APPENDIX A

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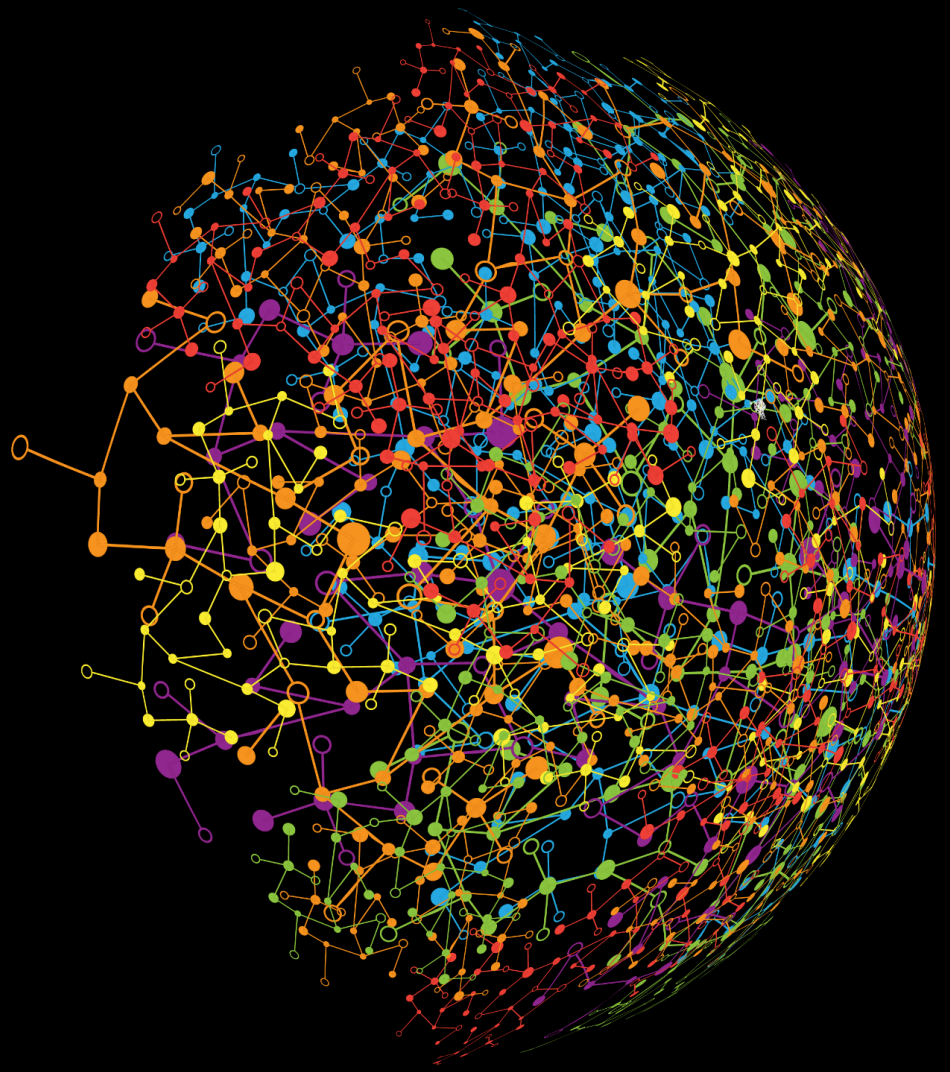


Corporate Data Management Strategy

Executive Summary

December 13, 2022

OAKVILLE

Omnia AI

Project Outcomes

Delivered

Gap Analysis Complete

CURRENT STATE AND GAP ANALYSIS REPORT

Alignment on Operating Model

RECOMMENDED DATA GOVERNANCE MODEL INFLUCED BY INDUSTRY TRENDS

Implementation Plan

FUTURE STATE RECOMMENDED IMPLEMENTATION ROAD MAP

Final Report

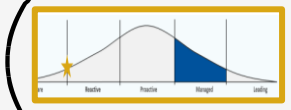
Final Report and close Out

- 250-word document

23 INTERVIEWS & DATA COMMITTEE MEETINGS ACROSS 7 DATA CAPABILITIES

ARTEFACTS REVIEWED **15+**

INDUSTRY PEERS LEVERAGED **5+**



DESIRED TARGET STATE FOR TOWN IS EXPECTED TO BE "MANAGED"

ALIGNED ON HUB & SPOKE CORPORATE DATA GOVERNANCE OPERATING MODEL

SPRINT BASED APPROACH TO IMPLEMENT HUB & SPOKE OPERATING MODEL; VISIBILITY ON SHORT TERM INITIATIVES

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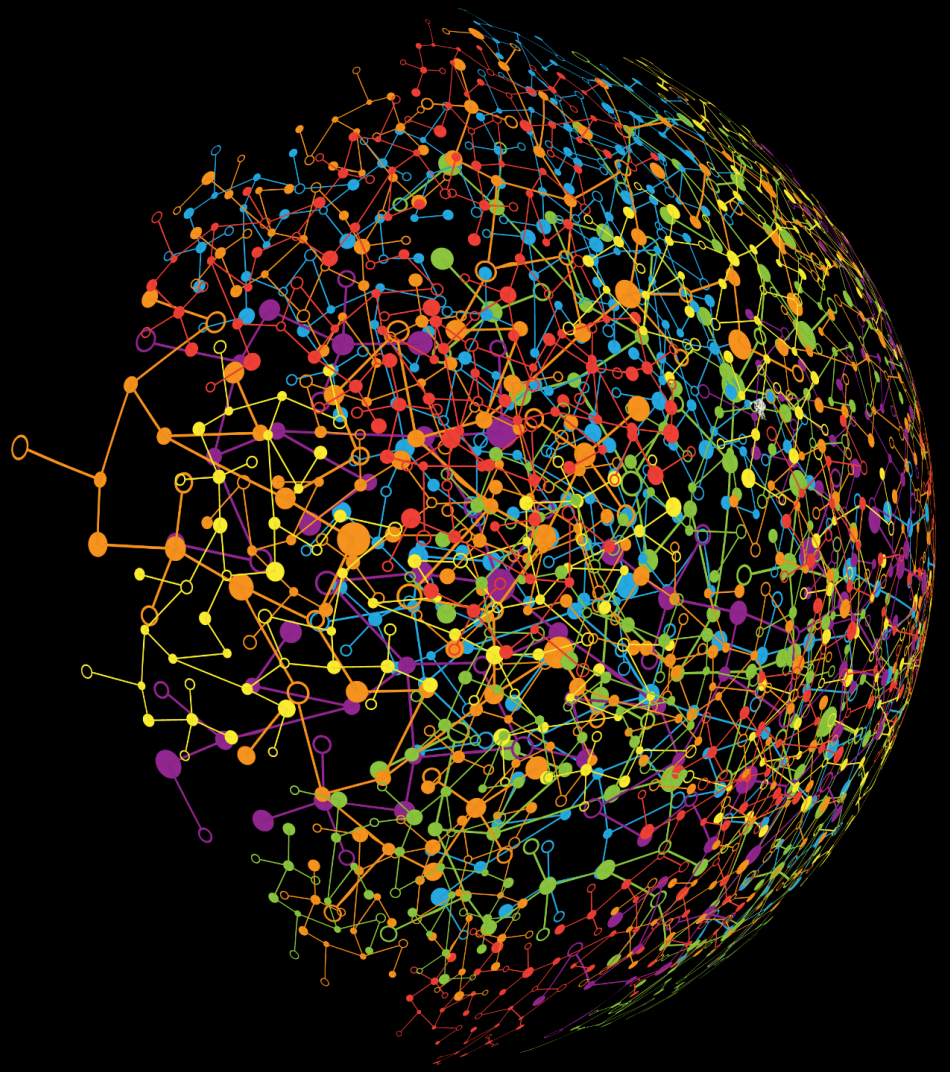
Why is Corporate Data governance needed & Its Benefits for Town of Oakville?



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Need for Corporate Data Management Strategy at Town of Oakville

*"**Data Governance & Management** is the orchestration of **people, processes, and technology** to manage **critical corporate-level data assets** by using **roles, responsibilities, policies, and processes** to ensure data is **accurate**, and aligns with **Town of Oakville's overall strategic vision**."*

Why *Corporate Data Management Strategy?*

*Aligning on **strategic corporate vision** to ensure Town stakeholders can achieve **business goals** by approaching data-related capabilities with **consistency**, thereby **reducing risk**, **improving standardization and data quality**, and **minimizing duplication of effort.***

Why *Now?*

*Town stakeholders have highlighted the **need** for **Corporate Data Management Strategy** to ensure **defined ownership** and **standardized process** help effectively **capture, utilize, retain, share, access, and safeguard** data to **enhance service delivery to community***

Standardization

- *Increase **Trust and Credibility of Data***
- *Establish **Accurate Data** with a **Single Source of Truth***
- *Continuous **Improvement Measures** Across the Town*

"Absence of single source of truth** and **integration standards** leads to **duplication of time and effort"

*"**No clear processes** leads to an **over-reliance on manual intervention** for quality and confidentiality"*

Accessibility

- *Rapidly Gain **Actionable Insights** for **Data Driven Decision Making***
- *Time to Enable **Corporate Data Initiatives & Transformation Programs***
- *Enable **Enhanced Service Delivery** to Community*

***"Urgent need for self-serviced data access** policies, otherwise report-generation can take several days"*

*"Lack of **data literacy** at a Corporate level diminishes Town's ability to maximize potential of data initiatives"*

Ownership

- ***Roles & Interactions** focused on **Data-specific Expectations***
- *Reducing Risks of **Data Re-work or Lack of Data Ownership***
- *Understand **Corporate-wide Data Issues** and **Resolution***

***"No clear data governance operating model** in place at a corporate level"*

***"Misalignment in data ownership expectations** between Business and Technology"*

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Value-driven efficiencies* through Corporate Data Strategy & Governance

The defined data management strategy for the Town of Oakville will help streamline many redundant activities within the Town and substitute these with focused, constructive, and data-driven activities that will help reduce costs and improve efficiencies

People

1.Better Resource Allocation
would allow resources to shift focus away from manual, mundane tasks and instead perform insights driven activities, also improving motivation

2.Defined roles & responsibilities
that is driven by a robust governance structure will help increase efficiency in socializing data practices and reduce duplication of effort

Process

3.Reduction in manual intervention
through defined processes will help drive proactiveness and improve efficiency in completing day-to-day operations

4.Single source of truth
will help prevent duplication of effort, providing more reliable, self-serviced methods to access critical data assets

5.Fit for purpose data quality
will improve accuracy and integrity of data, ensuring citizens are able to maximize value from Town's data capabilities

Technology

6.Reduced Technical debt
via clear understanding of which tools the Town should invest in to garner beneficial engagements and help the Town successfully achieve its strategic objectives

7.Improved Technology standardization & integration
will help reduce redundancies within the Town and help stakeholders focus efforts through economies of scale, ease of integration, improved efficiency, and defined role for ITS support

*Refer Performance Measure in Appendix B

Better Performance — *Performance and Data driven insights*

Less Cost — *Reduction in Redundancies*

More Efficiency — *Streamlined Processes, Technology, and Allocation of Resources*

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Corporate Data Strategy is enabled by critical corporate data capabilities

In order to create a Corporate Data Strategy, the Town needs to ensure its vision *"To be the most livable Town in Canada"* s is embedded into all aspects of the culture - guiding principles, people, process and technology - to achieve the target data state

Town's Enterprise Vision

"To be the most livable Town in Canada"

Town's Guiding Principles and collaborative model will support that vision

Town's Prioritized Data Capabilities will enable & action the Guiding Principles through Data Strategy

Prioritized Data Capabilities will be Operationalized in an evolutionary journey

Enterprise Data Vision

"To be the most livable Town in Canada"

Guiding Principles

- *Minimize Data Risk & Exposure*
- *Promote Data-driven Decision Making*
- *Improve Quality of Information*
- *Measure performance through data*
- *Better our ability to integrate data*
- *Align on Standards & Processes*
- *Enhance data protection & privacy through regulatory compliance*
- *Deliver Customer service excellence*

Critical Corporate Data Management Capabilities

1. Data Protection & Privacy
2. Data Operations & Decision Enablement
3. Data Quality Management
4. Business Intelligence & Analytics
5. Data Integration
6. Data Governance
7. Master Data Management

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Critical Corporate Data Management Capabilities

1.Data Protection & Privacy
The continuous process of protecting and safeguarding the confidentiality and integrity of data .Critical elements- **encryption, classification, data access management** etc.

- Encryption
- Anonymization
- Classification
- Masking
- Data Access Management

2.Data Operations & Decision Enablement
The collection, storage, access, evaluation, and utilization of data to enable operational transformation. Critical **elements-SLA definition, authoritative data source registration, and data preparation**

- Authoritative Data Source Registration
- SLA Definition
- Data Evaluation
- Data Preparation
- Synthetic Data Generation
- Test Data Preparation

3.Data Quality Management
The measurement of the health and usability of all data assets across the Town in a standardized manner. Critical elements- **quality rule design, quality profiling, issue management**

- Data Quality Rule Design
- Data Quality Profiling
- Issue Management
- Root Cause & Impact Analysis
- Data Quality Monitoring & Visualization

4.Business Intelligence & Analytics
Managing how insights are governed and how data is presented to end-users and consumers. Critical elements- **Reporting & Visualization, Model validation**

- Reporting & Visualization
- DevOps/ MLOps
- Model Validation
- Analytics & AI Modeling

5.Data Integration
The approach for sourcing, routing, orchestrating, and governing shared critical data assets to minimize redundancy within the Town. Critical elements- **metadata management, Technical & business glossary definition**, ETL

- Metadata Management
- Metadata Access
- Technical & Business Glossary
- Data Lineage
- Data Ingestion
- Extract Transform Load (ETL)

6.Data Governance
Processes to guide Organizational change management towards operational quality and efficiency.Critical elements- **Operating model, roles & responsibilities, Policies & Standards**

- Data Governance Operating Model
- Roles & Responsibilities
- Data Governance Framework
- Policies & Standards
- Regulatory Compliance
- Communication & Change Management

7.Master Data Management
Applying business rules to data. Critical elements- **Corporate solution architecture, data repository**

- Master Data Repository
- Match Merge Survivorship rules
- Corporate Solution Architecture
- Business Taxonomy & Hierarchy Management

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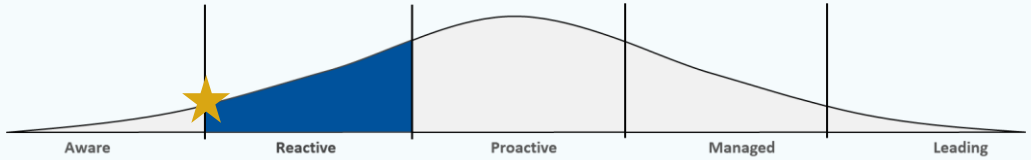
***For details refer to Appendix C*

Current State Assessment & Desired Target State

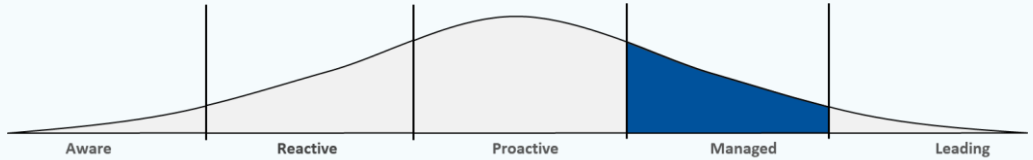
Overview of current state of Town of Oakville's data management capabilities. The recommended target state is aligned with industry best practices. The key management capabilities utilized for the operating model will enable the Town of Oakville to improve their current capabilities to effectively achieve its data management goals goals

CURRENT STATE

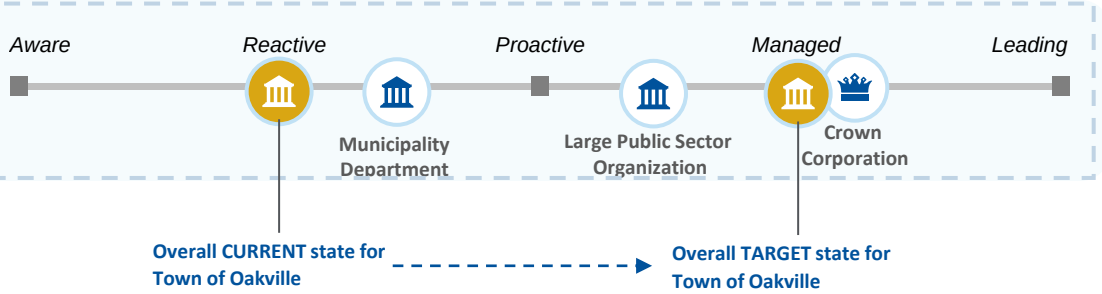


★ *Town of Oakville is currently at the nascent stages of **Reactive***

TARGET STATE

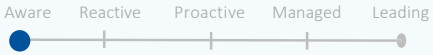


INDUSTRY TRENDS



KEY DATA MANAGEMENT CAPABILITIES

Data Protection & Privacy



Data Operations & Decision Enablement

Data Quality Management

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Business Intelligence & Analytics

Data Integration

.

