



UCVDCC
PROOF OF CONCEPT DEMONSTRATION

April 21, 2021

AVIARY TECHNOLOGIES INC.

1 THE AVIARY TEAM

Small start up , big ideas

3 THE AV1 SOLUTION

Applying the solution to the challenge

AGENDA

2 CONTEXT SETTING

The retail cannabis business challenge

4 THE TECHNOLOGY ECOSYSTEM

Many technologies, one flexible solution

AVIARY – ABOUT US

- Aviary Tech is a startup focused on the mission of digital trust
- Deep roots in the open source community with a broad network of experts and ecosystem partners
- Highly skilled and flexible technical team coupled with in-depth knowledge and experience in the complexities of government implementations
- Dedicated focus on the use, application and emerging ecosystem of verifiable digital credentials and transactions

AVIARY ONE TEAM



BRIAN

CEO AND TECHNICAL LEAD



HELEN

DIGITAL ADVISOR



NIKKI

GOVERNMENT RELATIONS AND STRATEGIC ADVISOR



SIMON

TECHNOLOGY AND R&D ADVISOR



JORDAN

PROGRAMMER & DEVELOPER



TIM

IMPLEMENTATION CONSULTANT

CONTEXT: APPLICATION BEING ADDRESSED

COMPLEXITY

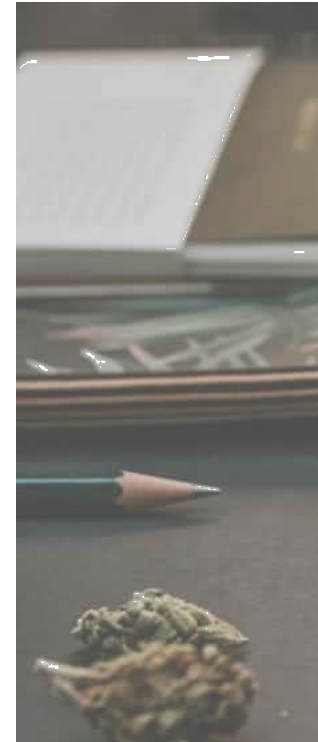
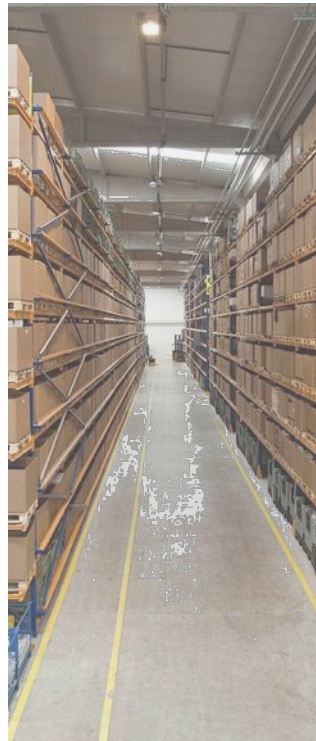
Canada is only the 2nd country to legalize the cultivation, possession, acquisition and consumption of cannabis and by-products.

This politically polarizing industry is complex and heavily regulated by various levels of government and under significant scrutiny.



CULTIVATION

DISTRIBUTION



REGULATION

RETAIL



RISK

The supply chain is at high risk of infiltration by organized crime for insertion of illegal product and money laundering.

Secure, digital issuance and **verification** of credentials for cannabis-related interactions would substantively change the industry.

USER PROBLEM STATEMENTS



Cannabis Producer

- Simple, secure and quick method for reporting compliance.
- Easy way to confidently engage with other trusted industry agencies and partners.
- Common integrated system for end-to-end product tracing.



