



TELUS

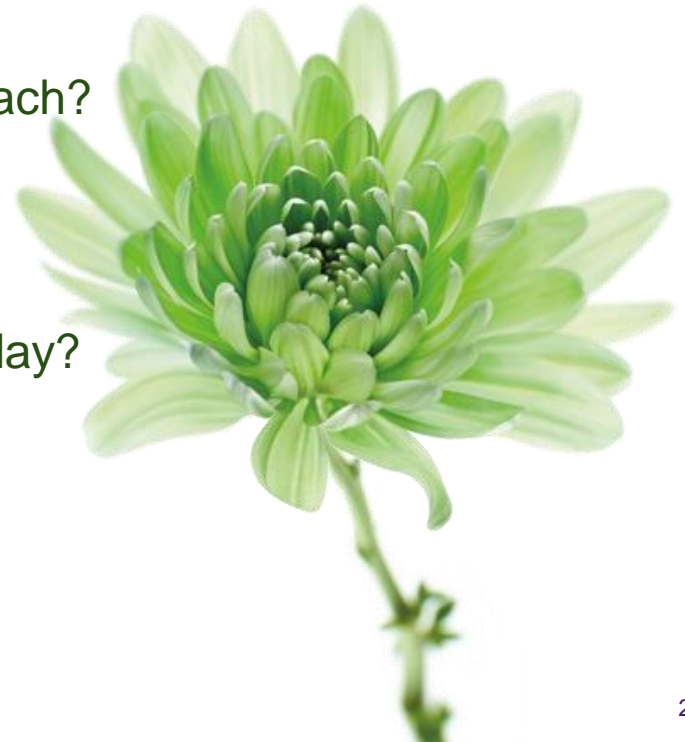
Corporate Data Management
Metadata Practice Implementation
Update

for

DAMA Vancouver Chapter

Agenda

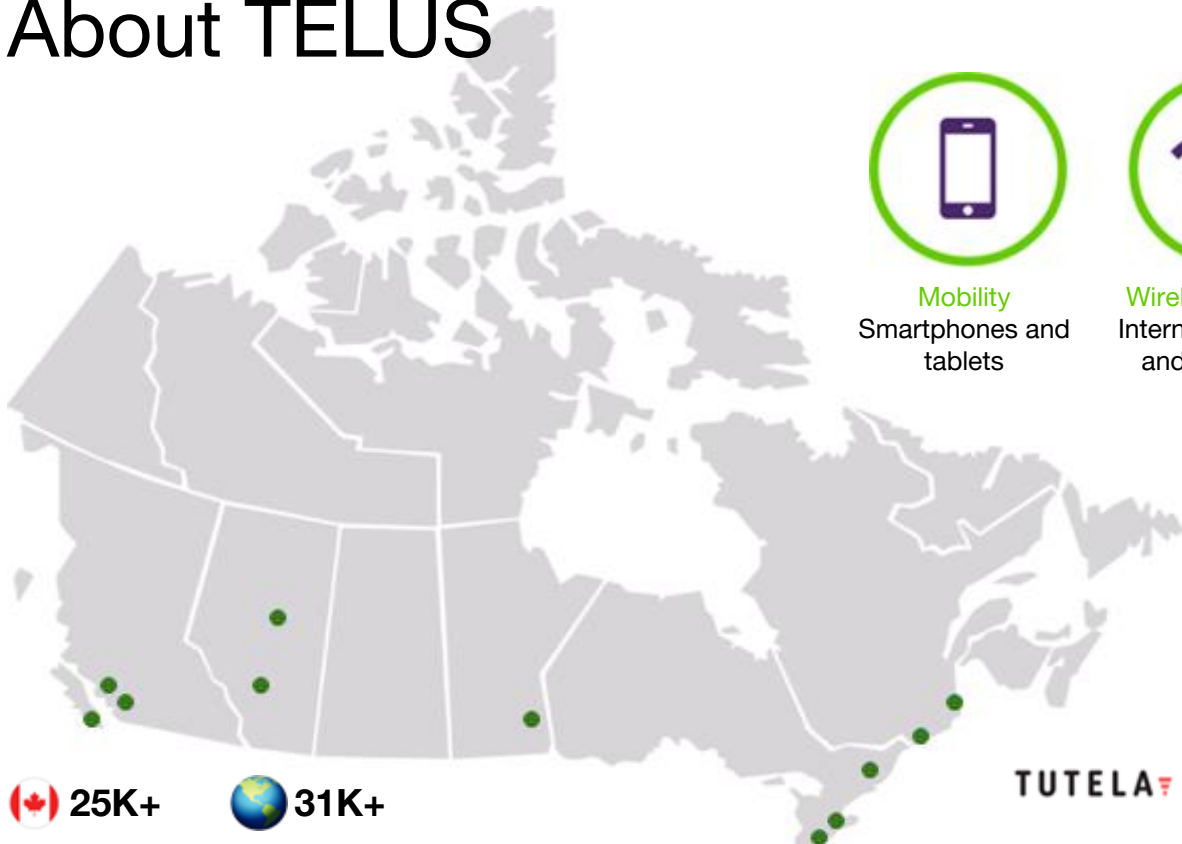
- 1 Who is TELUS
- 2 What is our Information Management Approach?
- 3 How did we introduce Data Governance and Metadata Management to our Company?
- 4 What Did we Learn? And Where are we Today?
- 5 Q&A





