



TOGETHER, PUTTING DATA TO WORK

Data and Analytics @ York Region

Data, Analytics and Visualization Services

Prepared for: State of Alaska

November 5, 2020



ABOUT THE SPEAKERS

John Houweling



Director

Data, Analytics and
Visualization Services Branch
York Region

Jeff Lamb



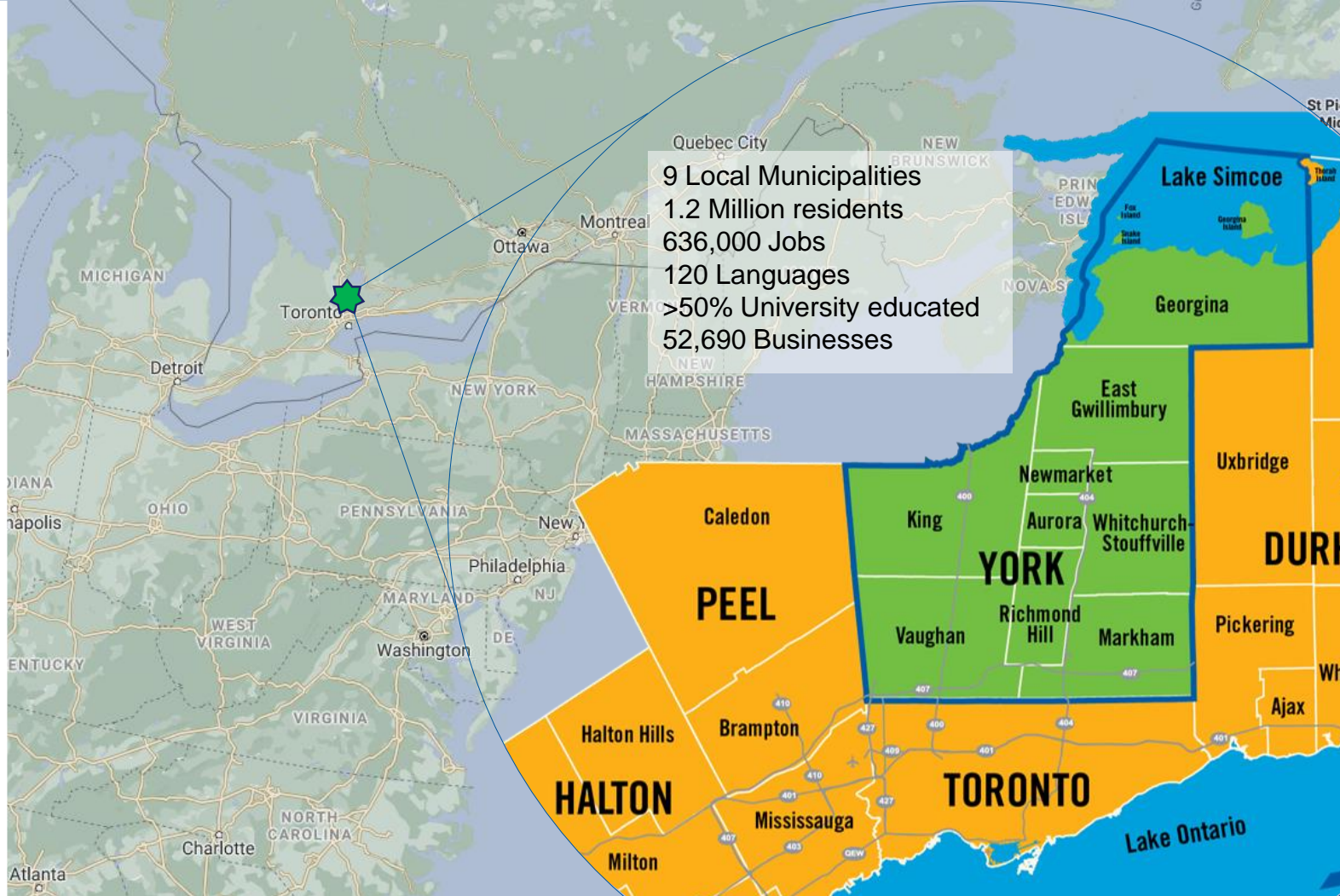
Manager, Partnerships

Data, Analytics and
Visualization Services Branch
York Region

YORK REGION

ABOUT YORK REGION

- Transit
- Waste Management
- Water
- Public Health
- Regional Roads
- Social Assistance
- Paramedic Services
- Planning
- Police Services
- Forestry
- Housing Services
- Long-term Care / Senior Services
- Children's Services
- Court Services
- Economic Development



ABOUT THE TEAM

Director

Admin Assistant

Portfolio Management

Analytics & Visualization

Business Solutions

Data Management

Partnerships & Open Data

Project Specialists

Data Scientists

Technologists

Data Academy

Analysts

Technologists

Data Architect

Data Engineer

Enterprise Data Governance

Technologists

Program Specialist



EVOLVING MANDATE: FROM GIS TO DATA AND ANALYTICS

- 1995 to 2011 - GIS in Planning Dept.
- 2012 - Branch GIS Multi-Year Plan
- 2015 - Branch Data and Analytics Plan
- 2019 - Corporate Data & Analytics Master Plan

Download our story [here](#)

