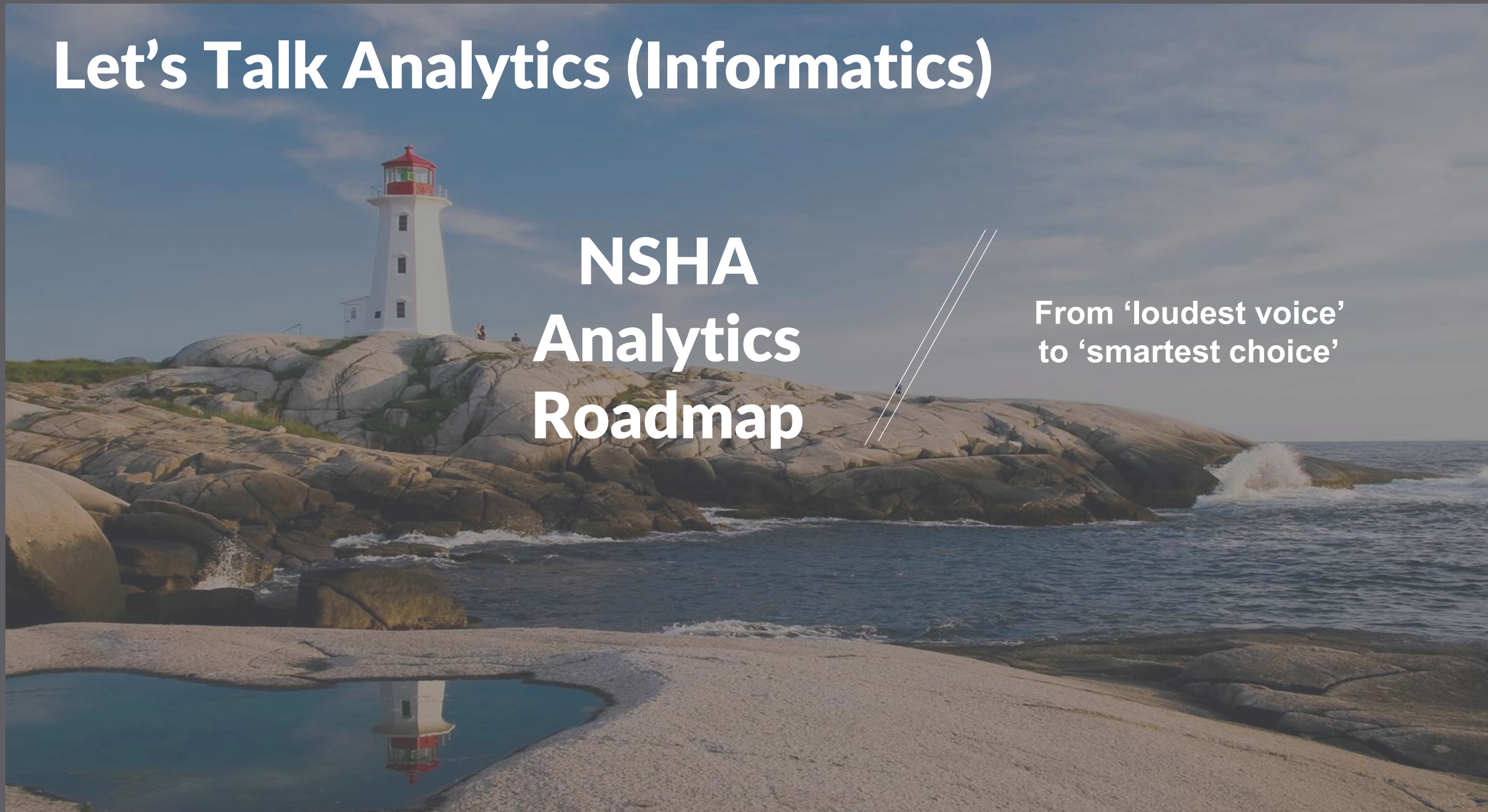
Let’s Talk Analytics (Informatics)



NSHA Analytics Roadmap

From ‘loudest voice’
to ‘smartest choice’

Please be advised that we are currently in a controlled vendor environment for the

One Person One Record project.

Please refrain from questions or discussion related to the

One Person One Record project.

Informatics…

“Utilizes health information and health care technology to enable patients to receive best treatment and best outcome possible.”

Clinical Informatics…

"is the application of informatics and information technology to deliver health care."

AMIA. (2017, January 13). Retrieved from https://www.amia.org/applications-infomatics/clinical-informatics

Analytics…

“is the discovery, interpretation, and communication of meaningful patterns in data.”

“relies on the simultaneous application of analysis, statistics, computer programming and operations research to quantify performance.”

Objectives

At the conclusion of this activity, participants will be able to…

- Identify what knowledge and skills health care providers will need to use information now and in the future.
- Prepare health care providers by introducing them to concepts and local experiences in Informatics.
- Acquire knowledge to remain current with new trends, terminology , studies, data and breaking news.
- Cooperate with a network of colleagues establishing connections and leaders that will provide assistance and advice for business issues, as well as for best-practice and knowledge sharing.

Conflict of Interest Declaration

- I do not have an affiliation (financial or otherwise) with a pharmaceutical, medical device, health care informatics organization, or other for-profit funder of this program.

NSHA Analytics Roadmap Objectives

The specific objectives of this session are to help you understand the plans for the development and implementation of an integrated analytics strategy and program across NSHA clinical and corporate domains