Who are we?

About TELUS



Mobility
Smartphones and tablets



Wireline services
Internet, television and telephone



IT services
Security, hosting, cloud computing and integrated network and infrastructure management



Healthcare Technologies
Innovations that foster collaboration across the entire continuum

Canada has the **third** fastest wireless network in the world



TUTELA

“To unleash the power of the Internet to deliver the best solutions for Canadians at home, in the workplace or on the move”

Canada's fastest-growing national telecommunications company

- \$14.4B** annual revenue
- 13.4M** customer connections
- 9.2M** wireless subscribers
- 1.3M** residential network access lines
- 1.8M** Internet subscribers
- 1.1M** TELUS TV customers

Leader in culture and sustainability

- Canada's 10 most admired corporate cultures
- Global 100 Most Sustainable Companies in the World
- Dow Jones Sustainability Index member for 16 years
- First Canadian company recognized as the world's most outstanding philanthropic company

Committed to giving where we live

\$1.2B

of value contributed
since 2000

1M

hours of volunteer
service in local
communities per year

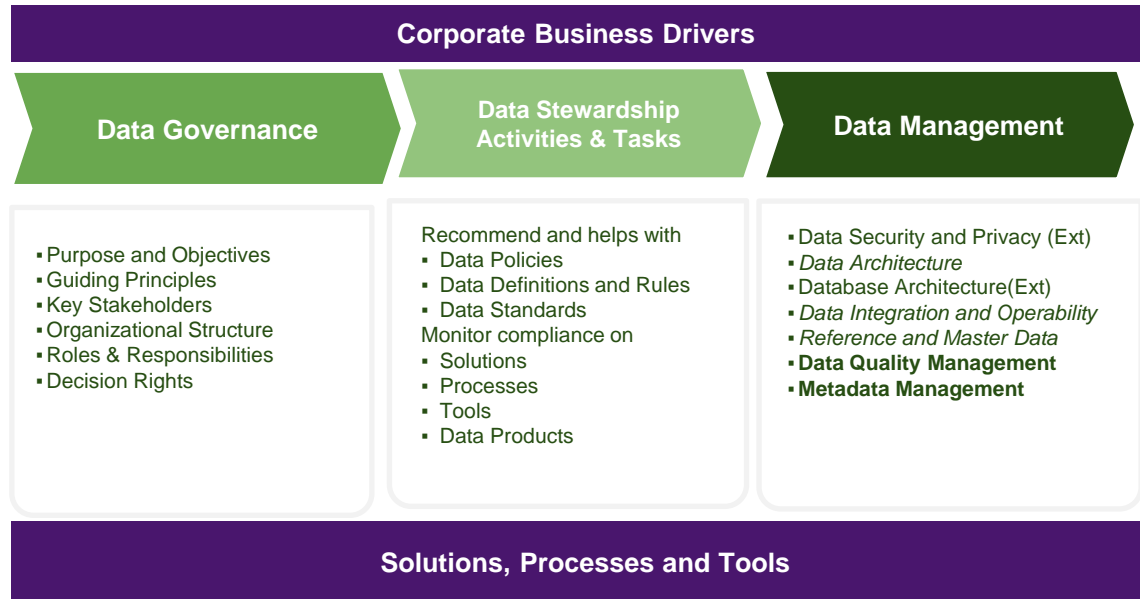
TELUS Health has invested ~\$2B over the past 10 years to revolutionize healthcare outcomes for Canadians



