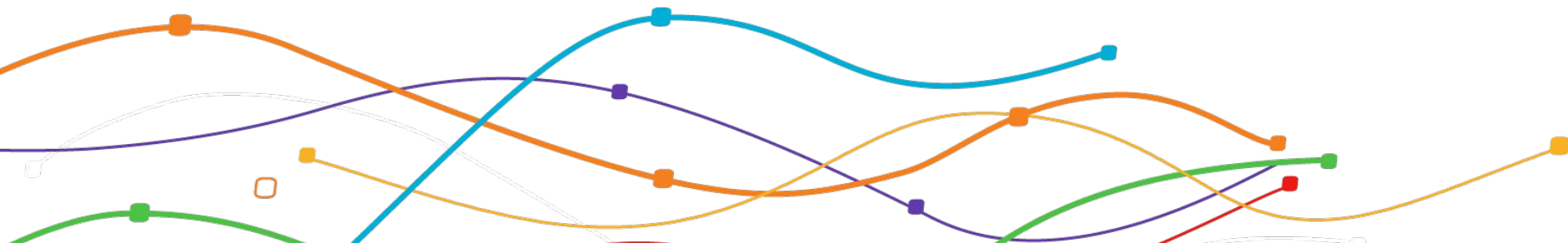
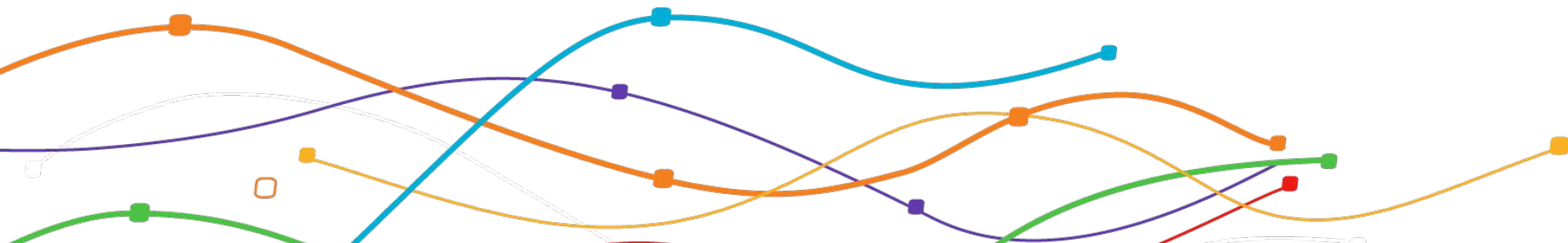


# NIITA Symposium 2023

October 17-19, 2023 in Whitecap,  
Saskatchewan



# Indigenous Health Information Data Sovereignty

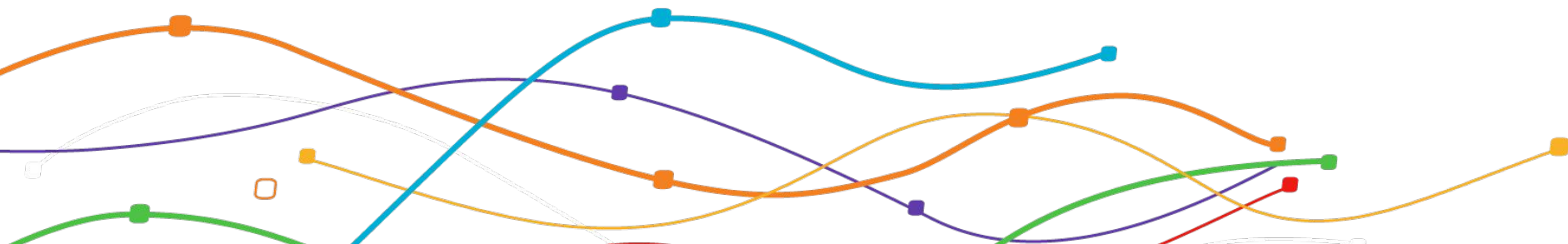




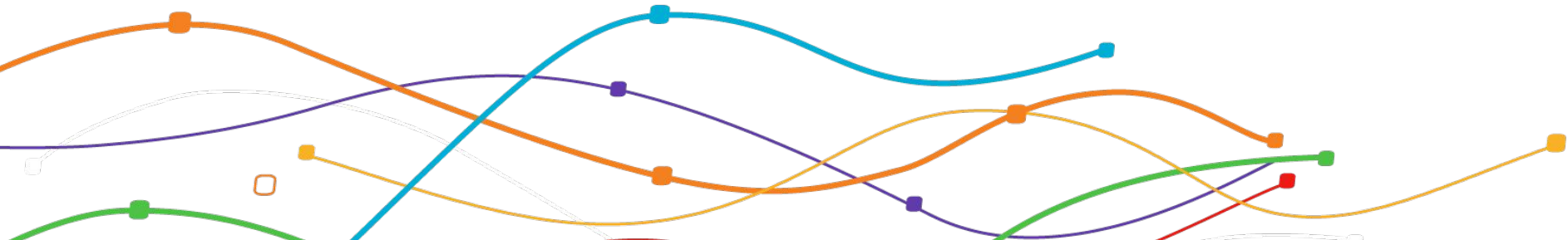
FIRST NATIONS HEALTH AND SOCIAL  
SECRETARIAT OF MANITOBA



NATIONAL INDIGENOUS  
INFORMATION  
TECHNOLOGY ALLIANCE  
L'ALLIANCE NATIONALE  
AUTOCHTONE DE LA  
TECHNOLOGIE DE  
L'INFORMATION



**Welcome - Smile Partners Speaking at this event.**



# Why

Latest Generation of the Morrison Family  
Big Grassy River Reserve

**smile**<sup>TM</sup>  
DIGITAL HEALTH



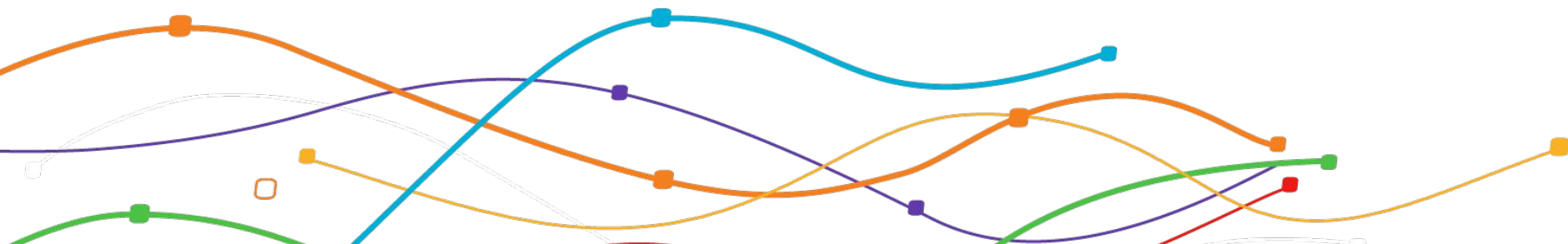
Amber

Eden

Ziigwan

Do you have a good  
imagination?....

