use of digital trust technology for individuals, and I was eager to discover how this work could benefit the natural resource sector in B.C. and beyond. Environmental standards and consumer demand are driving the need for traceability across supply chains, and I wanted to be part of exploring how digital trust technology could facilitate the secure and efficient delivery of this data.

In leading this project, I've spoken to audiences all over the world, championing EMDT, and building connections with global climate and technology leaders. The more people I speak to, the more I recognize the value of this work. EMDT is an indicator of the widescale, global collaboration that is essential to climate tech initiatives.

EMDT maps new technology to existing, industry-specific regulations and identified best practices, creating a highly replicable framework that can be scaled globally. We've prioritized the use of interoperable technology, processes, and data standards to overcome barriers to adoption and encourage the uptake of new tools. EMDT's use cases incorporate data from credible sources, such as governments, assurance providers, and auditors. With this, natural resource operators are equipped with an improved method for sharing critical sustainability data and are empowered to compete in global markets that prioritize responsibly sourced goods.

Energy & Mines Digital Trust has introduced me to the diverse community behind open-source projects, and the variety of leaders and innovators that make this space successful. As a woman in STEM who does not have a background in technology, I had to find the courage to speak up and contribute to the conversation. The open-source community has been generous with their time and knowledge, and in turn, I'm proud to have brought a unique perspective to this work and a new voice to the conversation. It's a community in which I feel empowered to practice my own style of leadership, one that prioritizes collective effort towards shared goals.

It has been my privilege to be part of such a dedicated team, whose work I am privileged to share on stages all over the world. EMDT is paving the way for global-scale climate innovation, and I'm excited to think of what we will achieve in the years to come.

Sincerely,

Nancy Norris
Senior Director – ESG & Digital Trust
Ministry of Energy, Mines and Low Carbon Innovation

ACKNOWLEDGMENTS

THANK YOU TO OUR COLLABORATORS

British Columbia

TELUS

Hyperledger

Trust Over IP Foundation

UNECE UN / CEFACT

Northern Block

British Columbia | Ministry of Energy, Mines and Low Carbon Innovation

envirochem

Copper Mountain Mining Corporation

QUBE

Sphority

pwc

Pacific Canbriam Energy

Equitable Origin

OpenEarth

The Mining Association of Canada
ADVOCACY STEWARDSHIP COLLABORATION

United Nations Climate Change Global Innovation Hub

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EXECUTIVE SUMMARY

Energy & Mines Digital Trust (EMDT) provides innovative digital trust solutions for the natural resource sector, empowering companies to securely and efficiently share critical data on their sustainability performance and prove where their products originated and how they were produced. The Government of British Columbia's (B.C.) Ministry of Energy, Mines and Low Carbon Innovation (EMLI) leads EMDT, enabling a collaborative digital ecosystem between the B.C. government, natural resource companies, and organizations around the world.

A GLOBAL LEADER: DIGITAL CREDENTIALS FOR ORGANIZATIONAL IDENTITIES

To date, much of the focus in digital trust work has been on individual identity, providing secure access to documents such as driver's licenses and professional credentials. By piloting digital trust technology for B.C. mining and natural gas operators, EMDT is expanding the field to encompass organizational exchanges, increasing security and trust in interactions between natural resource operators and their stakeholders. Verified data issued to or submitted by the B.C. government can also be shared with different audiences, including investors and purchasers of sustainably sourced products, markets like the London Metal Exchange and industry associations like the Mining Association of Canada.

DIGITAL TRUST

Creates confidence online by enabling interactions that are rooted in privacy, safety, and security.

DIGITAL WALLETS

Enable the private, end-to-end encrypted exchange of information online in the form of digital credentials. Transactions are recorded on an immutable ledger, creating transparency and trust.

DIGITAL CREDENTIALS

Are used to share information about a person or organization online. Digital credentials are cryptographically protected and verified in real-time, ensuring a high degree of privacy and security.

TRACTION: OPEN SOURCE FOR DIGITAL TRUST

Building on the pioneering contributions of the Ministry of Citizens' Services and the Office of the Chief Information Officer (OCIO) to open-source digital trust technology, EMDT developed Traction, a solution that enables the B.C. government to scale its ability to send and receive data in the form of digital credentials. Traction is open-source software, developed using components from the Hyperledger Foundation. Traction is broadly compatible with existing digital wallets, supporting quick and secure data exchange worldwide.

EMDT has earned international support for the unique application of digital credentials for organizational identities. EMDT has designed five digital credentials with 17 pilot participants, built a global network of over 140 stakeholders, and has been recognized for the project's innovative approach at over 20 speaking events, and through awards such as being selected as a winner of Foresight Canada's BC Cleantech Awards.

LESSON **LEARNED**

1

Strong executive support for an emerging technology project, such as EMDT, is crucial to its success. *Truly harnessing the potential of digital trust technology will take widespread adoption over multiple years. In the interim, the initiative's value proposition is to position B.C. as a leader in digital trust technology and responsible sourcing. EMDT's executive sponsors, Nathaniel Amann-Blake, Assistant Deputy Minister, Ministry of Energy, Mines and Low Carbon Innovation (EMLI) and John Jordan, Executive Director, Emerging Digital Technologies, Office of the Chief Information Officer, have provided steadfast commitment to this long-term vision.*

THE PATH AHEAD: INTERNATIONAL SUPPLY CHAINS

EMDT's work in 2023-24 will be pivotal for long-term success as the project focuses on enabling B.C. companies to prove their sustainability claims on shipments in global supply chains. The EMDT model of anchoring trust through government-issued digital credentials for supply chain traceability and interoperability is being championed by the United Nations Economic Commission for Europe (UNECE)'s Centre for Trade Facilitation and Electronic Business (UN/CEFACT), alongside whom EMDT will explore joint activities in the next project phase.

EMDT's ecosystem will produce increasing value for participants as it grows in scale (additional participants) and scope (additional use cases) in the year to come.

Energy & Mines Digital Trust positions B.C. as a global leader in climate innovation, and Traction enables endless business applications.

ENERGY & MINES DIGITAL TRUST

SOLVING A GLOBAL CHALLENGE: WHY EMDT?

EMDT was initiated to both facilitate British Columbia's transition to a clean, resilient economy, and to explore how digital trust technology could bring sustainability data from the physical world into a trusted digital environment.

With progressive legislature and regulation, British Columbia is a world leader in climate action. B.C. has committed to ambitious climate goals, including those outlined in strategies such as the CleanBC Roadmap to 2030. CleanBC's Roadmap outlines both the importance of measures to reduce greenhouse gas emissions, and the necessity of attracting investment to B.C. based on sound ESG credentials.[1] British Columbia is committed to digital transformation, as detailed in B.C.'s Digital Plan. As a leader in B.C.'s digital trust work, EMDT contributes to B.C.'s commitment to leveraging technology for the delivery of trustworthy digital services. EMDT demonstrates innovative technology that drives the implementation of these mandates and supports the transition to a clean economy.

Navigating the transition to a resilient economy must be done sustainably and with strong performance on ESG factors. Natural resource companies are feeling pressured to prove their sustainable performance as responsibly sourced products are prioritized in accordance with subnational, national, and international climate goals. Yet, diverse regulatory models, varied reporting standards, and a lack of interoperable digital tools make sharing ESG data administratively burdensome, especially for small and medium sized businesses.