Data Governance

Master Data Management

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Industry Insights – Leading Data Governance Trends

Key Takeaway – Town of Oakville's maturity is in line with other municipalities in implementing data governance and management capabilities. Focus is given to specific transformational initiatives or specific data management capabilities instead of standing up an enterprise level function that drives Corporate data strategy. Other sectors such as private and public sector are ahead by taking an enterprise level approach with a view of implementing data driven decisions across business departments.

Based on the analysis of industry peers, below are the trends and leading practices being leveraged to create Town's Corporate Data Management Strategy.

- Mature organizations are adopting a **hub and spoke** data governance model, in which a **central function** acts as the **enabler of data governance and management** within the organization by working in **partnership with technology teams** to evolve into a self-serviced organization.
- Senior leadership accountability is established and measured through their support in driving the corporate data strategy, whilst ensuring that capacity and resourcing requirements are fulfilled.
- Successful implementation of **data and analytics strategy** involves aligning with the **business vision** and enabling the **strategic objectives** through **prioritization of data capabilities**; these are **transformed by leveraging technology** to achieve **scalability and agility** throughout the organization.
- Through **continuous measurement and monitoring** of data, true value of data is realized and communicated throughout the organization; this can support **change management** initiatives and enable the unification around data management practices.
- Execution of effective **data governance standards and practices** requires a **pragmatic approach** that necessitates an **evolutionary process** and **flexible approach** to achieve the **desired enterprise-wide outcomes.**

Municipalities

York Region

Burlington

Hamilton

Sault Ste. Marie

Financial Institutions (FIs)

TD

CIBC

RBC

Scotiabank

BMO

Public Sector and Crown Corporations

Défense nationale National Defence

Employment and Social Development Canada

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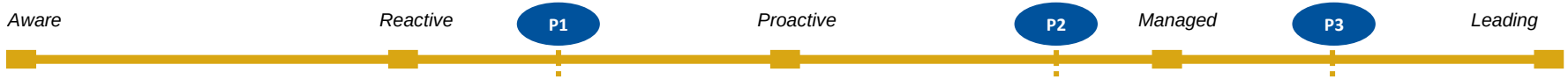
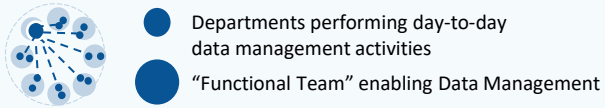
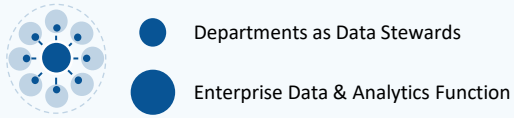
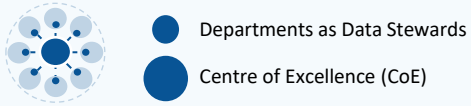
Industry Use Cases Analyzed

Observation of data governance structure of other analogous industry peers will enhance Town of Oakville's awareness of best practices for achieving target operating model



	Municipality Department (P1)	Large Public Sector Organization (P2)	Crown Corporation (P3)
Role of Enterprise Data Function and Operating Model	Seen as a **Functional Unit** for the organization, that performs key data management practices for the organization for a program (GIS) **Functional model**  Departments performing day-to-day data management activities "Functional Team" enabling Data Management	Seen as a **Policy Setter** for the organization, defining the policies and standards that other line of businesses need to comply with **Centre of Excellence (CoE) model**  Departments as Data Stewards Enterprise Data & Analytics Function	Seen as an **Innovator** for the organization, enabling data and analytics capabilities **Centre of Excellence (CoE) model**  Departments as Data Stewards Centre of Excellence (CoE)
Overview of Responsibilities	• The organization has an operating model wherein enterprise data management strategy and ownership is the responsibility of the GIS and IT teams that oversee data management capabilities alongside their core operations • Operational and technical support is provided based on the program needs, whilst building foundational data integration, reporting, and standardization practices • Data literacy is promoted, and data champions are identified within departments and trained on open data policies to create a more robust data governance structure • Data quality management and monitoring is siloed within each department	• The organization has a federated data governance model with data stewards within each department • The enterprise data & analytics function drives analytics adoption and maturity throughout organization and leads the department-wide initiative to establish data governance • They establish policies and standards and are responsible to bring cultural change within the organization through training and communication of best practices • The organization has a data domain stewardship model and data domain stewards are responsible to develop business rules, monitor quality, risks and issues including report on progress at data governance committee	• The organization has Centre of Excellence data governance model with data stewards within each department • CoE is the ultimate "Go Team" for data governance standards, processes, and policies to drive consistency and quality, while coordinating with data owners for best practices • Data stewards in departments are responsible for the execution of day-to-day business data management activities for their lines of business in accordance with the standards established by the CoE • Common technology and tools are centrally managed • Data monitoring teams sit within the departments
Data Capabilities	• Data Inventory and Catalogue • Data Dashboarding • Document management & retention • Data Governance initiated for a program • Data Literacy and Culture • Data Integration • Technology is centralized within IT	• Enterprise-wide Data and Analytics Strategy • Data Management • Data Literacy and Culture • Data Tools and Architecture • AI Policy & direction including Ethical Considerations • Technology is centralized and partners with Enterprise Function	• Data Ownership • Analytics & Reporting • Data Protection and Privacy • Data Quality • Technology Enablement • Data Access and Integration • Data Culture • Technology is centralized and partners with Enterprise function

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**Refer Appendix C for details*

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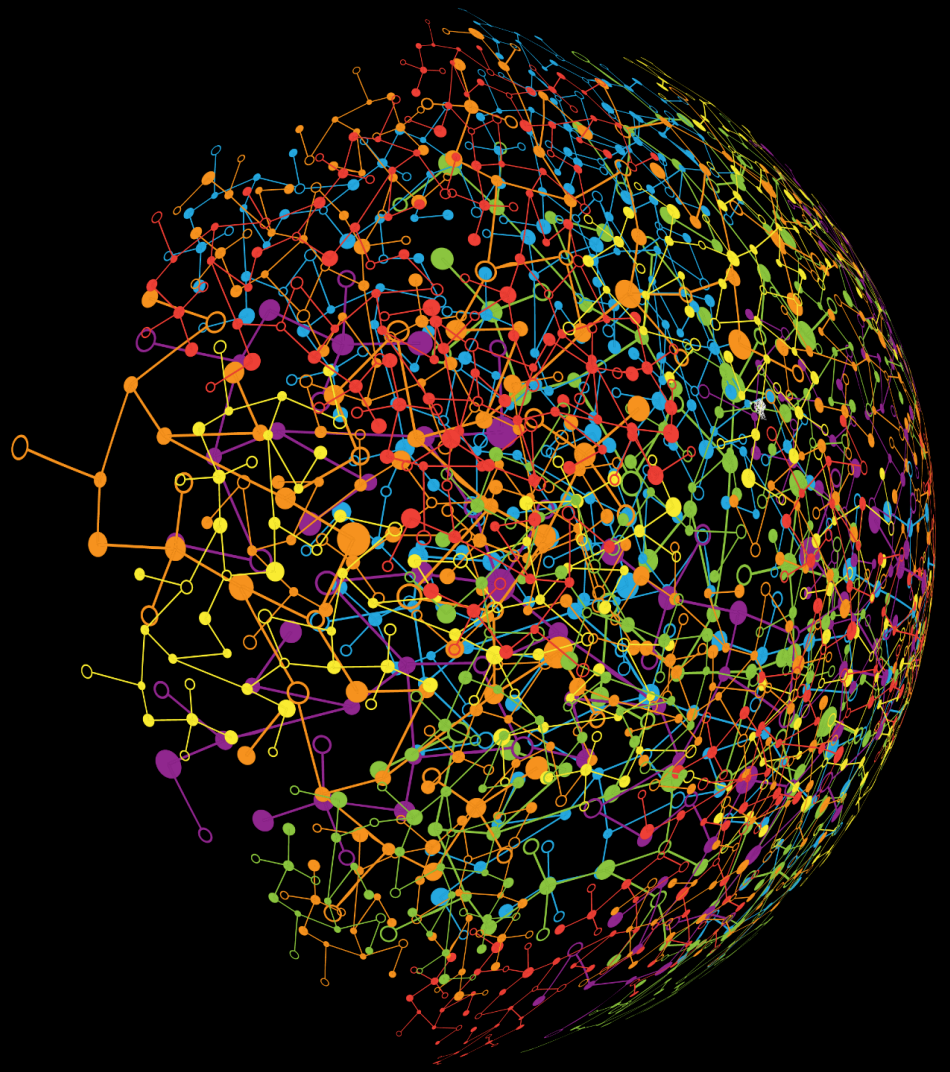
What should be the Corporate Data Governance and Interaction model?



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Establish a dedicated function that enables Corporate Data Governance

The Corporate Data Governance and Analytics (CDGA) function will engage with business and technology leaders to promote the overall data vision, provide hands-on support for the execution of data & analytics initiatives and capability maturity, and collaborate in partnership with technology leaders to drive shared data management and technology platforms.

Corporate Data Governance & Analytics (CDGA) Mandate

The CDGA will engage in the following interactions:

- Engage with **Business and Technology Leaders** to promote the overall vision for Town of Oakville's data priorities through established governance mechanisms and forums
- Enable the **corporate data and analytics strategy** and **data governance guiding principles** to be implemented by Business and Technology
- Represent Town's **data needs** and **progress updates** at ELT forums
- Develop **monitoring and reporting activities** to derive insights and strategic decision making
- Enable **change management activities** as an enterprise priority

Advisory

Provide data & analytics subject matter expertise throughout Town of Oakville to enable effective use of data and realize strategic objectives and mandates. Facilitate proactive identification of data & analytics opportunities and provide ongoing change management advisory

Standards, Policy, & Adoption

Establish alignment of data & analytics standards and policy based on organizational requirements, and effectively communicate the same to ensure adoption of standards and policy across businesses.

Monitoring & Reporting

Provide ongoing data & analytics adoption and maturity support and advise on analytics solutions that can be leveraged centrally based on standard corporate data. Design and deliver corporate reports to derive insights and enable strategic decision making

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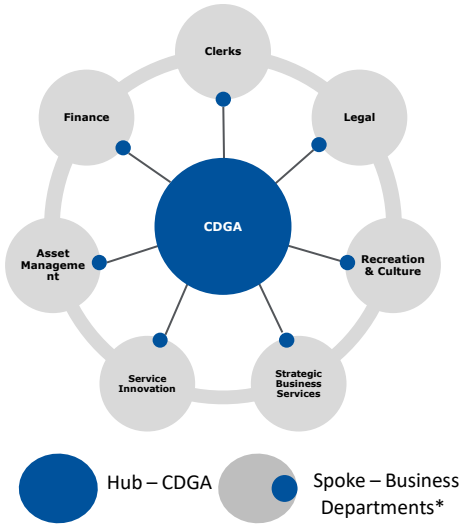
A need for Hub and Spoke Model to enable data interactions across business/technology

To enable a successful data driven journey, the Town needs to embark on a hub and spoke data governance model that encompasses critical stakeholders who will play a key role in proliferating the data mandate throughout the Town

Business

- **Data Governance & Management Execution:** Practitioner-level execution against data governance & management policies, standards, processes
- **Data Strategy:** Contribute and support the development & execution of the Corporate Data Strategy
- **Reporting & Analytics:** Operational groups with data practitioner resources will help with reporting & analytics needs with advisor support from the CDGA and other analytics teams
- **Use Cases and Remediation:** Business Departments will raise high-priority use cases and generate demand for issue resolution & reporting needs



Shared Capabilities with Enabling Corporate Services & Technology

- **Data Management Policy:** Set consistent data policies and guidelines to be adhered to and adopted by the Town
- **Tools & Technology:** Drive the enterprise architecture agenda through the assessment and procurement of tooling and enablement for business departments

*Finance, Human Resources, Clerks, Legal, Service Innovation, Recreation & Culture, Oakville Public Library, Oakville Transit, Fire Department, Facility Services, Parks & Open Space, Roads & Works, Asset Management, Transportation & Engineering, Municipal Enforcement Services, Planning Services, Building Services, Economic Development , Strategic Business Services

Corporate Data Governance & Analytics (CDGA) Role

The CDGA will engage in the following interactions:

- Engage with **Business and Technology Leaders** to promote overall vision for Town's data priorities through **established governance mechanisms and forums**
- Enable **corporate data & analytics strategy** and **data governance guiding principles** to be implemented by

Operational groups supported by Business and Technology

- Represent Town's **data needs** and **progress updates** at **ELT forums**
- Develop **monitoring and reporting activities** to **derive insights** and strategic decision making
- Enable **change management activities** as an enterprise priority

Advisory

Standards, Policy, & Adoption

Monitoring & Reporting

Refer Appendix B for details

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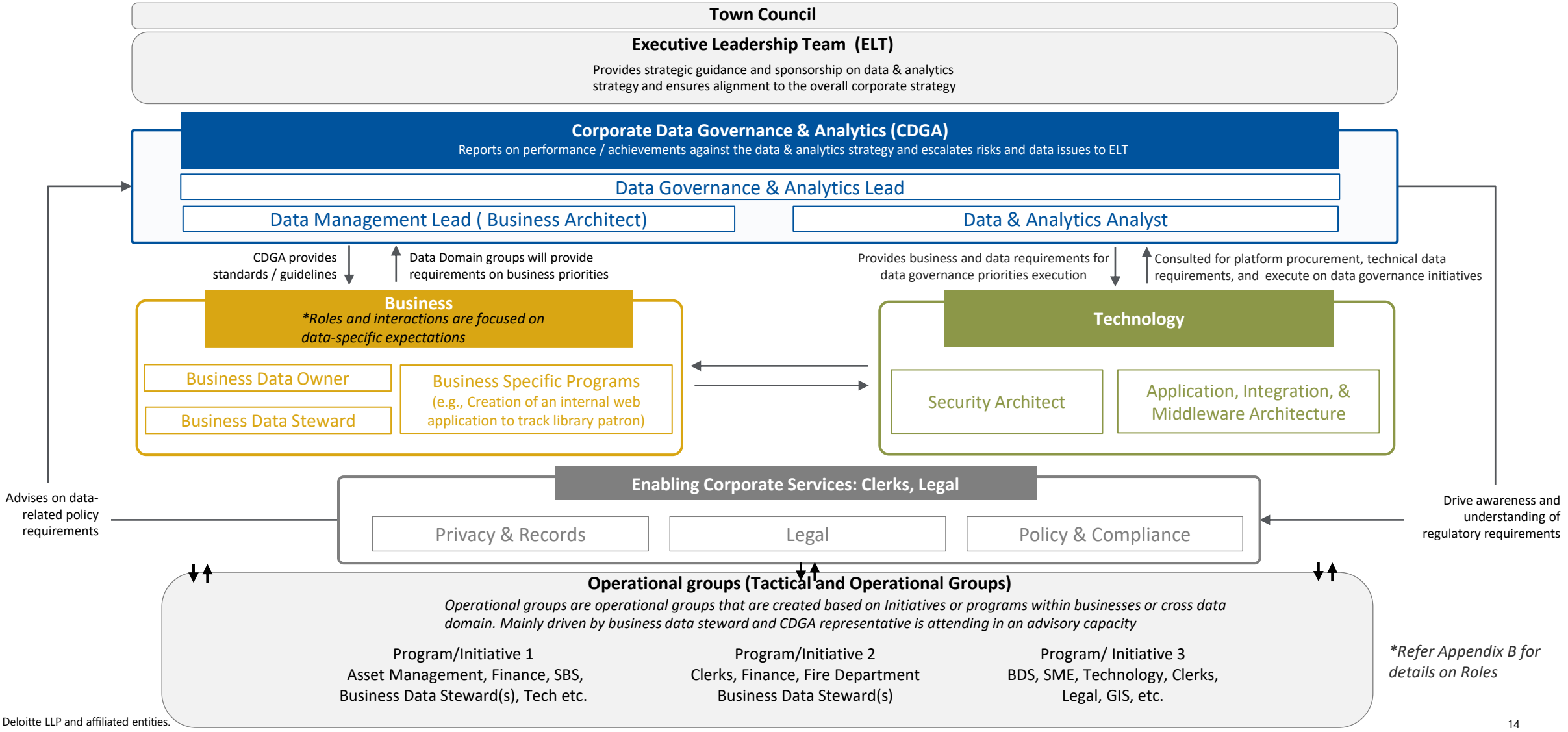
Data Governance success will need robust Corporate-wide Engagement