What is our Information
Management Framework

Our Information Management Framework

The Information Management Framework – Some Context



Functions under DM illustrate core team responsibility areas that are needed to drive TELUS data maturity out of our Data Trust and Privacy team (DTO)



What is Metadata Management?

What is Metadata Management

Metadata is defined as information about the physical data, technical and business processes, data rules and constraints, and logical and physical structures of the data as used by the organization.

Metadata Management is defined as the planning, implementation and control activities to enable easy access to high quality, integrated metadata.

Types of Metadata

Business Metadata

Relates the business perspective to the metadata user, including business terms, business definitions with calculations (KPI), business rules, policies and constraints. Examples include:

- Conceptual and Logical Data Model
- Data Lineage
- Data Quality Statements
- Regulatory Constraints
- Policies

Data Stewardship Metadata

Data about Data Stewards, Stewardship Process and Responsibility Assignments. Examples include:

- Data Owners
- Data Steward Roles and Responsibilities
- Data Sharing Rules and Agreements
- Data Definitions - Business and Technical
- Governance Organization Structure

Process Metadata

Data that describes characteristics of system elements such as Processes, Business Rules, Programs, Jobs, Tools, etc. Examples include:

- Organization Owners and Stakeholders
- Process Name, Dependencies and Decomposition
- Data Stores and Data Involved
- Process Order and Timing
- Roles and Responsibilities

Technical Metadata

Data that provides developers and technical users with information about their systems. Examples include:

- Physical Data Model
- Recovery and Backup Rules
- Audit Controls and Purge Criteria like Records Retention
- Mappings and Transformations
- System of Record feeding Target Data Sources

Corporate Metadata Management Practice Ownership: Data & Trust Office (DTO)

- Define Enterprise Level Metadata Management Strategy
- Define and maintain enterprise level metadata standards and best practices
- Integrate Program Level changes to Corporate Metadata framework and governance practices
- Guide, consult on, and govern program level metadata implementations

Program Level Metadata Ownership: Program Dependent

- Define program specific business drivers, goals and metadata requirements
- Identify metadata components need to achieve business goals
- Define and implement metadata management process within the context of the enterprise level metadata management strategy, standards and best practices
- Create and maintain program level metadata
- Govern Program Level Metadata usage

Digital AI Data Supply Chain:

TELUS Health

Data & Trust:

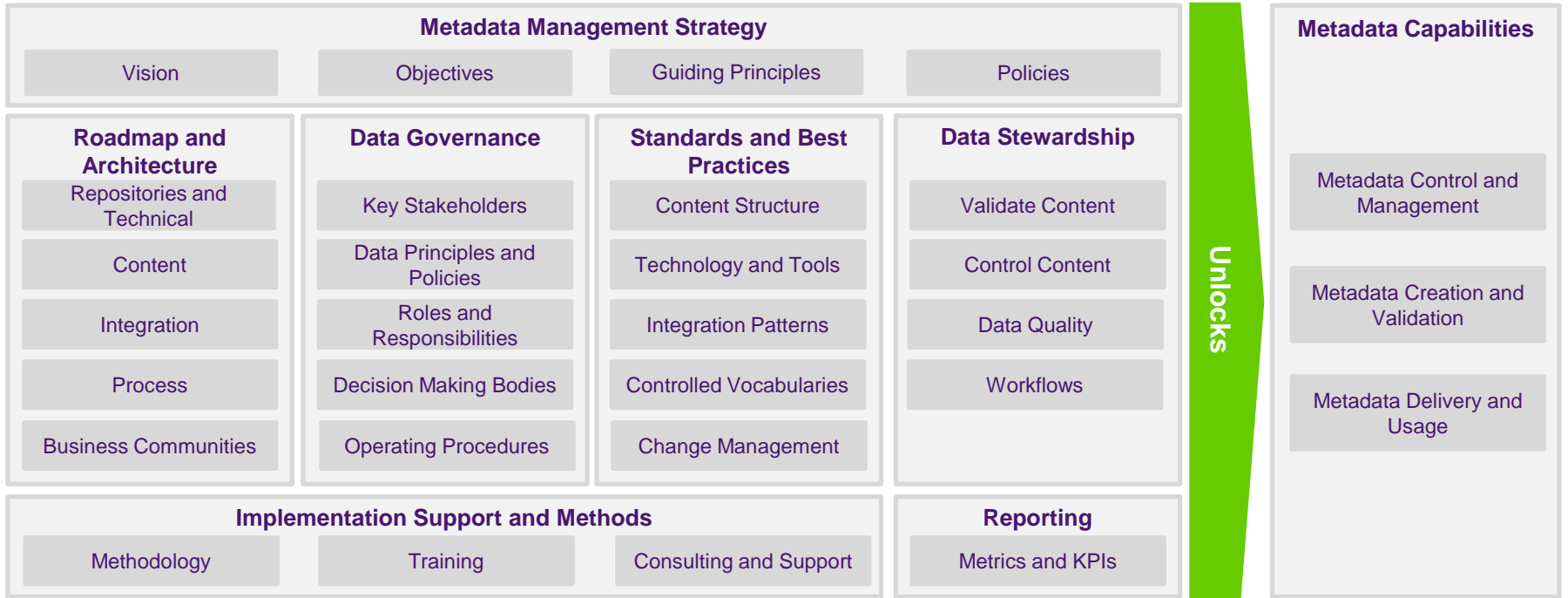
Future..

Hadoop Platform:

Oracle Platform:

Metadata Framework (Metadata is not just about installing a software package)

Data Management | Metadata Implementation Landscape



Solutions, Processes and Tools

Corporate DM Function in DTO	Role	Tasks & Deliverables
Metadata Management Function	Data Management Prime	<p>Corporate Metadata Management Practice Level:</p> <ul style="list-style-type: none"> - Define enterprise level metadata architecture - Define enterprise level metadata management strategy and implementation approach - Define, maintain and communicate enterprise level metadata policies, standards and best practices - Coordinate metadata tools for consideration - Define metadata tool evaluation criteria - Evaluate metadata management tools - Select metadata management tools - Provide metadata methodology training, support and guidance - Ensure metadata alignment across the enterprise - Manage Program Budget and Provide Benefits Harvesting
		<p>Program Level Metadata Implementation (e.g. Data Supply Chain)</p> <ul style="list-style-type: none"> - Govern project level metadata implementations - Guide project level metadata implementation activities



What was our Scope for delivery?

Enterprise Metadata Management

An **enterprise metadata management program** provides a holistic understanding of data with the following benefits:

- **Improved accountability for data** : Transparent business metadata helps reduce data silos and redundancies to accelerate the identification and remediation of data quality issues, as well as lower the overall cost of manual work. Automated metadata workflows enable data stewardship.
- **Reduce risks**: Comprehensive metadata helps us understand the scope of TELUS data and the potential impacts of data use. This serves to improve data governance outcomes through consistent, measureable and traceable practices while also reducing manual data dictionaries and ad hoc internal monitoring.
- **Drive innovation and responsible use forward** : A data catalogue available to the business on a self-service basis generate ideas, products, and services to enhance operations and generate value.