LESSON LEARNED 2

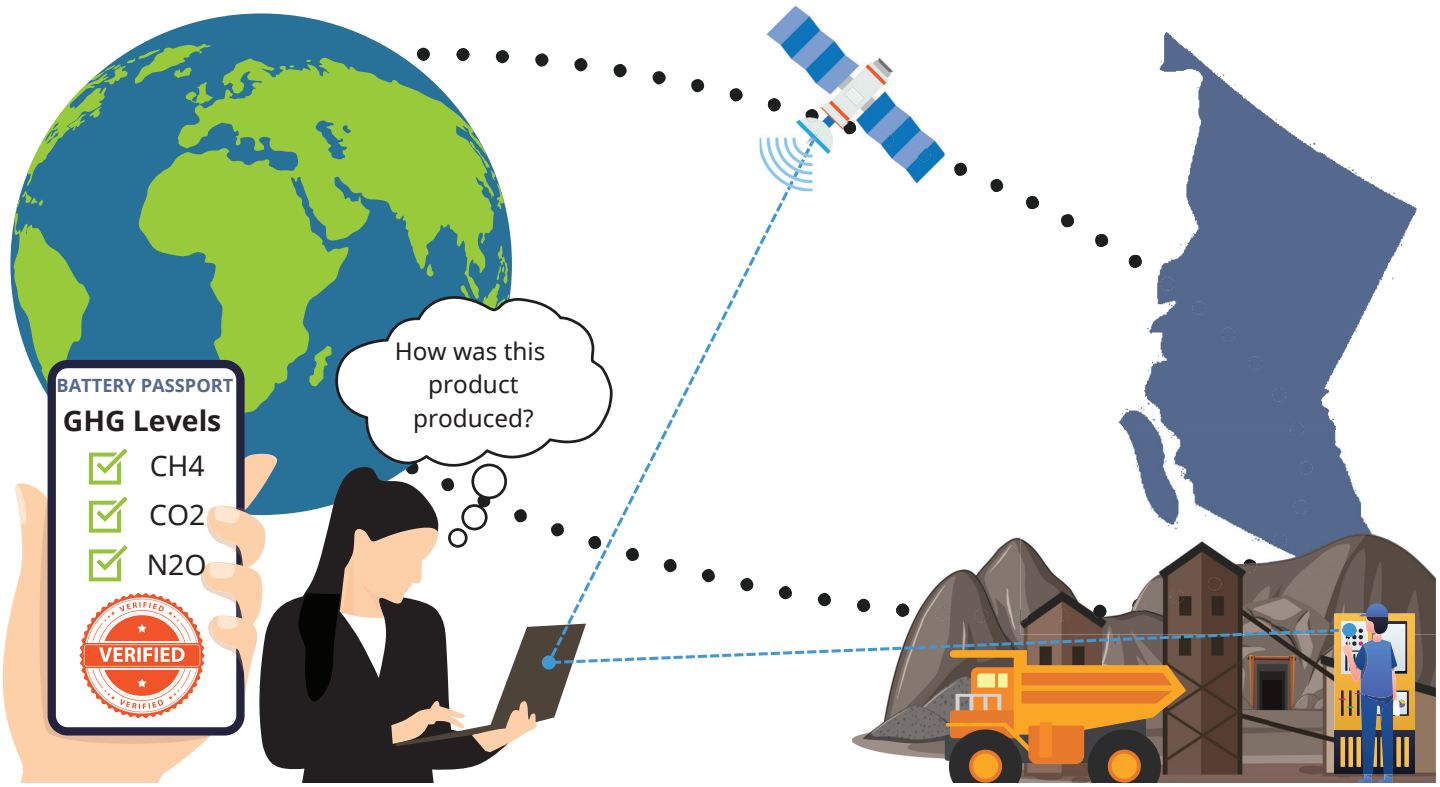
Governments and accredited auditors can act as "trust anchors" that provide legitimacy and authority to companies' ESG claims. *Digital credentials issued by trusted institutions improve regulatory efficiency, align with existing regulatory processes, and put secure and easily shared data in the hands of operators. This enables trade opportunities for sustainable producers in their jurisdictions, making the process of sustainability reporting more efficient, transparent, and trustworthy.*

Natural resource companies must customize data to meet various reporting standards and are often forced to disclose more information than necessary in the process. Data is shared over email, leaving important files vulnerable to manipulation. Buyers, auditors, and regulators must take companies at their word that reports and credentials are accurate and timely. These challenges have resulted in a lack of trust in reported data, as the 'source of truth' is lost, especially in complex international supply chains.

With improved methods to share verified data on material ESG factors, natural resource companies can better compete in a global market that favours responsibly sourced goods. Digital trust technology has the potential to reduce cross-border trade friction as countries implement tariffs on unsustainable products.

> We at Natural Resources Canada's Critical Minerals Centre of Excellence (CMCE) and other colleagues within the department have been following Energy & Mines Digital Trust on the Digital Wallet pilot projects with great interest and enthusiasm. We are excited to see this team take a leadership role in the development of essential technology that is being designed with accessibility and transparency at the heart of environmental, social and governance credential tracking and monitoring. With the success of its pilot programs, we now see the Digital Trust expanding into new contexts and applications and continuing to push the innovation envelope.

– Erle Lamothe, Policy Analyst
Critical Minerals Centre of Excellence, Lands & Minerals Sector, Natural Resources Canada



ENERGY & MINES DIGITAL TRUST

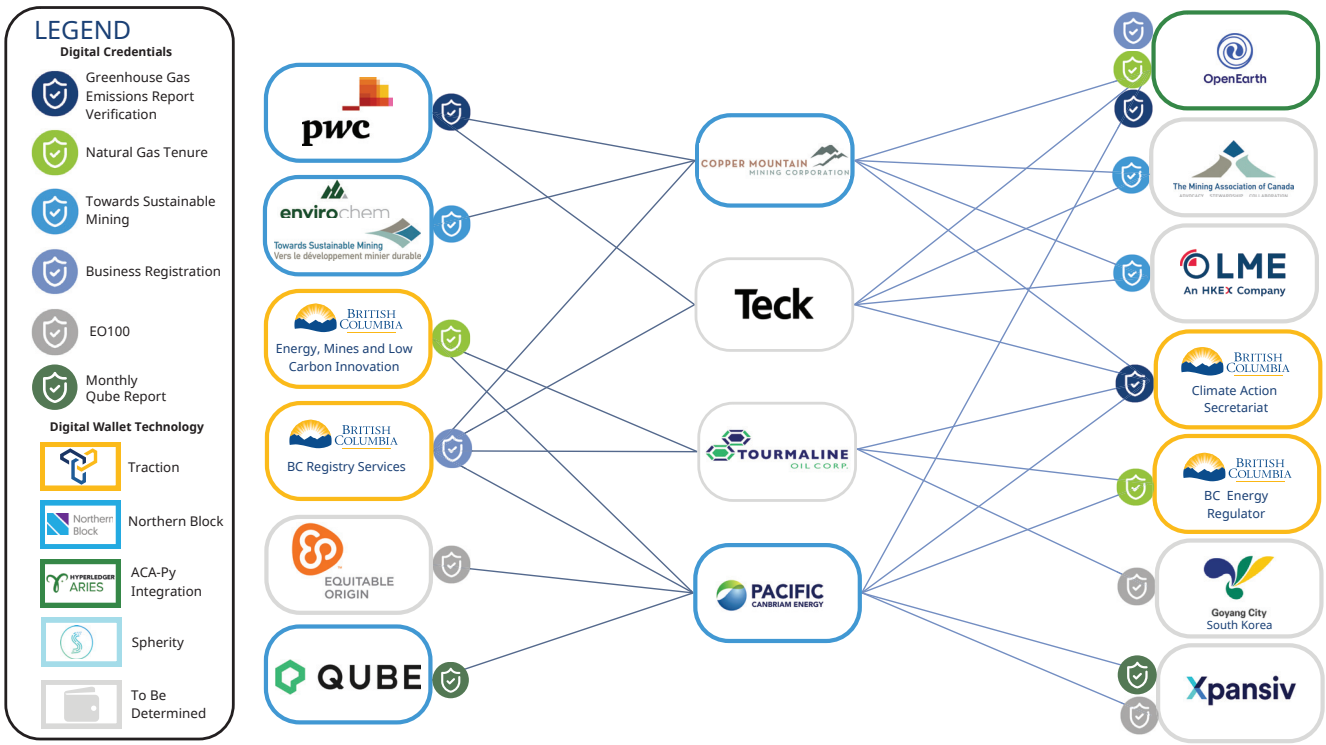
EMDT'S DIGITAL TRUST ECOSYSTEM

The true value of digital trust technologies is seen at scale when diverse organizations share information through a digital trust ecosystem. EMDT has enabled a pilot ecosystem through coordination of a global network of pilot participants, exploring multiple use cases in the natural resource sector.

This network creates international pathways for safe and efficient data exchange. EMDT's ecosystem includes environmental auditors, government bodies, mining and energy companies, and non-government organizations. Within this ecosystem any organization using interoperable digital wallets can send and receive digital credentials with just a few clicks.

EMDT's pilot ecosystem includes 17 participants, representing provincial, national, and global interests, including Spherity, Equitable Origin, Xpansiv, PwC, London Metal Exchange, and more.

ENERGY & MINES DIGITAL TRUST ECOSYSTEM



LESSON LEARNED 3

Truly recognizing the potential of this technology will require wide-spread adoption over time. *In the interim, EMDT's ecosystem will produce increasing value for participants as it grows in scale and scope, and as participants begin utilizing the technology in their day-to-day business processes.*

INTEROPERABLE TECHNOLOGY: TRACTION

Bringing sustainability data from the physical world into a trusted digital environment is essential to global climate action strategies and can alleviate current challenges in sustainability reporting. To enable the Government of B.C.'s entry into a digital ecosystem, EMDT created Traction, a digital enterprise technology that allows sensitive information to be shared using digital credentials.