To execute the operating model, key functions/departments will need to effectively interact with one another to operationalize the Town's data & analytics strategy



*Refer Appendix B for details on Roles

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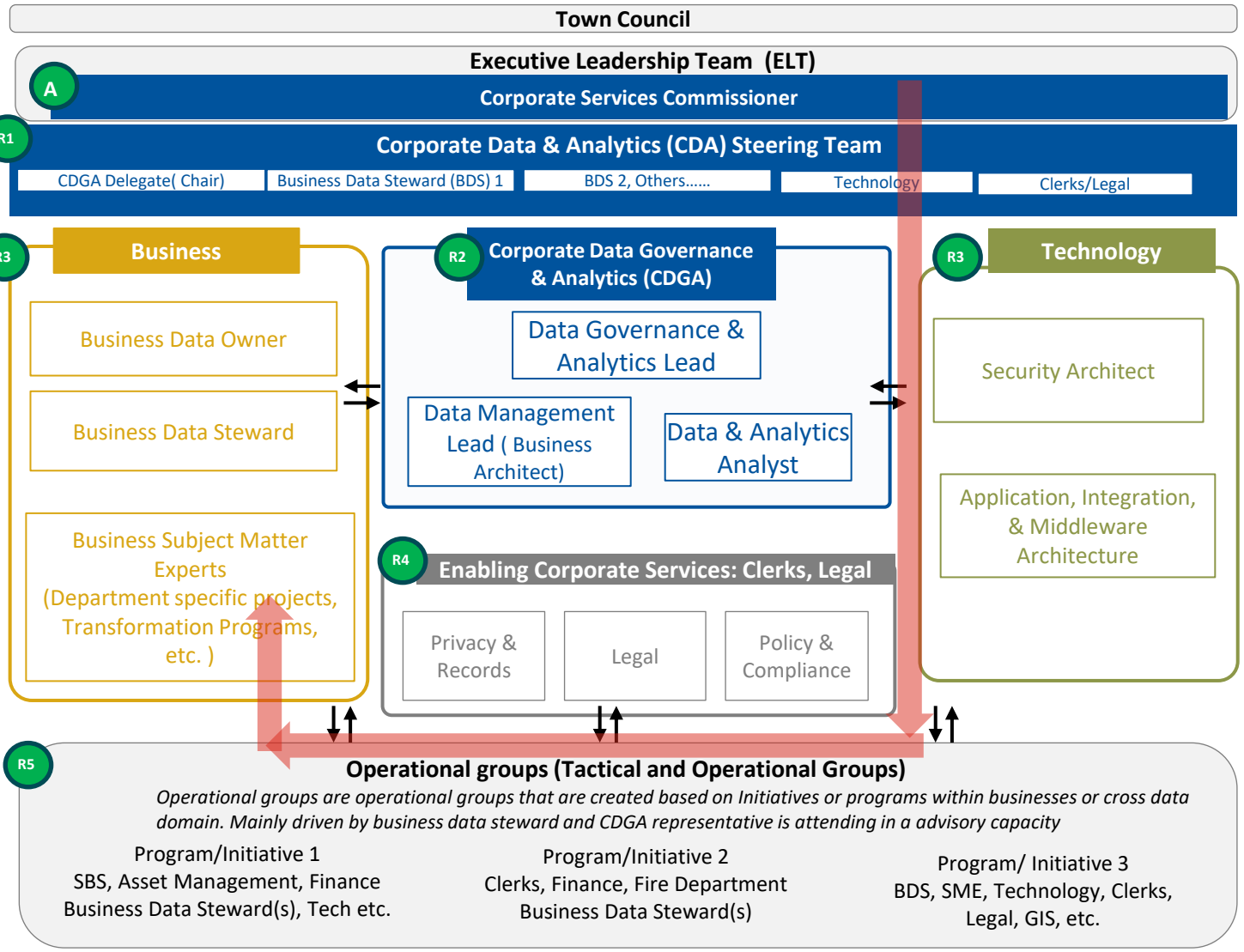
*Finance, Human Resources, Clerks, Legal, Service Innovation, Recreation & Culture, Oakville Public Library, Oakville Transit, Fire Department, Facility Services, Parks & Open Space, Roads & Works, Asset Management, Transportation & Engineering, Municipal Enforcement Services, Planning Services, Building Services, Economic Development , Strategic Business Services

2.Enterprise Data Governance Model – high level responsibility flow

High level representation of interaction model and responsibility expectation:



R Responsible A Accountable

Operating model flow

ELT is assigned the overall accountability and oversight of Town's data driven strategy. The ELT ensures that overall data driven strategy aligns to the corporate business strategy.

A — **Corporate Services Commissioner** is accountable to ensure a cohesive enterprise data strategy exists and is operationalized as part of the business strategy including adequate and sufficient data capabilities are available to support enterprise needs and that risks related to data are well managed and governed.

R1 — **Corporate Data & Analytics (CDA) Steering Team has representation across business & technology** to standardize data driven decisions and prioritization and allocation of resources is optimally managed to execute the corporate data strategy. Remediations plans and decisions are brought to this group for approval.

CDA Steering Team is responsible to assist Corporate Services Commissioner deliver on data driven strategy mandate. Relies on **Corporate Data Governance & Analytics (CDGA) group** to ensure enterprise data strategy and decisions are business led and aligned to business strategy.

R2 — **CDGA** is responsible for the corporate data strategy to be implemented across the organization. Their mandate is to enable effective data management practices are designed and adopted leveraging leading practices. to define, oversee implementation, monitoring and change management of the strategy and ensures that required capabilities, resource allocation and adoption is progressing as expected. CDGA is a bridge between business data stewards and Data Management & Analytics Advisory Lead.

R3 — **Business Data Steward(s) and Technology** is responsible to implement and adopt the data standards and data management practices. They are responsible to collaborate with CDGA and execute on remediation initiatives as data issues gets highlighted. Business departments will have Data Stewards and SMEs at the Domain or Department level.

R4 — **Enabling Corporate Services : Clerk, Legal** are consulted to provide effective oversight/challenge to data driven programs/ initiatives and ensure that data related risks are managed and any legislative requirements are complied with.

R5 — **Operational groups** are tactical; and operational, discussing data items and initiatives specific to a single business or data domain. They oversee day-to-day application of Data Governance, ensuring that policies and standards are followed within the business department or program, applying the guidance received CDGA, CDA Steering Team and ELT

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Role/Function Legend: Corporate Data & Analytics | Business | Technology | Enabling Corp. Services : Clerks, Legal

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How program level governance works with Enterprise Data Governance Model

*Scenario: **Service Oakville** has initiated a program to standardize citizens street address data and effective data governance and data quality is critical for its success.*

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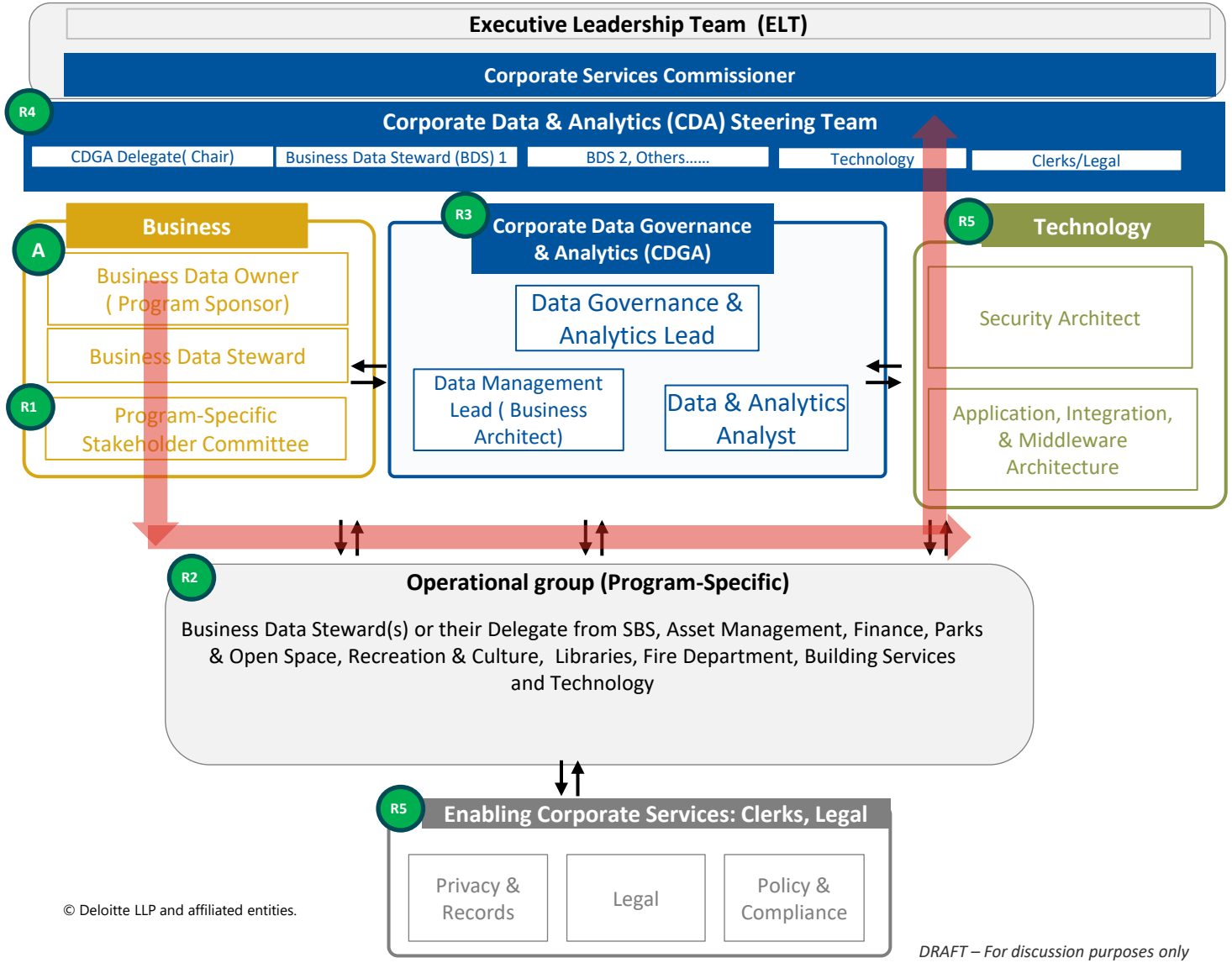
2. Program level Data Governance working with Enterprise Data Governance

High level representation of interaction model and responsibility expectation:



R Responsible

A Accountable

Operating model flow

A **Business Data Owner** is **accountable for overall Program-level data governance** and is a representative (or delegate) at CDA Steering Team or ELT. Oversees the adherence to corporate level data governance and collaboratively makes high impact decisions. **Business Data Steward executes the responsibility** and acts as the first escalation point for data issues related to the program.

R1 **Program-Specific Stakeholder Committee** has **representatives from across business departments** who are responsible for making program specific decisions and ensure outcomes are achieved for the program.

R2 **Operational group** is the **day to day tactical team** that executes the program activities, is responsible to deliver outcomes within the stipulated timelines while following corporate level policies, standards and processes including data governance and data quality management. **They are responsible to engage CDGA** for advise and support and escalate issues related to data decisions.

R3 **CDGA** provides required level of support and advice on data governance and data quality framework to operational group. Oversees data activities and acts as an escalation point for data issues. **CDGA aggregates reporting (across programs)** and escalates to CDA Steering Team (or communicates decisions to the programs) and helps connect the dots related to data and tech decisions.

R4 **CDA Steering Team reflects on data related decisions across different programs** and its impact to Corporate Data Strategy and **collaboratively makes high impact decisions related to data strategy or technology strategy**. The CDA Steering team enables program specific decisions are aligned to corporate data strategy.

R5 **Technology** is embedded within operational group and at CDGA level to ensure technology related high impact decisions are aligned with business strategy. Provides technical support for data quality remediation effort, root cause analysis, master data definitions and other technology related aspects of the data priorities.

R5 **Enabling Corporate Services : Clerk, Legal** are consulted on data risk, PII related information, regulatory and legislative expectations are complied with.

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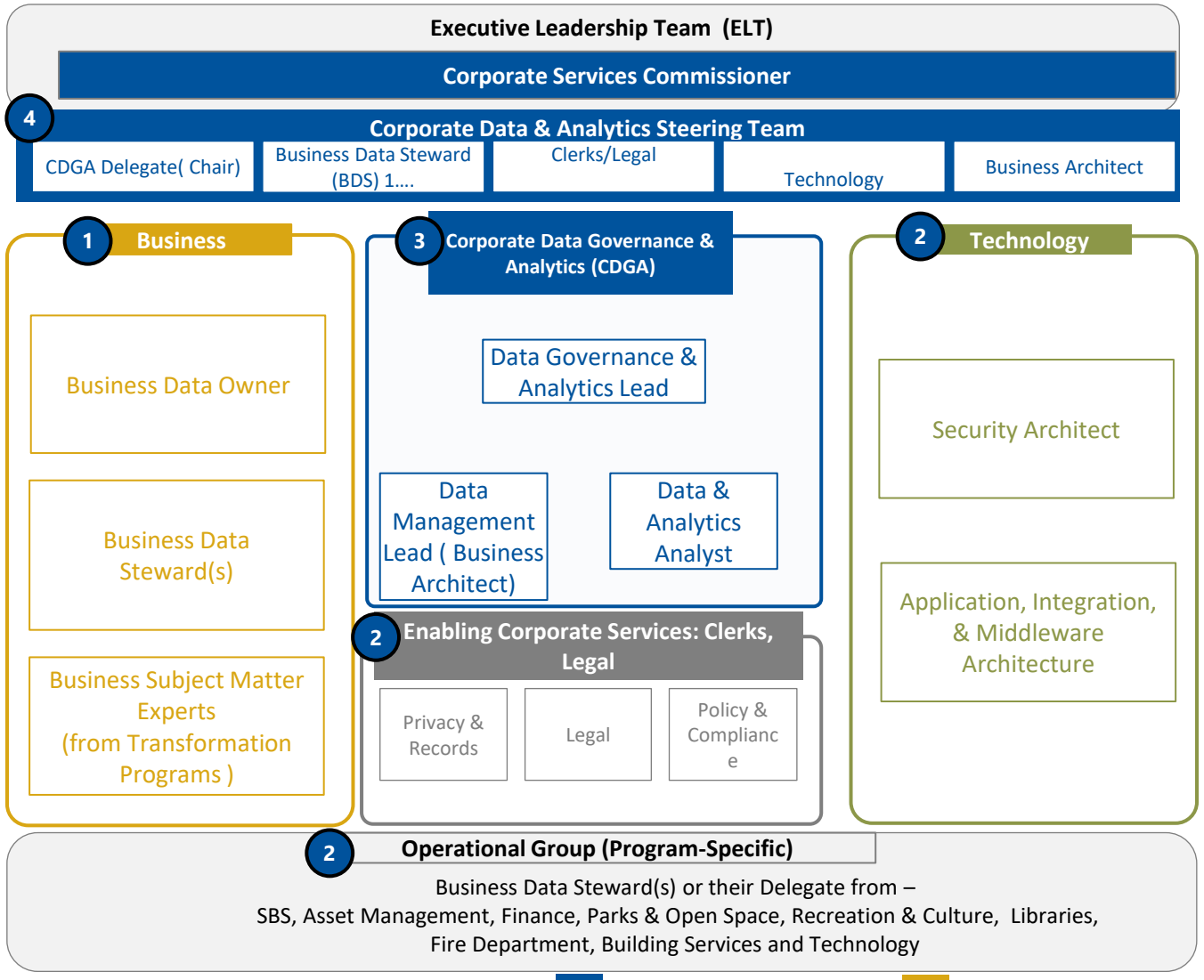
Scenario: Remediating data quality Issue with citizens street address data

**This is a sample scenario for illustration purposes only*



Sample scenario triggers*

Data on street addresses is **inaccurate** and **incomplete** and is required for a report within *Service Oakville*. Data quality initiative to remediate data quality issues is executed by Service Oakville on street address data.