Cannabis Regulator

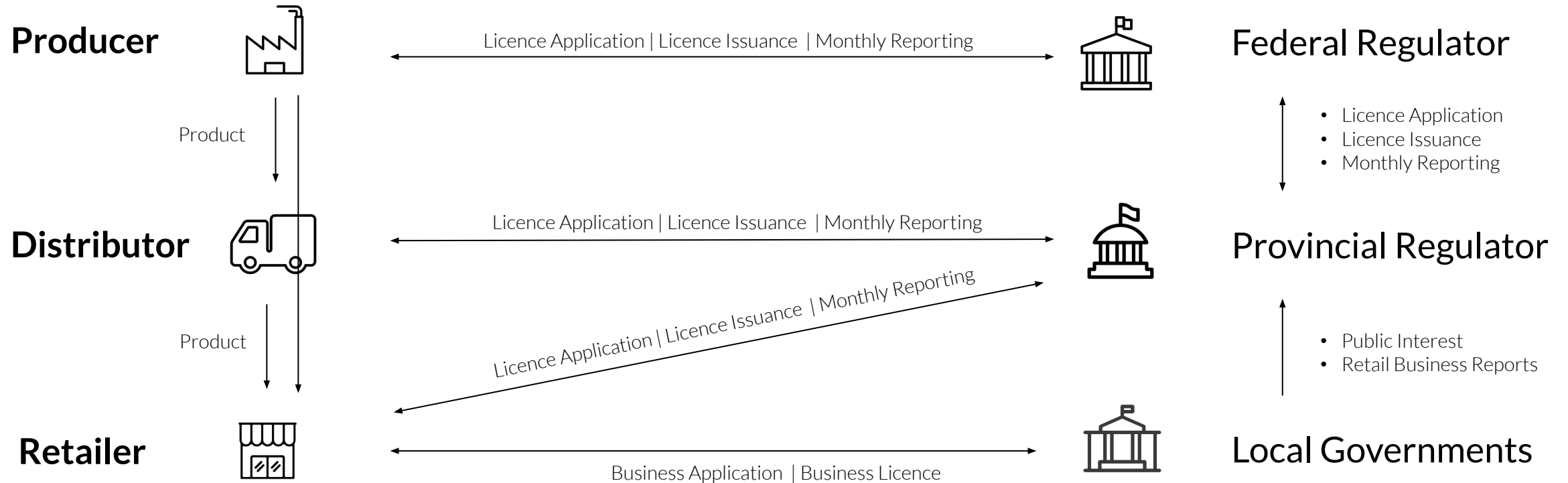
- A comprehensive overview of the market and its players
- Simple, efficient reporting processes
- High-level of confidence in the accuracy of retail sales metrics, reports and verified entities.



Cannabis Retailer

- Consumer trust in the legalized retail Cannabis market
- Improved confidence in the accuracy of product origin
- Enhanced ability in quickly and accurately responding to recall of products if needed.

CROSS JURISDICTIONAL RELATIONSHIPS

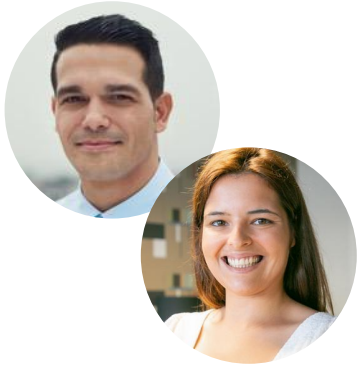


Licence Types:

- cultivation;
- processing
- analytical testing
- retail
- research
- medical cannabis
- edibles
- marketing

THE AV1 SOLUTION

The best systems are intuitive and provide a simple user interface...