DIGITAL CREDENTIALS

Offline, businesses use physical documentation (such as a business registration document) to prove something about themselves. Online, members of a digital trust ecosystem use digital credentials for the same purpose.

EFFICIENT REPORTING
A digital trust ecosystem makes it quick and easy to share data that proves natural resource products were responsibly sourced.

INCREASED ACCURACY
Digital credentials are checked in real-time and there is no risk of data manipulation when shared.

IMPROVED TRUST
Digital credentials are tamper-proof so data cannot be manipulated during transmission. Information can be trusted.

PRIVACY PRESERVING
Organizations share only the information they choose. Digital credentials make it easy to customize specific data requests.

MAXIMIZED MARKETS
Natural resource companies that verify responsibly-sourced products can compete in a global market that values sustainability.

MULTI-TENANT CAPACITY
Multiple digital wallets can be easily managed and supported, enabling streamlined administration for organizations with many users.

Digital credentials are shared using distributed ledger technology, which allows for the exchange of data through an encrypted communication channel. Information is kept secure, current, and untampered, and reporting processes are made more efficient, trustworthy, and secure.

Every digital credential contains a set of verifiable claims. For example, a digital credential could contain information that proves a business is registered in B.C., or that a mine has the correct permissions to operate. Digital credentials can be used to verify these claims for a multitude of recipients.

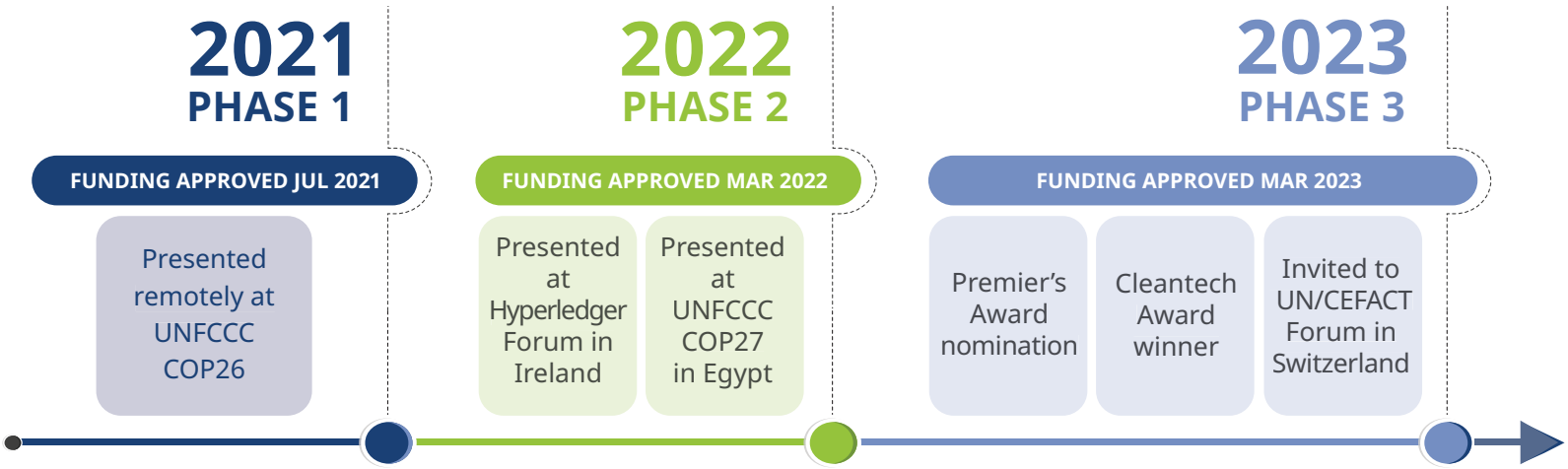
Using digital credentials, it is easy to customize requests for information and organizations never have to disclose more information than they choose. Verified in real-time, anyone viewing the credential can easily determine who issued it, that it is still valid, and that it has not been revoked.[2]

LESSON LEARNED 4

Strong Partnerships Create a Strong Pilot. *When identifying technology partners, pilot participants, and stakeholders, it is important to ensure that the network is well connected. Collaboration and knowledge sharing is fundamental to the success of all participants. Frequent communications ensure that each organization is kept informed and engaged.*

EMDT: PROJECT REVIEW

Due to the emerging nature of the project, EMDT faced two major risks: developing cutting-edge technology for a new application and gathering the support and interest of B.C. natural resource companies, auditors, and regulators to enable the digital ecosystem. EMDT knew that to address both challenges the project must be managed iteratively. To maximize impact, EMDT divided into two streams of work and established a phased approach to project delivery.



PHASE 1: GETTING STARTED (2021)

EMDT established a phased approach to project delivery. With support and guidance from the Ministry of Citizens' Services, Phase 1 included:

- Building and testing the capabilities of Traction.
- Enabling a use case in the mining sector, exploring the use of the technology with Copper Mountain Mining Corporation, PwC, IBM, and the Open Earth Foundation.
- Presenting EMDT's approach at United Nations COP26 Global Innovation Hub, showcasing the benefits to B.C. mining operators.

PHASE 2: EDUCATION AND EXPANSION (2022)

While Phase 1 demonstrated EMDT was of global interest and had proven value to natural resource operators, Phase 2 focused on broadening the ecosystem and expanding the number of use cases based on overwhelming support for the project.

Throughout Phase 2, EMDT:

- Participated in over 20 speaking events, including an invitation to COP27, enabling connections with climate and technology leaders and building a positive global reputation for the project.
- Expanded the digital trust ecosystem from 3 participants to 17, extending into the natural gas sector.
- Designed digital credentials for each use case, including information on climate performance, water stewardship, health and safety, community impact and effective Indigenous engagement.
- Developed governance documentation that mapped the new technology to existing regulation and created a framework for broader adoption.

PHASE 3: SUPPLY CHAIN SECURITY (2023)

In 2023-24 EMDT's third phase of work will focus on enabling B.C. companies to prove their sustainability claims on raw materials shipments in global supply chains, further demonstrating how digital trust technology helps companies differentiate their products and increase the value and desirability of Canadian products.

EMDT has been invited by the UN/CEFACT to undertake joint activities on critical mineral supply chain tracing and will speak to this work at the UN/CEFACT Forum in May 2023.

Phase 3 will:

- Deepen adoption and integration with interested participants.
- Expand the digital trust ecosystem beyond existing pilots, including participation by one or more Indigenous organizations.
- Promote B.C. internationally as a leader in open-source solutions, digital trust and ESG innovation.

LESSON **LEARNED**

5

Use Cases: Quality over Quantity: *When identifying viable use cases, quality should take precedence over quantity. At the outset of conversations about pilot participation, it is essential to gauge the level of interest, availability, and enthusiasm of each stakeholder. Choosing a smaller selection of use cases with highly motivated stakeholders allows for greater focus and more productive meetings, garnering excitement, eager contribution, and high value outputs.*

PROJECT TEAM ORGANIZATION

With support from the Executive Sponsors within the Government of B.C., EMDT successfully advocated for a dedicated team of staff from the Ministry of Energy, Mines and Low Carbon Innovation (EMLI) to form the project team. EMDT secured funding since 2020 through the Strategic Investment Fund (SIF) in partnership with the Government of B.C. and TELUS, enabling the project team to expand, encompassing resources to support stakeholder engagement, education and change management.

TEAM STRUCTURE

The EMDT project team is divided into two streams of work: a technology team dedicated to the development of Traction, and a project delivery team working on governance documentation, stakeholder education and engagement, event support, and sustainability research. By dividing the project team into two streams, each was able to approach their work with a designated focus. Regular full-team meetings, in the form of Agile 'Scrum' ceremonies, ensured continuity and clarity between both teams.

LESSON **LEARNED** 6

Build a Team You Can Trust: *In leading a cutting-edge project, a fulsome team with diverse skillsets is essential. Each team member is responsible for a different element of the project, bringing nuanced experience and expertise to the role. This allows leadership teams to focus on long-term visioning and strategic goals.*

AGILE METHODOLOGY FOR USER-CENTRIC SOLUTIONS

In recent years, Agile methodologies have gained significant popularity in government projects. Agile is an approach to project management that helps teams deliver user-focused products and services at a faster pace by using iterative processes that emphasize continuous improvement and quality control. Work is organized in periods called 'sprints' that usually last two to four weeks, allowing Agile teams to benefit from adaptability and flexibility.