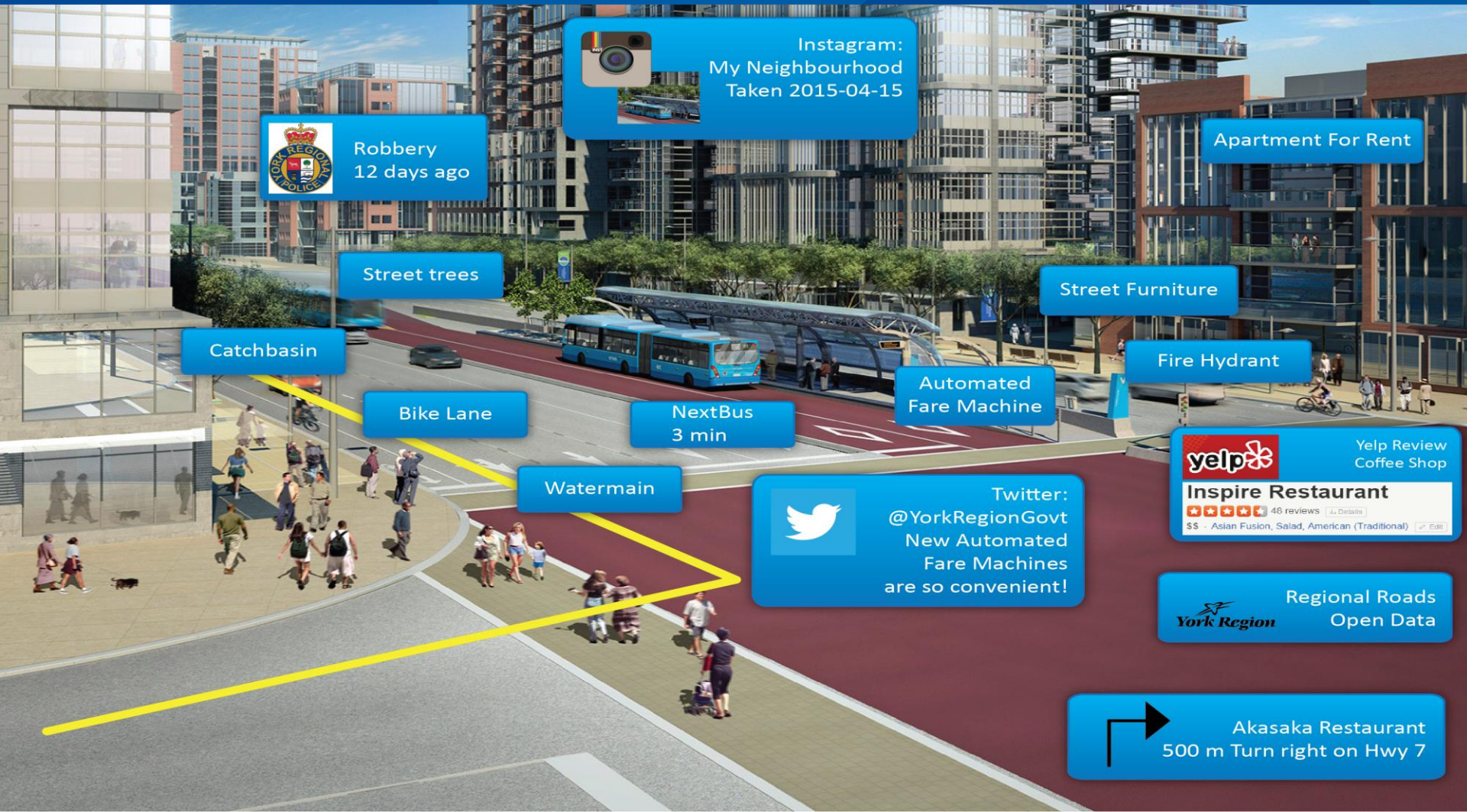


SUCCESS PLAYBOOK

Learn from York Region's Data, Analytics and Visualization Services. Award recipients of the Esri President's Award for GIS 2020.



GOVERNMENTS GENERATE A LOT OF DATA!



Instagram:
My Neighbourhood
Taken 2015-04-15



Robbery
12 days ago

Apartment For Rent

Street trees

Street Furniture

Catchbasin

Fire Hydrant

Bike Lane

NextBus
3 min

Automated
Fare Machine

Watermain



Twitter:
@YorkRegionGovt
New Automated
Fare Machines
are so convenient!



Yelp Review
Coffee Shop

Inspire Restaurant

48 reviews | Details
\$\$ - Asian Fusion, Salad, American (Traditional)



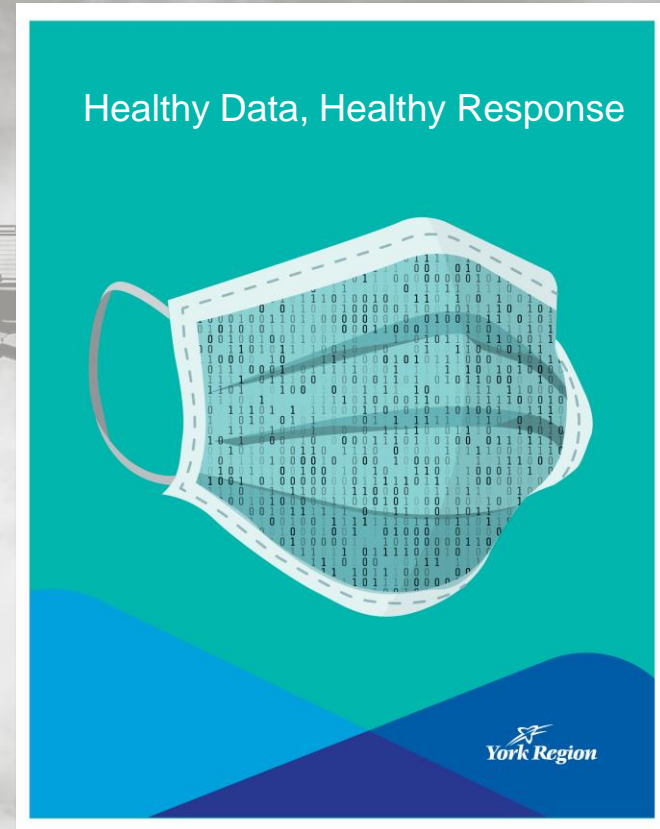
Regional Roads
Open Data



Akasaka Restaurant
500 m Turn right on Hwy 7

ARE WE GETTING THE MOST FROM THESE DATA?

- Work in a "federated model"
- "BI and GIS Show and Tell"
- Departments building vertical views
- No clear accountability and authority
- Lots of duplication and confusion
- Many use cases require horizontal view



demo

DATA AND ANALYTICS MASTER PLAN

ALL LEVELS OF GOVERNMENT ALIGNING



TOGETHER, PUTTING DATA TO WORK!

We will be successful, over the next 4 years, as we:



1 Build a Data Informed Culture

Foster an organizational culture that supports data informed activities and outcomes.



2 Establish Governance

Establish and adopt horizontal and vertical governance, with clear accountability.



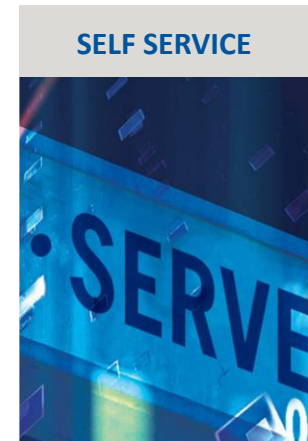
3 Enhance Capabilities and Literacy

Provision access to training and adoption tactics to promote and enhance data literacy.