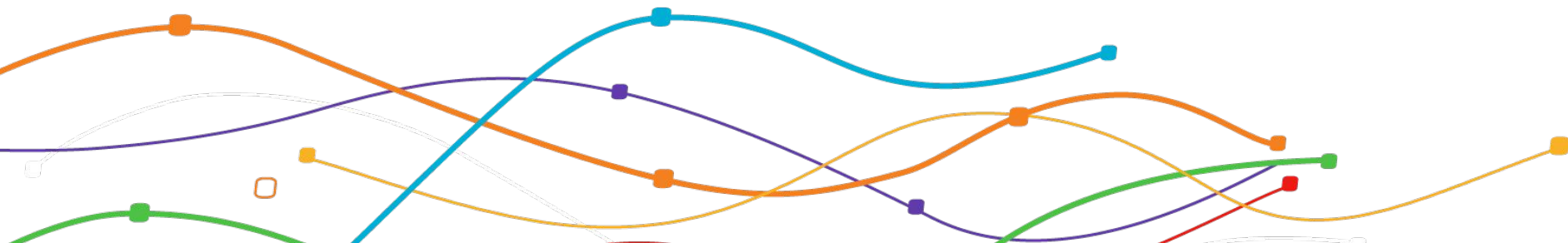
I do!



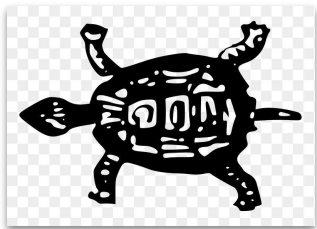


**I have a dream....**

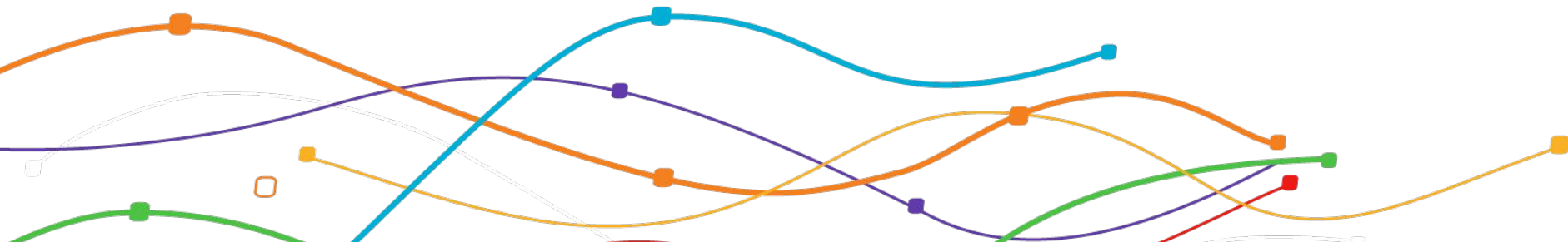
**Please indulge with me for a brief moment  
in my vision of an interconnected  
Indigenous Health System.**







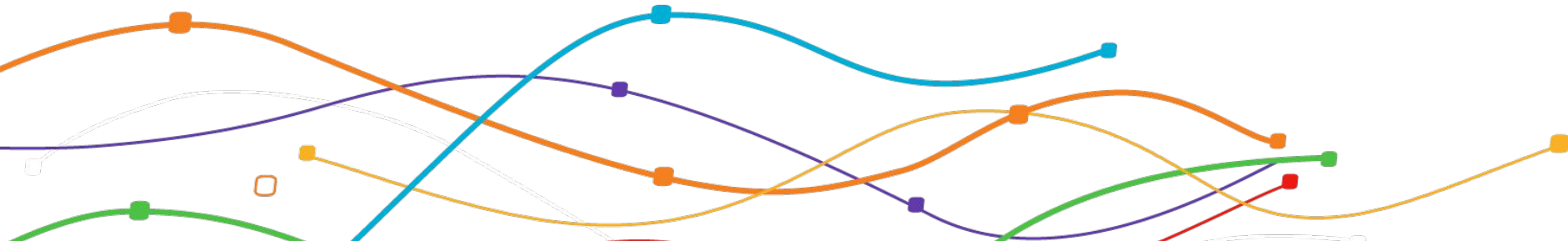
**Imagine an Indigenous Managed Health Information Exchange, where the Indigenous health data is centralized safely and readily available to a number of Indigenous Health Applications across the land, even on the most remote communities across Turtle Island**







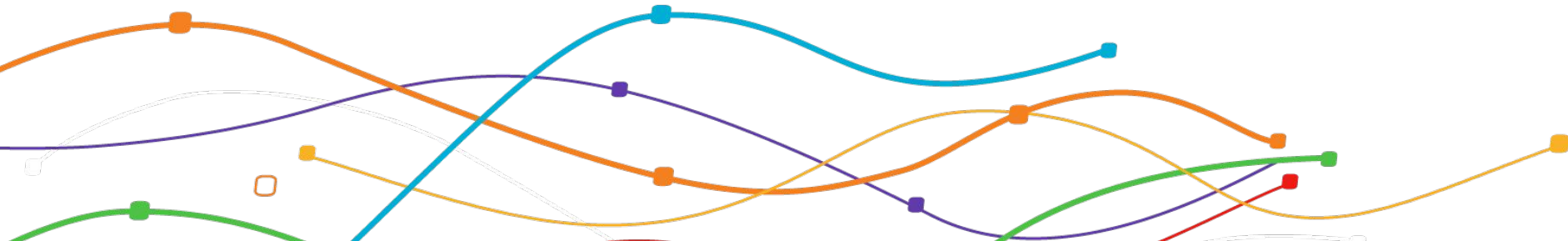
A study involving 266 organizations that work with human trafficking survivors and sexually exploited women and girls in Canada reported that 51% of trafficked girls were or had been involved with the *child welfare system*, and 50% of trafficked girls and 51% of trafficked women were Indigenous. Imagine a way to monitor and alert us when one of our women is treated at a Hospital or Clinic, this could only be possible if we have a centralized location to store Indigenous Health Data.