Following Agile methodology allowed the team to react to shifting priorities as the scope of the project evolved. By pursuing an Agile approach, EMDT's two teams address stakeholders' needs more accurately and with greater speed, while reacting quickly to shifting requirements and external factors. This creates room for adoption to change without disruption. Moreover, by frequently assessing challenges, the overall project risk is reduced, as potential problems are identified and addressed early on.

SCRUM CEREMONIES

Scrum ceremonies are meetings in which the scrum master, product owner, and team members meet to discuss and plan work and gather feedback to achieve their sprint goals.

Both of EMDT's teams operated under the following Scrum ceremonies:

- **Sprint Planning** An initial meeting that serves as roadmap and guidance for an upcoming sprint.
- **Daily Stand-up** A daily meeting that allows team members to update each other on their progress and identify and resolve roadblocks.
- **Sprint Review** At the end of a sprint, the team meets with members from other teams and stakeholders to showcase accomplishments and features.
- **Sprint Retrospective** In the final meeting of a sprint, the previous sprint's successes, challenges, and insights are discussed to find ways to optimize future sprints.

Operating in this fashion allows the EMDT project teams to effectively tackle their work, without being distracted by tasks outside their scope of responsibility.

For EMDT, scrum ceremonies like the sprint reviews allowed the two teams to stay informed on the project's progress. Through knowledge sharing, the technology team remains aware of current stakeholder needs, while the project delivery team is kept informed of Traction's development and latest features.

ADVISORY COMMITTEE

To regularly receive input, feedback, and new perspectives from industry leaders, academia, government and non-government organizations, EMDT established an Advisory Committee. The Advisory Committee has met bi-annually since 2021, offering insight at key stages of EMDT's project development.

The committee consisted of multiple organizations, including:

- Mining Association of Canada
- United Nations Global Innovation Hub
- Natural Resources Canada
- First Nations Major Projects Coalition
- University of British Columbia
- University of Oxford
- Stanford University
- Business Council of British Columbia
- PwC
- IBM
- Google Cloud
- Microsoft
- Foresight Canada
- LlamaZOO
- EELO Solutions
- Innovation, Science and Economic Development Canada
- Telus
- Teck Resources
- Mining Association of BC
- Office of the BC Innovation Commissioner

LESSON **LEARNED** 7

Flexible Funding Supports Innovative Projects. *Through a focus on discovery, exploration, and partnerships, TELUS' Strategic Investment Fund offers a unique funding model that prioritizes and drives new solutions and technology.*

GOVERNANCE

Current global business practices are conducted using widely agreed upon rules, systems, and procedures known as governance. Through governance, the activities and services of each organization are consistent, and the powers and permissions of the organization and its decision-makers are predetermined.

Exchanges within a digital trust ecosystem also require governance frameworks. Governance determines who is eligible to issue, hold, or verify a digital credential, and how the digital credential may be used. Governance standardizes the use of digital credentials, regardless of where or to whom the credential is shared.

DEVELOPING GOVERNANCE WITH IBM

EMDT's journey towards the development of use-case specific governance structures began with IBM. This collaborative work, conducted between December 2021 and February 2022, established the guiding principles, direction, and frameworks that EMDT utilizes today.

The collaboration with IBM enabled the following learnings:

- Using basic governance framework templates as a basis for facilitating stakeholder workshops, EMDT accelerated the design of governance frameworks.
- Building overview documents for existing pilots provided an outline of key actors, recommended governance frameworks, and key interactions in the digital trust ecosystem, supporting onboarding of future ecosystem participants.
- IBM's recommendations provided EMDT with a clear understanding of what elements were required to design Trust Over IP-informed governance frameworks and successfully scale and operationalize the digital trust ecosystem.

TRUST OVER IP METAMODEL

The Trust Over IP (ToIP) Foundation subsists of over 300 members and eight working groups, dedicated to creating tools and architecture to support the growth and adoption of digital trust technologies.

To assist project teams developing policies and frameworks for credential exchange, ToIP developed the ToIP Governance Metamodel Specification. The ToIP Governance Metamodel Companion Guide serves as a guidebook for the ToIP Governance Metamodel Specification and supports entities that aim to design, draft, review, and publish a ToIP-compliant governance framework.

ToIP architecture is designed around the idea that governance interoperability is equally as important as interoperability of technical protocols. This concept can be translated visually into dual-stack design with four layers.

EMDT GOVERNANCE METHODOLOGY

To guide the design of governance structures for a digital trust ecosystem, EMDT established seven Digital Trust Ecosystem Governance Principles:

- Build on an open-source foundation
- Enable interoperability with as many solutions as possible
- Incentivize sustainable behavior
- Create market opportunities
- Establish digital wallets as a public good
- Allow for adaptation of rules
- Provide space for the digital trust ecosystem to grow to accommodate future participants

To build governance structures and documentation for the various pilot use cases, the EMDT team followed a four-step approach:

1. **Research existing documentation**
   Initially, information is gathered on the scope and requirements around the pilot use case to establish corresponding needs for governance structures.

2. **Hold stakeholder dialogues**
   To gain a deeper understanding of existing systems and future governance needs, various stakeholder dialogues are held to inform the governance documentation.

3. **Create an initial draft of governance documentation**
   EMDT creates an initial draft of governance documentation that can be tested out in practice by stakeholders.

4. **Iteratively improve governance documentation**
   Using continuous stakeholder feedback, EMDT iteratively improves upon the initial design of governance documentation until it meets the specific requirements of the use case and stakeholder needs.

Close collaboration with stakeholders in the process of designing governance is critical to the creation of governance structures and documentation that align with stakeholder needs. Adapting governance structures to new technologies is an opportunity to reflect on existing governance structures, bring to light inefficiencies, and move forward with an optimized solution. EMDT learned that a collaborative workspace is essential in the governance design process. GitHub provides this space and enables easy access for stakeholders to contribute and edit governance documentation drafts. By monitoring changes through version control, clarity is maintained on what changes were made and why.

LESSON LEARNED 8

Governance Documentation Requires an Iterative Approach. *Continuous feedback and refinement are required to produce well-designed governance structures that efficiently support day-to-day operations for users of the technology.*

EXCHANGING VERIFIED DATA: EMDT USE CASES

As EMDT completed their first year of work and began undertaking a broad suite of use cases with multiple stakeholders, they encountered two challenges: developing emerging technology for a new application and encouraging participation in an area with a general lack of knowledge and understanding by stakeholders. It was essential that EMDT could both develop the technology in accordance with industry best practices and maximize the value of this solution for stakeholders.

STAKEHOLDER EDUCATION AND WORKING SESSIONS

To support the adoption of digital trust solutions, EMDT organized a series of working sessions to equip all pilot participants with the right information, motivation, and ability to successfully move through this change.

STAKEHOLDER ONBOARDING JOURNEY

1 Identify Stakeholders	2 Assess Value Proposition & Interest	3 Confirm Use Case Specifics	4 Define Credential Schema & Governance	5 Select Technology	6 Run Pilot	7 Go to Production
Identify issuer, holder, and verifier and assess the expected benefits and barriers to entry for each stakeholder.	Confirm stakeholders based on: expected value, ability to implement the use case, regulatory complexity, and availability.	Document workflows, semantics, pricing, and legal aspects.	Research regulatory requirements, develop credential schema and document governance details.	Choose and test appropriate digital wallet solution for each stakeholder.	Establish connections between participants and practice workflows to issue, hold, and verify credentials.	Address issues from pilot stage and ensure all regulatory requirements met. Move to production.

EMDT facilitated a series of sessions with every pilot participant to learn more about their current workflows, and where digital trust technology could be applied. The project team used a Miro board as a collaborative workspace, where participants could review key information and frequently asked questions and contribute to ongoing conversation.

Working sessions began with information gathering:

- Broad questions about the participants' roles, experience and specialized skills.
- A high-level and detailed review of the current workflow, capturing the participants' challenges and frustrations where applicable.

Using outputs from the initial questions, EMDT developed two pieces of collateral:

1. **User Personas** are a representation of the typical or ideal user of a product or service. A persona helps product designers understand the key traits, habits, responsibilities, and needs of their typical user.

2. **Journey Maps** help visualize the necessary steps in a current process. A journey map not only includes a timeline, but captures the user's emotions, mindset, and actions.

User personas and journey maps helped EMDT to identify where digital trust technology could benefit pilot participants' workflows, how their current processes integrated to new technology, and allowed the team to better understand the support each end user would need for adoption.