4 Provide Access to Trusted and Timely Data

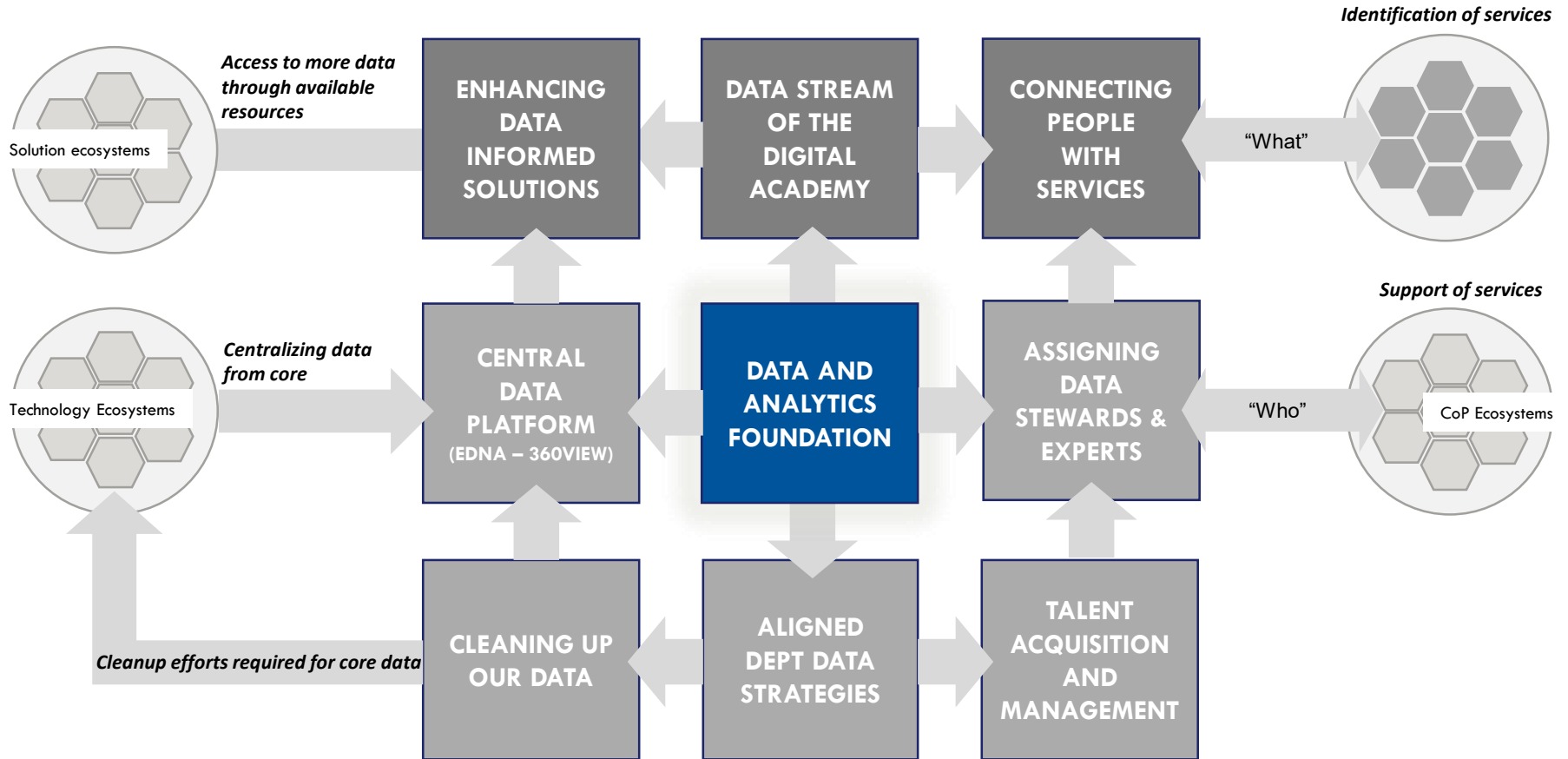
Provide appropriate access to the right data at the right time to support decision-making.



5 Provision Tools for Self-Service Data and Analytics

Equip staff with access to tools for self-service analytics

FRAMEWORK FOR BUILDING THE FOUNDATION



COMPONENTS OF DNA: DAMA'S KNOWLEDGE AREAS

Guiding

Primary

Secondary



DATA GOVERNANCE 1.8

Ensuring a framework of rules and practices for data

<p>DATA ARCHITECTURE 2.9</p> <p>Modelling data to extract its greatest value</p>	<p>DATA CATALOGUE 1.9</p> <p>Helping staff find the right data</p>	<p>DATA INSIGHTS & REPORTING 2.4</p> <p>Using data to tell a compelling narrative</p>	<p>DATA LITERACY 2.2</p> <p>Learning to care for, understand and use data</p>	<p>DATA PARTNERSHIPS 2.4</p> <p>Learning, building and sharing together.</p>
<p>DATA PREPARATION & INTEGRATION 2.8</p> <p>Getting data into the Region's systems</p>	<p>DATA QUALITY 1.9</p> <p>Getting the right data the first time</p>	<p>SECURITY, ACCESS & PRIVACY 2.4</p> <p>Keeping data safe and secure</p>	<p>TECHNOLOGY 3.0</p> <p>Building an environment for data to thrive</p>	<p>CONTENT MANAGEMENT</p> <p>Ensuring integration between data and content</p>

1 - Non-Existent: The functionality does not exist within the organization

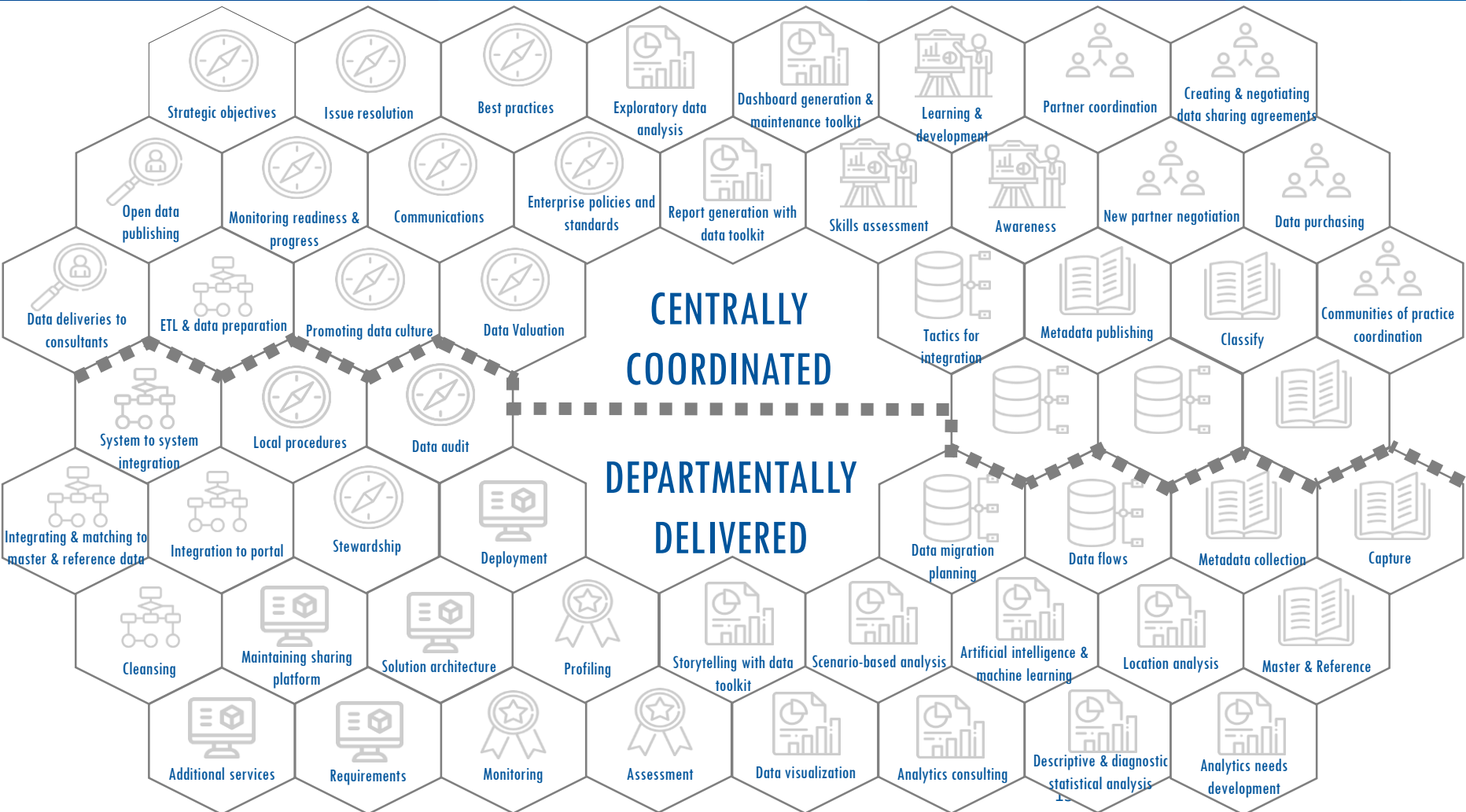
2 - Reactive: Basic functionality does exist within isolated pockets of the organization