This has implications for: **Reporting, Permits Applications, Recreational Activities Registration, Elections, etc.**

Sample Scenario Flow

1 Discover Issue

Business identifies **discrepancies/issues within its Addresses data** while creating a report for the CAO. The **working group enquire** about the issue and validate the root cause. BDS coordinates and leveraged data standards to guide the team.

2 Root Cause Analysis

Working Group #1 – along with **Enabling Services and Technology** – performs **root cause analysis** for data quality and identifies that the **source** of the data quality issue is not derived from CAO's office's CRM system, but rather from another system that feeds Address data into the CRM. The issue is outside of their department and needs escalation. **The issue is reported in data quality report to CDGA. An interim remediation effort is identified to move the program forward while CDGA and Technology team work on strategic remediation effort and funding.**

3 CDGA Enablement

CDGA aggregates and analyzes the issues for Addresses, reflects on cross functional issues related to address data, and **navigates and uncovers** the **departments** through which the **source** of issue is derived from. **CDGA works with respective business and tech teams to develop a strategic remediation plan to mitigate the issue. The effort is estimated and brought to CD&A** Steering Team for visibility and technology team takes action.

4 Remediation Plan Update/ Escalation

CD&A Steering Team provides feedback and reflects on enterprise implication given the criticality of the issue. The remediation requires **consultation from Enabling Services** on compliance, policy & standards. **Technology** executes a plan to initiative strategic solution with data controls within the application (SDLC process).

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Role/Function Legend: Corporate Data & Analytics; Business; Technology; Enabling Corp. Services : Clerks, Legal

**Operational groups are required based on the Initiative being catered to; Program Initiative roles are for example purpose only*

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Scenario: RACI for Data Quality Issue with External Customer Street Address Data

Scenario explained: Data on citizens' addresses is **inaccurate** and **incomplete** and is required for a report within *CAO's office*. CRM data is used for a critical reporting need. But inaccurate data in Addresses has implications for:

- **Reporting, Permits Applications, Recreational Activities Registration, Elections, etc.**

Operational Group is made up of Business Data Steward(s) from business departments, CAO' Office, SBS, Privacy & Records Specialist, Application Architect and CDGA Lead

****Business Data Steward role will vary depending on the data domain ownerships**

Process	Activities	CDGA Lead	Operational Group	Business Data Steward**	Technology	Enabling Services	CD&A steering Team
Data Quality of Addresses PoC - Data Quality & Issue Management	Perform data quality assessment on address data (business impact, data requirements, and application)	C/I	R	A/R	C/I	I	NA
	Analyze data quality issue and assess validity	I	R	A/R	I	I	NA
	Investigate root cause – people, process, technology issue	C	R	A/R	R	I	NA
	Identify possible remediation options	C	R	A/R	R	I	NA
	Execute on remediation activities	C	R	A	R	C/I	NA
	Assess data quality issue impact on technology/tool decision (CRM)	R	C	R	A	C	I
	Aggregate and report on data quality exposure at corporate level – data quality dashboard	A/R	C	C	R	C	I
	Provide corporate level update due to the impacted change and provide training support	A	I	I	C/I	I	I

R → Responsible | A → Accountable | C → Consulted | I → Informed

Refer Appendix B for definition on RACI

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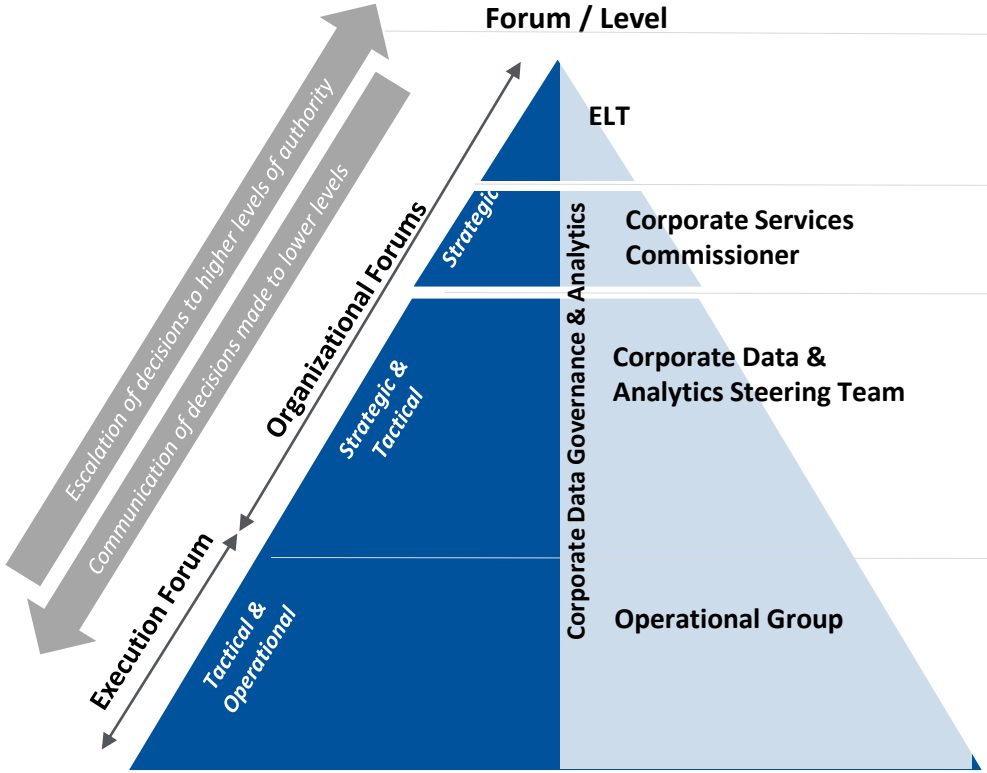
Corporate Data Governance & Analytics – Decision making forums

Decision making is distributed across the governance tiers to ensure significant risks are visible, while managing smaller risks at operational levels



Forum / Level	Overview
ELT	1. **ELT** is accountable for: • Oversight of Town's data strategy and for making the highest impact decisions for the Town • ELT has data as a key part to their mandate and ensure that overall strategic decisions align to corporate business strategy
Corporate Services Commissioner	2. **Corporate Services Commissioner** is accountable for: • **Championing data strategy definition & operationalization** and for prioritizing data management issues to be escalated to ELT
Corporate Data & Analytics Steering Team	3. **Corporate Data & Analytics Steering Team** is responsible for: • Making **strategic data decisions** and **resolving certain escalated issues** that impact more than one business departments at an operational level • Facilitating **collaboration for data initiatives** and **issues** across the functions (e.g., data source issues, data collection enhancements, etc.) • Overseeing **data initiatives** and **programs** to ensure data goals are met from inception to execution
Operational Group	4. **Operational Group** is responsible for: • Discussing **data initiatives** and **problems** highlighted from departments pertaining to either single business department or across data domains (cross functional groups) • Overseeing day-to-day application of Data Governance within their business departments • Ensuring that **policy and standards** created are **followed** across the Town • **Applying the guidance** received from ELT, CDGA, and CDGA Steering Team

We Recommend Town to:

Establish a net new Corporate Data & Analytics Steering Team
The Steering Team with its cross-functional representation will be responsible to assist Corporate Services Commissioner deliver on data strategy mandate & ensure CDGA decisions are aligned to Town's overall data vision guiding principles

Consider if SLT's Mandate can be expanded to include Corporate Data Governance decisions
Town needs to assess the current mandate and cross-functional representation within SLT to potentially act as Corporate Data & Analytics Steering Team in the long term.

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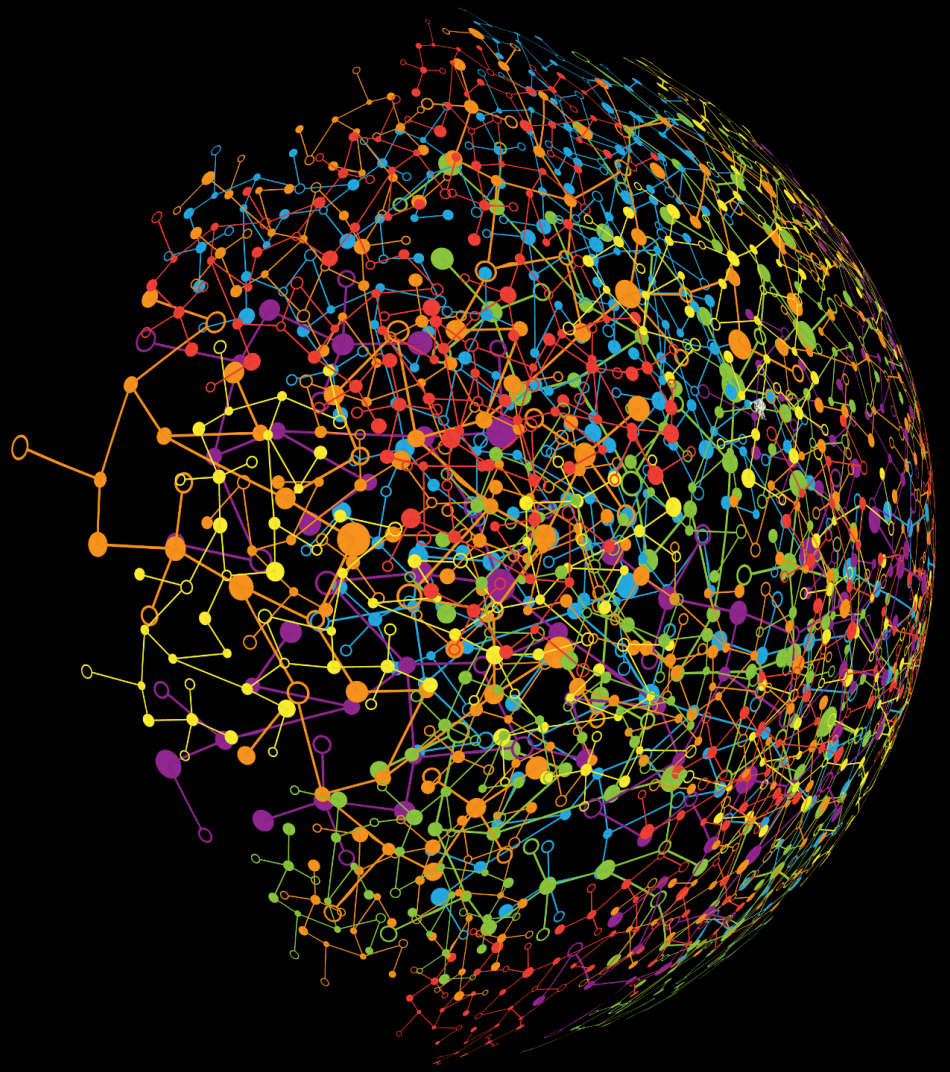
How to embark on Data Governance journey for Town of Oakville ?



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Summary of Corporate Data Management Strategy Recommendations

Based on the ongoing discussions with the Town stakeholders and being cognizant of the current state maturity level of the Town's data capabilities, below are the proposed critical steps that are required to move Town of Oakville from the reactive to managed stage

ESTABLISH CORPORATE DATA GOVERNANCE & ANALYTICS (CDGA)

Recommendation 1	Recommendation 2
Develop Corporate Data Strategy	Establish Corporate Data Governance & Mandate

Recommendation 3

Formalize Communications Strategy, Change Management, and Training

Recommendation 4	Recommendation 5
Build Community of Practice	Formalize Performance Measurement & Reporting

CREATE DATA GOVERNANCE POLICY, STANDARDS, & PROCCESSES

Recommendation 6

Create Data Policy, Standards, and Processes

TECHNOLOGY ENABLEMENT

Recommendation 7

Establish solution architecture & Rationalize tools needed

Recommendation 8

Combine Technology Platform with solution architecture

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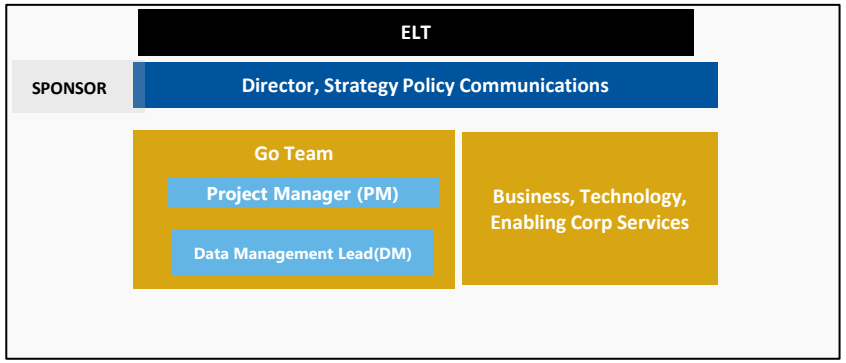
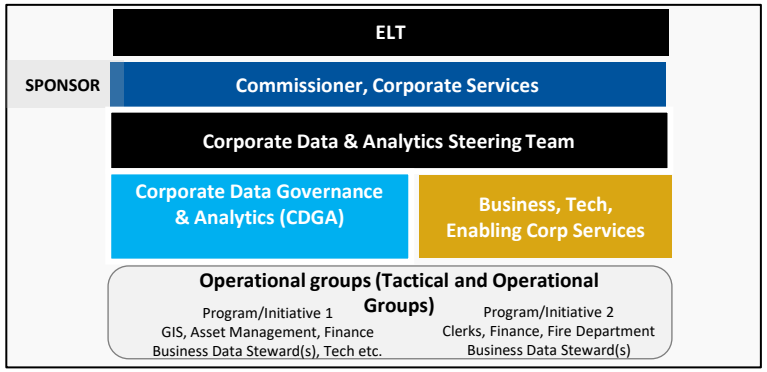
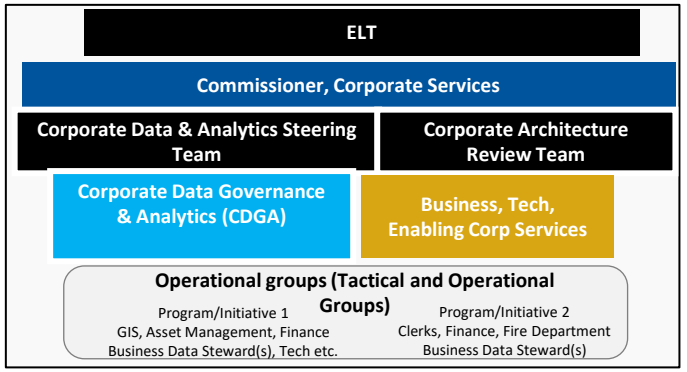
Evolution of Corporate Data Governance - Roles & Reporting Structure