According to the Canadian Medical Association Journal report on : **Reconciliation and Canada's overdose crisis: responding to the needs of Indigenous Peoples**

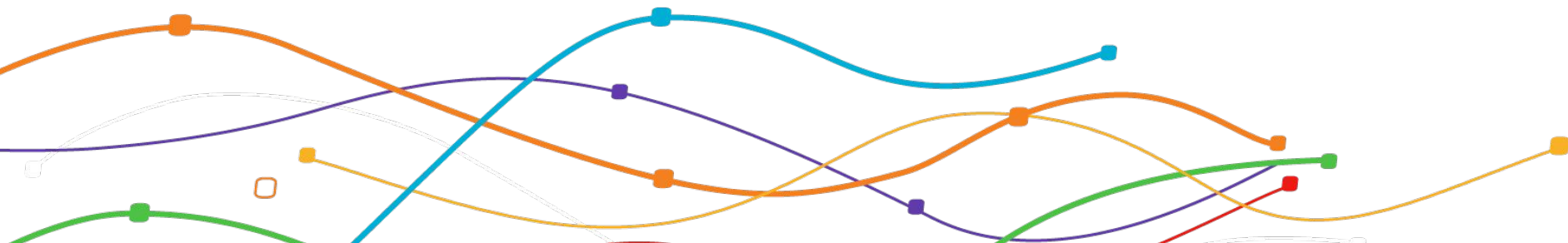
**Key Points:** Canada's drug overdose crisis disproportionately affects Indigenous Peoples differently owing to a legacy of colonialism, racism and intergenerational trauma.

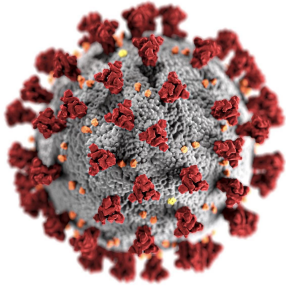
**Disaggregated data on Indigenous people is needed to understand more clearly how Indigenous Peoples are affected by drug overdoses.**



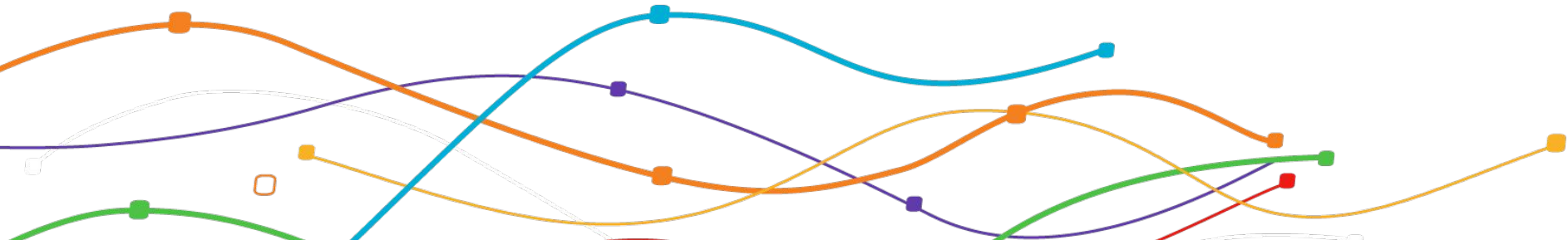


***Imagine*** that our Indigenous Research Applications can use the centralized data to better understand and help our members. ***Imagine*** a live dashboard to track live overdose episodes on specific regions to activate emergency procedures to find the source of the poisoned pills.



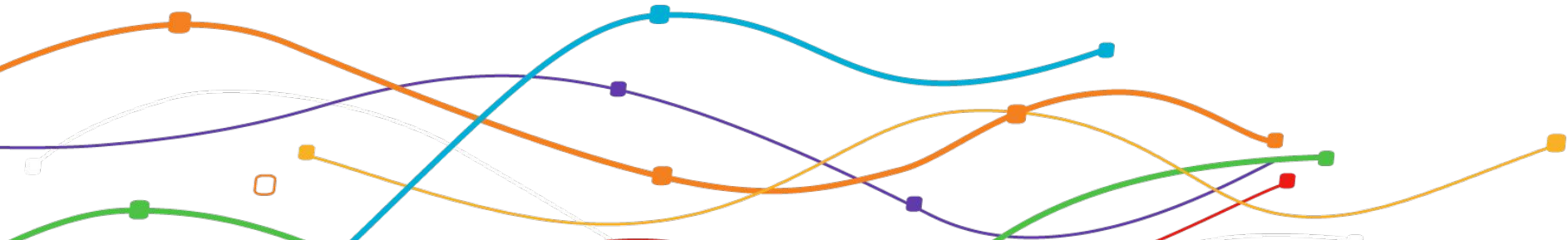


Imagine, that when the next *pandemic* hits us, we are able to have accurate data from our many Indigenous Communities across the land and are able to quickly react to their needs. Imagine creating a Smart on FHIR application in Months instead of Years to create solutions that we can even think at this time.





**Imagine Indigenous Health Information Data Sovereignty. The capability of securing and safely sharing data with other indigenous regions is available soon. Having a consent engine that allows you to control your data at the data level**



# Imagine not being locked-in with someone's proprietary solution, but have the freedom of Open Source Data

## 1. FLEXIBILITY AND AGILITY

IT leaders must fundamentally provide flexibility and agility for their enterprise.

## 2. SPEED

Your enterprise will soon be competing on speed, if it isn't already. Open source enables speed.

## 3. COST-EFFECTIVENESS

Open source is generally much more cost-effective than a proprietary solution.

## 4. ABILITY TO START SMALL

## 5. SOLID INFORMATION SECURITY



**smile**<sup>TM</sup>  
DIGITAL HEALTH

## **6. ATTRACT BETTER TALENT**

Open source gives enterprises the ability to attract better talent. Most professional technologists are well aware of open source and many believe it's where the industry is headed. Many enjoy creating their own projects and having the ability to interact with others outside their enterprise to develop solutions. Giving developers flexibility and freedom can be an important tool in attracting better talent.

## **7. SHARE MAINTENANCE COSTS**

You can solve your enterprise problems while effectively sharing some of the maintenance costs. One of the fundamental advantages of open source is community involvement. Rather than writing an application and having to sustain it yourself, you can share the cost of maintaining and sustaining applications among multiple parties.

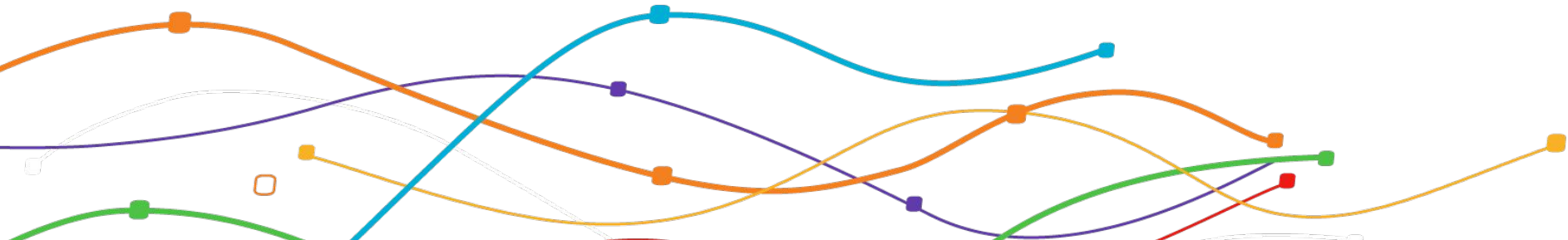
## **8. THE FUTURE - OPEN SOURCE**

Open source is the future. Web, mobile, and cloud solutions are increasingly built predominantly on open source infrastructure. Some data and analytic solutions are only available in open source.