3 - Proactive: Most of the functionalities exist with consistency

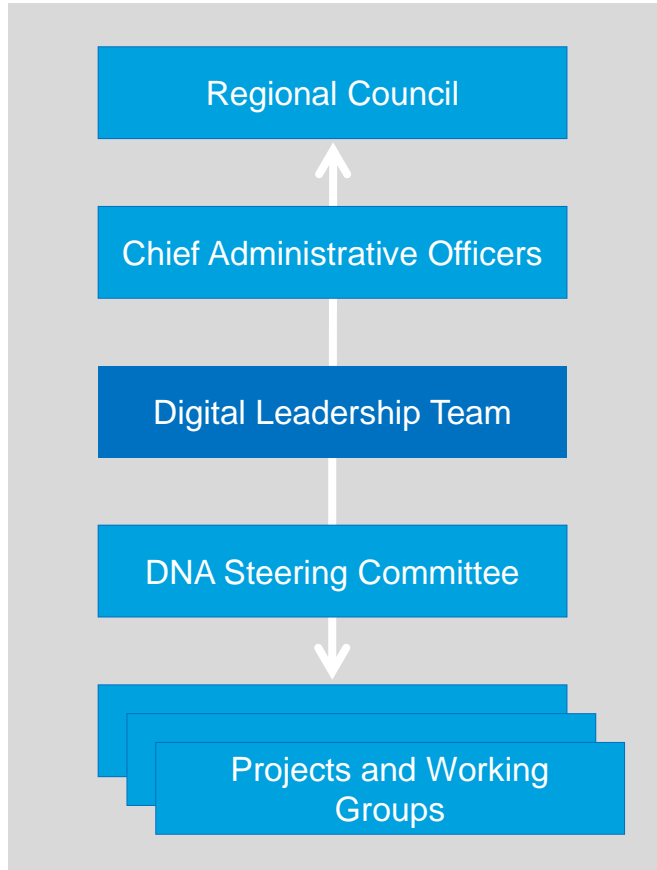
4 - Committed: exist within the organization and are well connected, accepted and adopted

5 - Leader: All exist and have been adopted and scaled across.

PARTNERED THROUGH SERVICE DELIVERY



HOW WE ARE ORGANIZED



- Distributed Governance
- Digital leaders across the organization
- Figure out the federated model
- Central coordination and departmental delivery
- Steering Committee guides the work

STEERING COMMITTEE: HOW WE DRIVE CHANGE



TOP 5 ACHIEVEMENTS TO DATE

DASHBOARD GALLERY: SELF-SERVE ANALYTICS

SELF SERVICE



5 Provision Tools for Self-Service Data and Analytics

Equip staff with access to tools for self-service analytics



- COVID ignited demand
- Managers need insight into business
- Inventoried all dashboards
- Duplication across business units
- Applying brand standards and standardizing technology
- One window providing access to all internal dashboards

360 VIEW: PROVIDING TOOLS AND ACCESS TO DATA

ACCESS



4 Provide Access to Trusted and Timely Data

Provide appropriate access to the right data at the right time to support decision-making.

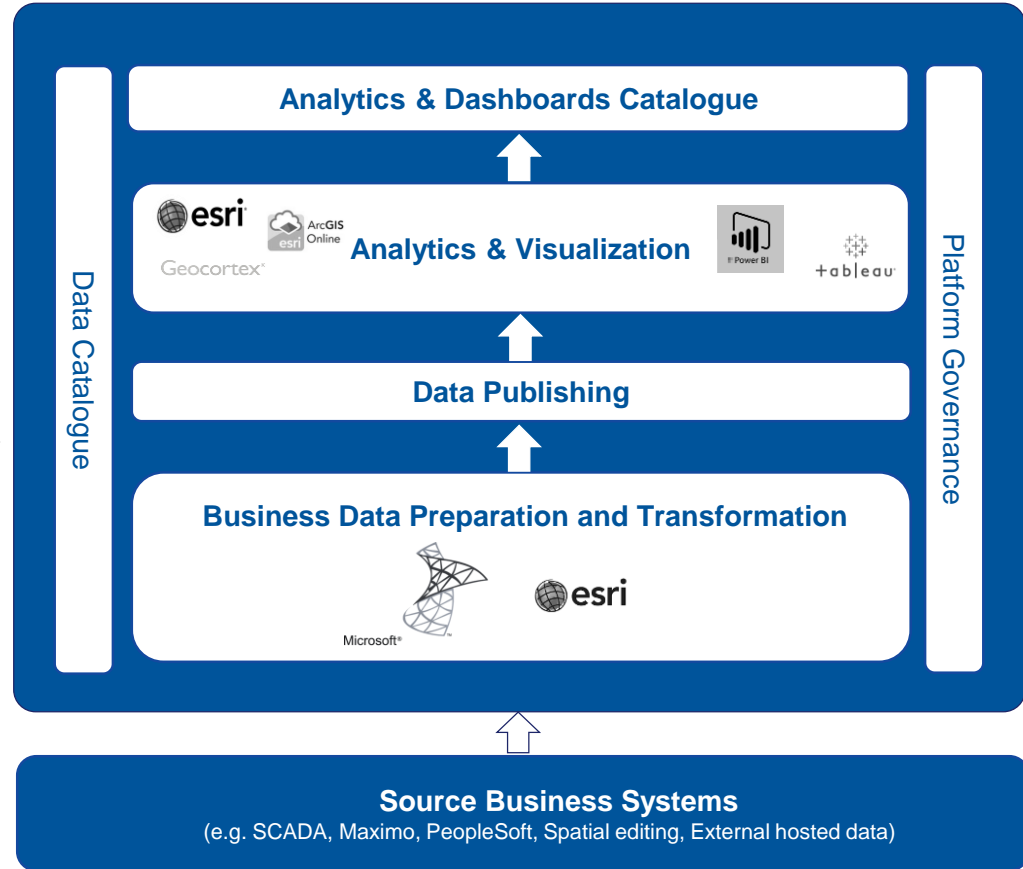
Building strong, caring and safe communities. Increasing quality of life