- **Collibra was selected as TELUS Metadata Management Platform to enable Data Governance Implementation**
- **Technology roll out started with initial scope and selected stakeholders (think big start small)**
- **All TELUS team members will have access to Collibra : Provides data understanding and centralized place to get access to information about their data**

Strategy Overview

Problem/Opportunity statement

- TELUS does not have a clear view of its data assets in terms of DB inventory, DW and Big data assets that can be managed in one place.
- TELUS needs a repository to manage its Data Governance Program which is being launched in Q2 this year for our Data Stewardship(DS) program. The DS Program needs access to a repository to manage the content of our data assets in terms of their definitions, lineage, quality, ownership and Privacy and Security implications.
- Current Issues are that teams and programs exist in silos with only local knowledge of our data assets. The intention of this program is to give program and project team access to a complete inventory of our data so that the best data can be identified to satisfy the needs of our Digital, TELUS Health, Big Data & Customer Experience programs.

Key objectives

- Key Objectives
 1. To provide our Data Governance Program with a data asset repository
 2. To provide our Customer facing programs with an inventory of their data assets, regarding their quality and ownership in the business
 3. To support regulated reporting of our data assets to external organizations and to comply with Legal requirements (court orders)

Key capabilities/solution

The major capabilities this solution is delivering are:

- A centralize Data Inventory (Dictionary) of TELUS data assets

Competitive landscape

- To stay competitive we need to be able to quickly access the best data sources with the best data quality to feed into our analytic and marketing programs.
- To stay competitive in the current market means we need to be able to react to market demands on the fly which means ready access to the best information sources we have of the best quality and to reduce the current data discovery process to a few hours or days instead of the current 3+ months needed for this exercise
- We are currently at a Disadvantage as both of our major competitors are adopting Metadata Management to drive their analytic and marketing programs.

Key stakeholders and clients

- Our Internal stakeholders to name but a few who will benefit from this program include:
 - Digital/AI
 - THPS
 - Customer Experience
 - DBA
 - Fibre Optic and 5G
- External benefits will be
 - Regulatory and Legal Bodies Reporting
 - Privacy & Trust Compliance
 - GDPR Compliance (future)

Customer experience

The customer experience will benefit from improved understanding of their needs through more rapid and accurate assessments via marketing campaigns and analytics

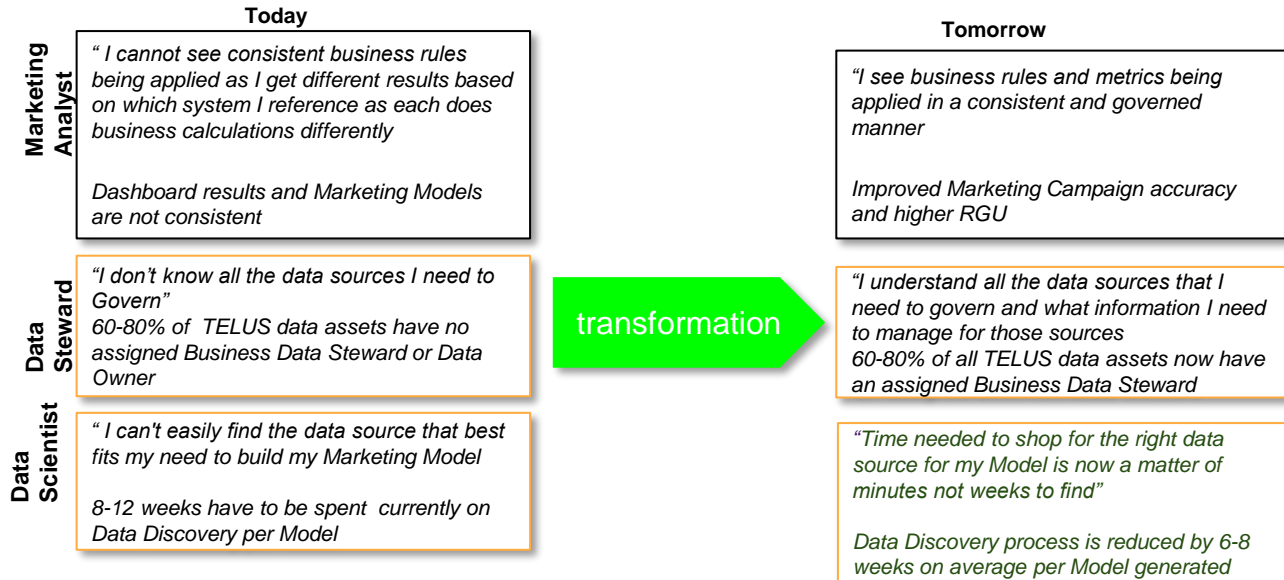
Data Management Vision

Enable Information Discovery with Quality and Governance in support of TELUS Digital business