01 NSHA Analytics Model

02 Performance & Analytics and Business Intelligence Teams

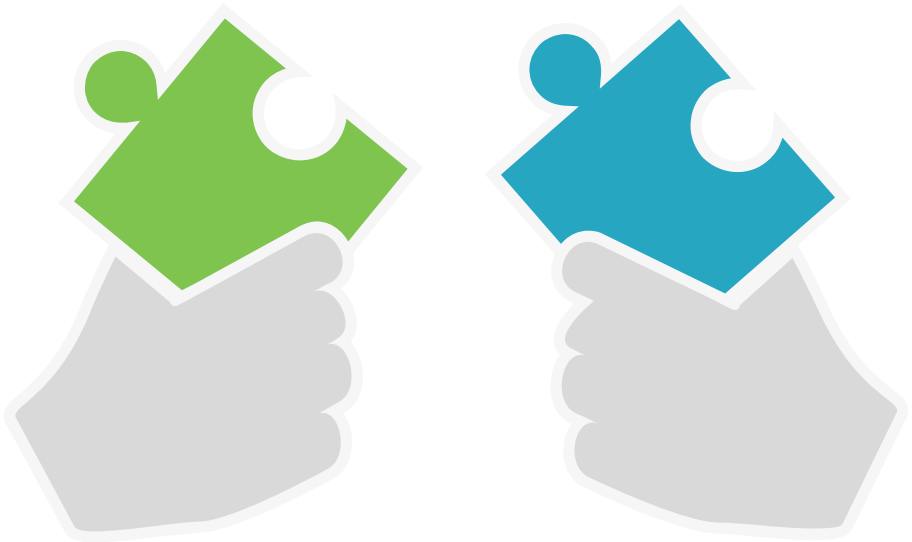
03 Where we're at now

04 Where are we going?

05 How do we get there?

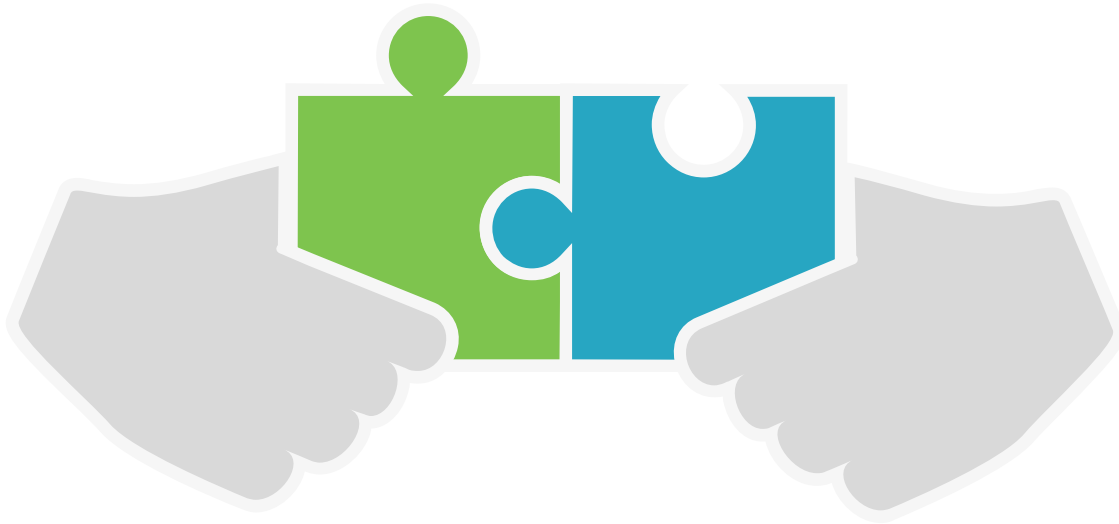
Objective of Analytics

From Data to Insight



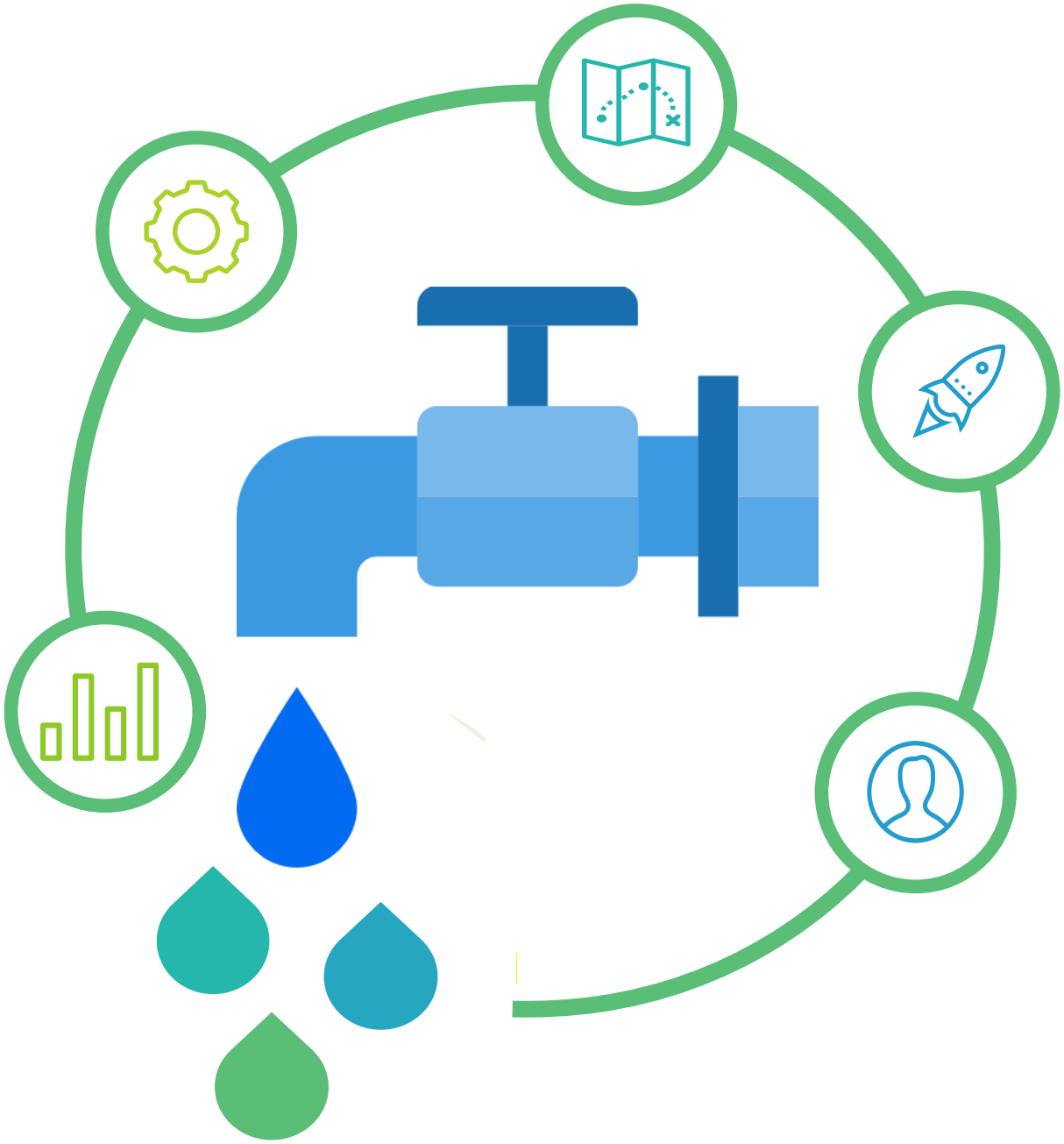
Data

Data in different forms and formats held in disparate system across NSHA clinical and corporate domains



Insight

Data joined together to create metrics and insights for ongoing monitoring and improvement



Data as a Utility

We need to change how we think of data to grow analytics in the NSHA

Utility vs. Luxury

We tend to treat data as a luxury, we lock it away so that only approved people can access it. The NSHA should treat data like water. Life can't exist without it. We all need it. We wouldn't go anywhere without it. This is how we want our organization to think of data.

Components of an Analytics Model

Understanding Analytics

Analysis

Progression from descriptive to cognitive analyses, Statistical approaches (tests of association, confidence intervals, etc.)