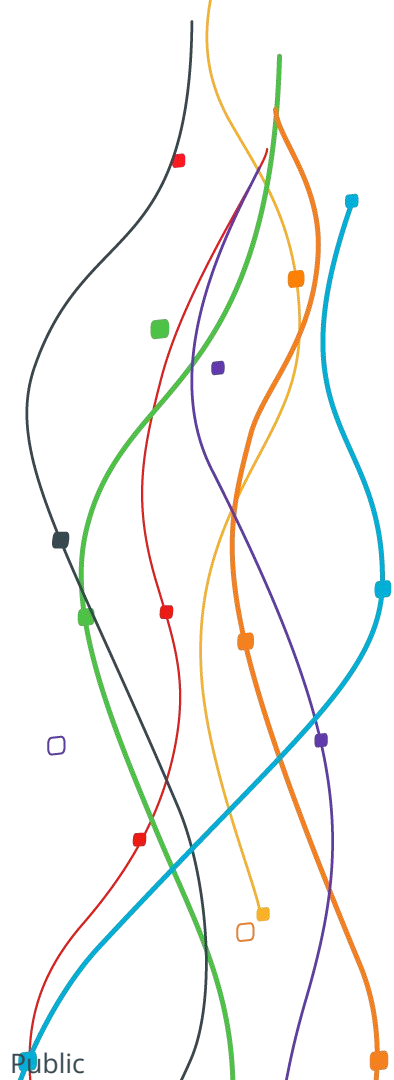


Imagine being able to connect your existing systems to a **central repository**, not needing to waste any of the energy already invested. Imagine being able to create **Open Source Smart on FHIR** solutions to complement and enhance existing solutions.





**Imagine the power to have  
access to Clinical Reasoning**

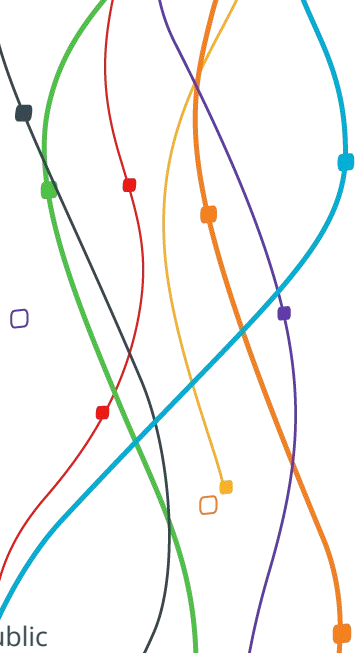


# What is Clinical Reasoning?

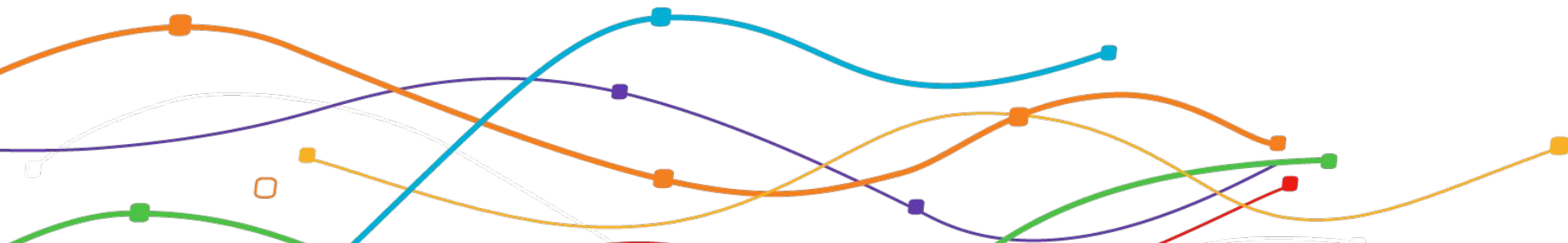
**Clinical reasoning** is the cornerstone of quality healthcare. It empowers healthcare professionals to make accurate diagnoses, develop effective treatment plans, and ensure patient safety. The importance of clinical reasoning cannot be overstated, as it directly impacts patient outcomes and overall healthcare system efficiency. To become competent and compassionate healthcare providers, individuals must not only acquire medical knowledge but also continuously refine their clinical reasoning skills. As healthcare evolves, clinical reasoning remains a timeless and invaluable skill that saves lives and promotes the well-being of patients around the world.

Imagine having a Suicide **Early Warning System** available, using the proposed Indigenous centralized data?

Well, During our Intelligent Data Symposium 2023 this summer, Ben Cushing, from Red Hat discussed how the combined functionality of artificial intelligence (AI) and machine learning (ML) can be used to assess patient medical data to pinpoint and flag the early warning signs of suicide.