Water, Wastewater; Fire, Police, Parks and Recreation, Courts, Libraries, Roads, Solid Waste, EMS, Family and Children services...

Governance: policies, standards, guidelines, best practices. **Management:** data and information architecture, access / permission, data design, data quality, search, information and metadata repositories, information lifecycle management ...

Governance: policies, standards, guidelines, best practices. : architecture, hardware, enterprise software, communications, networks, operating systems, databases, security, mobile devices...

Human Resources: Staff, Contractors, Physical Infrastructure: Pipes, Roads, buildings, property,

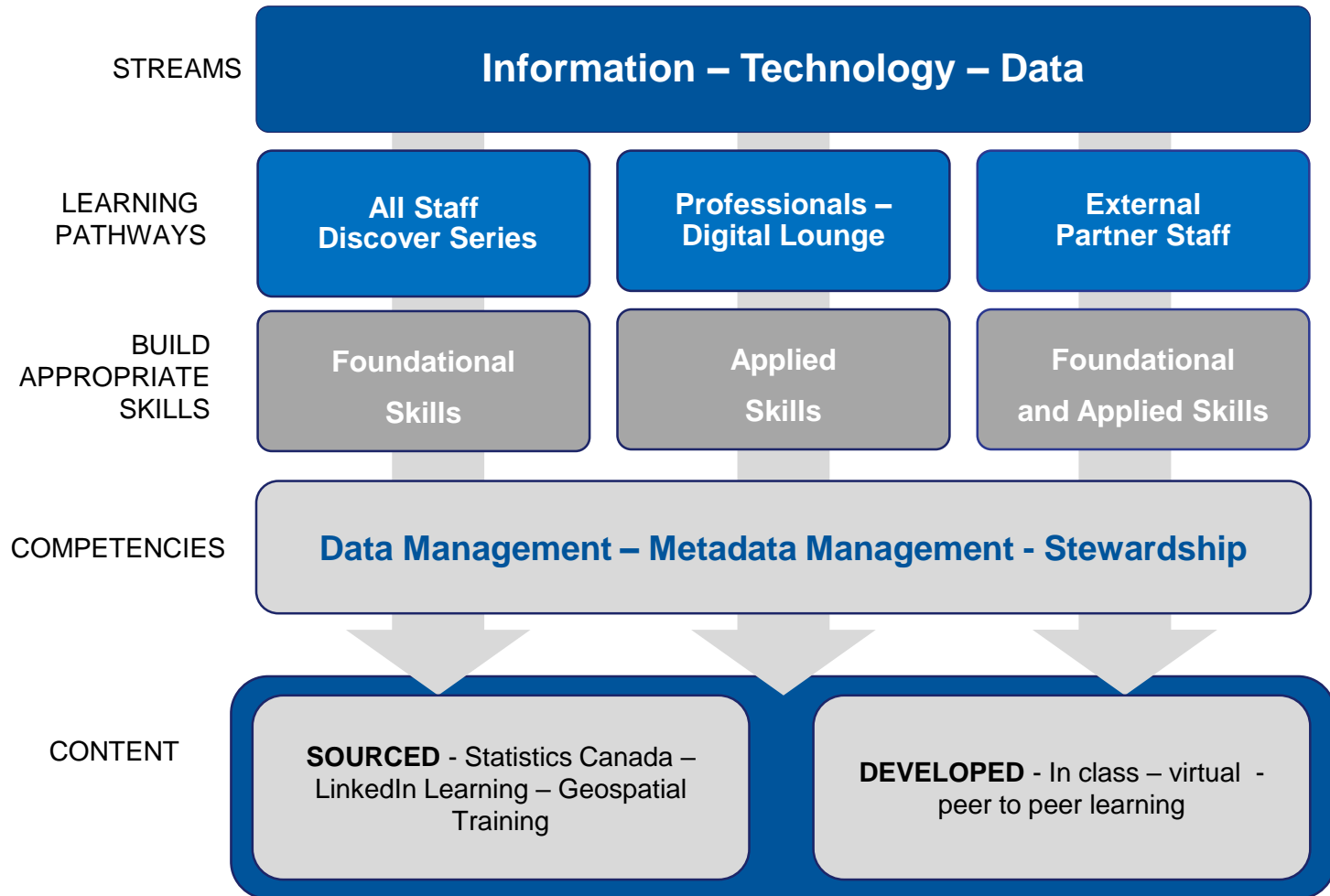


DIGITAL ACADEMY: Building data and analytics muscle



3 Enhance Capabilities and Literacy

Provision access to training and adoption tactics to promote and enhance data literacy.



INFORMATION GOVERNANCE FRAMEWORK: Putting governance in place

GOVERNANCE



COMPLIANCE

RULES

2 Establish Governance

Establish and adopt horizontal and vertical governance, with clear accountability.

POLICIES

Information Management Policy

STANDARDS

Stewardship Standard

Database Standard

Metadata Standard

Glossary Standard

PROCEDURES

Data Quality Assessment Procedure

Application Governance Template

ArcGIS Online Guideline

Legal Data Sharing Agreement

Data Coop Guidelines

DATA HEROES: EVOLVING THE CULTURE

CULTURE



1 Build a Data Informed Culture

Foster an organizational culture that supports data informed activities and outcomes.



Data Hero: Collaboration



CAROLYNNE &
TEEMA:
DATA HEROES

YORKINFO PARTNERSHIP

**DATA
PARTNERSHIPS** 2.4



Learning, building
and sharing together.