LESSON LEARNED 9

Stakeholder Education is Essential to Success: *Stakeholder education is integral to outlining the benefits and value of digital trust technology, and in understanding how it can alleviate challenges and improve current workflows. Pilot participants must be well-equipped with educational materials and ongoing support in the form of small-group sessions to successfully explore a use case.*

USE CASES IN DETAIL

MINING: TOWARDS SUSTAINABLE MINING

BACKGROUND

Towards Sustainable Mining is a voluntary certification program that recognizes mining companies' performance on material ESG factors, enabling B.C. companies to differentiate themselves in global markets.

PARTICIPANTS

- Envirochem
- Copper Mountain Mining Corporation
- Mining Association of Canada, La Mancha Resource Capital LLP

GOVERNANCE

- TSM Protocol Credential Governance Framework

EXCHANGE

- Every three years, Copper Mountain Mining Company must engage a third-party auditor to verify the self-attested data that supports Towards Sustainable Mining™ (TSM) scores.
- Envirochem verifies Copper Mountain's self-attested data and, agreeing with the scores, issues the Towards Sustainable Mining Protocol digital credential.
- Copper Mountain can verify their scores with the Mining Association of Canada and can use the same credential to satisfy additional requests for information from various organizations, including investment firms such as La Mancha.

OUTCOMES & KEY TAKEAWAYS

- Pilot participants voiced notable enthusiasm, outlining potential uses for this technology and additional participants who would be interested in receiving this information in the form of digital credentials.
- All participants noted there is an increasing desire for verified ESG data at the mine site level. EMDT demonstrated how digital trust technology can increase efficiency, transparency, and trust in reporting audited data.
- Working sessions showcased how digital credentials reduce the administrative burden for both Copper Mountain and Envirochem, and offered the Mining Association of Canada an opportunity to reflect on the rigor and data quality that informs the TSM program.
- The TSM program is recognized globally, with current adoption spanning six continents. The governance documentation and process flow EMDT is establishing with pilot participants will apply internationally, with a notable potential for wide scale adoption.

> The B.C. government has a vision of demonstrating to the world that B.C. production of metals is more responsible than that of other regions. Out of that process came this project of attaching ESG credentials, such as carbon intensity, to metals production. This information is passed along the supply chain, so the end buyer can purchase that metal based upon the ESG credential. At some point in the future, every buyer will be informed, and be able to decide whether or not to purchase products based on their ESG performance. This is the start of getting there.[3]

– Don Strickland, Chief Operating Officer
Copper Mountain Mining Corporation

LESSON LEARNED 10

Map New Tools to Existing Frameworks. *A key factor of a successful use case is the strength of their existing policies. For example, TSM is a globally recognized program with robust governance and stakeholder input and auditing process. This provides a pre-existing framework to map the new business process to and creates a framework for broader adoption.*

USE CASES IN DETAIL

MINING: GREENHOUSE GAS VERIFICATION STATEMENT

BACKGROUND

In B.C., mining facilities that emit 10,000 tonnes of CO2e or more are required to report their emissions annually, and facilities that emit over 25,000 tonnes of CO2e must have their data verified by an accredited third party. Third-party verification helps ensure emissions data and reports are accurate, consistent, and in accordance with provincial standards.

PARTICIPANTS

- PwC
- Copper Mountain Mining Corporation
- Government of British Columbia's Climate Action Secretariat, Open Earth Foundation

GOVERNANCE

- B.C. GHG Emissions Report Verification Statement Credential

EXCHANGE

- In accordance with B.C. regulation, Copper Mountain must have their annual emissions verified by a third-party.
- PwC is contracted to review Copper Mountain's self-attested data. After the review is complete, PwC issues the Greenhouse Gas Verification Statement digital credential.
- Copper Mountain can now use this digital credential to satisfy multiple requests for information, including voluntary disclosure to the Open Earth Foundation's Open Climate Portal.

OUTCOMES & KEY TAKEAWAYS

- EMDT initiated this use case by engaging the Government of British Columbia's Climate Action Secretariat (CAS). Early conversations solidified EMDT's understanding of the data that CAS requires from natural resource operators.
- EMDT learned that initiating use cases through conversations with the consumers of data is the most productive pattern, as this clearly outlines the most valuable data in the earliest stages of development.
- Carbon pricing is an integral part of the CleanBC Roadmap to 2030, and B.C. is developing a new made-in-B.C. carbon pricing framework to support reduced emissions. CAS and EMDT decided to not move this use case into production as CAS navigated the transition to the new framework, as CAS' current technology architecture sufficiently meets their current needs. The information gained from initial discussions creates a foundation for work in the future.

OUTCOMES & KEY TAKEAWAYS (CONT'D)

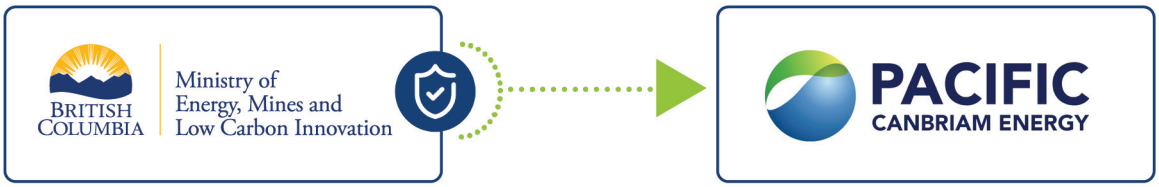
- EMDT learned that adaptability is essential to success, as the need arose to pivot to a new verifier, the Open Earth Foundation. Through working sessions with participants, EMDT identified numerous other verifiers who would be interested in this credential, including banks and investors.
- Ongoing exploration of use cases with investors, markets, purchasers, and more will contribute to the maturation of digital trust technology for the natural resource sector and encourage further adoption. As select pilots transition to production, quantifiable data and documentation will support the value of digital credentials for sustainability reporting, helping to overcome current obstacles to adoption.

> Our collaboration with the Ministry of Energy, Mines, and Low Carbon Innovation on the EMDT pilot project was a highly productive and rewarding experience. Our aim was to research and test digital trust technologies that could be leveraged to build a Digital Trust Ecosystem, which we believe to be highly relevant for climate data disclosure, particularly within the corporate sector. The ecosystem would foster transparency, interoperability, and accountability in reporting.
>
> The EMDT pilot provided a platform for auditors, carbon-intensive companies, and climate data platforms to work together under government guidance to establish this ecosystem. We were honored to work alongside the government and other pilot partners to guide the ecosystem's technical and governance development. Overall, we consider the EMDT pilot a highly valuable and productive undertaking. Our collaboration with the Ministry of Energy, Mines, and Low Carbon Innovation has been rewarding, and we look forward to further exploring digital trust technologies' potential in the corporate sector.

– Joaquin van Peborgh, Director of Product
Open Earth Foundation

USE CASES IN DETAIL

NATURAL GAS: B.C. PETROLEUM AND NATURAL GAS TENURE



BACKGROUND

The majority of subsurface petroleum and natural gas resources in British Columbia are owned by the Province. Tenure agreements give private developers rights to develop these resources.

PARTICIPANTS

- Tenure and Resource Stewardship Branch, EMLI
- Pacific Canbriam Energy Limited

GOVERNANCE

- B.C. Petroleum & Natural Gas Title Credential

EXCHANGE

- Pacific Canbriam requires a title tenure document outlining their access to subsurface areas in order to develop resources in B.C.
- EMLI's Tenure and Resource Stewardship Branch issues Pacific Canbriam a B.C. Petroleum and Natural Gas Title (Tenure) Credential.
- Pacific Canbriam can use this credential to demonstrate the details of their tenure rights and prove the legality of their operations in B.C.

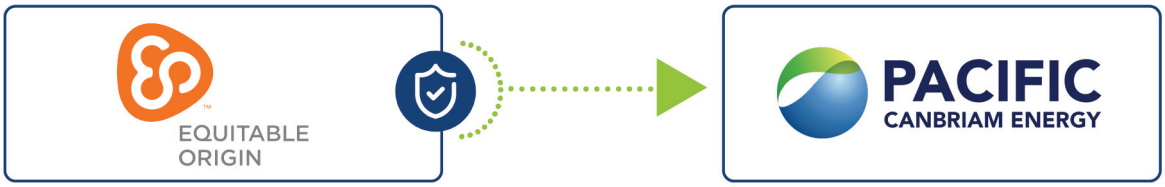
OUTCOMES & KEY TAKEAWAYS

- Title documents are foundational to the natural gas industry and are of interest to a range of verifiers. While this use case does not currently include a verifier, multiple agencies were considered, including the B.C. Energy Regulator.
- This credential could be used in a multitude of ways by the holder and creates the framework for additional and supplementary credentials in the future.