People | Process | Technology

TELUS Internal User Context for Why we need it





What did we do? What did we
Learn? Where are we Today?

Which Vendors did we evaluate?

Objective

To evaluate industry leading Vendors (focusing on our industry vertical)

1. Reviewed TDWI, Data Management, Forrester & Gartner for insights and recommendations from 2018
2. Reviewed what we had available internally and from existing software agreements
3. Invited a short list of these Vendors to participate in Product demos and to address our functional requirements
4. Scored and evaluated these Vendors based on their current industry standing and coverage, financials, support etc and how the user teams felt about the product demos in terms of ease of use and meeting their needs
5. Recommended the highest scoring vendor for a Pilot (Collibra)

Vendors that made our short list included SAS DM, Informatica, IBM and **Collibra**

Pilot | Objective and Scope

Objective

To verify that Collibra's **Data Governance Centre** can deliver on metadata and governance capabilities demonstrated during our vendor selection period, and, to assess the working relationship with Collibra and its implementation partner

Scope

- Data Platform Data Dictionaries
- DM Principles and Policies
- Business Terms and Acronyms
- Data Governance Operating Procedures

Pilot | Summary Findings



Easy to use interface to create, find and maintain both Business and Technical metadata including lineage



Highly flexible and extensible meta model that can support current / future use cases and enable multi-tenancy (communities of use)



Comprehensive set of out-of-the box workflows enabling Data Governance and Metadata Management processes with little or no development



Effective search capabilities, including the unique ability to integrate with Windows, Mac and Mobile apps to search for terms and definitions



Good Vendor Implementation support, training and local expertise



Recommendation to Proceed to Funding

- Results with the Collibra Pilot indicated that it is an extendable platform that can provide cross Program coverage
- Industry results show that it is being adopted by other TELCOS worldwide
- Key TELUS Implementation Partner recommended this platform to use based on their experience in Canadian Deployments of Collibra and other Vendor products that we evaluated
- Supports our emerging Multi-Cloud strategy

Lessons Learned

All Successful Metadata Management Programs have these things in common:

- Keep an open mind: One size doesn't fit all and in 90% of cases one tool can not cater to all in the enterprise of TELUS' size, BUT it has to be combined into ONE end to end solution
- Commit to "the way": Long-running program mentality vs. Quick Win project mentality ; **appropriate funding and staffing model is a must**
- Hard work, not magic: Business adoption is a must, metadata programs require feed and care (people and processes)
- Invest time and effort: stop wasting precious time, use other's failures as free intelligence (Bell, Manulife, Rogers Bank, RBC, Scotiabank. All started with more highly technical solutions like IBM and INFA and had to combine or completely switch over to business friendly Collibra)
- Change in attitude is a must: we can't expect different results with the same behaviours

Lessons Learned - #2



People

- Overstaff the Core team for the first year's delivery to build the support framework
- Have Ongoing Executive Stakeholder Commitment
- Have a Strong and Effective Communication Plan
- Have a strong education plan for Business and Technology teams