Learning, Building and Sharing

SINGLE TAXPAYER



Local

- Culture
- Fire
- Heritage
- Library Services
- Parking
- Parks & Recreation
- Permits and Licensing
- Tax Collection

Shared

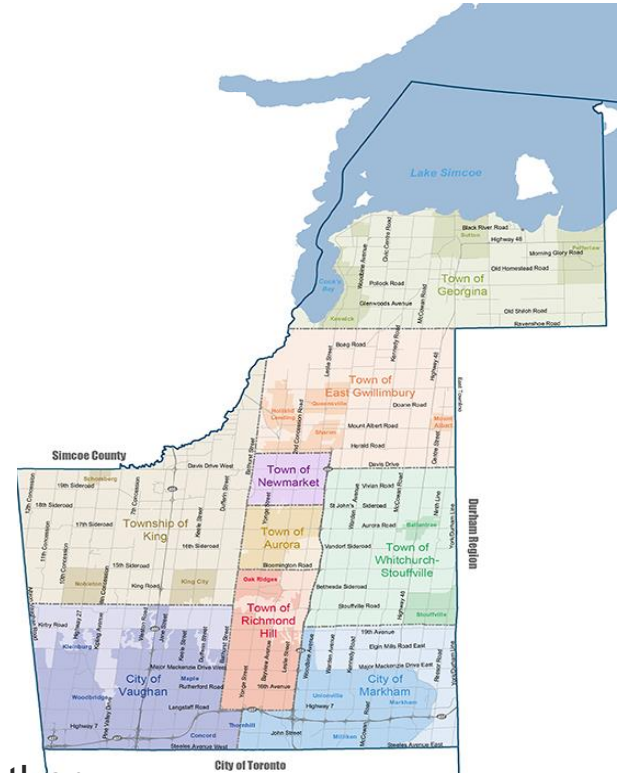
- Bylaw Enforcement
- Planning & Development
- Roads & Street trees
- Solid Waste
- Water/Wastewater

Regional

- Public Health
- Housing
- Police Services
- Transit/Rapid Transit
- Court Services
- Paramedic Services
- Regional Forests
- Long-Term Care
- Social Assistance
- Family & Children's Services²⁶



STRONG PARTNERSHIPS MATTER



- Over 100 data and analytics staff supporting one another
- Rapid deployment of business solutions [East Gwillimbury](#)



ACCOMPLISHMENTS

1996

First Partnership of its kind in Canada. Focus on sharing data, resources and knowledge of GIS



1997

Development of region wide single line road network with address ranges to support emergency management



1998

Started parcel fabric mapping creating the foundation needed to support land registration, property assessment & taxation, land use planning, land management and business planning.



1999

Address point mapping leads to increased way finding capabilities for Partners and business'

2005

Training courses created to share GIS knowledge with all Partner staff. Savings of over 200k since '05, over 500 staff

Expanded aerial imagery capture to include partners saving 50% of annual costs to capture and process data



2003

Geoconnections funding leads to development of web GIS strategy leading to York maps program

2004

Development of Memorandum of Understanding between partners to share information



2009

Negotiated Teranet Agreements that include provisions for Partners reducing overall costs



2012

Launched Open Data pilot program to share data online with partners and residents. Extended technology agreements to Partners



2013

Retired MOU and worked collaboratively on a Data Exchange Agreement for legally sharing data between Partners

Partnership renewal report provides a series of recommendations to evolve the Partnership including enhanced focus on data and analytics collaboration

2014

Delivered and operationalized the All-Pipes project saving over 150k annually and employing 2 FTEs



2015

Launched the Self-Serve Data Depot for online access to data saving hundreds of hours of staff time and allowing consultants and partners to self-serve 24/7. Won GTEC Award.



2016

Deployed Digital Plan Upload portal for saving 7 hours of time to translate from CAD to GIS



2017

Connected Newmarket and York Region Open Data sites for one window access for residents

2018

Developed Data Co-operative creating efficiencies in sharing maps, data and applications within the Partnership



2019

Approved 2 year work plan to bring the Partnership to a Data and Analytics focus



MATURITY SCALE

✔ Yes
 ! In Progress
 ✘ No

Investing in data and analytics technology	✔	✔	✔	✔	✔	✔	✔	✔	✔	!	✔	✔	✘
Data is recognized as a corporate asset	✔	✔	✔	✔	✔	✔	!	✔	✔	✔	✔	✘	✘
Standardized methods of data management	!	✔	!	!	✔	✔	✔	!	!	!	!	!	!
Defined organizational structure	✔	!	!	✔	✔	✘	!	!	✘	!	!	!	✘
Data is shared freely	!	✔	!	✔	✔	✔	✘	✘	✘	!	✘	!	!
Developing data and/or analytics strategies	!	!	✔	!	✔	!	!	✘	✘	✘	✔	✘	✘
Value understood and accepted	✔	!	!	!	✘	!	!	!	✔	!	✘	✘	✘
Collaboration occurring between departments	!	!	!	!	✘	✘	✔	✔	✘	✘	!	!	!
Deployed a data catalogue	✔	✔	!	!	✘	!	!	✘	!	✘	✘	✘	✘
Adopted governance structures	!	!	!	✔	!	✘	✘	✘	✘	✘	!	!	✘
Providing data and analytics training	✔	!	!	✘	✔	✘	✘	✘	✘	✘	✘	✘	✘
An executive responsible for data & analytics	✔	!	✔	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘
Example of proven value of data and analytics	!	✔	✘	✘	✘	✘	✘	✘	!	✘	✘	✘	✘
Data and analytics recruitment strategy	✘	✔	✘	✘	✘	✘	✘	✘	!	✘	✘	✘	✘
Increasing data literacy in organization	✔	✘	!	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘



MOVING FROM TRADITIONAL GIS

Producers

Regional Staff



Partners



Purchased Data



External Sources



Spatial Data Warehouse (800+)