Infrastructure

Technology environment, servers, disaster recovery

Governance

Privacy, standardization, engagement with subject matter experts

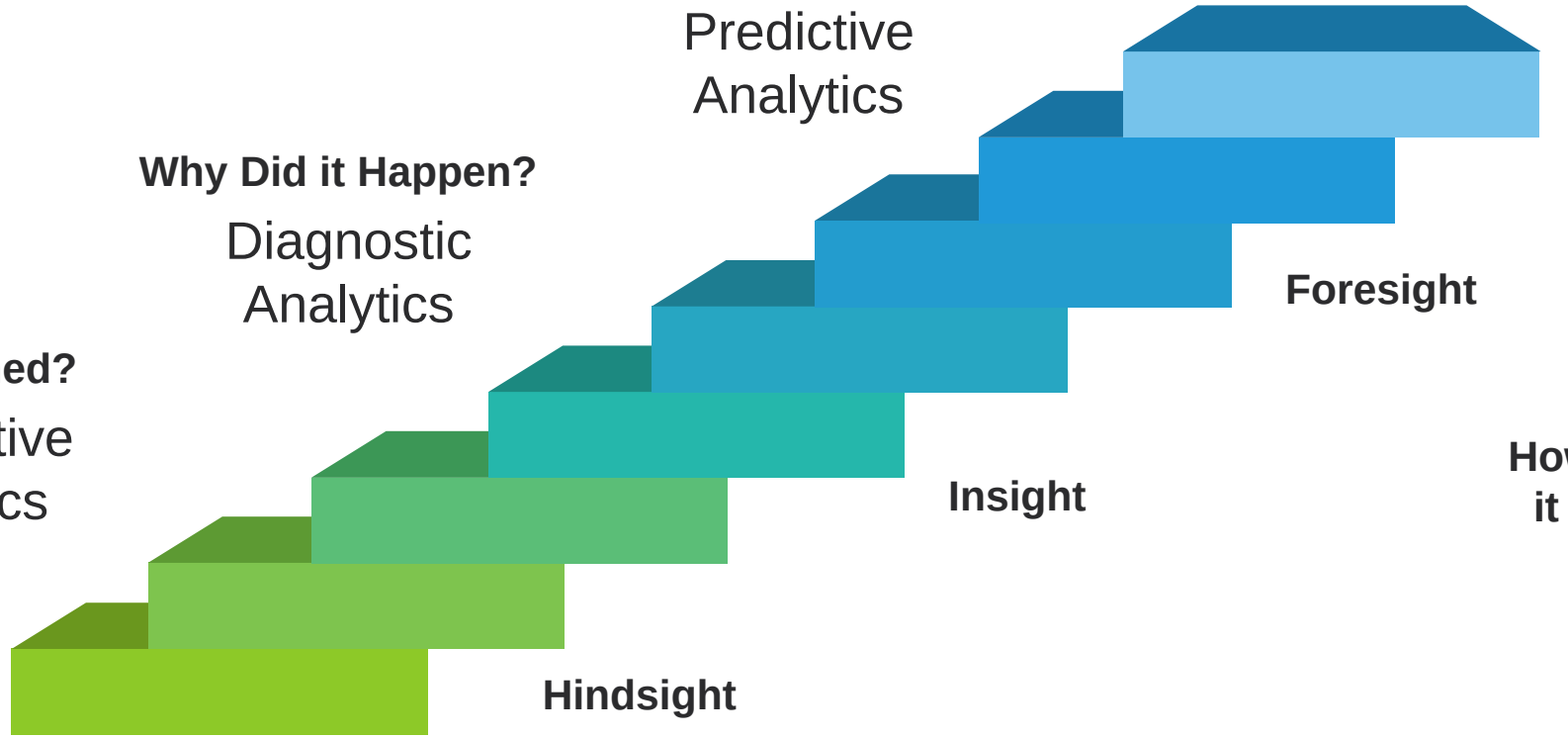
Data Management

Integration of data sources across varying types of data

Organization

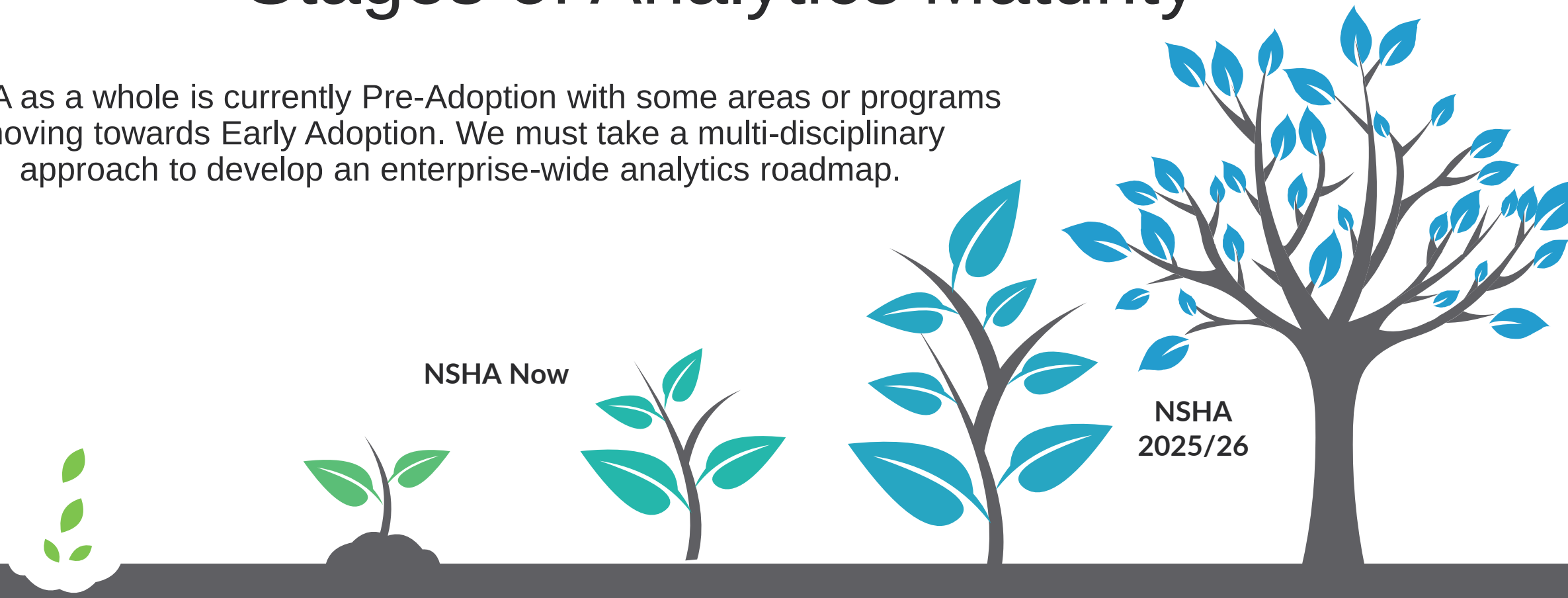
Data Literacy, analytic workforce, structure of analytics in the organization

Steps of the Analytics Continuum



Stages of Analytics Maturity

NSHA as a whole is currently Pre-Adoption with some areas or programs moving towards Early Adoption. We must take a multi-disciplinary approach to develop an enterprise-wide analytics roadmap.



Nascent

Pre-analytics, decisions are not data driven, made based on gut instinct rather than on fact

Pre-Adoption

Starting to understand the power of analytics for improved decision making and outcomes

Early Adoption

IT and Analytics begin to work together, focusing analytics on the business problems that need to be solved

Corporate Adoption

Wide range of end users get involved and the analytics transforms how they do business.

Mature

Executing analytics programs smoothly using a highly tuned infrastructure with well-established program and data governance strategies

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Performance & Analytics Team

A team of 25 analysts spread across the province, endeavoring to provide data to drive decision making throughout NSHA

"Supporting evidence and data based decision making"

The team is made up of a mix of roles with team members having varied backgrounds and skill sets to support a wide range of analytical services and projects.

- **Senior Decision Support Analysts**
- **Data Analysts**
- **Decision Support Analysts**
- **Research and Statistics Officers**
- **Health Records Analysts**
- **MIS Statistical Coordinators**

Business Intelligence Team

A team of 8 systems analysts responsible for extracting data from source systems, simplifying those data, and making it available for analyses and decision making throughout NSHA

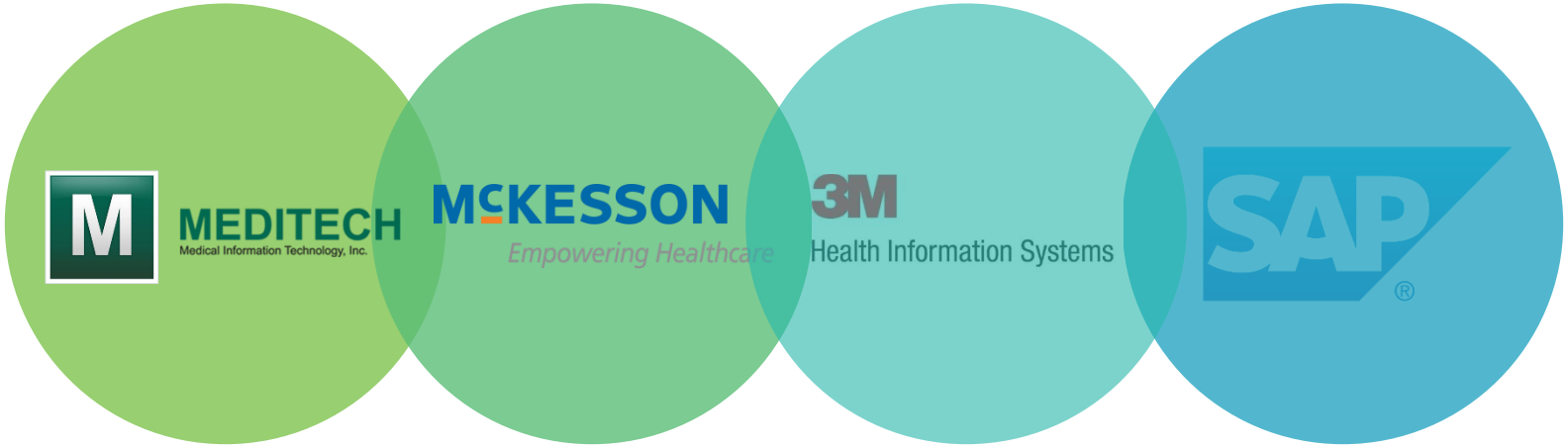
"Supporting evidence and data based decision making"

The team includes staff with varying skills ranging from business analysis, data documentation, data modeling, and report writing.

