City of Guelph Circular Food Economy

Project Overview

The City of Guelph is developing Canada's first circular food economy as part of Canada's Smart Cities Challenge. Currently, in the region of Guelph-Wellington, one in six families is food insecure and the cost of healthy food has increased 27% over the last eight years. It is estimated that one-third of all food in Canada is wasted. The circular food economy aims to address these challenges through three goals. The goals are to deliver 50x50x50 by 2025 where both access to nutritious food and circular economic revenues are increased by 50%, and 50 new businesses and collaborations are created.

The three goals will be achieved through the execution of nine Pathfinder projects. The goal is to have all nine projects self-sustaining within five years of launch. In addition to these projects, Our Food Future will utilize a data and technology strategy, comprehensive stakeholder engagement strategy, and community-driven collaborations to demonstrate progress of the projects.

Our Food Future is open, replicable, and scalable and will develop a road map for other communities to implement a circular food economy, replacing the "take-make-dispose" model with a circular model, where the by-product of one process is an input to the next process.

Alectra's Role

Alectra's role is to support the data and technology strategy for Our Food Future initiative. The data strategy includes the establishment of a Data Utility, where data is treated and valued similarly to public utilities such as water and electricity. The Data Utility will provide secure, transparent access to new and existing data related to the circular food economy and integration into a platform enabling value-added services. The open system will enable integration of data from public and private systems, including food production, purchases, and waste and allow for the generation of location-based insights.

In the first year, the highest priority is to conceptualize, define and implement a Governance framework directing both the technology and data workstream. The Distributed Governance framework put forward by Alectra will be a unique offering which will ensure the following:

- Data governance within the respective participant systems while retaining control over the data by the existing owners/custodians,
- Common understanding of data quality policies and control to further implement consistent data quality applied on different datasets before exposing those for insights generation
- Consensus on the data interfaces, their understanding and implementation for efficient data interfacing from multiple source systems
- Robust Architectural backbone to integrate different stakeholders and participants data systems and external facing downstream applications for the circular food economy ecosystem.

Learnings from this phase will be incorporated into the Data Utility model along with emerging best practices and ethical research guidelines from academic institutions. The Data Utility model will be open source allowing the infrastructure to be shared with other municipalities. The Data Utility's governance, revenue model, and business architecture will be publicly accessible. The procurement and development of the open source model will be guided by the municipalities with similar, existing models, including Montreal and Barcelona. This will include granular, informed consent for all parties involved in data transactions.

Alongside, the Data Collaboration Platform will be developed to integrate new and existing data providers and data consumers using open protocols. The platform will provide permission-based access to users without maintaining a separate copy of data, ensuring the data remains in control of the owner.

Ultimately, the platform will incorporate AI and machine learning across the nine projects to analyze the large volumes of data. Applications will include image processing and recognition, data correlation, and trend identification and analysis. Analysis of collected data can identify locations with limited access to nutritious food and how food waste disposal varies by region. One such example of the potential future projects could be the development of a digital currency that could be spent locally and would be tracked on a distributed ledger such as Blockchain.

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