Parcel
Address
Roads



MPAC
LIO
MOE
Boundaries



Walk Score
91



Teranet
Environics
Orthophotography
Walkscore



Transportation
Transit
Environment
Society
Planning

Health
EMS
Economy
Utilities
Legal



All Pipes
Parks
Infrastructure

Recreation
Conservation
Police
Fire



Consumers

Desktop GIS



Web and
Mobile GIS



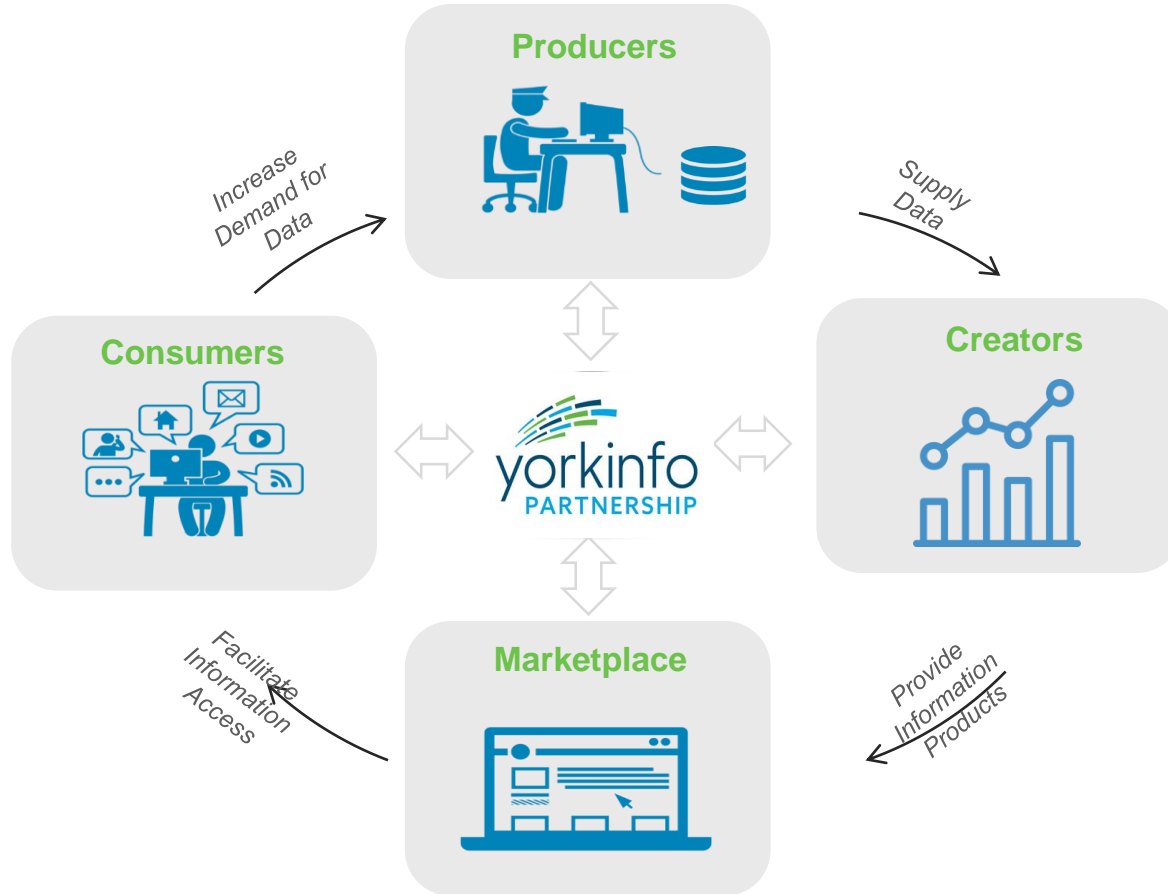
SSDD



Open Data




TO COOPERATIVE D.A.T.A



VIDEO AND DEMO



BUSINESS CASES

BC-01 **Business Case Title** 

Last Updated On: DD/MM/YY Champion: First Last


Measure 1: Measure 2: Measure 3: Measure 4: Measure 5:


Executive Summary


Lorem ipsum dolor sit amet, consectetur ac Nulla quam velit, vulputate eu pharetra nec neque. Duis vulputate commodo lectus, ac


Catchy Explanation Header

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla quam vel, mattis ac neque. Duis vulputate commodo lectus, ac blandit elit t tortor sed eleifend tristique, tortor mauris molestie elit, et lacinia ipsum nec mauris sit amet elit iaculis pretium sit amet quis magna. Aenean v tempus ut, vehicula eu diam. Pellentesque rhoncus aliquam mattis. Ut

Readiness 

Shareability 

Marketability 






Sustainability 

Topical Image Related to Business Case

Catchy "Expected Value" Header

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla quam velit, vulputate eu pharetra nec, mattis ac neque. Duis vulputate commodo lectus, ac blandit elit tincidunt id. Sed rhoncus, tortor sed eleifend tristique, tortor mauris molestie elit, et lacinia ipsum quam nec dui. Quisque nec mauris sit amet elit iaculis pretium sit amet quis magna. Aenean velit odio, elementum in tempus ut, vehicula eu diam. Pellentesque rhoncus aliquam mattis. Ut vulputate eros sed felis sodales nec vulputate justo hendrerit. Vivamus varius pretium ligula, a aliquam odio euismod sit amet. Quisque laoreet sem sit amet orci ullamcorper at ultricies metus viverra. Pellentesque arcu mauris, malesuada quis ornare accumsan.

Stakeholders:

- Taxpayers 
- Partners 
- YR Departments 
- Business Community 
- GTHA 

Timeline:

2021 Q1 to 2021 Q4

- Goal 1 (Q1)
- Goal 2 (Q2)
- Goal 3 (Q4)

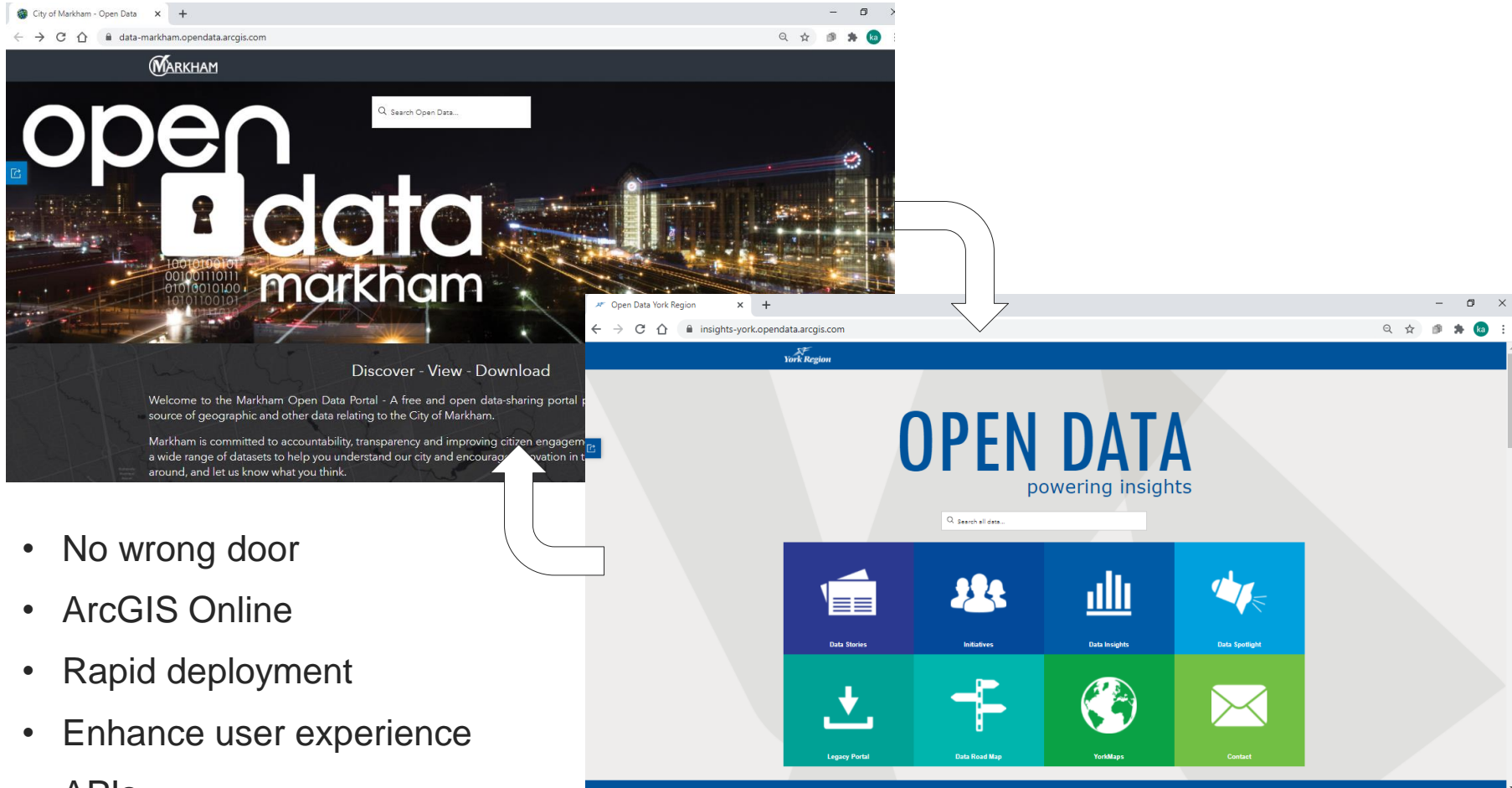
---"Pull Most Eye Grabbing Quote [...] for the Value of this Project"---