LESSON LEARNED 11

Government is an Economic Enabler: *While not all of EMDT's use cases actively involve a government actor as an issuer, holder, or verifier, each highlights the capacity for Government to enable economic opportunities for the private sector. Centrally situated in a network of regulators, auditors, natural resource companies, and more, the Government of B.C. is well positioned to initiate relationships and create the frameworks for private organizations to pursue.*

NATURAL GAS: EQUITABLE ORIGIN EO100



BACKGROUND

Voluntary industry-specific certifications, such as EO100, allow natural gas operators to showcase their responsible policies, exhibit their improvement over time, and compete in global markets that value sustainability.

PARTICIPANTS

- Equitable Origin
- Pacific Canbriam Energy Limited

GOVERNANCE

- EO100 Certification Statement Credential

EXCHANGE

- Pacific Canbriam voluntary completes a self-attestation and independent assessment in order to achieve Equitable Origin's EO100 certification.
- Satisfied with the assessment, Equitable Origin issues the EO100™ Certification Statement digital credential to Pacific Canbriam.
- Pacific Canbriam can use this credential to demonstrate their sustainability performance to auditors, purchasers, regulatory bodies, and more.

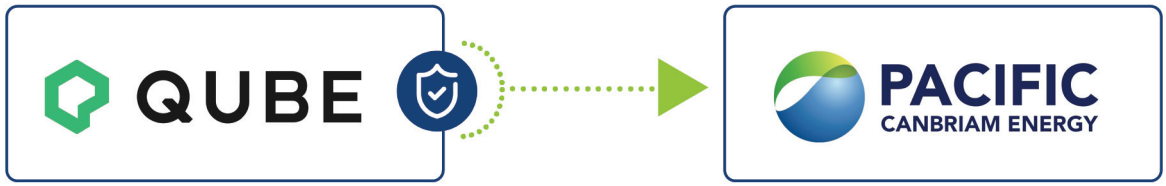
OUTCOMES & KEY TAKEAWAYS

- While the process of EO100 certification involves multiple stages, the certificate has simple data attributes, enabling a direct and efficient translation to digital credentials.
- Ongoing sessions with pilot participants will reveal how EO100 credentials are currently shared, helping to identify a high-value use case for all participants.

> The Tenure and Resource Stewardship Branch is proud to be an active participant in the Digital Trust project. Title documents form the basis for an array of commercial agreements between industry clients. Paper documents are of limited use as they are not updated. Digital certificates should make it far easier to quickly and reliably verify the rights held by the title along with the current registered holder, making for smoother, more efficient commercial transactions among our industry clients.
>
> *– Terrence Branscombe, Senior Tenure Management Advisor*
> **Tenure and Resource Stewardship Branch, EMLI**

USE CASES IN DETAIL

NATURAL GAS: QUBE IOT MONTHLY REPORT



BACKGROUND

Digital transformation is an essential element of our collective progress towards provincial, national, and international climate goals. Digital trust technology and Internet of Things (IoT) devices can be used to collect and share data on emissions performance, making sustainability reporting more efficient, accurate, and trustworthy by enhancing access to authoritative raw data.

PARTICIPANTS

- Qube IoT
- Pacific Canbriam Energy Limited

GOVERNANCE

- Qube Monthly Report Primary Governance Document

EXCHANGE

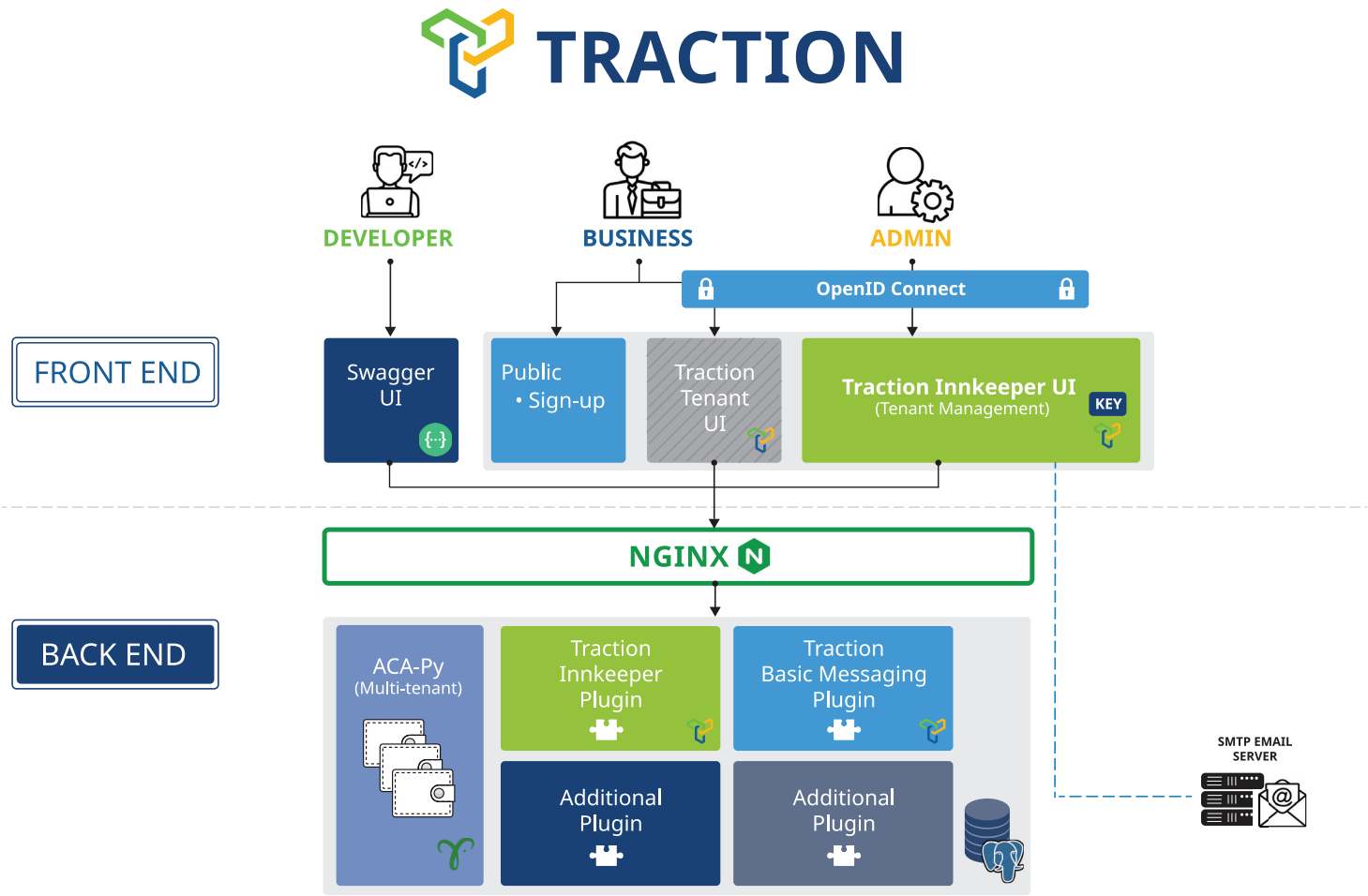
- Pacific Canbriam utilizes on-site Qube IoT devices to record critical operational data, primarily methane emissions.
- The Qube IoT devices automatically issue a digital credential containing monthly collected data to Pacific Canbriam's organizational wallet.
- Pacific Canbriam can use this data to inform internal tracking and emission reduction strategies, and efficiently identify leaks. The digital credential can be shared to a range of actors, enabling access to trusted critical data.

OUTCOMES & KEY TAKEAWAYS

- IoT devices are emerging technologies with high interest from a variety of organizations.
- By aligning IoT devices with digital trust technology, this use case demonstrates how ESG data collection and exchange can be revolutionized in the digital world.
- By integrating Qube IoT devices with an organizational wallet, the process of data collection and exchange is almost completely automated. This increases the trust in the data and reduces administrative burden for natural resource companies.
- As Pacific Canbriam's use of IoT devices is in early development, there are many unknowns in this use case. As their familiarity with these devices matures, it will become easier to identify how digital trust technology maps to this process.

TRACTION: THE VALUE OF OPEN SOURCE

Traction enables the Government of B.C. to participate in the digital trust ecosystem, streamlining the process of sending and receiving digital credentials.



Traction is an open-source digital enterprise wallet with many benefits:

API-first Architecture	Enhanced Interoperability	Multi-tenancy	Growth to Scale
Traction's design makes it easy to integrate with existing lines of business.	Traction builds on Hyperledger Aries, making it broadly compatible with technology used around the world.	Multiple organizational wallets can be easily managed and supported.	Open-source technology encourages collaborative refinement, faster release, and higher scalability.

