# **Project Charter**

**Project Name:** Floodmapping for Cumberland County

**Class:** INFT3000

**Analysis Phase:** Charter Definition

**Project Participants:**

Rose Boudreau, Project Manager.

Maggie Lingley, Data Specialist.

Cohen Henley, Technical Specialist.

Justin Monteith, Visualization Specialist.

Beth Easson, Project Sponsor.

## **1. Charter Introduction**

### **1.1 Document Change Control**

| **Revision Number** | **Date of Issue** | **Author(s)** | **Brief Description of Change** |
| --- | --- | --- | --- |
| 1.0 | 2026-01-25 | Rose Boudreau | Initial Draft for Approval |

### **1.2 Executive Summary**

The "Polycrisis", the simultaneous breakdown of housing affordability, healthcare accessibility, and cost of living, is often treated as a series of disconnected market failures. This project proposes that these issues share a common root cause: **asset inflation driven by the velocity of money in capital markets over wage labor**.

This project was initiated to statistically validate the theory that "rent-seeking" behaviors (passive income generation through asset ownership) have become significantly more lucrative than wage labor, leading to capital consolidation that drives up the cost of essential services (housing, healthcare) while suppressing real wage growth. The project will utilize supervised machine learning (regression and classification) to analyze historical economic data, establishing a causal link between M2 money velocity, asset price indices, and affordability metrics.

The final deliverables, including a predictive model and Power BI dashboard, will be used by policy analysts and economic researchers (represented by the Project Sponsor) to visualize how capital velocity outpaces labor velocity, necessitating a shift in economic policy.

**Key Elements:**

* **Goal:** Prove the causal link between asset inflation and the affordability crisis.
* **Milestones:** Data Ingestion, Model Training, Dashboard Deployment.
* **Key Risks:** Data fragmentation across different economic sectors (housing vs. healthcare) and potential multicollinearity in macroeconomic variables.
* **Cost:** $0 (Academic/Open Source).

### **1.3 Authorization**

This project charter formally authorizes the existence of the project, **Asset Inflation Analytics**, and provides the project manager with the authority to apply organizational resources to project activities described herein.

**Project Sponsor:**

[Signature] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:

*Professor George Campanis, Project Sponsor*

**Project Manager:**

[Signature] \_\_\_\_\_\_\_\_\_\_\_\_\_\_Rose Boudreau \_\_\_[Electronically Signed]\_\_ Date: Jan. 25th, 2026

*Rose Boudreau, Project Manager*

## **2. Project Overview**

### **2.1 Project Summary**

This project aims to aggregate, clean, and analyze high-frequency economic data to model the relationship between **Asset Inflation** (independent variable) and **Affordability Indices** (dependent variables) across housing and healthcare. By comparing the "velocity of money" in asset markets (capital gains, rent) versus labor markets (wages), the project will produce a data analytics solution that highlights the decoupling of productivity from pay.

The background of this project stems from the widening gap between the Case-Shiller Home Price Index and median wage growth, suggesting that housing has morphed from a utility into a speculative financial asset.

### **2.1.1 Project Goals, Business Outcomes and Objectives**

| **No.** | **Goals** | **Objectives** | **Business Outcomes** |
| --- | --- | --- | --- |
| 1 | Validate the "Rent-Seeking" Hypothesis. | Perform regression analysis between Asset Price Indices (S&P 500, Real Estate) and Cost of Living Indices (CPI, Healthcare CPI). | A statistically significant model (p < 0.05) confirming that asset inflation drives cost-of-living increases more than supply/demand fundamentals. |
| 2 | Visualize the Velocity Gap. | Develop a Power BI dashboard comparing M2 Money Velocity against Wage Growth over the last 20 years. | Clear visual evidence for stakeholders demonstrating the stagnation of wage velocity vs. capital velocity. |
| 3 | Create a predictive Affordability Index. | Train a supervised learning model to forecast future affordability based on current asset inflation trends. | An "Early Warning" system that predicts deterioration in housing/healthcare access based on asset market liquidity. |

### **2.1.2 Project Scope**

**Scope Definition:**

The project will deliver a Python-based data pipeline and a Power BI dashboard. The analysis will focus on the US and Canadian economies from 2000 to present.

**Core Features:**

1. **Data Pipeline:** Automated ingestion of data via APIs from robust sources.
   * **FRED (Federal Reserve Economic Data):** For M2 Velocity, Consumer Price Index (CPI), and Median Wages.
   * **Zillow/CMHC:** For Housing rental rates and vacancy data to track rent-seeking behavior.
   * **OECD Health Statistics:** For healthcare expenditure vs. GDP per capita.
2. **Analytics:** Time-series forecasting and correlation heatmaps.