More efficient and immediate influence for Provincial and Federal Regulators

- clear real-time overview of pertinent industry data points
- ability to directly and securely communicate with industry participants
- effortlessly issue, review, and interact with licences and licensees



More direct involvement for retailers, producers and distributors

- integrated communication features between licence and product transfer for improved engagement
- improved transparency and expedited methods for sharing and confirming of verified assets and information
- efficiency in meeting regulatory reporting requirements
- reliable, secure data protection

... AV1 is a true one-size-fits-all solution to seamless, automated, secure interactions and exchanges



CONNECTIONS

LICENCES

PRODUCTS



<https://api.aviary.institute>

Contacts



Invitations



aviary.shop

8 messages

March 14th 2021



aviary.one

3 messages

March 14th 2021



aviary.green

3 messages

March 14th 2021



aviary.market

3 messages

March 14th 2021



aviary.cash

3 messages

March 14th 2021



aviary.help

3 messages

March 14th 2021



aviary.chat

5 messages

March 14th 2021



aviary.shop

8 messages



• CONTACT CARD



Verified



• CONTACT CARD



Verified

Hi there, how do I apply to become a Cannabis Retail Store?

It's really easy, you just need to fill out the following licence application form

You will also need to supply proof of hire credentials for all of the relevant associates of your business