# Benefits of having an interoperable Indigenous led health information system



## Centralized:

*Vaccine Repository*

*Drug Repository*

*ePrescribe*

*Mental Health Information*

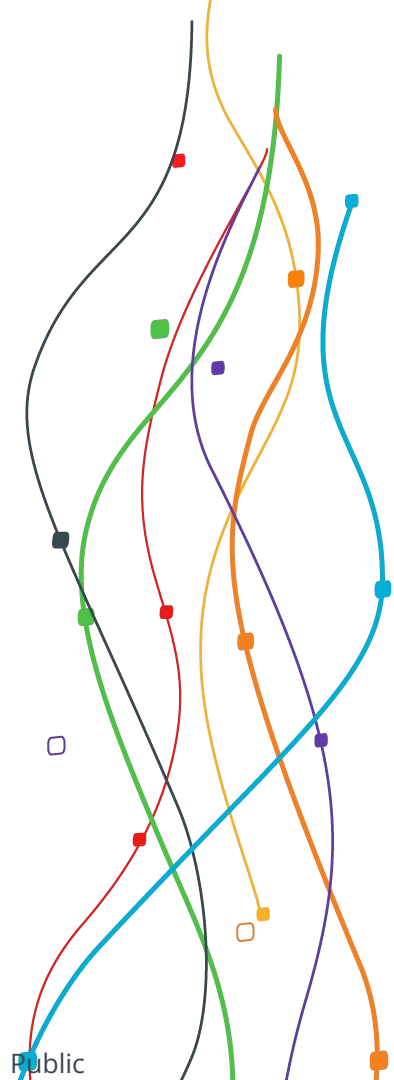
*Lab Reports*

*Covid-tracking*

*Patient Access*

*Access to Research Data*

*Etc.*

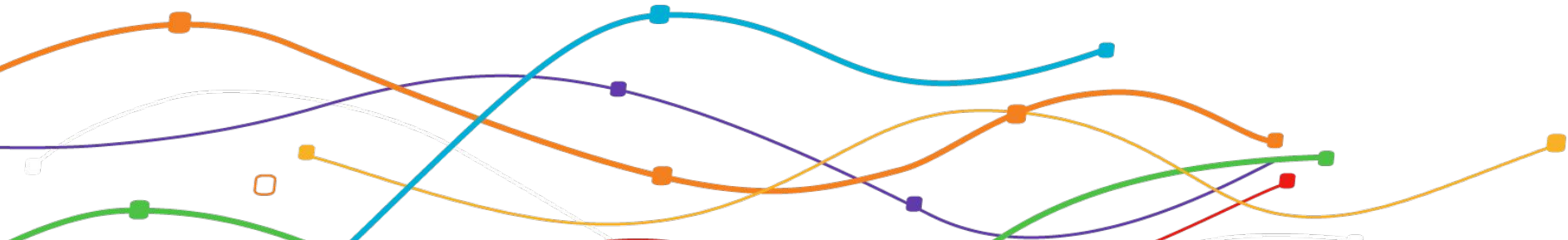




50%



**Of the human trafficking victims in  
Canada are Indigenous women  
(even though they represent less than 5% of  
the population)**



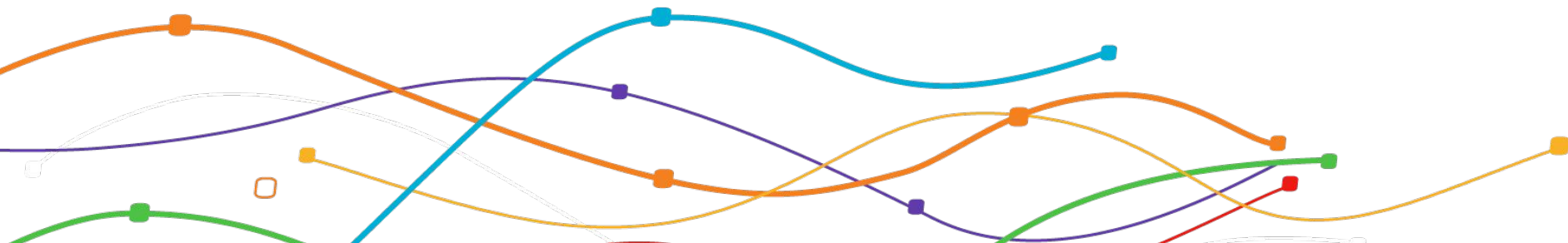
# Trafficking of Indigenous individuals in Canada is a problem that the healthcare system has a role in addressing.

Health care is one of the few places where the  
lives of trafficking victims intersects with the  
general population



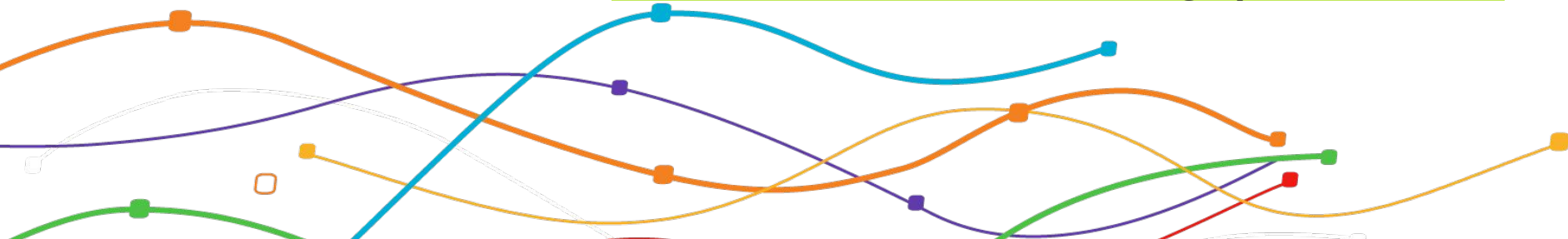
**smile**  
DIGITAL HEALTH

**Due to bias, lack of training, and a  
burdened healthcare system 96.7%  
of them are never given resources**



- **Knowledge automation - systematic screening with tools such as the Greenbaum Survey**
- **Data automation - sharing data across silos helps build a complete profile of a person and provides context and situational awareness**
- **Clinical Reasoning automation - enables better understanding of a patient's risk levels**
- **Workflow automation - for follow through on at-risk patients**

**...and it all starts with choosing open standards**



# HUMAN TRAFFICKING

**550**

police reported incidents of  
human trafficking in 2021  
(likely under-reported)

**50%**

Of the human trafficking  
victims in Canada are  
**Indigenous women**  
(even though they represent less than  
5% of the population)

88% of trafficking  
victims make  
contact with the  
healthcare  
system

63% of them  
show up in the  
Emergency  
Department at  
some point

Due to bias, lack  
of training, and a  
burdened  
healthcare  
system 96.7% of  
them are never  
given resources

Even under  
normal  
circumstances  
Indigenous  
people report  
dismissive and  
insensitive  
treatment by the  
healthcare  
system

## Trafficking of Indigenous individuals in Canada is a problem that the healthcare system has a role in addressing

- Health care is one of the few places where the lives of trafficking victims intersects with the general population
- Healthcare systems that are able to leverage automation are better equipped to help
  - **Knowledge automation** - systematic screening with tools such as the Greenbaum Survey
  - **Data automation** - sharing data across silos helps build a complete profile of a person and provides context and situational awareness
  - **Clinical Reasoning automation** - enables better understanding of a patient's risk levels
  - **Workflow automation** - for follow through on at-risk patients