### **2.1.3 Boundaries**

| **Activities In Scope** | **Activities Out of Scope** |
| --- | --- |
| 1. Extraction of data from FRED, Zillow, and OECD APIs. | 1. Analysis of crypto-currency assets (too volatile). |
| 2. Cleaning and normalization of data (handling inflation adjustments). | 2. Qualitative survey data (interviews/opinions). |
| 3. Creation of Entity Relationship Diagram (ERD) and Data Dictionary. | 3. Developing policy recommendations or lobbying efforts. |
| 4. Development of regression models (OLS/Linear Regression). |  |

### **2.2 Milestones**

*(Note: See Appendix A for detailed Gantt Chart)*

| **Project Milestone** | **Description** | **Expected Date** |
| --- | --- | --- |
| 1. Project Charter Approval | Formal authorization to begin. | Week 1 |
| 2. Data Acquisition & Cleaning | Successful API connection to FRED and Zillow; creation of master dataset. | Week 3 |
| 3. Model Training | Completion of regression analysis validating the causal link. | Week 5 |
| 4. Visualization & Reporting | Final Power BI Dashboard and written report submission. | Week 7 |

### **2.3 Deliverables**

| **Project Deliverable** | **Stakeholder** | **Description** | **Acceptance Criteria** | **Due Date** |
| --- | --- | --- | --- | --- |
| **1. Data Dictionary & ERD** | Sponsor | Documentation of all data sources (FRED, CMHC, Zillow), variable types, and relationships. | Complete schema showing the link between M2\_Velocity and Housing\_Affordability\_Index. | Week 4 |
| **2. Analytics Model** | Sponsor | Python Jupyter Notebook containing the supervised learning algorithms (regression/classification). | Model achieves an $R^2$ value > 0.65; Code is commented and reproducible. | Week 6 |
| **3. Power BI Dashboard** | Sponsor | Interactive report visualizing the "Polycrisis." | Dashboard must allow filtering by year and sector (Housing/Health); must show "Velocity Gap" clearly. | Week 7 |

### **2.4 Project Cost Estimate and Source of Funding**

*(Not Required for Assignment)*

### **2.5 Dependencies**

*(Not Required for Assignment)*

### **2.6 Project Risks, Assumptions, and Constraints**

#### **2.6.1 Risks**

| **No.** | **Risk Description** | **Probability (H/M/L)** | **Impact (H/M/L)** | **Risk Management Plan** | **OPI** |
| --- | --- | --- | --- | --- | --- |
| 1 | **Data Discrepancy:** Different reporting standards between housing (private) and healthcare (public/mixed) data. | High | High | Normalize all currency data to "Real 2020 Dollars" using CPI-U deflators before ingestion. | PM |
| 2 | **Multicollinearity:** Asset prices and M2 supply are highly correlated, making causal separation difficult. | Medium | Medium | Use Ridge/Lasso regression techniques to penalize collinear features and isolate unique variance. | PM |

#### **2.6.2 Assumptions**

| **No.** | **Assumptions** |
| --- | --- |
| 1 | **Data Continuity:** It is assumed that FRED and Zillow APIs will remain free and publicly accessible for the duration of the project. |
| 2 | **Causal Direction:** We assume Granger Causality flows from Asset Prices $\to$ Affordability, rather than the reverse (affordability constraints lowering asset prices). |

#### **2.6.3 Constraints**

| **No.** | **Category** | **Constraints** |
| --- | --- | --- |
| 1 | **Time** | The project must be completed within the 7-week academic term (Hard Deadline). |
| 2 | **Technology** | Must use MS Power BI for visualization and Python/Excel for data processing as per course requirements. |

## **3. Project Organization**

*(Not Required for Assignment - Governance, Team Structure, Roles, Facilities)*

## **4. Project References**

| **Document Title** | **Author / Source** | **Location (Link)** |
| --- | --- | --- |
| **Velocity of M2 Money Stock (M2V)** | Federal Reserve Bank of St. Louis (FRED) | <https://fred.stlouisfed.org/series/M2V> |
| **Private Industry Wage Data** | US Bureau of Labor Statistics / FRED | [https://fred.stlouisfed.org/tags/series?t=inflation%3Bwages](https://fred.stlouisfed.org/tags/series?t=inflation;wages) |
| **Rental Affordability & Zillow Rent Index** | Kaggle / Zillow Data | <https://www.kaggle.com/datasets/thedevastator/rental-affordability-analysis-based-on-median-in> |
| **Housing Market Data Tables** | CMHC (Canada Mortgage and Housing Corporation) | <https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-data/data-tables> |
| **Healthcare Quality & Economic Factors** | MDPI / OECD Health Statistics | <https://www.mdpi.com/2071-1050/17/12/5604> |

## **5. Glossary and Acronyms**

*(Not Required for Assignment)*

## **Appendix A: Project Schedule (KPIs & Gantt Note)**

* **KPI 1: Velocity Ratio:** (Growth of Asset Prices / Growth of Median Wages). Target > 1.5 to prove hypothesis.
* **KPI 2: Rent-Seeking Coefficient:** Correlation strength between Rental Vacancy Rates and Rental Price Index.
* **KPI 3: Data Latency:** Time lag between data release and dashboard update (Target: < 30