• LICENCE TYPE



• LICENCE APPLICATION

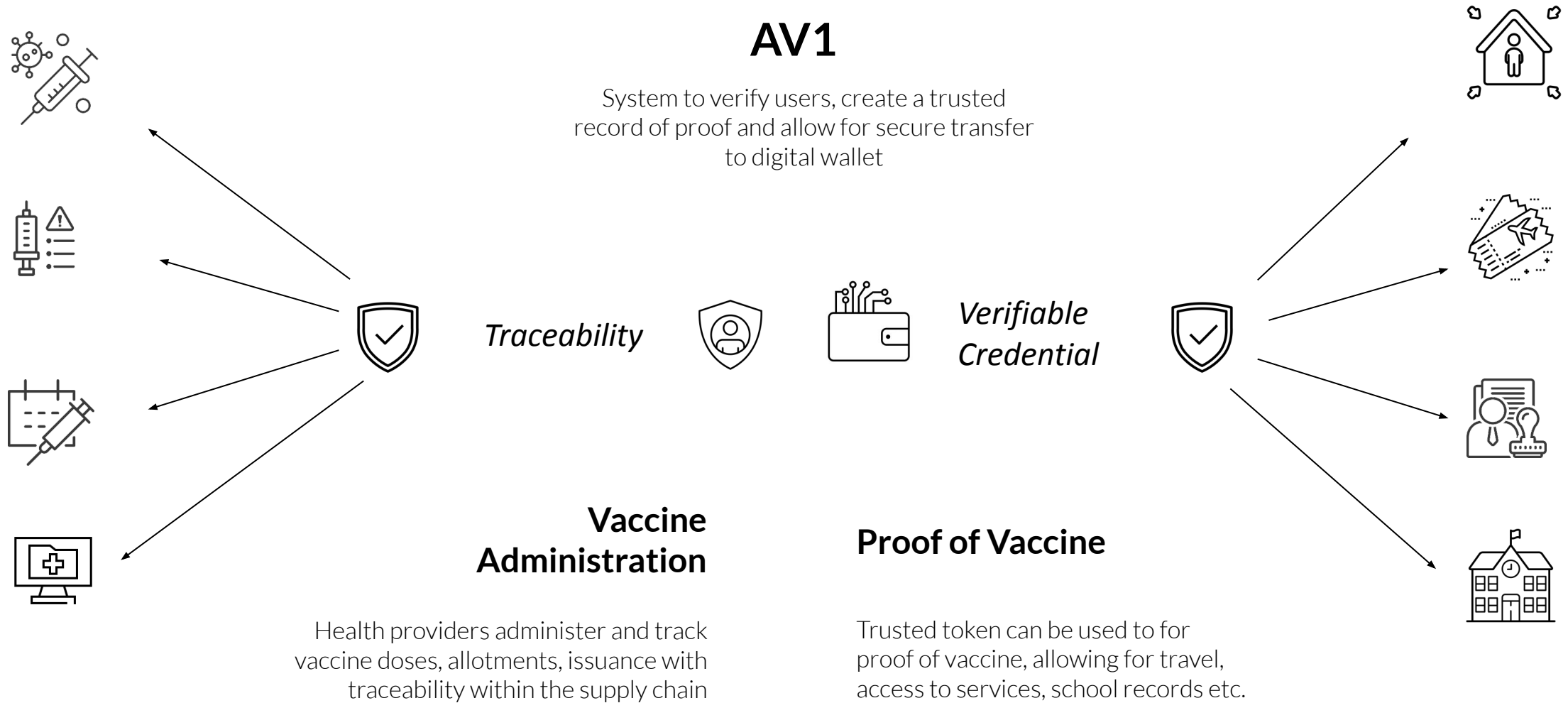


• LICENCE ISSUED



SEND

BEYOND CANNABIS



DEMO INTRO

Front End



Trusted Users

Clear and concise real-time access to user ecosystem, including secure and auditable communications, and reporting methods.



Licensing

Secure listing of verified licence credentials, pending applications and historical data by licensee or regulator.



Traceability

Unique privacy-preserving credentials representing each detailed product asset, ownership and status within the supply chain.

Back End



Verifiable Credentials

Multiple VC uses to verify actions such as product transfer, licence issuance and establishing secure connections between parties.



Decentralized Identifiers

DIDs create cryptographic keys to allow users to perform different actions throughout a system through seamless and standardized key distribution



DIDComm Messaging

Secure and private peer to peer communication via encrypted messaging channels.



DEMO



Innovative Ecosystem

Verifiable Credential formats

- Indy AnonCred
- JSON-LD
- JWT

Signature suites

- Ed25519Signature2018
- BbsBlsSignature2020
- BbsBlsSignatureProof2020

DID methods

- did:key
- did:web
- did:sov

Partnerships

- Trust Science
- RedHat
- OrgBook BC



Thanks!



APPENDIX A

DEMONSTRATION AGENTS



Regulators

- <https://aviary.institute>
- <https://aviary.one>

Producers

- <https://aviary.green>
- <https://aviary.market>

Retail Stores

- <https://aviary.shop>
- <https://aviary.cash>

Extras

- <https://aviary.chat>
 - <https://aviary.help>
 - <https://aviary.fun>
 - <https://aviary.icu>
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APPENDIX B

TECHNICAL SPECIFICATION

Core Technologies

- Verifiable Credentials (VC) data model
 - JSON-LD & JWT
- Decentralized Identifiers (DIDs)
- DIDComm Messaging (WebSockets)

Future State Technology Ecosystem

- Selective disclosure & data minimization - Zero Knowledge Proofs (ZKPs)
- Data encryption and decryption - Ed25519 and BBS+ Signatures
- Authentication and authorization - OpenID Connect protocol (OIDC), Credential Handler API (CHAPI) and Self-Issued OpenID Connect Provider (SIOP)
- Barcode Standard - GS1 Digital Link
- Explore broader uses and full strengths of JSON-LD

AV1 uses VCs in multiple ways to confirm an action is allowed, verified, traceable, and immutable – ensuring confidence, transparency and flexibility

- i.e. Product transfer, licence issuance and establishing secure connections between parties.
- JSON-LD - Paired with a VC can easily and clearly provide context of an object/data to the user. Linked data – not siloed (make clearer)
- JWT - Lightweight and flexible tool to sign data that is siloed and not linked external sources

DIDs

- Unique identifier allow user carry cryptographic keys which allow them to perform different actions throughout a system
- Seamless and standardized way for key distribution

DIDComm Messaging

- Secure and private peer to peer communication via encrypted messaging channels.



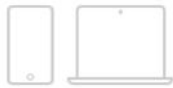
APPENDIX C

USER PERSONAS



CANNABIS PRODUCER

- Create and apply for a federal Cannabis Production Licence
- Begin production of raw cannabis Product
- Receive and view Production Licence
- Send and track product sales to Cannabis Processor
- Monthly reporting to Fed Regulator
- View and reconcile sales and product reports



IDEAL FUTURE STATE

Simple, secure and quick method for monthly reporting; easy way to confidently engage with other trusted industry agencies and partners; common integrated system for end-to-end product tracing.