ETA For Business Case

yorkinfo PARTNERSHIP

- Across many levels of govt
- Alignment to business need
- Over 50 use cases identified (pipes, permits, construction, climate change, planning...)
- Create efficiencies, cost sharing, streamline process and increasing communication
- Designed business case template to fully articulate value
- documented by end of year
- Will be made available on yorkinfopartnership.com for everyone

FEDERATED OPEN DATA



- No wrong door
- ArcGIS Online
- Rapid deployment
- Enhance user experience
- APIs

KEYS TO PARTNERSHIP SUCCESS



5. COMMON TECHNOLOGY



- Standardized on Esri platform
- Partners at various levels of maturity
- Maturity not a barrier for participation
- Share data, applications and tools easily
- Training
- Simple to integrate with other platforms
- All speaking the same language

4. PLATFORM GOVERNANCE



- Established rules, roles and responsibilities
- Gives partners control over what is shared and to whom they share
- Work group administrators to reduce risk
- Scalable sharing from one-time project to recurring program
- Integrated business processes of governance with the technical platform allowing it to evolve

3. LEGAL AGREEMENT



YorkInfo Membership Agreement - allows for full fledged members and data sharing members

YorkInfo Commons Data Sharing Agreement is aligned to the D.A.T.A Co-operative technology

V1	V2
Data only	Data, tools, apps and training
Exchange	Exchange and collaboration
Use of local data copies	Integration of 'live' data
One-to-one exchange	Partnership open by default

2. JOINT WORK PLAN

SHARING


The primary objective of this work plan is to share information and knowledge between partners. The primary objective of this work plan is to share information and knowledge between partners. The primary objective of this work plan is to share information and knowledge between partners.

- Developing an agreed-upon language and terminology for sharing information and knowledge.
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LEARNING

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2020 Vision

2019-2020

COORDINATING

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DO YOU KNOW?

Since 2008, over 500 partner staff have participated in over 200 free courses saving partners over \$300,000 in training costs. To see what's available and register, go to [participatingpartnership.com/education](#)

- **Learn** – Training provided through a Digital Academy, online training and workshops
- **Build** - Find areas of common interest and create a joint work plan around 4-6 key projects

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MEASURING PROGRESS

Progress will be measured across three variables:

- Members** - In terms of participation in the program
- Partnership** - In terms of the current state of the partnership
- Impact** - In terms of the impact of the program on the partners

COORDINATING

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- **Share** - Find cost savings through joint data and technology purchases

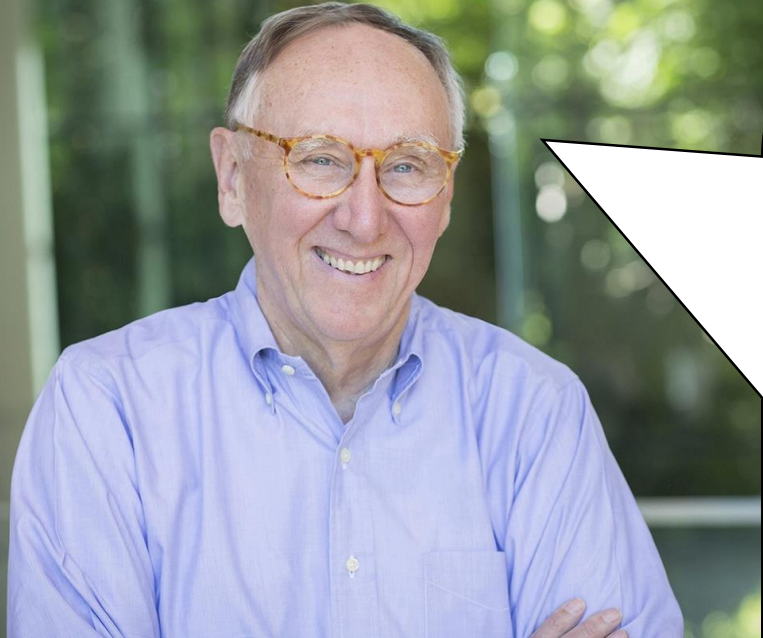
Track progress through a multi-year work plan with scorecard

1. PROGRAM GOVERNANCE



- Aligned to Corporate Strategic Plan
- Report annually to Regional Council
- Oversight from Chief Administrative Officer's
- Direction from Executive Board
- Coordinated by a Manager
- Aligned technical staff
- Work completed through task forces
- Lots of "Social Grease"

BONUS: SOCIAL GREASE



A snippet from Jack Dangermond's reason he selected York Region for the Esri Presidents award

*"...yours represents a pattern that is worth repeating across Canada and across the world... only your peers really know what it took to be able to pull off what you have done. They know how difficult it is to get the money to do it, getting management support, getting consensus amongst these other agencies, **doing all the social grease part of it**, building and maintaining the architecture and having the vision.*

Only your peers know"

WHAT'S NEXT?

WHERE ARE WE GOING NEXT?

YorkInfo Partnership

- Create and implement a new two-year work-plan
- Add content and users to the D.A.T.A Coop
- Implement V2 of the Data Sharing Agreement

DnA Master Plan

- Develop 2021 workplan ~10 projects
- Complete work on "Federated Model"
- Implement the DnA Services Catalogue
- Add Discover Data courses to the Digital Academy



QUESTIONS?

York Region - [here](#)

Partnership Website - [here](#)

Start up Kit - [here](#)



York Region