	Short-term	Mid-term	Long-term
Focus Area	*Foundations and Pilot:* • **Define & Establish Corporate Data Strategy. Identify & determine PoC requirements** based on strategic direction. Define **data domain ownership** structure. • Perform **skills gap assessment** to efficiently allocate resources for PoC. Stand-up **PMO led Go Team** and CDGA function resource needs. • **Execute** PoC .**Define required data policies & standards** based on target state corporate **solution architecture** and **rationalized tools**.	*Expand the focus:* • Formalize and Socialize CDGA Function and identify remaining data domain ownerships • **Evolve** the short-term & embed data governance within business initiatives. **Initiate** additional capabilities development & adoption through business initiatives. • **Standardize** Technology architecture ,tools and **evaluate** requirements for governance **platform.**	*Institutionalize and Scale:* • **Evolve all mid-term** data management capabilities. • Focus on **full-scale institutionalization** and **scaling** of Hub & Spoke model across the Town. • Initiate full-scale **Business Intelligence & Analytics** capability across Town. • **Implement** data governance **platform.**
Role/Mandate	• **The Go Team** will play a key role in formalizing Governance mandate during short term and leading the PoC. • Director, Strategy Policy Communications (SPC) will act as **Sponsor** for the PoC, and report **progress.** Support **transition to Commissioner, Corporate Services**	• The Go Team will **transition into Corporate Data & Analytics Team** with cross-functional representation to execute strategic data decisions, allocate resources etc. • **Commissioner, Corporate Services and Corporate Data Governance & Analytics (CDGA)** team will be leading the implementation of Corporate data strategy across Town.	• Commissioner, Corporate Services will have the overall corporate Data Strategy **accountability**. • **CDGA** will now mature and fulfill its advisory and enablement responsibilities **aligned with Technology strategy.** • Net-new **Corporate Architecture Review** team will be established for technical advisory to Steering Team
Operating Structure			

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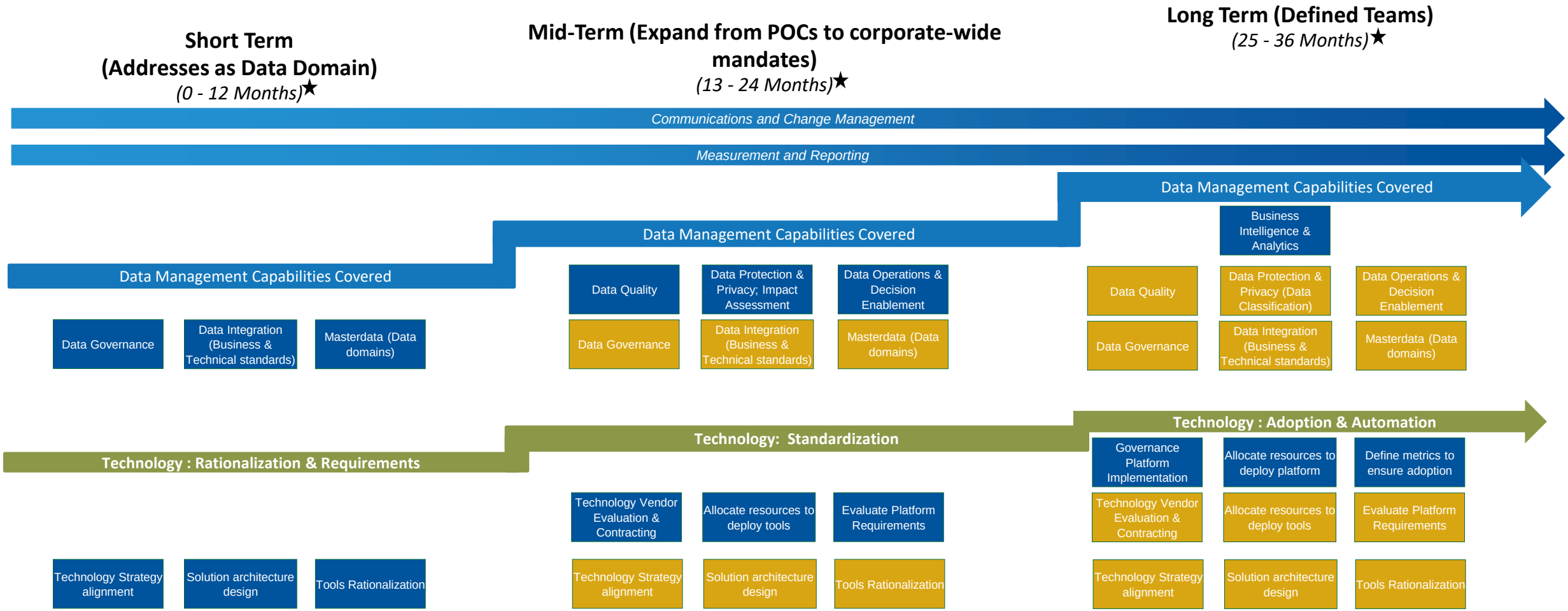
**Refer Appendix B for details on Operationalization journey*

Evolution of Corporate Data Governance (cont'd) – Data Capabilities

Target state capabilities will be achieved in a phased approach to align with the Town of Oakville's key milestones



Legend: Capability/Process Initiation | Capability/Process Evolution

★ *Timelines are subject to change based on Town specific factors*

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Key Next Steps for Embarking on Corporate Data Strategy- Short term

A timeline view of the Immediate Next Steps for the Town of Oakville to embark on the Corporate Data governance journey

Q1

Corporate Data Strategy & PoC Definition

- ✓ Define Guiding principles
- ✓ Identify existing use cases across business
- ✓ Clarify strategic direction
- ✓ Mapping use cases to strategic direction

1.Define & Establish Corporate Data Strategy

1.Identify & Prioritize PoCs

- ✓ PoCs to implement priority use cases
- ✓ Scope and measurable Business outcomes from PoCs
- ✓ Detailed initiatives for the PoCs with timelines
- ✓ Ensure Funding

Q2

Sprint-based Foundational Design

- ✓ Target Reporting Structure
- ✓ Data Domain Ownership
- ✓ Stand-up Go-Team

2.Formalize Hub & Spoke

2.Identify roles & Allocate resources

- ✓ Skills Gap & Resource hiring need assessment
- ✓ Allocate resources for PoC

- ✓ Communication deliverables
- ✓ Training content creation
- ✓ Community of practice(CoPs)

****3. Initiate Communication & 4.Change Management**

****7.Perform Technology Design & Rationalization**

- ✓ Target state solution architecture design
- ✓ Tool & applications gap assessment
- ✓ PoC specific tools rationalization

- ✓ Define and categorize performance metrics
- ✓ Design policy- classification, metadata etc.
- ✓ Regulatory Risk & Impact Assessment

**** 5.Develop Metrics & 6.Data Policy & Standards**

Q3 & Q4

PoC Execution

Deliver the Artefacts

- ✓ Create Go Team
- ✓ Execute Training & Onboarding
- ✓ Utilize CoPs
- ✓ Refine and track metrices
- ✓ Test data policies and track deviations
- ✓ Implement required architecture and tooling
- ✓ Publish formal governance dashboard

**Refer Appendix A for details on initiatives*

LEGEND

***Design in Q2, Execution in Q3 & Q4 during PoC*

Iteration expected in the initiatives

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Short Term Initiatives – Detailed Timeline Roadmap

**Timelines could be extended without External Support*

**Timelines assume Resource & Skill availability as well as overall support*

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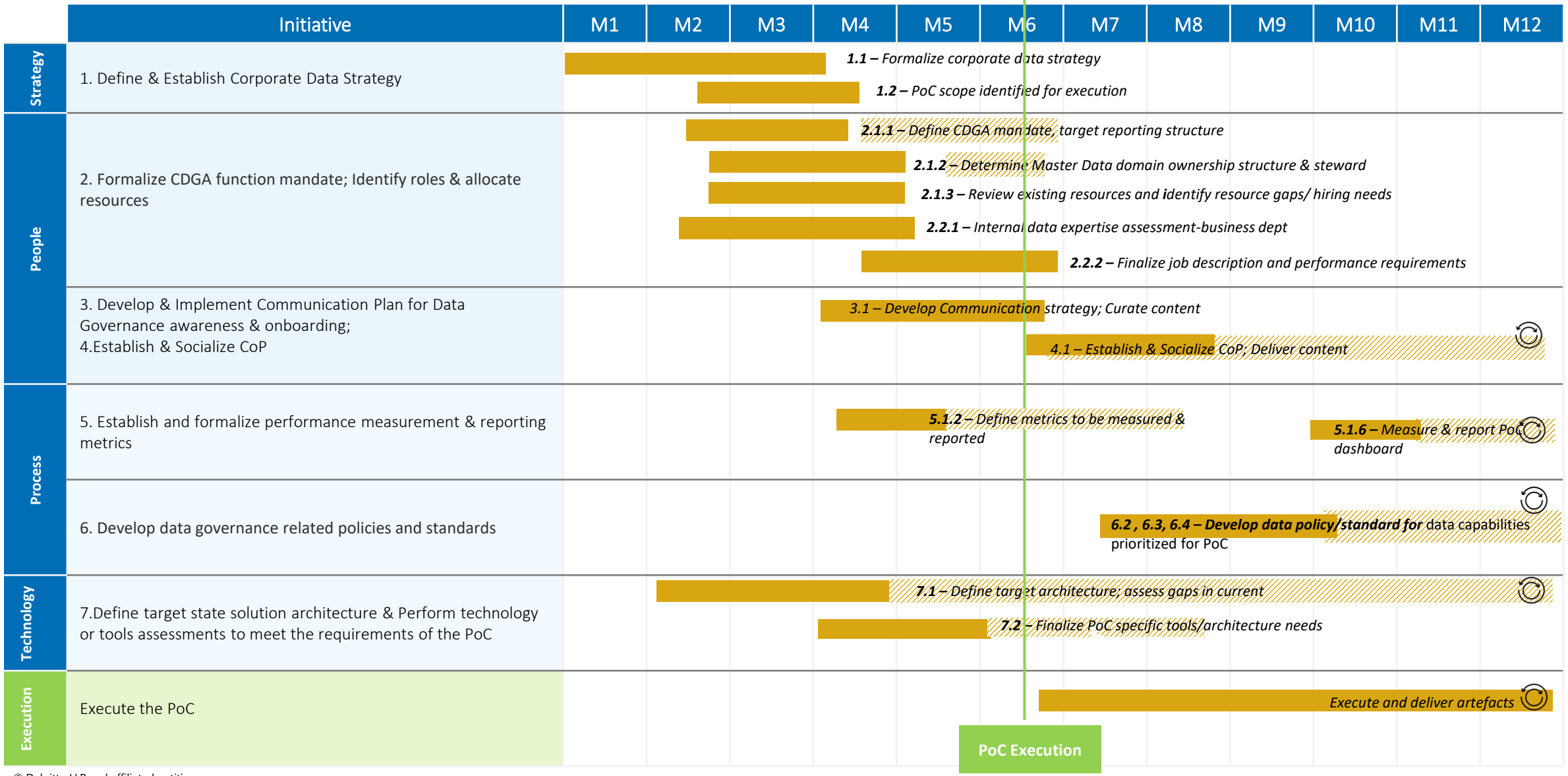

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Establishment | Evolution / PoC dependency | Iteration

**Refer Appendix A for Detailed Tear Sheets*

Key Roles and Resource Requirements for Short Term

A high-level summarized view of Town's resources is shown below which **expects delivery of short-term initiatives through External support (Consultants).** Engagement from Business Leaders/Stewards from each department will need to adjusted based on PoC scope. Certain Roles (marked *) across Business, CDGA and Technology need assessment on whether existing resources can be used, or New Hires will be needed. *For details of the role involvement in Short-term initiatives refer Appendix A*.

ELT (Available for attending review workshops- PT 5%)

Business

Roles	Average Involvement
Business Leaders /Managers	PT (20%)
*Business Data Owner**	PT (20%)

PT = part time resource(s), FT = full time resource(s)

Corporate Data Governance & Analytics (CDGA)

Roles	Average Involvement
SPC Director / Manager	1 FT(>70%)
*Data Governance & Analytics Lead **	1 FT
*Data Management Lead (a.k.a Business Architect)**	1 FT

Technology

Roles	Average Involvement
*Application, Integration & Middleware Architect**	1 FT(>70%)

PT = part time resource(s), FT = full time resource(s)

Corporate Services: Clerks, Legal

Roles	Average Involvement
Policy & Compliance Specialist	1 FT(>70%)
Privacy & Records Specialist	1 PT(20%)

Human Resources and Communications

Roles	Average Involvement
Human Resources and Communications Team	PT(10-20%)

**Refer Appendix B for details on Roles*

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Appendix A – Short Term Initiatives Tear Sheets

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Short Term Initiatives- Tear Sheet

Detailed Immediate Next Steps – Initiative 1.1 Formalize Corporate data strategy to support Town's data vision ; Initiative 1.2 Identify existing programs/transformations that can be leveraged to execute on the data strategy. Prioritize and determine PoC to execute and operationalize the data strategy

Initiative Description	**Define & Establish Corporate Data Strategy and determine PoC scope to operationalize the data strategy**		
Primary Owner ($)	Strategy, Policy & Communications (SPC)	**Support Owner(s)**	Business Departments, Technology, Corporate Services (Clerks, Legal)

Note: The estimates for costs and resourcing are generic estimates which do not account for synergies that may be achieved in delivering these initiatives for Town.

High-level Activities

Initiative 1.1

1.1.1 – Formalize corporate data strategy to support Town's data vision in alignment with internal & external stakeholders

1.1.2 – Socialize and refine the strategy and align to business priorities

Initiative 1.2

1.2.1 – Identify existing key efforts related to data & analytics attribute across Corporate and business departments

1.2.2 – Map existing key efforts to data & analytics capabilities and strategic directions

1.2.3 – Prioritize the mapped use cases as per the strategic directions, business priorities and set measurable PoC expectations

Dependencies

Business Dependencies-

- Senior leadership buy-in to confirm priorities and drive the strategy forward
- Engagement and Socialization with Senior Executive to ensure alignment at the business strategy level and their role in funding/decisions

Benefits/ Value Proposition

- Prioritized Corporate data strategy
- Aligned on PoC scope including which data management capabilities and data domains for PoC
- Aligned on Business outcomes that will be achieved and measured to execute PoC

Stakeholder Groups

- ELT
- Commissions/Business Leaders (Community Services/ Infrastructure/ Development)
- Corporate Services (Clerks, Legal)
- Technology

Directional Estimates

Description	High-level Estimate	Duration
External/Internal Support	$200 - $250k	~3 months

Town Resource Requirements (Town staff involvement)

Resource Type	Effort Type
ELT	Available for attending review workshops(5%)
Business Leaders*	1 – 2 PT (20%)
Technology	1 PT (20%)
Corporate Services (Clerks, Legal)	1 PT(20%)
SPC Director/ Advisor (Project Lead)	1 PT (40%)

PT = part time resource(s), FT = full time resource(s)

Assumptions:

- External Support contracted to help define a corporate data governance strategy, requirements include stakeholder interviews and workshops
- Engagement from Business Leaders from each department*
- Activities can be done in parallel with Defining CDGA Function mandate and Defining target state solution architecture

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Short Term Initiatives- Tear Sheet Cont'd

Detailed Immediate Next Steps – Initiative 2.1 Formalize and stand-up the CDGA and define how functional responsibilities will be delivered ; Initiative 2.2 Operationalize Corporate Data Governance through CDGA for strategic business outcomes

Initiative Description	**Formalize CDGA function mandate and Operationalize Data governance mandate by standing up CDGA as PMO in short term**		
Primary Owner ($)	Strategy, Policy & Communications (SPC)	**Support Owner(s)**	Business Departments, Technology, Corporate Services(Clerks, Legal)

Note: The estimates for costs and resourcing are generic estimates which do not account for synergies that may be achieved in delivering these initiatives for Town.