TRACTION: THE VALUE OF OPEN SOURCE

COMPONENTS OF TRACTION

EMDT built Traction on Hyperledger Aries Cloud Agent Python (ACA-Py) and Hyperledger Indy to best support self-sovereign identity solutions for business applications.

Hyperledger ACA-Py is an open-source software from the Hyperledger Foundation used to build technology that enables the exchange of digital credentials. As a widely used protocol in digital trust technology, ACA-Py makes Traction highly interoperable. Additionally, ACA-Py's multi-tenant capacity enables the management of multiple wallets while using only one instance of Traction.

Hyperledger Indy is the distributed ledger technology (DLT) that Hyperledger Aries runs on. DLT is a highly secure distributed database that collects data, information, and transactions. Indy provides an authoritative source of data about issuers and schemas that is deliberately designed to be tamperproof, enabling digital trust among ecosystem participants sharing digital credentials.

LESSON **LEARNED**

12

Interoperable Technology, Processes, and Data Standards Facilitates Global Data Exchange. *EMDT demonstrates how digitalization has the potential to improve the international exchange of critical data while prioritizing privacy and data security for suppliers and operators. A focus on interoperable open-source technology can help to overcome barriers to adoption and encourage global participation and collaboration in line with UN/CEFACT's guidelines for successful traceability initiatives*

BENEFITS OF OPEN SOURCE TECHNOLOGY

A technology is considered open-source when its components, such as its code, are freely available to the public. To reflect that, open-source technology is distributed under a licence that allows entities to view, edit, and redistribute the code. This approach differs from conventional proprietary licences, which are exclusively owned by a specific entity, usually the producer or publisher of the technology.

Open source encourages a community approach to developing and refining technology making open-source development one of the most popular development approaches today. By using Hyperledger open-source software foundations, ACA-Py and Indy, Traction benefits from:

INTERNATIONAL COMMUNITY

EMDT is part of a community that is working toward a shared goal, facing shared challenges and advancing digital trust together.

COLLABORATIVE REFINEMENT

The community of open source developers enables a more thorough review and testing process, which leads to more reliable and secure digital trust solutions.

INTEROPERABILITY DRIVING ADOPTION

Open-source solutions prioritize interoperability, allowing for easy adoption into existing lines of business.

COLLABORATION

To develop Traction, EMDT collaborated with the global opensource community and Office of the Chief Information Officer's Digital Identity and Trust program, allowing EMDT to benefit from continuous technological advancements from an international team of developers. In this process, EMDT has made significant contributions in the global open-source community, a symbiotic relationship that continues to benefit the refinement of its technology.

The Government of B.C.'s Ministry of Citizens' Services (CITZ) is one of EMDT's key collaborator in digital trust. Together with CITZ, EMDT drives inter-agency cooperation to support B.C.'s commitment to modern digital services and building a thriving digital economy and testing new capabilities for how relationships can take place online. EMDT collaborated with the OCIO's Digital Identity and Trust Program to add Traction's features to their core products.

Hyperledger Foundation is an open-source community focused on developing a suite of stable frameworks, tools and libraries for enterprise-grade blockchain deployments and serves as the technological and communal foundation of Traction. Hyperledger hosts many committees, working groups, and special interest groups, of which EMDT is a member of several. These groups offer a venue for knowledge sharing and networking, further building the global community that supports EMDT.

BCDevExchange is a network of digital specialists that serves as the backbone of building modern digital services for the B.C. Government. In addition to providing a DevOps platform, the technical expertise concentrated in the BCDevExchange served as a sounding board for EMDT's developers as they refined Traction, speeding up development.

> It is no secret that government support for open source can help create a more open, collaborative, and innovative environment. The Energy & Mines Digital Trust team is both highly innovative and forward-thinking in how they use and contribute to open-source projects. By participating in our Hyperledger Foundation project community in various ways, from code contribution to industry event talks and workshops, Energy & Mines Digital Trust is at the forefront of industry advancements and is shaping the future of the energy and mining sector.
>
> *– Daniela Barbosa, Executive Director*
> **Hyperledger Foundation**

TRACTION: THE VALUE OF OPEN SOURCE

> The Climate Warehouse program of the World Bank believes in the potential of digital trust technology that has been developed by EMDT through the investment of the Government of British Columbia's Ministry of Energy, Mines and Low-Carbon Innovation. The investment in emerging technology will enable businesses to participate in digital carbon markets and other initiatives that will further our collective work towards a clean, resilient economy.

– Chandra Shekhar Sinha, Advisor
Climate Change Group at The World Bank

COLLABORATION (CONT'D)

Northern Block is a self-sovereign identity solution (SSI) provider offering an SSI Digital Wallet App, SSI an Enterprise Cloud Platform, and other supporting resources. As a valuable partner and an example of EMDT's close collaboration with the private sector, Northern Block demonstrates Traction's interoperability and highlights one of many options for digital wallets for non-governmental organizations. EMDT's symbiotic relationship with Northern Block came alive in working sessions across EMDT's use cases, with Northern Block providing insights for Traction's development and EMDT channelling feedback toward refinement of Northern Block's SSI Orbit digital wallet solution.

Spherity offers decentralized identity management solutions, such as the Digital Product Passport. Traction's interoperability with Spherity's wallet enables further technological connection and development. Spherity's forward-looking work towards optimizing product-level ESG reporting processes aligns with EMDT's current and future project goals. By mapping new technology to existing regulatory frameworks, EMDT's organizational-level credentials pave the way for product-level credentials in the future.

LESSON **LEARNED** 13

Open Source Enables a Broader Ecosystem. *Building a technology on an open-source foundation brings a variety of benefits, from continuous technological advancements to having a community to engage with when facing challenges. Collaborating with internal and external stakeholders and other communities bound by a common cause is a driving factor to building efficient user-centric solutions.*

INDIGENOUS OUTREACH

Internationally, progress is being made towards developing a universal, globally recognized ESG standard. While this has the potential to streamline reporting processes and better evaluate companies' progress towards ESG goals, existing ESG standards do not adequately include or reflect Indigenous rights and interests.

Indigenous Peoples are disproportionately affected by resource extraction, due to large territorial bases, an increased likelihood of living in remote areas, and social, economic, and cultural ties to land.[4] Many potential strategies for climate action depend on Indigenous land or resources. Globally, investors are aligning their goals and interests with Indigenous values, as climate action initiatives cannot hope to be successful, or garner international investment, without Indigenous inclusion, consent, and values.[5]

Digital tools have the potential to address this challenge. EMDT learned that there is a broad appetite for participation in EMDT's use cases by Indigenous organizations. Co-design of a use case wherein an Indigenous organization is the issuer of a digital credential they collaboratively developed positions this organization as the standards setter for the use case. This positions the Indigenous issuer as the origin of trust for the data being exchanged.

EMDT INDIGENOUS OUTREACH GOALS AND OBJECTIVES

In Phase 2 of the project, EMDT conducted outreach with Indigenous organizations to inform the development of the pilot and use cases. EMDT hosted sessions with the following goals:

- Understand the historical changes, legislation, and social and political contexts that must inform EMDT's outreach and relationships with Indigenous representatives.
- Provide background and information to Indigenous organizations about the Energy & Mines Digital Trust project.
- Leverage opportunities to collaborate with Indigenous representatives in the development of the project.
- Develop best practices from feedback for use in EMDT's next phase of work.

HALFWAY RIVER FIRST NATION'S ZONES OF SIGNIFICANCE PROJECT

EMDT met with Ecora after initially being introduced at COP27. This session provided an opportunity to showcase EMDT and learn about their Halfway River First Nation Zones of Significance project, which includes a GIS solution with a colour-coded map indicating the cultural significance of Halfway River First Nation territory.

EMDT learned how important it is to seek out and integrate Indigenous perspectives and feedback, given the project's focus on the exchange of natural resource data. In their work with Ecora, Halfway River First Nation are utilizing digital tools to capture data collected by the Nation, for the purpose of representing Indigenous cultural and traditional knowledge.

Halfway River is attempting to provide a way to verify the cultural value of carbon products. Through this, there is opportunity for collaboration with EMDT in a use case that positions Halfway River First Nation as the issuer of a credential.

INDIGENOUS OUTREACH

FIRST NATIONS TECHNOLOGY COUNCIL

EMDT met with the First Nations Technology Council (FNTC) to outline the project's work to date, to better understand FNTC's interests, and to get their advice. The FNTC supports a multi-year project on the behalf of B.C. First Nations called the Indigenous Digital Equity Strategy which offered insight into the current trends and appetite for digital tools amongst Indigenous Nations and organizations.