- **Senior Systems Analysts**
- **Systems Analysts**

Image source: https://healthtechmagazine.net/article/2017/04/healthcare-analytics-point-providers-patients-need-most-care

Current Core Data Systems



MEDITECH

- N/E/W Zones
- Admission/Discharge /Transfer (ADT)

STAR/PHS/HPF/HSM

- Central Zone
- Admission/Discharge/ Transfer (ADT)

3M (DAD/NACRS/NRS)

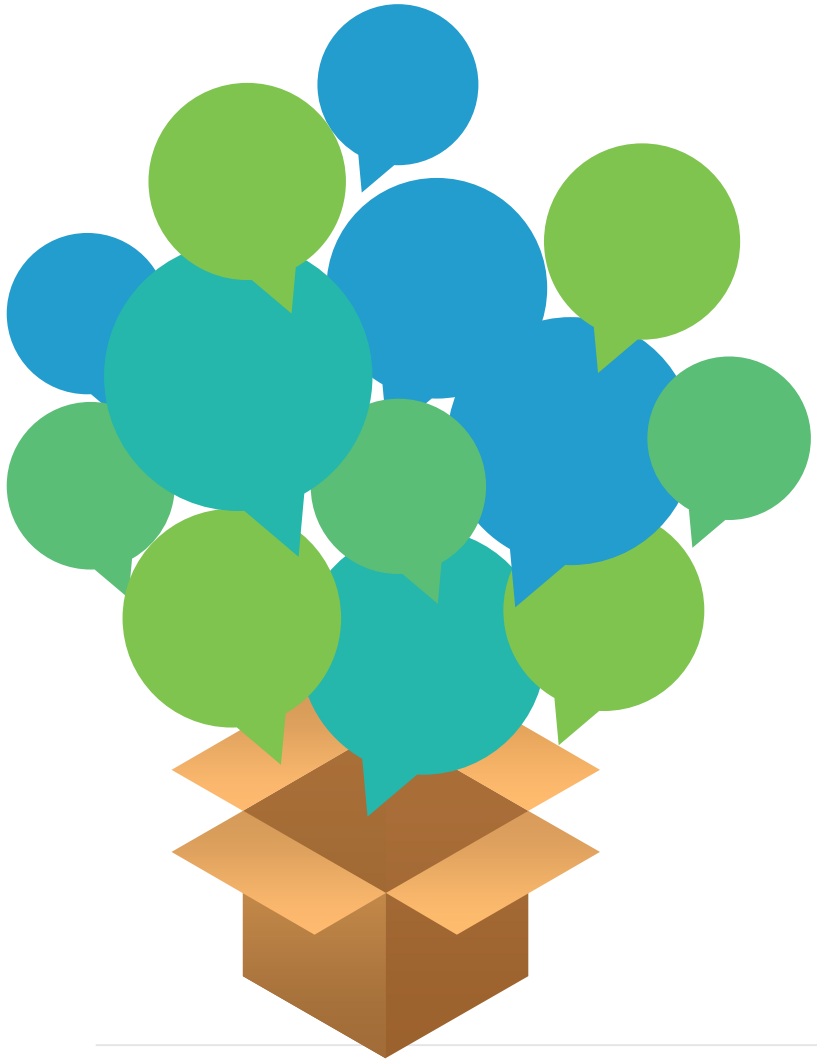
- All zones Inpatient/Outpatient/ Rehab coded databases

SAP

- All Zones, Financial, Supply, Workforce data

Health System Data Sources

So much data, so little linkage



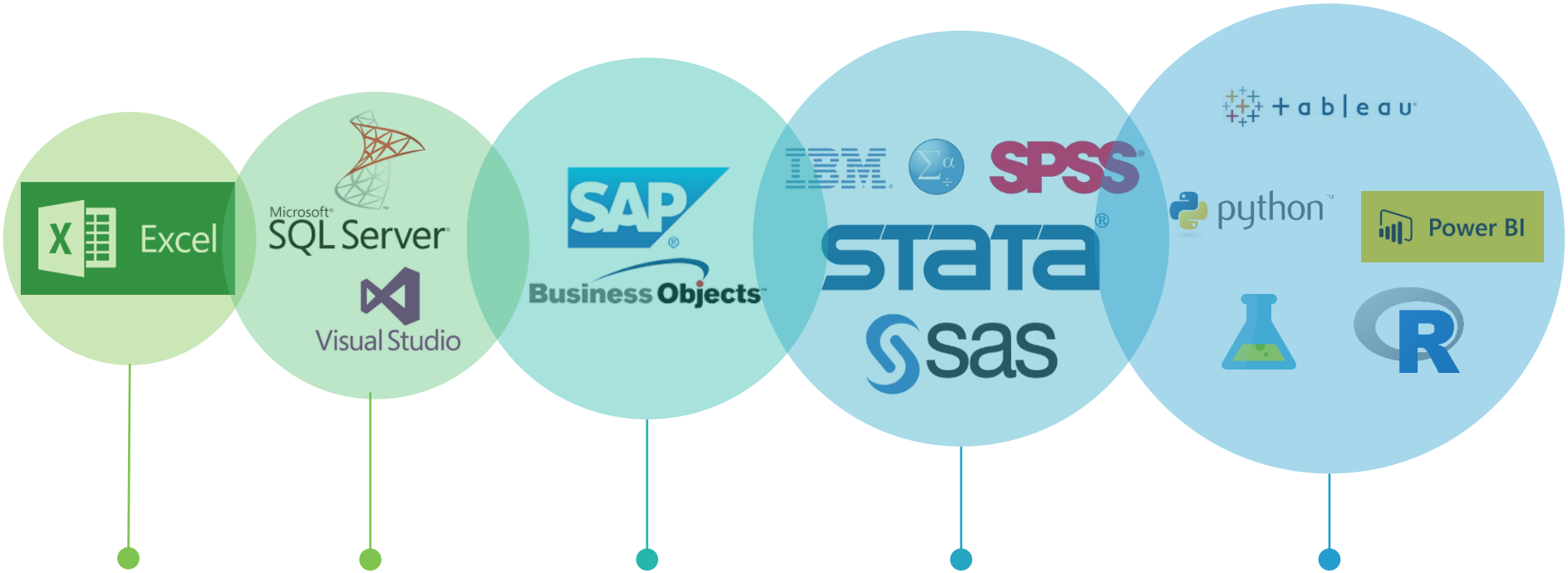
Clinical Information Systems
EDIS, PARNS, ICU, Path/Lab, PACS, UMS

Provincial Program Registries and Databases
Cancer, DCPNS, Renal, Breast Screening, Trauma, RCPNS, CVHNS

Department of Health and Wellness
MSI Phyisican Billing, Provider Registry, Patient Registry, Pharmacare, DIS, SeaScape

Other
Research programs, Quality and Patient Safety, SIMS, IPAC, Workload

Analytical and Data Management Tools



Excel

Everyone has it and can use it, expanding capability with PowerPivot and Query

Data Query/BI

SQL Server and SAP Business Objects, BI tools for reporting and data query for ADT datasets