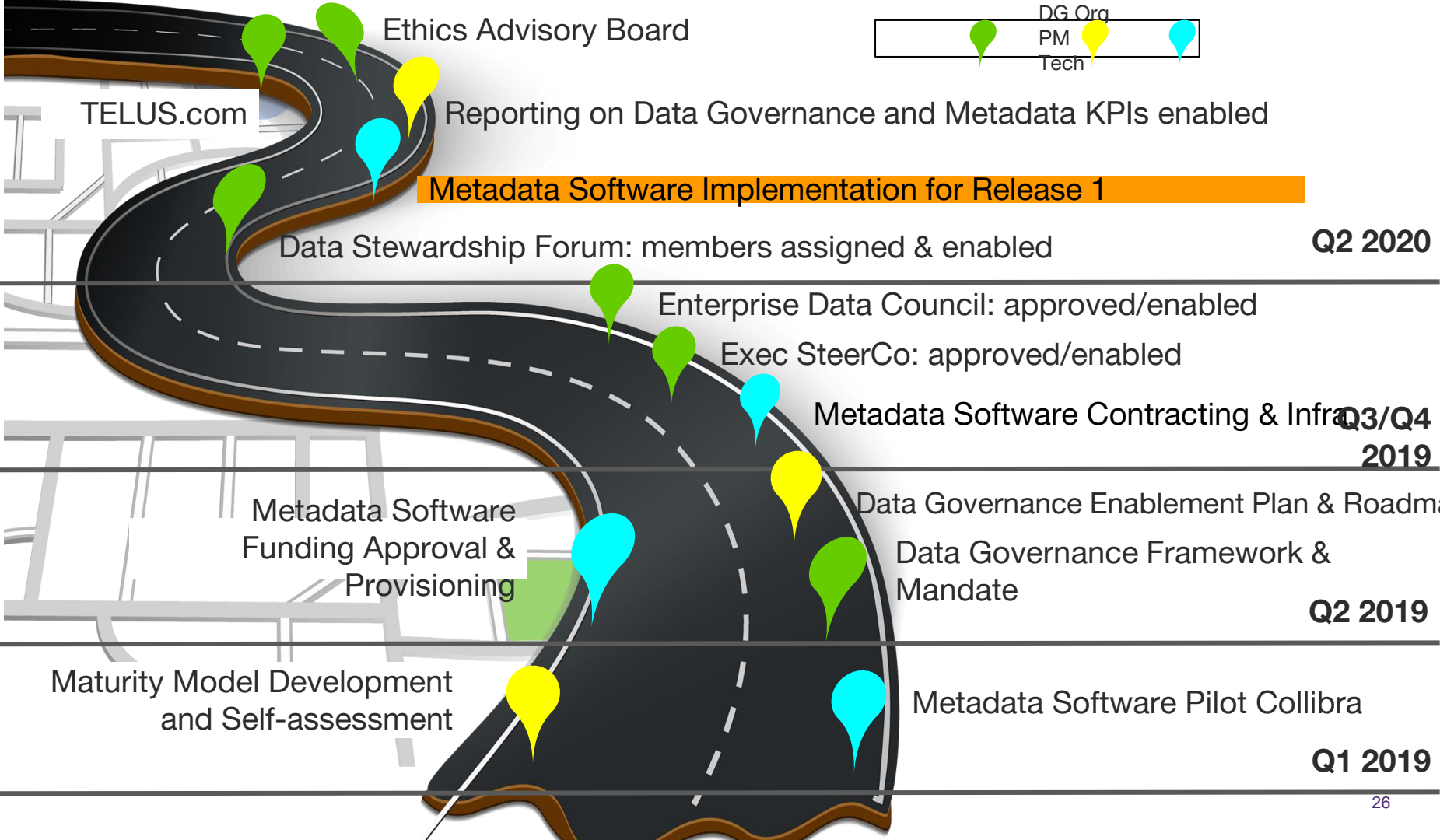
Process

- Gather benefits while you build to sustain future investment
- Don't starve the program of funding over the first 2-3 years
- Constantly Market and Sell
 - this is not a one shot deal
- Have a Communication consultant as part of the Core team
- Tie in Data Governance and Data Quality Management to enrich and govern content at the beginning of the Program



Technology

- Centralize to ONE Corporate Data Catalogue Technology Platform
- Integrate to rather than divest from in terms of applying this to existing Meta sources
- Version control by Program as each supported business function will have different realities to maintain
- Automate interfaces for real-time updates to maintain accuracy



Questions?

why?
how? who?
WHEN?
Where?