KEY INDUSTRY ROLE

Federally licensed to cultivate, propagate and harvests raw cannabis products to sale to Licensed Cannabis Processors



AREAS OF RISK

Organized Crime infiltration through illicit product replacement or money laundering through cash transactions if not traced and verified appropriately

EXPECTATIONS OF SERVICE

Secure

Quick

Disconnected use

Trusted

Self service

Online

Reliant

Intuitive

Responsive

Platform agnostic



PROVINCIAL REGULATOR

- Receive licensee applications
- Create and issue licenses to applicants and to Federal Regulator
- Create and send monthly retail sales reports to Federal regulator
- Receive & audit monthly reports from distributors and retailers
- View active licencees and applicant status



IDEAL FUTURE STATE

Strong consumer trust and increase market share in the legal retail market. Simple, efficient reporting processes and hi-level of confidence in the accuracy of retail sales metrics and reports.



KEY INDUSTRY ROLE

Provincial regulator for provincial distribution and retail cannabis stores, including compliance and enforcement of terms and conditions of the licence



AREAS OF RISK

Heavily manual verification processes and product tracing with potential system weaknesses for infiltration of illicit product and money

EXPECTATIONS OF SERVICE

Secure

Quick

Disconnected use

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FEDERAL REGULATOR

- Receive licensee applications
- Create and issue licenses to applicants
- Receive and audit monthly reports from licensees
- View active licensees and applicant status



IDEAL FUTURE STATE

World class ability for accurate and rapid auditability of various part of the supply chain. Improved insight and product traceability across the industry. Critical ability to revoke licences (credential) and immediately break the supply chain if needed.



KEY INDUSTRY ROLE

Federal regulator over the production and national distribution cannabis industry, including compliance and enforcement of terms and conditions to of the licence



AREAS OF RISK

Limited ability to accurately audit the supply chain, nor react a quickly as wanted to address compromises to the supply chain

EXPECTATIONS OF SERVICE

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CANNABIS RETAIL STORE

- Create and apply for a provincial Cannabis Retail Licence
- Receive and view Retail Licence
- Receive and track products from distributor
- Sell, record and reconcile products and retail sales
- Create and send monthly retail reports to Provincial Regulator
- Reconcile and view retail records



IDEAL FUTURE STATE

Increased level of consumer trust in the legalized retail Cannabis market. Improved confidence in the accuracy of product origin. Enhanced ability to quickly and accurately recall products if needed.



KEY INDUSTRY ROLE

Legal direct to consumer sales and delivery of legal retail cannabis products



AREAS OF RISK

Receipt and sales of illicit product from a compromised supply chain.

EXPECTATIONS OF SERVICE

Secure

Quick

Disconnected use

Trusted

Self service

Online

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Intuitive

Responsive

Platform agnostic



CANNABIS DISTRIBUTOR

- Create and apply for a provincial Cannabis Distribution Licence
- Receive and view Distribution Licence
- Receive and track final product from processor
- Sell, distribute and track final products to licensed retail store
- Monthly distribution reporting to Provincial Regulator
- Reconcile and view distribution records



IDEAL FUTURE STATE

Trusted, accurate, and accessible system for product traceability and improved communications across industry partners and government reporting and licencing entities. Overall increased level of trust in the Canadian cannabis industry



KEY INDUSTRY ROLE

Facilitation and tracking of the transportation of cannabis goods from licensed producer to a licensed retail store



AREAS OF RISK

Organized Crime infiltration through illicit product replacement or money laundering through cash transactions if not traced and verified appropriately

EXPECTATIONS OF SERVICE

Secure

Quick

Disconnected use

Trusted

Self service

Online

Reliant

Intuitive

Responsive

Platform agnostic