Statistical Analysis

STATA and SPSS Statistical Analysis software programs

Future

Visulaization, Data Mining and Machine Learning tools

Performance Indicators and Reports

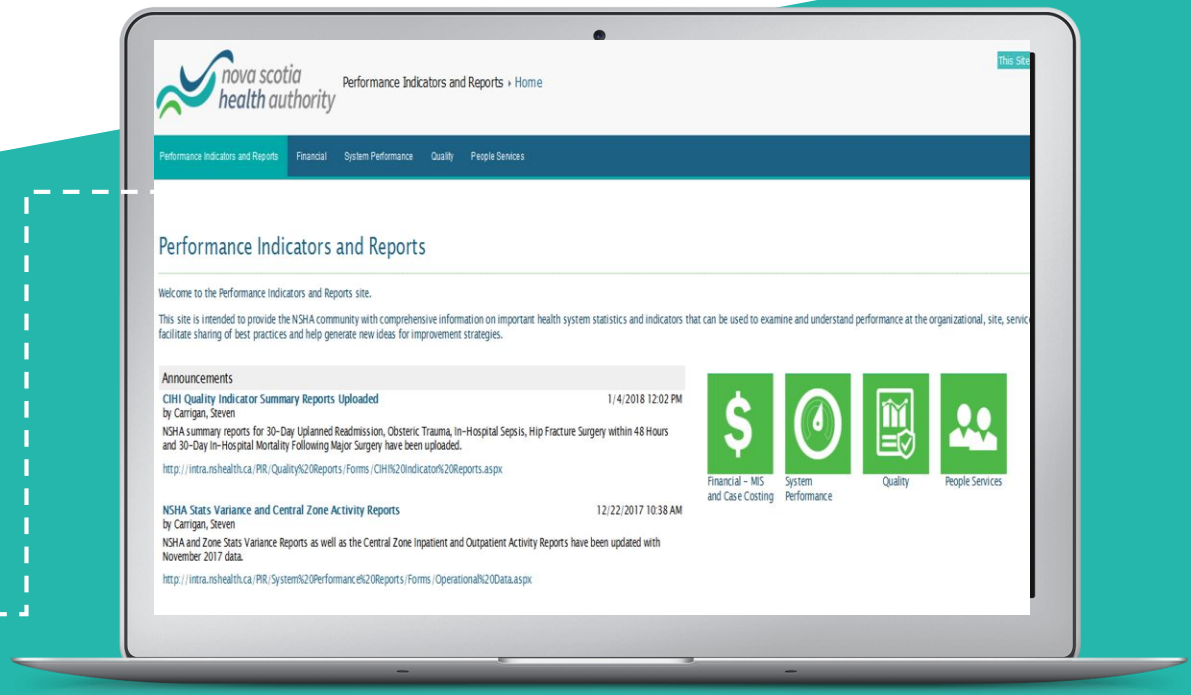
NSHA Intranet Site http://intra.nshealth.ca/PIR

Purpose

- Based on historical report repositories across the NSHA
- This site is intended to provide the NSHA community with comprehensive information on important health system statistics and indicators that can be used to examine and understand performance at the organizational, site, service, and unit levels.

Important Info

- The reports uploaded to the site work best when access through Internet Explorer
- Must use Internet Explorer when going to the PIR site

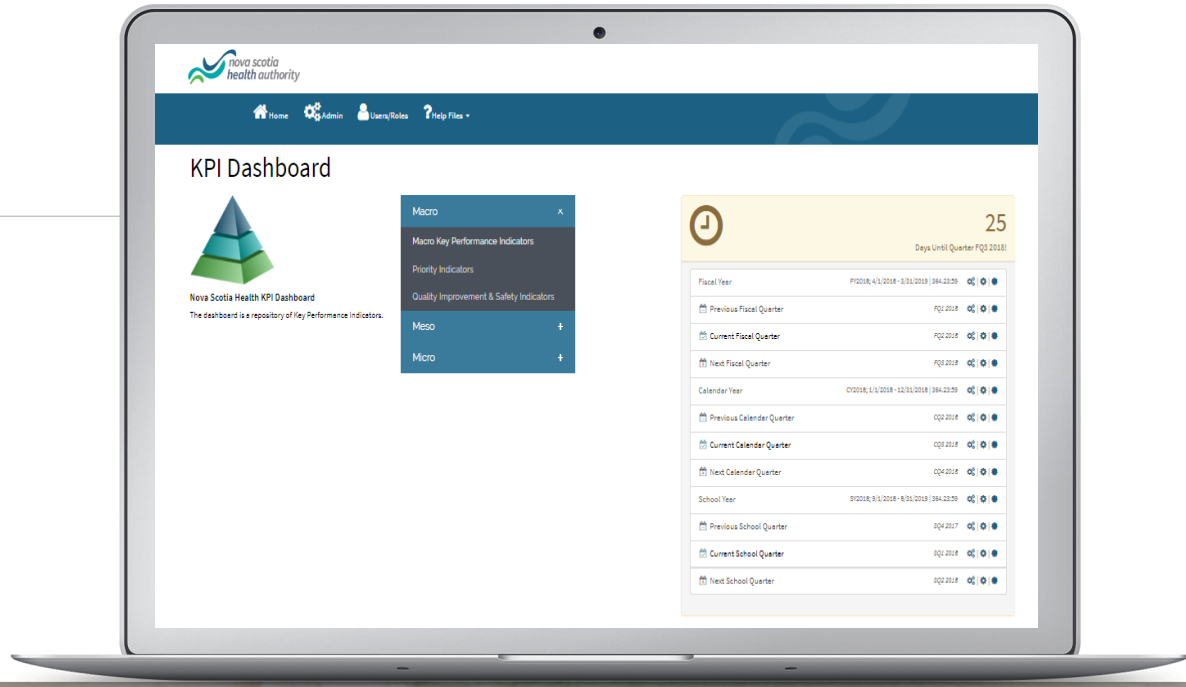


The dashboard is a repository of Key Performance Indicators.

NSHA KPI Dashboard

- KPI Dashboard (http://kpidashboard.nshealth.ca/)
- This site reports key indicators in alignment with the Performance & Accountability Framework NSHA wide and by Program or location to understand performance in the organization.

Click here for:
KPI DASHBOARD



Macro
NSHA

Meso
Zone or Program

Micro
Site

NSHA Analytics Roadmap

Development and implementation of an integrated analytics strategy and program across NSHA clinical and corporate domains

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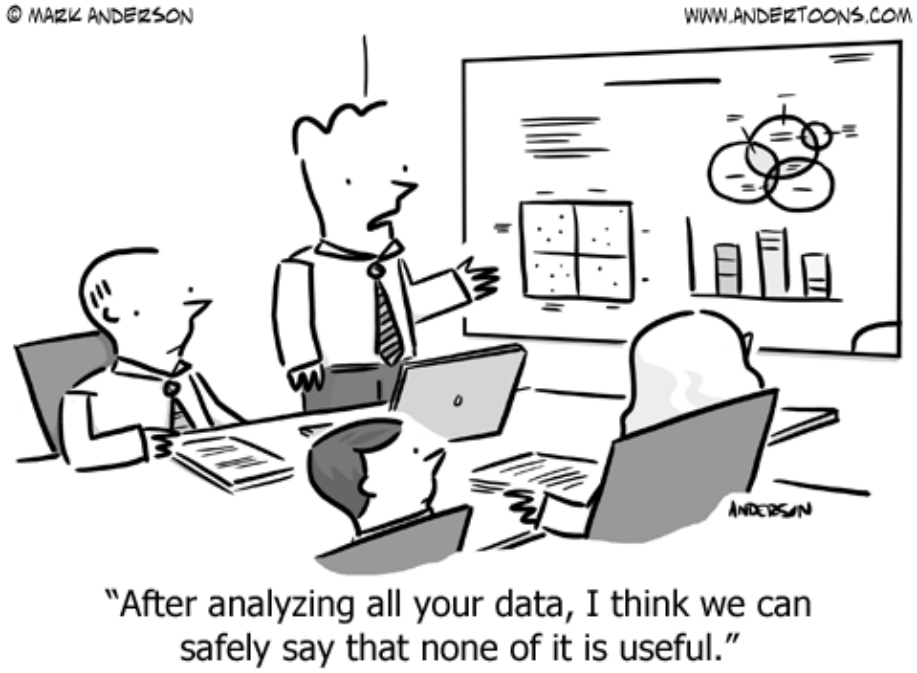
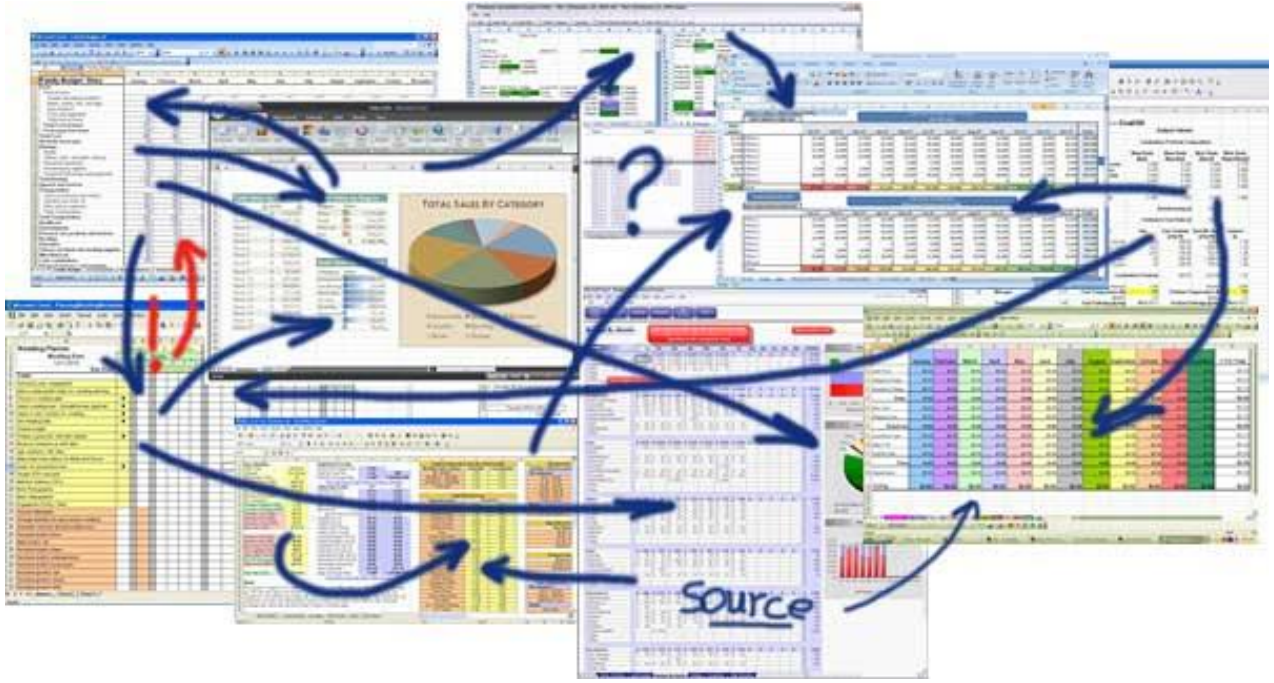
Where we're at now