High-level Activities

Initiative 2.1

2.1.1 –Aligned to Corporate Data Strategy, define CDGA mandate and short-term and target state reporting structure

2.1.2 –Determine master data domain ownership structure with business data steward identified for business department

2.1.3 –Review existing resources and identify resources who will be part of CDGA function – determine gaps and need to hire

2.1.5 – Determine sustainable roadmap and priorities for medium-long term, based on learnings from short term

Initiative 2.2

2.2.1 –Perform gap assessment and requirements of data expertise, data capabilities within each business department

2.2.2 –Determine job description & performance requirements

2.2.3 – Stand up CDGA as PMO in short-term and clarify role to deliver on PoC scope

Dependencies

Initiative Dependencies –

1.1 –Formalize Corporate data strategy to support Town's data vision

1.2 –Identify existing programs/transformations that can be leveraged to execute on the data strategy. Prioritize and determine PoC to execute and operationalize the data strategy

Benefits/ Value Proposition

- Allocate required Working group roles as needed for PoC
- Understanding of current data capabilities and socialized role mandate

Stakeholder Groups

- Commissions/Business Leaders (Community Services/ Infrastructure/ Development)
- ELT
- Human Resources
- Technology
- Corporate Services(Clerks, Legal)

Directional Estimates*

Description	High-level Estimate	Duration for External Support
External/Internal Support	~ $500 - 600k	~4 Months

*The Directional estimates overlap with Initiatives 2.3 and 2.4 (next slide)

Town Resource Requirements (Town staff involvement)

Resource Type	Effort Type
Business Leaders/Managers*	2-3 PT(30%)
ELT	Available for attending review workshops(5%)
Human Resources	1 PT (10%)
Technology	1 PT(30%)
Corporate Services(Clerks, Legal)	1 PT(30%)
SPC Director/ Advisor (Project Lead)	1 PT (40%)

PT = part time resource(s), FT = full time resource(s)

Assumptions:

- Engagement from Business Leaders from each department* . Provide active support in data skills & capabilities gap assessment
- Activities can be done in parallel with Defining Data Strategy and Defining target state solution architecture

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Short Term Initiatives- Tear Sheet Cont'd

Detailed Immediate Next Steps – Initiative 2.3 Formalize and clarify role existing committees in data decision making starting with existing ongoing initiatives; Initiative 2.4 Clarify CDGA engagement model with Business, Technology and Enabling Corporate Services (Clerks, Legal)

Initiative Description	**Formalize engagement model and clarify role of existing committees & Directors/Commissioners in the CDGA engagement model**		
Primary Owner ($)	Strategy, Policy & Communications (SPC)	**Support Owner(s)**	Business Departments, Technology, Corporate Services(Clerks, Legal)

Note: The estimates for costs and resourcing are generic estimates which do not account for synergies that may be achieved in delivering these initiatives for Town.

High-level Activities

Initiative 2.3

2.3.1 – Consult with Business, Technology and Enabling Corporate Services to understand data needs and requirements in the short-medium-long term

2.3.2 – Enhance/align existing committees' responsibilities to facilitate effective data decision making

2.3.3 – Consult and socialize proposed engagement model with business stewards, Business SMEs, and 2nd & 3rd Line Functions to clearly define their roles and mandates

2.3.4 – Onboard Directors using a defined organizational change management plan to clearly communicate their role in data decision making & standup Corporate Data & Analytics Steering Team

Initiative 2.4

2.4.1 – Clarify the role of Commissioners in driving and effectively operationalizing strategy

2.4.2 – Define and finalize engagement model between CDGA, Technology, Business and Enabling Corporate Services

Dependencies

Initiative Dependencies –

2.1.2 –Determine master data domain ownership structure with business data steward identified for business department

2.2.3 – Stand up CDGA as PMO in short-term and clarify role to deliver on PoC scope

Benefits/ Value Proposition

- Allocate required Working group roles as needed for PoC
- Understanding of current data capabilities and socialized role mandate

Stakeholder Groups

- Commissions/Business Leaders (Community Services/ Infrastructure/ Development)
- ELT
- Human Resources
- Technology
- Corporate Services(Clerks, Legal)

Directional Estimates*

Description	High-level Estimate	Duration for External Support
External/Internal Support	N/A	~4 Months

*The Directional estimates overlap with Initiatives 2.1 and 2.2 (previous slide)

Town Resource Requirements (Town staff involvement)

Resource Type	Effort Type
Business Leaders*	2-3 PT (30%)
ELT	Available for attending review workshops(5%)
Human Resources	1 PT (10%)
Corporate Services(Clerks, Legal)	1 PT (30%)
Technology	1 PT (10%)
SPC Director/ Advisor (Project Lead)	1 PT (40 %)

PT = part time resource(s), FT = full time resource(s)

Assumptions:

- Transition process & communication from SPC Director to Advisor/Manager level will be established
- Engagement from Business Leaders from each department*
- Activities can be done in parallel with Defining Data Strategy and Defining target state solution architecture

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Short Term Initiatives- Tear Sheet Cont'd

Detailed Immediate Next Steps – Initiative 3.1 Develop Communication Plan for Data Governance Awareness; Initiative 3.2 Develop Change Management Action Plan; Initiative 3.3 Monitor new talent and skill requirements

Initiative Description	**Develop Communication and Change management action plan for Data Governance**		
Primary Owner ($)	CDGA (Corporate Data Governance and Analytics)	**Support Owner(s)**	Communications Team, Human Resources

Note: The estimates for costs and resourcing are generic estimates which do not account for synergies that may be achieved in delivering these initiatives for Town.

High-level Activities

Initiative 3.1

3.1.1 – Assess and Outline the overall communication approach, guiding principles, governance model, and communication deliverables that build awareness and ownership for strategic change efforts

3.1.2 – Establish communication deliverables that build awareness and ownership for strategic change efforts

3.1.3 – Create a detailed action plan outlining delivery methods (emails, newsletters etc.)

Initiative 3.2

3.2.3 – Create a detailed change management action plan outlining communication methods

Initiative 3.3

3.3.2 – Create demand based and Town specific data domain-based ongoing training contents to ensure that the strategic initiatives are understood and implemented by various Operational groups

Dependencies

Initiative Dependency-
2.2.3 – Stand up CDGA as PMO in short-term and clarify role to deliver on PoC scope
2.4.2 – Define and finalize engagement model between CDGA, Technology, Business and Enabling Corporate Services

Benefits/ Value Proposition

- Curated content on governance PoC requirements

Stakeholder Groups

- Commissions/Business Leaders (Community Services/ Infrastructure/ Development)
- Human Resources
- Technology
- Corporate Services(Clerks, Legal)
- Communications Team

Directional Estimates

Description	High-level Estimate	Duration for External Support
External/Internal Support	~ $150k	<2 Months

Town Resource Requirements (Town staff involvement)

Resource Type	Effort Type
CDGA (Project Lead)	1 FT (>70%)
Business Leaders*	1 PT (10%)
Communications Team	1 PT (30%)
Technology	1 PT (5 %)
Human Resources	1 PT (10%)

PT = part time resource(s), FT = full time resource(s)

Assumptions:

- Formalized Communication Plan with messaging top-down coming from Senior Executives to their respective business lines
- Transition plan for onboarding roles/ knowledge transfer to the mid-term team
- Engagement from Business Leaders from each department*
- Activities can be done in parallel with Formalizing CDGA Function mandate

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Short Term Initiatives- Tear Sheet Cont'd

Detailed Immediate Next Steps – Initiative 4.1 Define the responsibilities and measurable outcomes recommended from the Data Governance Community of Practice to support current initiatives; Initiative 4.2 Enable CDGA led Functional Model for the CoP and required stakeholder capabilities

Initiative Description	**Define and implement Community of Practice (CoP) expectations, target audience persona and delivery logistics**		
Primary Owner ($)	CDGA (Corporate Data Governance and Analytics)	**Support Owner(s)**	Corporate Services(Clerks, Legal)

Note: The estimates for costs and resourcing are generic estimates which do not account for synergies that may be achieved in delivering these initiatives for Town.

High-level Activities

Initiative 4.1

4.1.1 – Assess and Outline the overall responsibility and expectations from CoPs and ensure adoption across Town

4.1.2 – Suggest recommendations into the persona of the CoP, including target audience, its frequency, external speakers etc.

Initiative 4.2

4.2.1 – Identify, define and socialize the CDGA led delivery model & logistics for CoPs (online/ in-person)

4.2.2 – Ensure key stakeholder alignment to contribute towards CoPs outcomes along with their current governance initiatives and track progress

4.2.3 – Identify members to maintain an ongoing plan outlining topics/issues discussed and share it to Town leadership (CDGA, ELT) as needed

Dependencies

Initiative Dependency-

2.4.2 – Define and finalize engagement model between CDGA, Technology, Business and Enabling Corporate Services

3.1.1 – Assess and Outline the overall communication approach, guiding principles

Benefits/ Value Proposition

- Conducted two onboarding sessions completed for selected individuals/team
- Communicate & socialize CoP via emails ,newsletters periodically
- Knowledge transferred to the business for mid/long-term

Stakeholder Groups

- Commissions/Business Leaders (Community Services/ Infrastructure/ Development)
- Business Data Stewards
- Technology
- Corporate Services(Clerks, Legal)

Directional Estimates

Description	High-level Estimate	Duration for External Support
External/Internal Support	~ $150k	2 Months

Town Resource Requirements (Town staff involvement)

Resource Type	Effort Type
CDGA(Project Lead)	1 FT (>70%)
Business*	1 PT(10%)
Business Data Stewards	1 -2 PT(10%)
Technology	1 PT(10%)
Corporate Services(Clerks, Legal)	1 PT (20%)

PT = part time resource(s), FT = full time resource(s)

Assumptions:

- Formalized Communication Plan with messaging top-down coming from Senior Executives to their respective business lines
- Engagement from Business includes Leaders, Managers and Data Users*
- Activities can be done in parallel with Executing PoC

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Short Term Initiatives- Tear Sheet Cont'd

Detailed Immediate Next Steps – Initiative 5.1 Formalize & Operationalize Performance Measurement & Reporting metrics

Initiative Description	**Formalize & Operationalize Performance Measurement & Reporting metrics**		
Primary Owner ($)	CDGA(Corporate Data Governance and Analytics)	**Support Owner(s)**	Business Departments, Technology

Note: The estimates for costs and resourcing are generic estimates which do not account for synergies that may be achieved in delivering these initiatives for Town.

High-level Activities

Initiative 5.1

5.1.1 – Understand the current performance measurement & reporting requirements for targeting specific data capabilities

5.1.2 – Define performance metrics to assess the progress and success of PoC and other governance initiatives

5.1.5 – Identify and categorize Town's metrics into required reporting audiences (e.g.: ELT, CDGA, Business, Technology, etc.)

Dependencies

Initiative Dependency-

1.2 – Identify existing programs/transformations that can be leveraged to execute on the data strategy. Prioritize and determine PoC to execute and operationalize the data strategy

2.1.2 –Determine master data domain ownership structure with business data steward identified for business department

Benefits/ Value Proposition

- Alignment of metrics that will be reported to demonstrate progress
- Lessons learnt from PoC that informs mid-term priorities

Stakeholder Groups

- Technology
- Corporate Services(Clerks, Legal)
- ELT
- Business Data Stewards

Directional Estimates

Description	High-level Estimate	Duration for External Support
External/Internal Support	~ $150 - $200k	~2 Months (Metric definition) ~2 Months (Dashboard development)

Town Resource Requirements (Town staff involvement)

Resource Type	Effort Type
CDGA (Project Lead)	1 PT(30%)
ELT	Available for attending review workshops(5%)
Corporate Services(Clerks, Legal)	1 PT(10%)
Technology	1 PT(20%)
Business Data Stewards	1 PT(10%)

PT = part time resource(s), FT = full time resource(s)

Assumptions:

- Established alignment with external & Internal stakeholders
- Activities can be done parallel to Defining Target state solution architecture & Executing PoC

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Short Term Initiatives- Tear Sheet Cont'd

Detailed Immediate Next Steps – Initiative 6.2 Data Governance Policy; Initiative 6.3 Master Data Management ; Initiative 6.4 Data Integration

Initiative Description	**Develop policy, standards & processes for data governance, master data management and data integration**		
Primary Owner ($)	CDGA (Corporate Data Governance and Analytics)	**Support Owner(s)**	Corporate Services(Clerks, Legal)

Note: The estimates for costs and resourcing are generic estimates which do not account for synergies that may be achieved in delivering these initiatives for Town.

High-level Activities

Initiative 6.2

6.2.3 – Define and establish consistent standards and common processes for maintaining and enforcing data governance standards, managing and resolving data related issues

Initiative 6.3

6.3.2 – Define classification policy

Initiative 6.4

6.4.1 – Define and implement Technical & business glossary standard

6.4.2 – Execute Technical & Business Glossary maintenance

6.4.3 – Define and implement metadata capture & maintenance standard

Dependencies

Initiative Dependency-

2.1.2 –Determine master data domain ownership structure with business data steward identified for business department

2.2.3 – Stand up CDGA as PMO in short-term and clarify role to deliver on PoC scope

7.1.1 – Assess current state solution architecture and identify tooling/feature gaps to establish top-priority data capabilities (e.g. data lakes)

Benefits/ Value Proposition

- Standardized data governance policy and related standards for prioritized data management capabilities

Stakeholder Groups

- Technology
- Corporate Services(Clerks, Legal)
- ELT
- Commissions/Business Leaders (Community Services/ Infrastructure/ Development)

Directional Estimates

Description	High-level Estimate	Duration for External Support
External/Internal Support	~ $350 - $450k	~4 Months

Town Resource Requirements (Town staff involvement)

Resource Type	Effort Type
CDGA (Project Lead)	1 FT(>70%)
Corporate Services(Clerks, Legal)	1 FT(>70%)
Technology	1 PT (10%)
ELT	Available for attending review workshops(5%)
Business*	1 PT(10%)

Assumptions:

- Established alignment with external & Internal stakeholders
- Engagement from Business includes Leaders, Managers and Data Users*
- Activities can be done parallel to Executing PoC

PT = part time resource(s), FT = full time resource(s)

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Short Term Initiatives- Tear Sheet Cont'd

Detailed Immediate Next Steps – Initiative 7.1 Define Target-State solution architecture with Data landing zone; Initiative 7.2 Define & rationalize Technical or Tool Requirements for Architecture and establish Single source of Truth

Initiative Description	**Define target state solution architecture & Perform technology or tools assessments to meet the requirements of the PoC**		
Primary Owner ($)	CDGA (Corporate Data Governance and Analytics)and Technology	**Support Owner(s)**	Business Departments

Note: The estimates for costs and resourcing are generic estimates which do not account for synergies that may be achieved in delivering these initiatives for Town.

High-level Activities

Initiative 7.1

7.1.1 – Assess current state solution architecture and identify tooling/feature gaps to establish top-priority data capabilities (e.g. data lakes)

7.1.2 – Define architecture guiding principles & initiatives to address identified gaps in order to achieve desired technical outcomes; Set up a review team for approval

Initiative 7.2

7.2.1 – Document top-priority core applications/tools for data sourcing, ingestion & data landing; Determine tool integration avenues using existing tools & applications assessments

7.2.4 – Utilize solution architecture to map metadata for critical data elements and thereby establish data inventory & single source of truth

Dependencies

Business Dependency-

- Key Funding and resources for new technology, tools, implementation and training

Initiative Dependency-

1.1 –Formalize Corporate data strategy to support Town's data vision

1.2 –Prioritize and determine PoC to execute and operationalize the data strategy

Benefits/ Value Proposition

- Conceptual Target state solution architecture clearly defined
- Required applications identified to meet PoC & solution architecture needs implemented

Stakeholder Groups

- Technology (System Architect)
- Corporate Services(Clerks, Legal)
- ELT
- Business Data Stewards

Directional Estimates

Description	High-level Estimate	Duration for External Support
External/Internal Support	~ $200 - $300k*	2 Months

Town Resource Requirements (Town staff involvement)

Resource Type	Effort Type
CDGA(Project Lead)	2 FT(>70%)
Business Data Stewards	1-2 PT(20%)
Technology (1 Application Architect)	1 FT(>70%)
ELT	Available for attending review workshops(5%)
Corporate Services(Clerks, Legal)	1 PT(10%)

Assumptions:

PT = part time resource(s), FT = full time resource(s)

- CDGA Expects 2 FT - 1 Data Management Lead (Business Architect), 1 Data & Analytics Analyst)
- Stakeholder interviews and workshops around current state architecture gaps and inventory of tools to support the PoC
- Licensing costs are out of scope (Depends on solution architecture complexity)
- Activities can be done in parallel to Defining Corporate Data Strategy & Formalizing CDGA function mandate

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Appendix B – Data Governance Model options, Roles and roadmap journey

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Performance Measures

The below highlights quantifiable efficiencies that can be achieved by implementing corporate data governance:

Performance Measures	Quantifiable analysis
1. Efficiency and empowerment of teams	Standardized data and solution architecture will provide quality data for processing and reporting, thereby **saving at least 50% of resource time** in data cleansing
2. Clarity on role and Talent retention	Better employee **job satisfaction, talent retention** with skills that includes data, analytics, AI
3. Operational efficiency	Reliance on single source of truth will improve productivity through **availability of timely and accurate data** for business decision making
4. Meeting regulatory expectations	Data governance and management practices will allow the Town to **comply with existing and upcoming data protection and privacy requirements** such as Bill C-27, potentially avoiding any fines
5. Leadership	Data Governance will **allow better** governance and oversight / **accountability** of decisions while allowing business to be more data driven
6. Reduced technical debt and technology standardization	Robust target state architecture will allow to **remove redundancy of legacy systems** and optimally manage ongoing **infrastructure and application costs**

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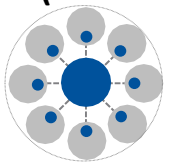
Options: Data Governance Operating Models

Effective data management is achieved by ensuring that the right people are equipped with the right capabilities, processes, and tools to deliver on Town of Oakville's corporate objectives. The best fit frameworks below highlight the recommended data governance operating models that could be adopted.