...and it all starts with choosing open standards

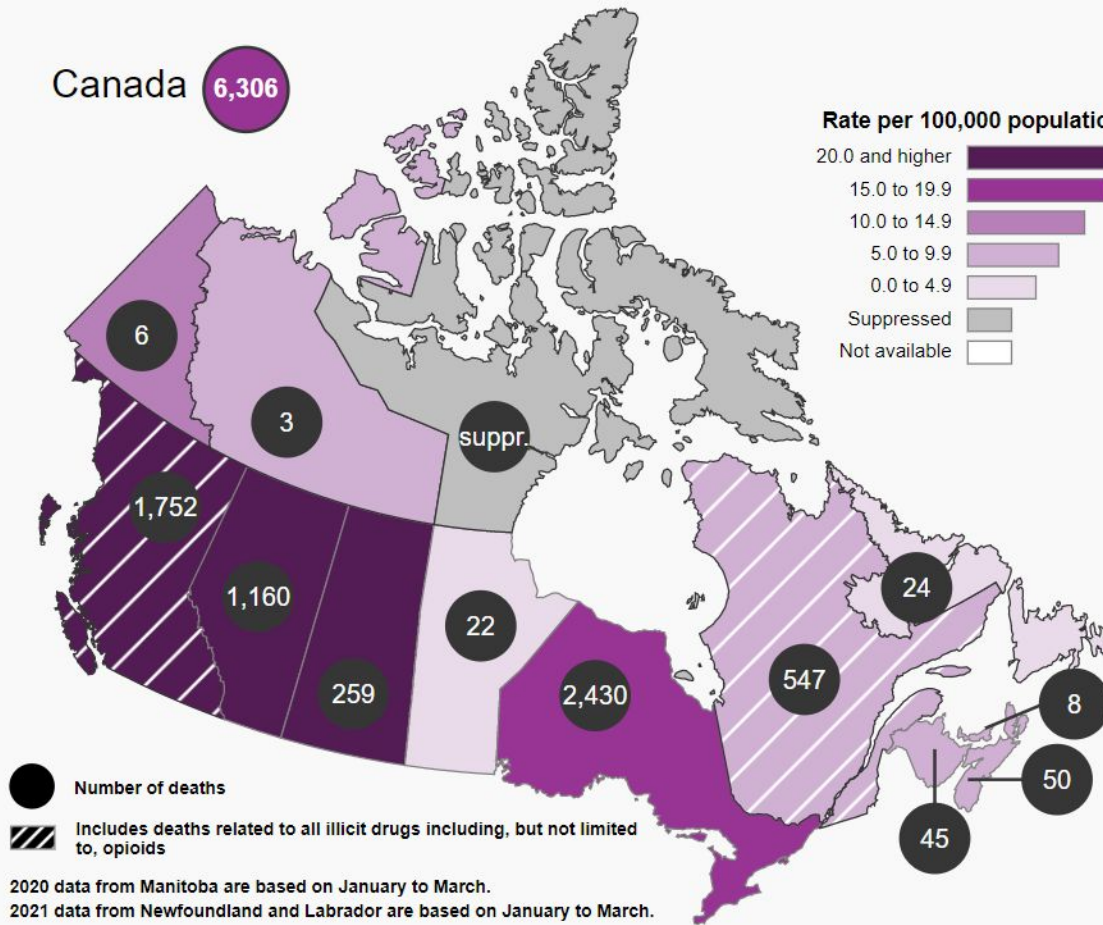
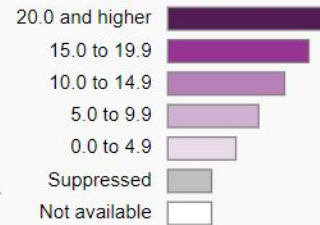
# Opioid Crisis

The age-standardized rate of opioid poisoning hospitalizations among First Nations individuals living on reserve was **5.6 times higher** than the rate among the non-Indigenous population. The rates among Métis and Inuit were each **3.2 times higher** than the rate among the non-Indigenous population.



Canada 6,306

Rate per 100,000 population



2020 data from Manitoba are based on January to March.

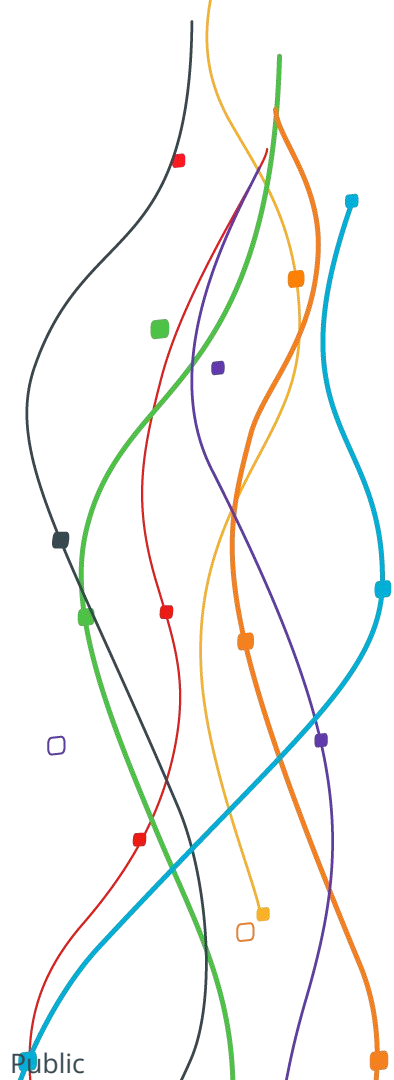
2021 data from Newfoundland and Labrador are based on January to March.



# The Importance of Covid Tracking



***No one was prepared  
for the last  
Covid-19 crisis!***



## What is a Data Fabric ?

*The data fabric is an emerging data architecture that enables an organization to integrate and distribute data more efficiently and decrease time to value for new initiatives.*

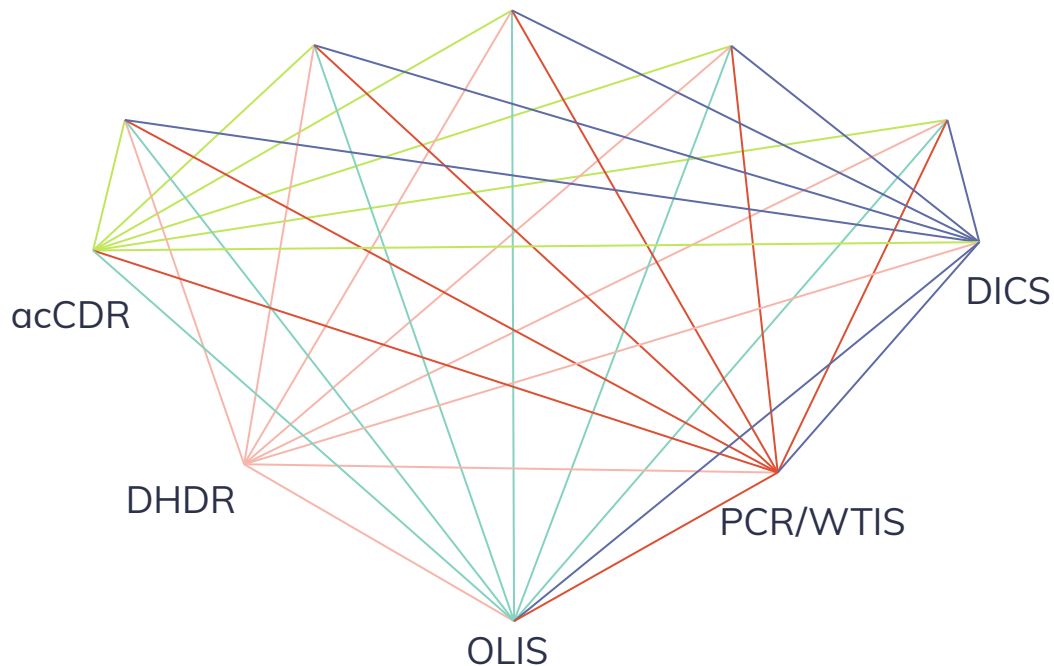
Smile's data platform enables data exchange via multiple industry standards. More importantly, data is stored in a **native FHIR data model** for standardized future interactions to reduce risks of vendor lock-in, expensive point-to-point integrations, and enabling participation of other stakeholders and innovators.