FNTC noted that there could be widespread potential for the involvement of Indigenous organizations in a use case with EMDT, but that this must be determined on a case-by-case basis to ensure a collaborative product.

This session highlighted many recommendations as to additional organizations for EMDT to connect with, including the First Nations Leadership Council and the First Nations Data Governance Initiative.

KEY TAKEAWAYS

- Consultation, collaboration, co-design and shared decision-making is integral to creating a product and project that is respectful to, and reflective of, Indigenous priorities.
- The Tahltan Nation Development Corporation provides an example of how Indigenous outreach has garnered positive results.
- Different Nations will have specific concerns, interests, history, and values that must be considered, while maintaining the standards outlined by the United Nations Declaration on the Rights of Indigenous Peoples and the Declaration on the Rights of Indigenous Peoples Act.

INTERNATIONAL EVENTS

Attendance at events around the world has enabled EMDT to socialize the project, learning from an international community, and demonstrating how the project is a unique and valuable contribution to both the digital trust community and to ESG reporting.

Over the past two years, EMDT has:

- Formed relationships with more than 140 global stakeholders, including governments, international agencies, environmental NGOs, and leaders of the open-source community.
- Received global recognition for its innovative, unique approach in which a government is convening a digital ecosystem and creating digital public infrastructure.

Conferences and speaking events allowed EMDT to build strong international partnerships and develop a network of support to inform and contribute to the project. This enables the team to increase its visibility with invested audiences through blog posts, podcasts, social media and stakeholder networks.

LESSON **LEARNED** **14**

Communicate and Put Yourself Out There. *Even in an emerging field where there are more questions than answers, it is important to talk about your project work whenever possible to build relationships and reputation.*

EMDT has garnered global attention for improving processes for external stakeholders, with major international conferences requesting participation. Highlights of this past year include:

- Invitation from United Nations COP27 in Egypt. EMDT attended live, hosting and participating in multiple sessions for the UN Global Innovation Hub.
- Key speaker at the Hyperledger Global Forum in Ireland – a leading conference on open-source technology.
- Presentations at over 20 events, many international.

EMDT has built a reputation as a highly trustworthy and forward-thinking project, not only globally recognized for the use of emerging technologies, but for the unique and influential role of government in this work. EMDT has created a highly replicable method of operation that can be adopted by other Ministries and Agencies in British Columbia and beyond.

LESSONS LEARNED

LESSON LEARNED 1

Strong executive support for an emerging technology project, such as EMDT, is crucial to its success. *Truly harnessing the potential of digital trust technology will take widespread adoption over multiple years. In the interim, the initiative's value proposition is to position B.C. as a leader in digital trust technology and responsible sourcing. EMDT's executive sponsors, Nathaniel Amann-Blake, Assistant Deputy Minister, Ministry of Energy, Mines and Low Carbon Innovation (EMLI) and John Jordan, Executive Director, Emerging Digital Technologies, Office of the Chief Information Officer, have provided steadfast commitment to this long-term vision.*

LESSON LEARNED 2

Governments and accredited auditors can act as "trust anchors" that provide legitimacy and authority to companies' ESG claims. *Digital credentials issued by trusted institutions improve regulatory efficiency, align with existing regulatory processes, and put secure and easily shared data in the hands of operators. This enables trade opportunities for sustainable producers in their jurisdictions, making the process of sustainability reporting more efficient, transparent, and trustworthy.*

LESSON LEARNED 3

Truly recognizing the potential of this technology will require wide-spread adoption over time. *In the interim, EMDT's ecosystem will produce increasing value for participants as it grows in scale and scope, and as participants begin utilizing the technology in their day-to-day business processes.*

LESSON LEARNED 4

Strong Partnerships Create a Strong Pilot. *When identifying technology partners, pilot participants, and stakeholders, it is important to ensure that the network is well connected. Collaboration and knowledge sharing is fundamental to the success of all participants. Frequent communications ensure that each organization is kept informed and engaged.*

LESSON LEARNED 5

Use Cases: Quality over Quantity: *When identifying viable use cases, quality should take precedence over quantity. At the outset of conversations about pilot participation, it is essential to gauge the level of interest, availability, and enthusiasm of each stakeholder. Choosing a smaller selection of use cases with highly motivated stakeholders allows for greater focus and more productive meetings, garnering excitement, eager contribution, and high value outputs.*

LESSONS LEARNED

LESSON **LEARNED** 6

Build a Team You Can Trust: *In leading a cutting-edge project, a fulsome team with diverse skillsets is essential. Each team member is responsible for a different element of the project, bringing nuanced experience and expertise to the role. This allows leadership teams to focus on long-term visioning and strategic goals.*

LESSON **LEARNED** 7

Flexible Funding Supports Innovative Projects. *Through a focus on discovery, exploration, and partnerships, TELUS' Strategic Investment Fund offers a unique funding model that prioritizes and drives new solutions and technology.*

LESSON **LEARNED** 8

Governance Documentation Requires an Iterative Approach. *Continuous feedback and refinement are required to produce well-designed governance structures that efficiently support day-to-day operations for users of the technology.*

LESSON **LEARNED** 9

Stakeholder Education is Essential to Success: *Stakeholder education is integral to outlining the benefits and value of digital trust technology, and in understanding how it can alleviate challenges and improve current workflows. Pilot participants must be well-equipped with educational materials and ongoing support in the form of small-group sessions to successfully explore a use case.*

LESSON **LEARNED** 10

Map New Tools to Existing Frameworks. *A key factor of a successful use case is the strength of their existing policies. For example, TSM is a globally recognized program with robust governance and stakeholder input and auditing process. This provides a pre-existing framework to map the new business process to and creates a framework for broader adoption.*

LESSONS LEARNED

LESSON LEARNED 11

Government is an Economic Enabler: *While not all of EMDT's use cases actively involve a government actor as an issuer, holder, or verifier, each highlights the capacity for Government to enable economic opportunities for the private sector. Centrally situated in a network of regulators, auditors, natural resource companies, and more, the Government of B.C. is well positioned to initiate relationships and create the frameworks for private organizations to pursue.*

LESSON LEARNED 12

Interoperable Technology, Processes, and Data Standards Facilitates Global Data Exchange. *EMDT demonstrates how digitalization has the potential to improve the international exchange of critical data while prioritizing privacy and data security for suppliers and operators. A focus on interoperable open-source technology can help to overcome barriers to adoption and encourage global participation and collaboration in line with UN/CEFACT's guidelines for successful traceability initiatives*

LESSON LEARNED 13

Open Source Enables a Broader Ecosystem. *Building a technology on an open-source foundation brings a variety of benefits, from continuous technological advancements to having a community to engage with when facing challenges. Collaborating with internal and external stakeholders and other communities bound by a common cause is a driving factor to building efficient user-centric solutions.*

LESSON LEARNED 14

Communicate and Put Yourself Out There. *Even in an emerging field where there are more questions than answers, it is important to talk about your project work whenever possible to build relationships and reputation.*

“It is a privilege to collaborate with a leading-edge team to advance digital trust technology in the natural gas sector. Innovative and secure access for sharing sustainability data, certifications and other credentials will generate heightened transparency for the sector. Pacific Canbriam Energy is proud to be an industry leader in the production of independently certified responsible energy. With an increasing focus on where energy comes from, and how it is produced, B.C.’s investment in emerging technology has the potential to enable B.C. businesses to differentiate their products. We look forward to raising the profile and transparency of the B.C. natural gas sector, both here in Canada and globally.”

– Donna Phillips, Executive Vice President Corporate Development
Pacific Canbriam Energy

C O N C L U S I O N

As a leader in climate innovation, the Government of British Columbia understands that digital solutions are essential in our collective progress towards provincial, national, and international climate goals.

Organizations worldwide have shown interest in a better way to share and track sustainability data, and EMDT is demonstrating that digital trust technology has the capacity to accomplish this. This pilot is establishing forward-looking tools and policies that can be utilized across sectors and industries to simplify reporting practices, build relationships, and increase trust.

EMDT's pilots pave the way for digital reporting on ESG factors by creating a highly replicable operating model and a digital wallet with endless business applications. As the pilot expands to create efficiencies in supply chain traceability and cross-border trade, EMDT has the potential to open new market opportunities for B.C.'s natural resource industry and solidify British Columbia as world leader in open-source digital trust solutions and low carbon innovation.

LEARN MORE ABOUT ENERGY & MINES DIGITAL TRUST

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