Option 1A: Hub & Spoke (Internal)



Preferred model by Town of Oakville's Data Committee stakeholders

Data Governance and Management processes **defined by** a **Hub**, with day-to-day **execution** reliant **on data stewards** within departments

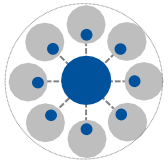
Hub

- Centrally manages data **strategy**, **policies, processes and standards**
- Centralized **systems & capabilities** to be leveraged as **shared services** across departments
- Targets **consistent application** of data capabilities across the Town

Spokes (Departments)

- Apply **enterprise data strategy, standards, policies and processes**
- Leverage **centrally integrated services**
- Manage **department-specific data operations**

Option 1B: Hub & Spoke (Outsourced)



Data Governance and Management processes **defined by** a **Hub** that is managed by outsourced Data Governance Lead and internal leads, with day-to-day **execution** reliant **on data stewards** within departments

Hub

- Data **strategy**, **policies, processes and standards** defined by contractor Data Governance Lead
- Outsourced management and servicing of **data systems & capabilities** to be leveraged as **shared services** across departments
- Targets **consistent application** of data capabilities across the Town

Spokes (Departments)

- Apply **enterprise data strategy, standards, policies and processes**
- Leverage **centrally integrated data services**
- Manage **department-specific data operations** based on outsourced capabilities

Option 2: Centralized

Data Governance and Management systems and processes **driven by a central body,** each department within Town of Oakville **leverages these shared resources**

Central Function

- Centrally manages data **strategy, policies, processes and standards**
- Establish **best practices** for uptake of consistent application of data governance and management

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Pros/Cons of Options: Data Governance Operating Models

Effective data management is achieved by ensuring that the right people are equipped with the right capabilities, processes, and tools to deliver on Town of Oakville's corporate objectives. The pros and cons of recommended data governance operating model framework is highlighted below.

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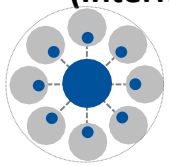
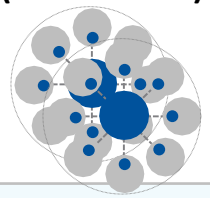
Option 1A: Hub & Spoke (Internal)



Preferred model by Town of Oakville's Data Committee stakeholders

Option 1B: Hub & Spoke (Outsourced)



Option 2: Centralized

	Hub & Spoke (Internal)	+	Hub & Spoke (Outsourced)	+	Centralized
Pros	+ Promotes collaborative culture, integration of data and best practices + Provides greater flexibility and agility to adapt to distinct business situations + Resources remain close to business but organized centrally for consistent capabilities and skills		+ Provides greater flexibility for Town to focus on key day-to-day business and data priorities + External expert in the form of a Data Governance Lead would inspect Town's practices from a fresh lens and institute industry recognized best practices + Reduced operational cost and risk, accelerating time to value for implementing data governance processes		+ Encourages consistent application of data governance and management policies, processes, and capabilities + Enables efficient sharing of resources, with a decrease in duplication of data and effort + Warrants clarity and standardization of data processes across the organization
Cons	- Benefits may not be realized without sufficient data integration and capabilities - Complex to implement if there are overlapping roles and responsibilities - Requires high coordination and alignment between departments		- Difficult to ensure real-time implementation to changing business situations once standards and policies established from the Town - Possibility of misalignment between outsourced data capabilities and strategic priorities - Requires high coordination between outsourced agents and Town departments		- Potential for gaps delivering customized business needs of departments - Risk of over-standardizing, over-processing, stifling creativity - Can reduce innovation and introduce bureaucracy, which could decrease long-term productivity

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Role description for Business, Technology & Enabling Corp Services

Within the Corporate Data Governance & Analytics, you will need resources with the appropriate skillset to move the data & analytics strategy forward.

Dept.	Roles	High-level description	Potential Designation Level
Business	*Business Data Owner*	• Accountable for overall governance and management of a functional data domain, transformational program or business initiatives within Business department. • Providing leadership support and oversees the implementation and adoption of Corporate data standards>	Commissioner / Director
	Business Data Steward	• Manage implementation and monitoring of data standards and processes across the respective business area or program. • Facilitates decision making and supports transformational program operational team to comply with data standards. • Act as a first escalation point for data issues within respective business department or program; escalate data issues to CDGA as appropriate. • Participates (as needed) in CDA Steering Team or other data governance forums held by CDGA.	Manager/Supervisor/Advisor
Technology	*Security Architect*	• Responsible for establishing the parameters for server security as per data strategy • Responsible to ensure Town's technology meets data privacy & security regulations established by Privacy & Records Specialist	Manager/Supervisor/Architect
	Application, Integration & Middleware Architect	• Provide application related subject matter expertise and support root cause investigations, provide input to root cause solution alternatives. Is the first escalation point and bring In related technical SMEs as needed. • Provide data architecture related subject matter expertise with knowledge of business needs; support in designing solutions that meet requirements and are aligned to Corporate architecture and data standards. • Responsible for designing and implementing target state corporate data architecture	Supervisor/Application & Support Analyst
Enabling Corp Services: Clerks, Legal	*Policy & Compliance Specialist (Legal & Clerks)*	• Oversee and responsible to ensure data related policies and standards are adhered to within the enterprise. • Provide subject matter to support for data related risks, regulatory and legislative requirements are met, and changes reflected as necessary.	Assistant Town Solicitor(TBD) Clerks (TBD)
	Privacy & Records Specialist	• Oversee adherence and responsible to develop and maintain data privacy and retention/disposition policies and standards and collaborate with CDGA team. • Provide subject matter support regarding data privacy and records management including data retention and disposition.	Privacy & Records Specialist

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Role/Function Legend: Corporate Data & Analytics | Business Department | Technology | Enabling Corp Services : Clerks, Legal

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Role description for Corporate Data Governance & Analytics(CDGA)

Within the Corporate Data Governance & Analytics, you will need resources with the appropriate skillset to move the data & analytics strategy forward.

Function		Roles	High-level description	Potential Designation Level
Corporate Data Governance and Analytics (CDGA)	Data and Analytics Strategy & Adoption	*Data Governance & Analytics Lead*	• Responsible for corporate data strategy to be implemented across the organization. • Responsible for establishing and maintaining corporate level data standards and procedures and enable adoption. • Accountable to define data stewardship across enterprise for key data domains or business departments and provide clarity on roles/responsibility • Oversees the Corporate Data Governance function and supports/advice business specific programs to implement data standards and processes as expected. • Represents the CDGA function at the ELT and oversees data activities and acts as an escalation point for data issues across businesses	Director/Manager
	Data Management Operations	*Data Management Lead (a.k.a Business Architect)*	• Drive the development of recommendations for issue resolution and ensures that internal and external requirements are accurately addressed in proposed solutions • Strongly collaborates with technology and ensure data related technology requirements are embedded as part of the architecture. • Provides hands-on support (where businesses need) or addresses data capabilities related questions. • Assist in root cause analysis and identifying impacts based on data usage and its lineage • Assists in the identification of technology solutions to address corporate data strategy objectives & problems and liaise with the appropriate technology partners. • Ensures technology constraints and possibilities are considered when gathering and prioritizing corporate data management initiatives.	Manager / Advisor
	Analytics Services	*Data & Analytics Analyst*	• Aggregates, supports CDGA team in prioritization and implementation of required corporate level data governance dashboards and progress. • Supports in standardizing reporting tools at the corporate-level in collaborating with technology and understanding business requirements from data consumers' lens. • Performs ad-hoc supporting activities, as required by the CDGA team.	Advisor / Analyst

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Role/Function Legend: Corporate Data & Analytics | Business Department | Technology | Enabling Corp Services : Clerks, Legal

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Sprint-based Operationalization Approach

The **sprint-based strategy** must consider prioritized POCs and transformations as the launchpad to execute on corporate data governance and ensure targeted outcomes aligned to Town of Oakville's corporate data and analytics strategy & adoption. The operationalization strategy must address the following key questions to determine a value-based delivery for every sprint:

Identify priority initiative and **Why** it has been **selected**?

- ❑ Identify **why initiative is prioritized**
- ❑ Determine **the corporate-wide benefits** when operationalized
- ❑ Ensure **use cases** are prioritized as per business drivers and include **defined metrices** and next steps

Who is going to be **accountable**?

- ❑ Clarify **who** from Business will be **accountable for data ownership/stewardship**
- ❑ Determine **data domain groups** to enable co-ordination with CDGA
- ❑ **CDGA** to enable **standardized** corporate-wide **processes** and unite teams

What is the **scope and what are we operationalizing? What** data elements, domains and capabilities are required?

- ❑ Define what **data elements** will be in scope
- ❑ Decide on **what** governance **capabilities to focus** on

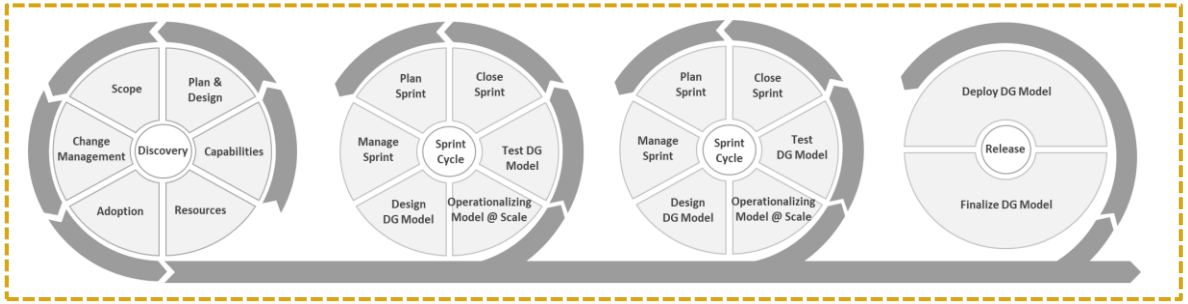
When will these benefits be realized? What timelines are **acceptable to the business** to realize benefits?

- ❑ Determine the **desired timeframe**
- ❑ Identify **desired scalability** to realize value for the prioritized use cases

Which data capabilities will be enabled and **for what**?

- ❑ Define **required technology capabilities** and **resources**

Sprint based



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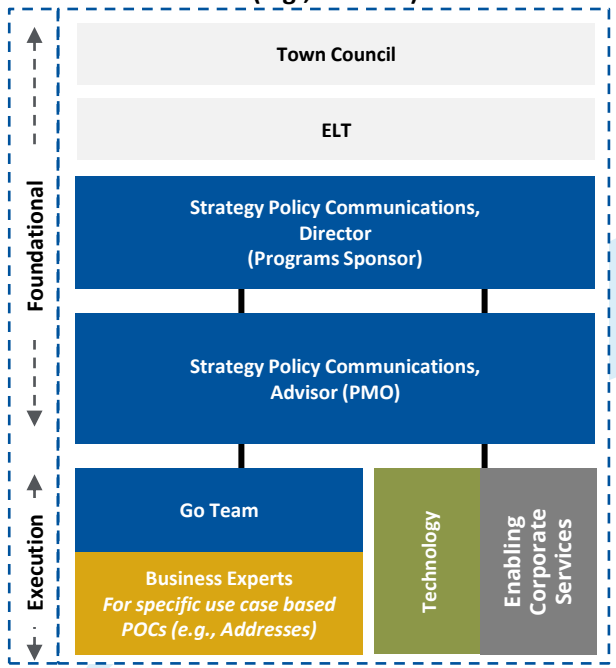
Operationalization Journey of Corporate Data Governance Operating Model

The Journey can start with a short-term Proof of Concept (PoC) to reach the target state. It is also possible to have two terms going simultaneously, such as starting with the interim plan while the short-term has started, to reach the Target state faster.

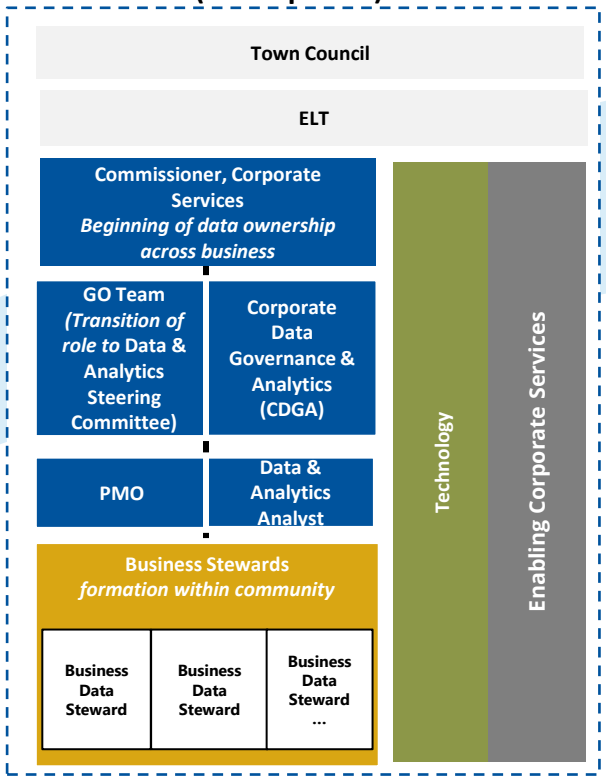
Short-term
Scope: Focused on POC and Pilot (e.g., Address)



Foundational (0 – 6 Months)
- Establish Corporate Data & Analytics Strategy and Vision
- Rationalize resources and skills
- Assign roles & responsibilities
- Formalize governance structure and mandate

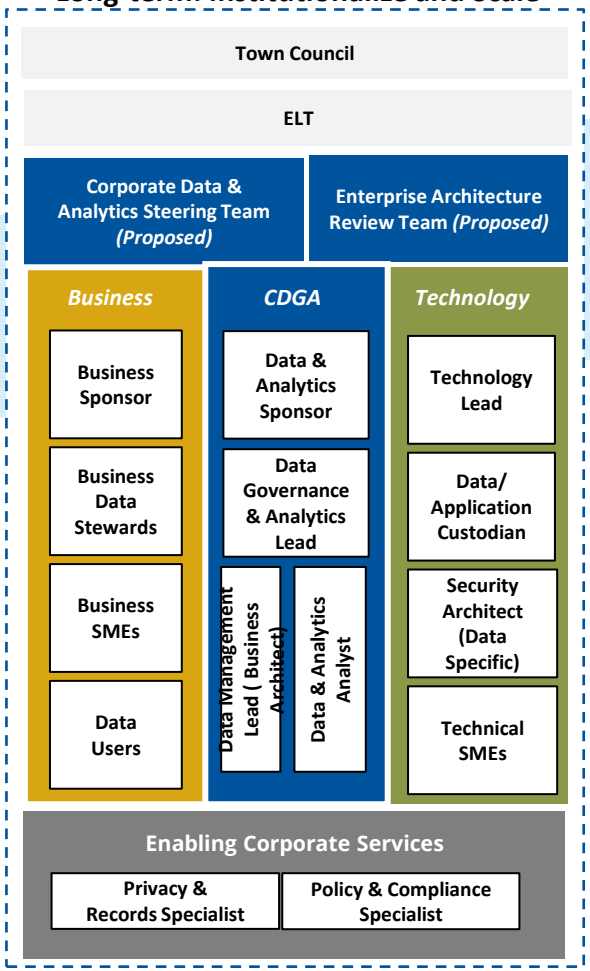
Execution (6 – 12 Months)
- Test the foundational capabilities through the POC/Pilot
- Assess and Rationalize technology requirements
- Change Management Initiation