Gartner

Ultimately, a health data fabric is key to digital transformation of healthcare systems and enabling the **Internet of Health**.

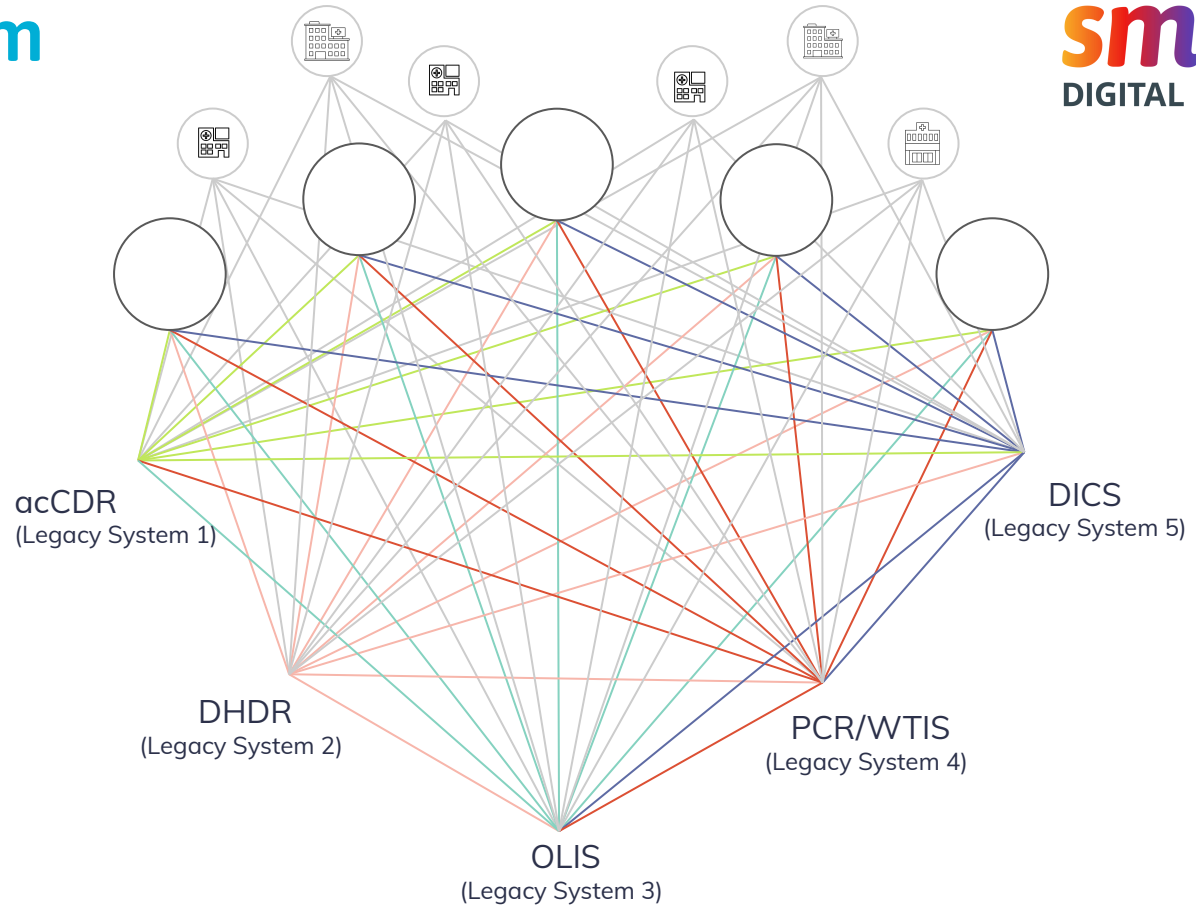
# Ontario Problem

- Point to point integrations are costly
- Each point communicates with other endpoints in 1:n ratio.
- Different data formats at each endpoint.