Situation





Across NSHA, there is a significant and widening disconnect between decision-makers need for information/analytics and the underlying data foundation/infrastructure to support those needs.

Where we're at now

2015/16

Establish the Teams

Current state assessment
Structure development
Macro level reporting

2016/17

Build the Teams & Foundational Roles and Processes

Enhance data access
Centralized intake and reports
Macro level KPIs and reporting
Initiate skills shift and learning

2017/18

Strengthen Relationships & Process

Spread reporting and expand capabilities of teams
Program and zone (Meso) strategy
Workforce development
Evidence based Decision Making growing
Strengthening relationship between teams

2018/19

Strategic Investment

Technology, tools, infrastructure
Education & competencies
Meso and Micro Strategy
Data science and discovery
Data literacy
Strengthening relationship with research

Where we're at now

Key Accomplishments

Analytics

- Centralized intake
- Macro performance reporting
- Tailored reporting to customer's business question

Governance

- Established meta data for core indicator sets
- Established data access rights / roles to match NSHA structure

Infrastructure

- Expanded the use of BI tools
- Developed online KPI dashboard

Data Management

- Improved access to data sources
- Upgraded hardware and software
- Established an online report repository

Organization

- Established NSHA Analytics team
- Shifted staff composition, skills and abilities
- Increased workforce to match demand
- Engaged to understand the customer needs

Where we're at now

Analytics Challenges

Number of Systems

There are a large number of disparate source systems. Significant inefficiencies and barriers related to extraction, and integration of information.

Data Variability

High degree of variability in terms of definitions, data elements, and data models. Leads to barriers and inefficiencies in linking data and inhibits analytics.

Inconistent Processes

Data definitions, and clinical documentation processes are varied and diverse. This creates inconsistency and reduces comparability of information, which in turn limits the validity and trustworthiness of data.

Access

Systems have limited ability to manage the robust and flexible role-based access. Access into real time data or data reporting for the purpose of analytics may be inhibited.

Timeliness

Few systems enable access to data in real time for clinical decision support or health system analytics.

Data Foundation

The current environment is aged, unstable, fragmented, and not scalable. It is also unsustainable from analyst perspective.

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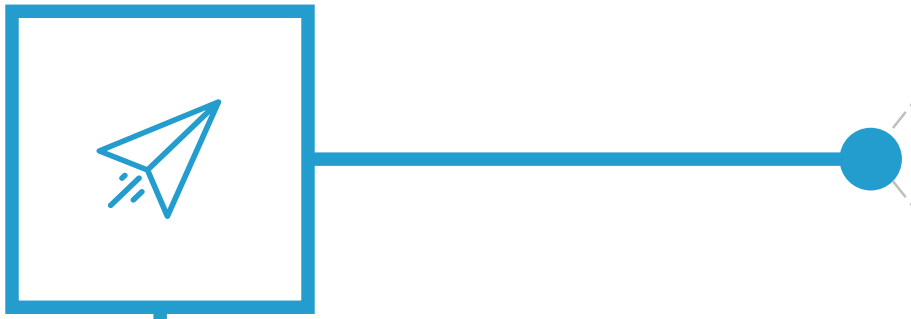


2019/20

Early Analytics Adoption Achieved

Focusing analytics on solving business problems
Applied Analytics
Enhancing health outcomes research
Building automation & integration
Data governance

2025/26

Corporate Adoption of Analytics

OPOR Realization

Analytics Model

Analysis and Organizational Approach

Analysis

Progression from descriptive to cognitive analyses, Statistical approaches (tests of association, confidence intervals, etc.)

Organization

Data Literacy, analytic workforce, structure of analytics in the organization

Integrated Analytical Strategy

Clinical Program Support

Management

Enabling clinical program managers to have timely reporting of key clinical process, outcome and cost measures balanced across NSHA's Performance Framework

Measurement

Measurement and reporting is available to the front line and meaningful for those that provide care

Provider Level Reporting

Clinicians are able to see clinician-specific reporting that show how they compare to best practice and how they compare to their peers

Clinical Decision Support

Clinical program areas receive the information they need to address their most important clinical questions

Operational Management Support

Health System Planning
Programs have detailed information to support effective health system flow, from first patient contact with the health system to discharge and ongoing

Operational Planning
Operation management dashboards are focused at the point of care and support the planning and management needs at the micro level

Research and Outcomes
Information is available to measure health outcomes, patient satisfaction, value for money, access and wait time against standards and targets

Capacity Planning
Adaptable and predictive capacity planning from the micro level up - based on historical demand, resources, and epidemiological evidence

System Management Planning
Management and planning tools, capable of shifting with changes in the model of care or demand for service.