Interim: Expand and transition (CRM specific)



People: Roles, accountability and associated departments defined, in seat, with PMO overseeing the launch and roll out
Process: All processes identified, policy & standards created and rolled out, compliance processes in development
Tools & Technology: All data sources identified, including tracing the data to internal and external sources
Change Management: Establish and Initiate Execution

Long-term: Institutionalize and Scale



People: All CDGA roles in seat, with working committees/ councils at each level, adoption on CDGA
Process:, Processes developed to align to all policy & standards, Compliance Monitoring
Tools & Technology : A corporate tool is implemented to help with issue management, data quality, metadata, etc.
Change Management: Execute and Adopt throughout Town

High Level Overview

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Role/Function Legend: Corporate Data & Analytics | Business | Technology | Enabling Corp Services : Clerks, Legal | Discussion Point

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Path to Successful Corporate Data Management Strategy

Target state capabilities will be achieved in a phased approach to align with the Town of Oakville's key milestones

Short Term (Addresses as Data Domain)

(0 - 12 Months)★

Foundational

- ❑ Define & Establish **Corporate Data Governance & Analytics** Strategy
- ❑ Rationalize **Resources & Skills** & Assign **Roles & Responsibilities**
- ❑ **Initiate** Masterdata, and Data Integration capabilities ; perform Data lineage
- ❑ Perform current **Technology Assessments and rationalization**
- ❑ Initiate a **Community of Practice(CoP)**

Execution

- ❑ Test the **foundational capabilities** through **Addresses POC**
- ❑ **Define and Monitor** performance metrics for PoC
- ❑ **Gradual transition of responsibilities, initiatives, and knowledge** from the **Go Team** to **the Data & Analytics Steering Committee**

Mid-Term (Expand from POCs to corporate-wide mandates)

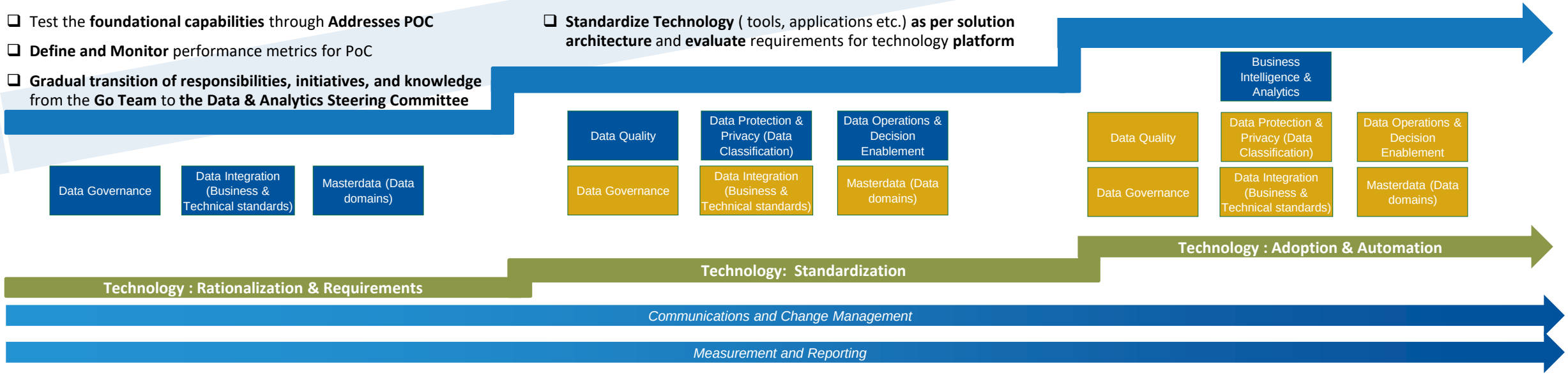
(13 - 24 Months)★

- ❑ **Measure engagement and adoption** of the Function, Strategy and Community of Practice through well-defined metrics
- ❑ Transition **Interim roles and knowledge** to finalize remaining **Roles & Responsibilities,** and stand up the **remaining Data Domains**
- ❑ **Initiate** Data Quality, Data protection & privacy (data classification) and data operations & decision enablement capabilities
- ❑ **Evolve** the short-term data management capabilities- data quality, data governance & masterdata
- ❑ **Standardize Technology** (tools, applications etc.) **as per solution architecture** and **evaluate** requirements for technology **platform**

Long Term (Defined Teams)

(25 - 36 Months)★

- ❑ Achieve a current **Data Management state of "Managed" with full-scale institutionalization of the governance mandate** through Hub & Spoke model
- ❑ **Embed data into the culture** through data literacy and onboarding as part of the communications & change management strategy
- ❑ **Initiate Business Intelligence & Analytics** with regular reporting across all data management capabilities
- ❑ **Evolve** all **mid-term** data management capabilities
- ❑ **Adopt Corporate Data Governance platform** and explore **automation** opportunities to improve efficiency



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Legend: Capability Initiation | Capability Evolution | Technology

★ *Timelines are subject to change based on Town specific factors*

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Sample Scenario: RACI explained

For the scenario provided on page #18 - Identifying Data Quality Issue with Address Data, a view of how responsibilities and accountability will be executed is provided in the next slide.

Responsible to ensure activities are completed successfully
(Who is ensuring the activities are done)

Accountable for the outcomes/consequences and /or accepts the risk
(Who ultimately owns the risk)

Consulted for inputs and feedback, typically subject matter experts
(Who is providing input/insights/two-way communication)

Informed of the results, decisions or actions taken
(Who is receiving the information / one-way communication?)

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Appendix C – Data Management Capabilities detailed

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Current State Assessment – Corporate Data Management Capabilities

Data Protection & Privacy
The continuous process of protecting and safeguarding the confidentiality and integrity of data from corruption, compromise, or loss as it moves throughout the data lifecycle. This is accomplished by following leading practices such as privacy by design, identity access management, and integrating these practices at the corporate level

Data Operations & Decision Enablement
The collection, storage, access, evaluation, and utilization of data. This encompasses data evaluation, SLA definition, authoritative data source registration, and data preparation to deliver real-time services and enable operational transformation

Data Quality Management
The measurement of the health and usability of all data assets across the organization in a standardized manner, enabling the identifying, profiling, cleansing, monitoring, and adherence to relevant metrics assuring completeness and accuracy of data

Business Intelligence & Analytics
How data and insights are governed and how data is presented to end-users and consumers to support analysis and decision-making activities, including but not limited to reporting, visualizations, dashboards, and analytical outputs

Data Integration
The approach for sourcing, routing, orchestrating, and governing shared critical data assets to minimize redundancy within the Town, allowing to effectively leverage data on a consistent basis at a corporate level

Data Governance
Processes, reporting, and metrics which guide organizational change management and cultural change towards operational quality and efficiency, driving growth and development by adopting new standard procedures and steps towards a desired target state. This includes data ownership and well-defined roles, responsibilities, and accountabilities

Master Data Management
Applying business rules to data (labelling, enterprise-wide business requirements). Master data should be well-defined, mapped to trusted sources, and supported by specific business processes and rules

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Data Governance Capability – Data Protection & Privacy

The continuous process of protecting and safeguarding the confidentiality and integrity of data from corruption, compromise, or loss as it moves throughout the data lifecycle. This is accomplished by following leading practices such as privacy by design, identity access management, and integrating these practices at the corporate level

Data Protection & Privacy	
Encryption	Data encryption converts data from a readable format to an encoded format. Users and processes can read and process the data only after the encryption is removed
Anonymization	Data anonymization is the process of protecting private or sensitive information by encrypting or deleting personally identifiable information from a database. This activity is done for the purpose of protecting an individual's or a company's private activities while maintaining data integrity
Classification	The process of dividing and arranging data into appropriate categories based on their shared features, such as their level of sensitivity and the risks they pose, as well as the compliance requirements that protect them. Data classification enables businesses to establish encryption and anonymization policies to effectively protect the business data
Masking	Also known as obfuscation, hides the actual data using modified content like characters or numbers, creating an alternate version of data that cannot be easily identifiable or reverse engineered, protecting data classified as sensitive (ie. PHI data)
Data Access Management	Data Access Management is a set of processes and technologies used to control access to an application or data. It involves creation of groups or roles with defined access privileges

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Data Governance Capability – Data Operations & Decision Enablement

Collection, storage, access, evaluation, and utilization of data. This encompasses data evaluation, SLA definition, authoritative data source registration, and data preparation to deliver real-time services and enable operational transformation

Data Operations & Decision Enablement	
Authoritative Data Source Registration	Registration of sets of data assets that provide trusted, timely, and secure information to support Town's processes
SLA Definition	Defined standards to ensure guarantee for Town to attain level of service a provided by a vendor or product
Data Evaluation	An assessment of data usability that is determined based upon evaluating pre-defined criteria, to ensure meaningful insights can be extracted from the data available
Data Preparation	Data preparation is the process of preparing/cleaning raw data so that it is suitable for further business analysis processes.
Synthetic Data Generation	Synthetic data is the information that is artificially manufactured by machine-learning algorithms rather than generated by real-world events. Synthetic data is critical for strategic planning of future events based on current use cases
Test Data Preparation	Test data preparation is critical for generating a high- quality synthetic data, which eventually improves the strategic future risk management ability of any organization

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Data Governance Capability – Data Quality

The measurement of the health and usability of all data assets across the organization in a standardized manner, enabling the identifying, profiling, cleansing, monitoring, and adherence to relevant metrics assuring completeness and accuracy of data

Data Quality	
Data Quality Rule Design	Data Quality rules are the requirements or expectations that businesses set to their data. Individual departments may have their independent customized data quality metrices, aligned to the overall enterprise metrics.
Data Quality Profiling	Quality profiling refers to the process of examining, analyzing, reviewing and summarizing data sets to gain insight into the quality of generated data.
Issue Management	Data Issue Management is a process of removing or reducing the impact of obstacles that prevent effective use of data. Furthermore, it includes identification, definition, quantification, prioritization and resolution of data quality issues
Root Cause & Impact Analysis	The standard set of processes for determining the root cause of any data set that fail to meet the quality metrics, and creating mitigation strategies to avoid potential negative business impact
Data Quality Monitoring & Visualization	The visual tracking of data quality metrices to ensure that the various teams and overall enterprise are maintaining the set quality standards and tracking any deviations

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Data Governance Capability – Business Intelligence & Analytics

How data and insights are governed and how data is presented to end-users and consumers to support analysis and decision-making activities, including but not limited to reporting, visualizations, dashboards, and analytical outputs

Business Intelligence & Analytics	
Reporting & Visualization	Helps analysts and key decision-makers understand difficult concepts or identify new patterns for decision making / actionable insights from business data.
DevOps/ MLOps	DevOps is the combination of cultural philosophies, practices, and tools that increase an organization's ability to deliver applications and services through better coordination between software development and IT teams. MLOps aims to deploy and maintain machine learning models in production reliably and efficiently
Model Validation	Model validation is the task of validating if the outputs of a particular model/algorithm are acceptable with respect to the data-generating process established by the organization
Analytics & AI Modeling	AI modelling is the creation, training, and implementation of machine learning algorithms that emulate logical decision-making based on available data

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Data Governance Capability – Data Integration

The approach for sourcing, routing, orchestrating, and governing shared critical data assets to minimize redundancy within the Town, allowing to effectively leverage data on a consistent basis at a corporate level

Data Integration	
Metadata Management	Collection, storage and management of information about the organization's data assets (source, ownership, security profile, etc.)
Metadata Access	Information regarding any restrictions that may exist on accessing and using the metadata for a particular data set within the Town
Technical & Business Glossary	Collection of data related terms with their definitions that Town can use to ensure the same definitions are used at a corporate level for data related activities
Data Lineage	Document how data is acquired or created, where it moves, how it is updated, and how it is used by the Town
Data Source Access and Cataloguing	Organized inventory of data assets in the organization; helps with collecting, organizing, accessing, and enriching of data to support data discovery and governance
Data Ingestion	Data Ingestion is the process of obtaining and importing data for immediate use or storage in a database. Data can be ingested in real time or in batches
Data Pipeline	A set of tools and processes used to automate the movement and transformation of data between a source system and a target repository
Extract Transform Load	ETL is a data integration process that combines data from multiple data sources into a single, consistent data store that is loaded into a data warehouse or other target system. It then transforms the data according to business rules and stores data into a destination store.

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Data Governance Capability – Data Governance

Processes, reporting, and metrics which guide organizational change management and cultural change towards operational quality and efficiency, driving growth and development by adopting new standard procedures and steps towards a desired target state. This includes data ownership and well-defined roles, responsibilities, and accountabilities

Data Governance	
Data Governance Operating Model	Outlines how an organization defines roles, responsibilities, business terms, asset types, relations, domain types, and more. This, in turn, affects how workflows and processes function; it impacts how an organization operates around its data
Roles & Responsibilities	The various roles and responsibilities in a data governance, often consolidated in a RACI, highlight the critical team structures and individual accountability towards any data governance initiative or framework
Data Governance Framework	A governance framework creates a single set of rules and processes for collecting, storing, and using data. A robust framework makes it easier to streamline and scale core data governance processes
Policies & Standards	A documented set of guidelines for ensuring that an organization's data and information assets are managed consistently and used properly. The document also outlines data management expectations, responsibilities and individual goals of each stakeholder & team member
Regulatory Compliance	Adherence to laws, regulations, and guidelines created by various government legislations and regulatory bodies.
Communication & Change Management	Change management is a systemic approach to dealing with the transition or transformation of an organization's data goals, processes or technologies
Data Literacy & Training	Data literacy is the ability to read, write and communicate data in context, including an understanding of data sources & analytical methods, and the ability to describe the use cases, application and the resulting business value.

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Data Governance Capability – Master Data Management

Applying business rules to data (labelling, enterprise-wide business requirements). Master data should be well-defined, mapped to trusted sources, and supported by specific business processes and rules

Master Data Management	
Master Data Repository	The framework which represents master data objects and entities. It is used to centralize all the cross-functional elements in the information system
Match Merge Survivorship rules	The process by which duplicate data records are merged to produce a final record. The master record in each group is the result of merging two similar records as per the survivorship rules.
Corporate Solution Architecture	An enterprise architecture describes how data is managed from collection through to distribution, transformation and consumption. It sets the blueprint for data and the way through which it flows through data storage systems.
Business Taxonomy & Hierarchy Management	Taxonomy is a way of tagging and hierarchically classifying digital content in an organization's information systems.

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Appendix D – Potential Cost Efficiencies & Savings

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Potential Cost Efficiencies & Savings

The execution of data management standards and processes will allow Town of Oakville not only to focus on value generating operations that has long-term benefits but also to realize cost savings. The estimated annual savings for Town of Oakville would be over $1.2M.

Cost Optimization	Estimated Savings ($)	Description
Data cleansing	$270,000	- Reduction in time and effort required due to established data cleansing processes, allowing employees to focus on more value generating tasks
Reduced technical debt and technology standardization	$210,000	- Identification of redundant systems will help in deciding which systems can be decommissioned, hence leading to a savings in annual license and maintenance fees - Employees working on these systems can now allocate their efforts to other systems and boost overall productivity
Reporting	$540,000	- Streamlining the reporting process can help ensure more efficient delivery of critical reports - Removing redundant or overlapping reports can allow employees to focus on creating critical, value generating insights
Data searching	$257,143	- Reduction in time and effort required due to established standards and processes which helps employees efficiently search required data

Total Savings ($)*	**$1,277,143**

**Total savings amount is based on the assumption that estimates from key departments are extrapolated for the Town of Oakville*

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