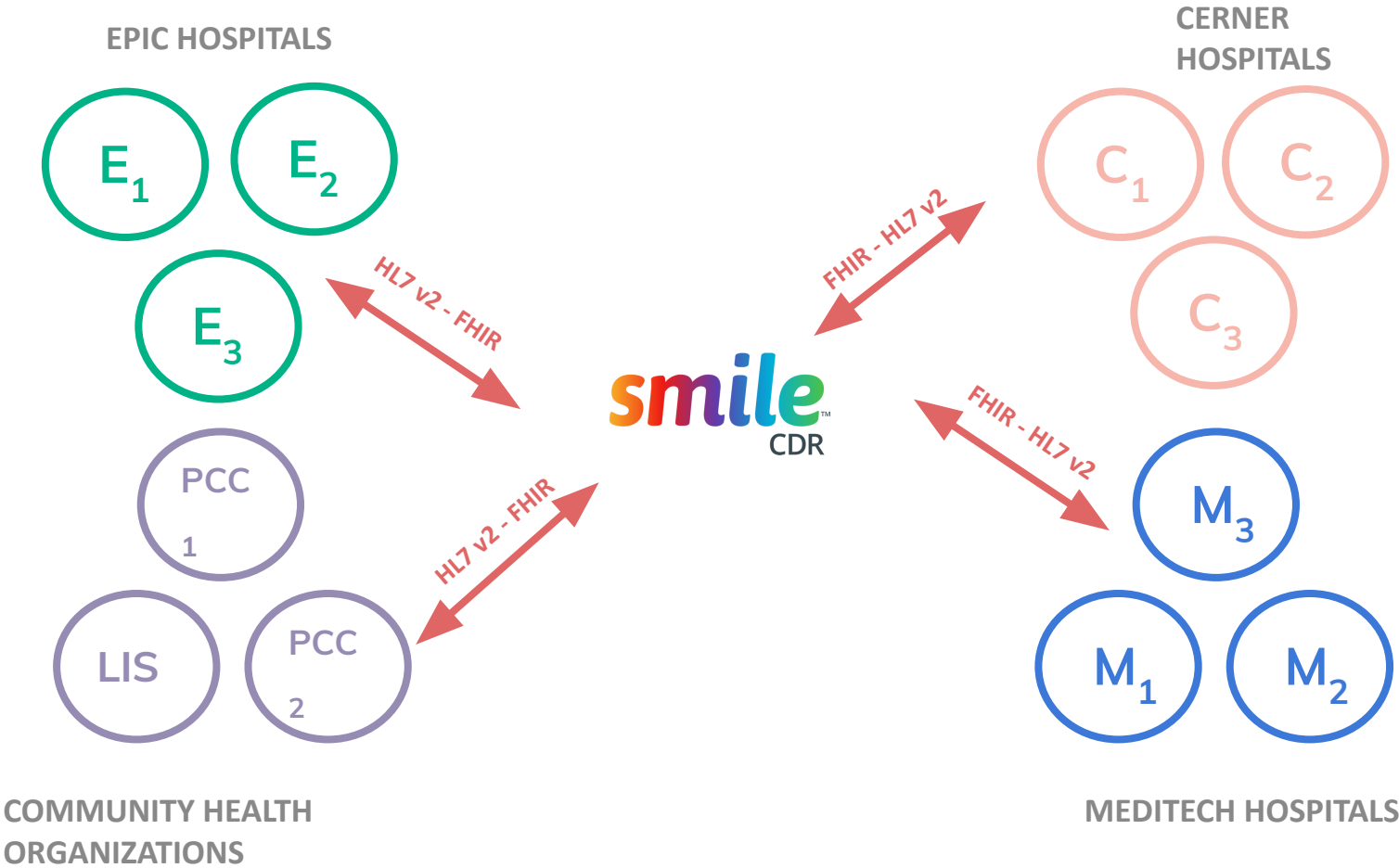


# Ontario Problem Compounded

- Massive demand for data
- Each point further communicates with HIS systems
- Fragmented, redundant and de-normalized data
- High cost and non-interoperable legacy systems

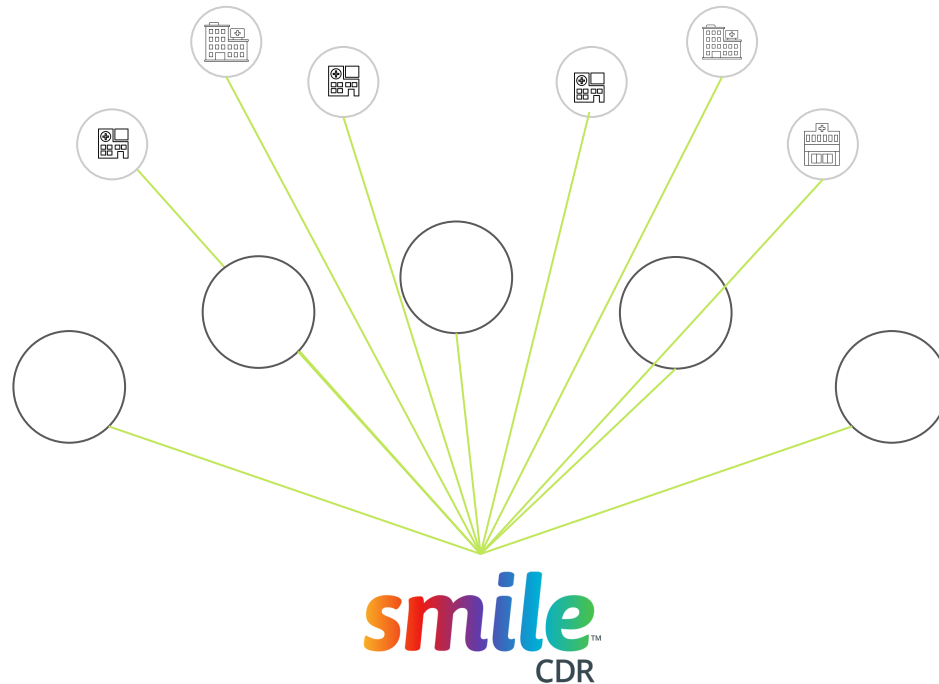


# Ontario Solution - Health Data Fabric



# Ontario Modernization Strategy with Smile

- Consistent, predictable and reusable Open standard
- Increase capacity to support future health data demands
- Lower adoption cost
- Highly interoperable





# Unifying Healthcare via HL7 FHIR

Persistence with FHIR as a standard data model enables true interoperability and acceleration of innovation (e.g. Smart on FHIR, low code app development)

FHIR as the exchange and data model reduces unnecessary point-to-point and bespoke integrations that constantly have to be supported

FHIR as a data model significantly reduces vendor lock-in and costly migrations

FHIR-based CDR can persist EMR and other HIS data to serve as a secure and scalable external-facing data store without compromising/burdening mission critical operational data stores

# Smile at a Glance



100+  
Customers



70mm+  
US Lives Covered on  
Our Member Portal



300+  
Employees



100,000 downloads/month

~20  
Services & Solutions



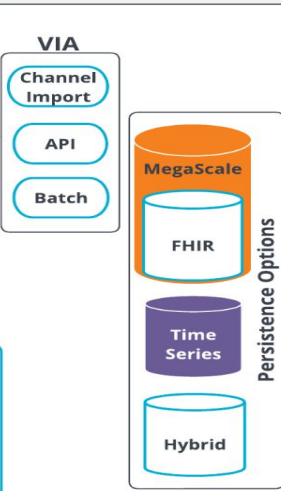
15+  
Channel  
Partners



Smile operates in 20 countries



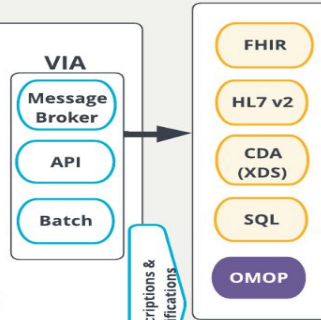
## Inbound Data



Amazon HealthLake Export



## Outbound Data



Interceptors & hooks

subscriptions & notifications  
RESTful API

Federated IAM

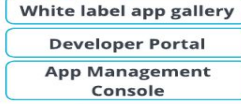
## Actioning your Data



## Legend



## appSphere



## smile MARKETPLACE

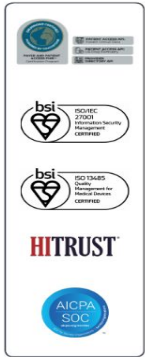
### Premium Solutions



### Cloud Platforms



## Certifications



# Next Steps

Propose a pilot project to create a Centralized Indigenous Health Information Repository run by the Indigenous community to highlight the following:

- Security
- Connectivity to existing applications
- Scalability
- Open Source - HL7 FHIR Standard
- Smart on FHIR capabilities
- Consent - Interoperability to National System
- EMPI - Electronic Master Patient Index
- Clinical Reasoning
- Forms

My Dream is that one day, Eden's health data is stored and available, perhaps will save his life.



# Q&A