Analytics Model

Data Foundation

Infrastructure

Technology environment, servers, disaster recovery

Data Management

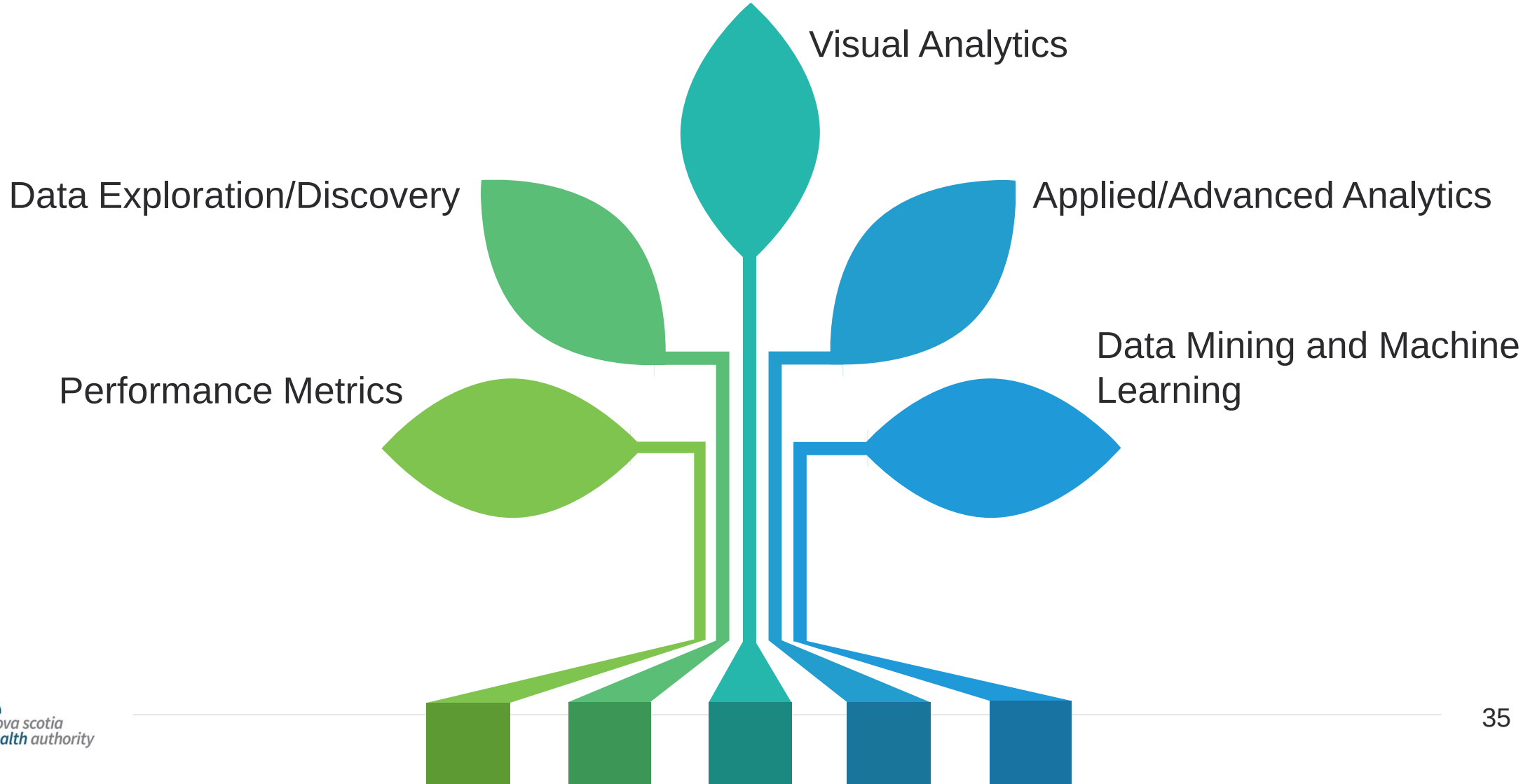
Integration of data sources across varying types of data

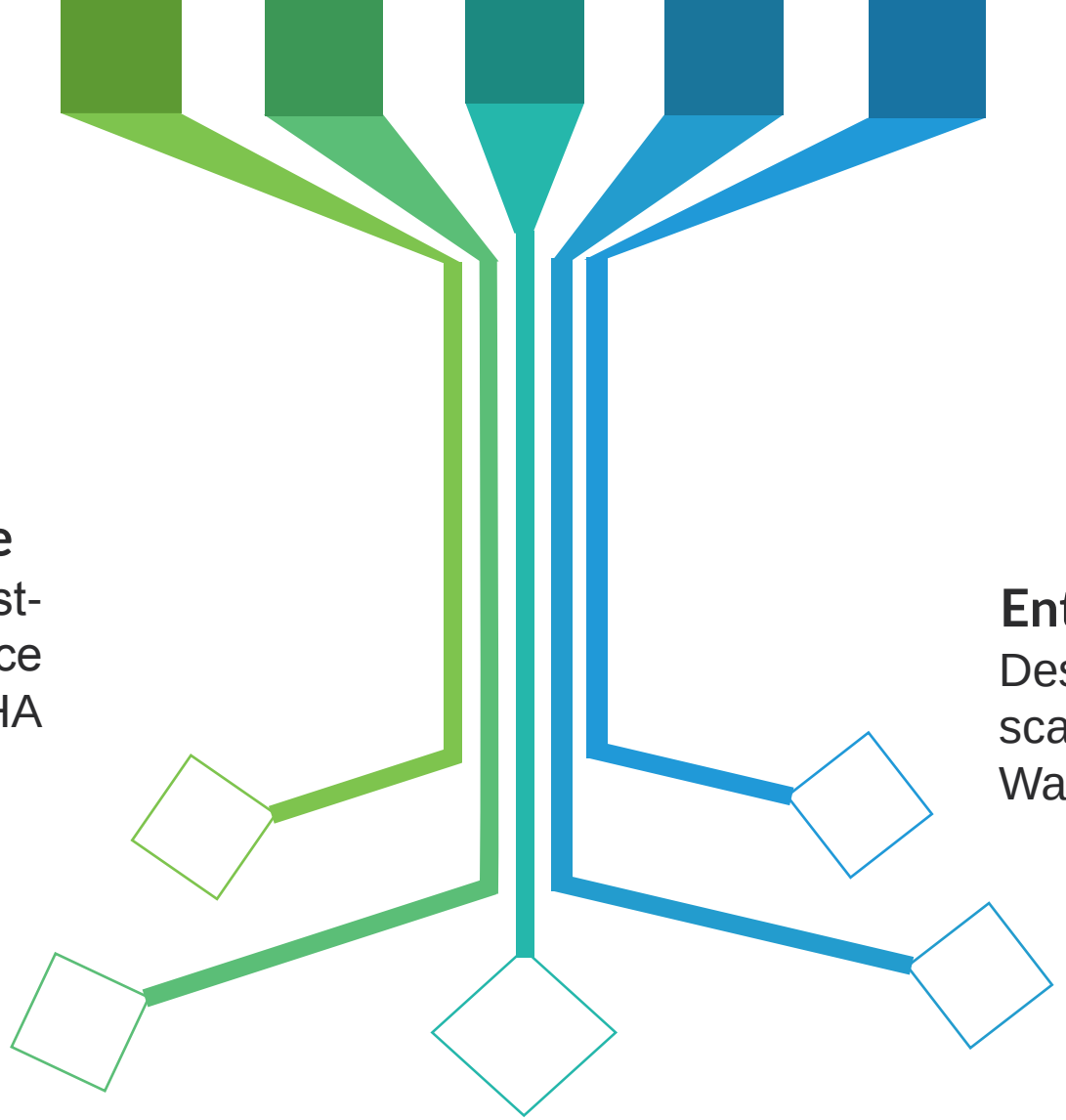
Governance

Privacy, standardization, engagement with subject matter experts

Components of the Data Foundation

Roots of a mature analytics model





Data Governance

Identify and implement a ‘best-practice’ data governance model(s) across NSHA

Data Integration

Acquire a data integration tool

Analytics Toolkit

Identify and procure a standard toolkit for analytics

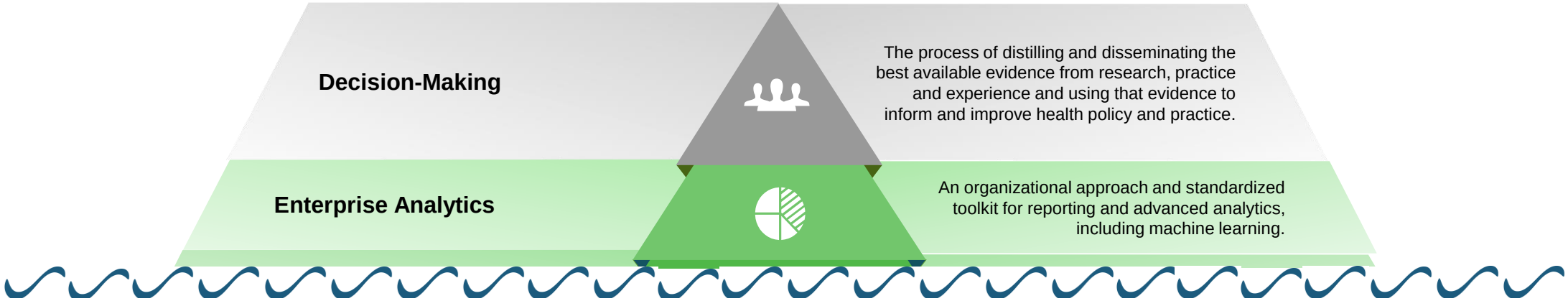
Enterprise Data Warehouse

Design and implement an agile, scalable enterprise Data Warehouse (eDW)

Data Documentation

Build a web-based, user-friendly site that houses data catalogues, data dictionaries, data quality assessments, and other key meta-data documentation.

Proposed Data Management Framework



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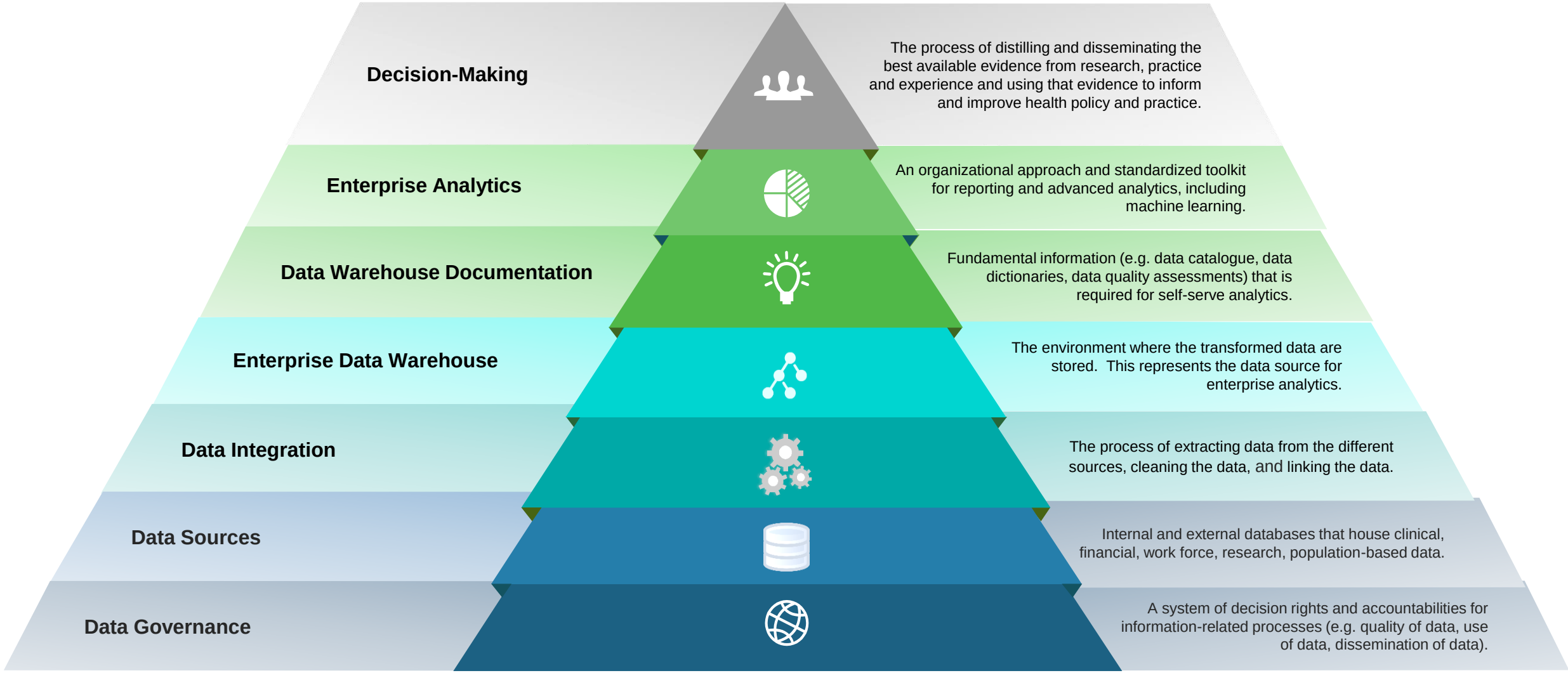

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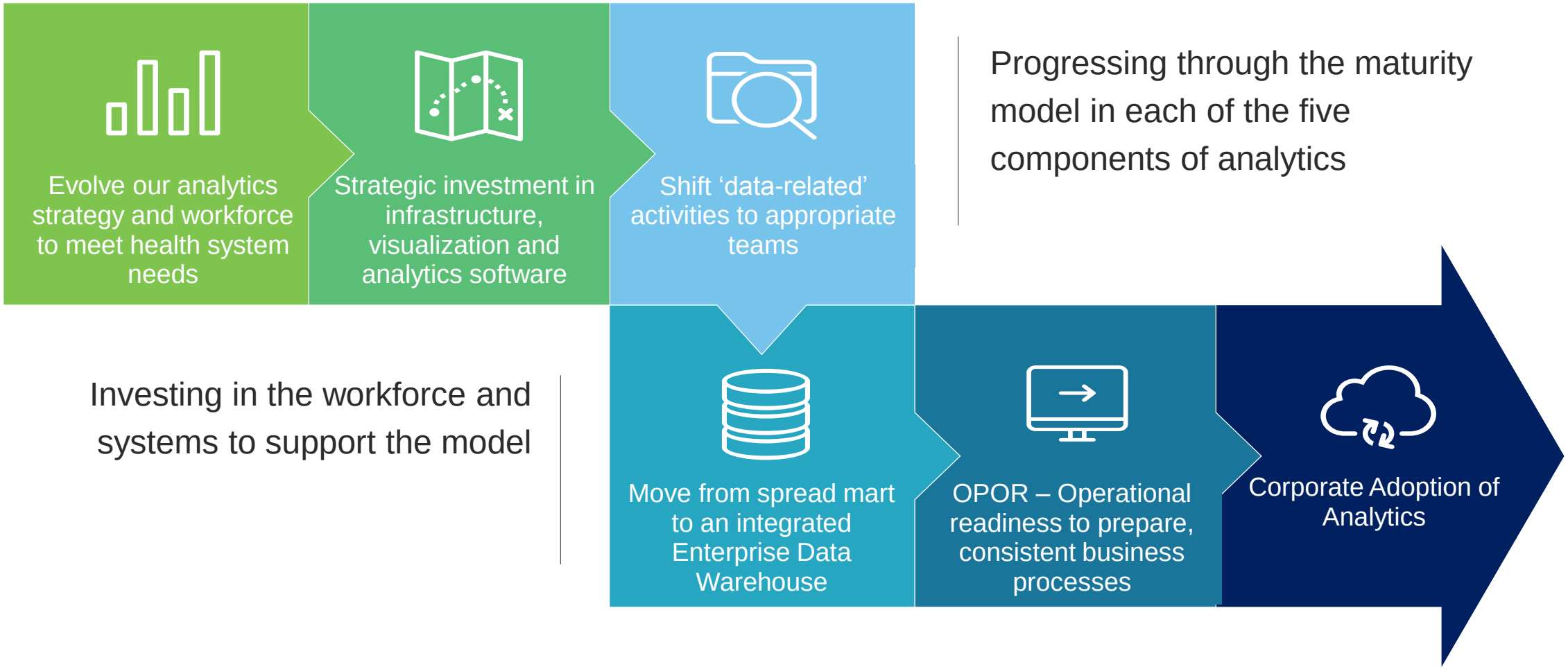
How Do We Get There?



Progressing through the maturity model in each of the five components of analytics

Investing in the workforce and systems to support the model

Continuing Education

Let's Talk Informatics has been certified for continuing education credits by;

- College of Family Physicians of Canada and the Nova Scotia Chapter for 1 Mainpro+ credit.
- Digital Health Canada for 1CE hour for each presentation attended. Attendees can track their continuing education hours through the HIMSS online tracking certification application, which is linked to their HIMSS account.

THANK YOU

Question ?