Data Automation

April 12, 2018





Overview

- 1. Background
- 2. Evolution
- 3. Data Automation Process
- 4. 2017 Examples
- 5. 2018 Workplan



Innovation & Performance (IP) :

Vision: We envision a collaborative and innovative city government serving a community where everyone thrives.

Mission: We partner with city departments using data and design to creatively solve problems.

| Goal 1: Effective Government | Goal 2: Efficient Government | Goal 3: Accountable Gov't |
|--------------------------------|------------------------------------|-------------------------------------|
| Orient programs, policies, and | Optimize the use of City resources | Maintain focus on and accessibility |
| investments to outcomes | | for the people we serve |
| | | |
| | | |

Performance

Data Analytics

Service Innovation



Lessons Learned from previous failed attempts

- Lessons Learned from GARMS* (1997) and Managing For Results (1999)
- Highly manual tools
- Limited follow through and expectations
- Lack of integration into regular business practices
- Focus on tools and trainings over real-world management



Barriers to sustaining performance mgmt

| | Problems | Offerings |
|--------------------|--|---|
| Content | We fund and implement solutions before we understand the problem or strategy. | Define the problem and specific goals and measures to address the problem |
| Leadership | We do not follow-up on data to make progress towards goals. | Build capacity for responsive, data- informed management |
| Use | We create data, measures and tools that go unused. | Reshape tools in a person-centered way |
| Insights | We are behind the curve in using data and evidence to drive and sustain policy. | Solve problems with data analytics |
| Data Management | We spend too much time maintaining and accessing the data and not enough time using this data. | Reduce manual touches on data |



Performance Advisory Team

Partnership with Seattle IT

- **Purpose**: Reduce manual touches on data to sustain performance mgmt
- We partner with Seattle IT to store, manage, monitor and report data. We are positioned to help departments navigate the City's IT protocols, ensuring the product is compliant with requirements.

Data management \rightarrow Warehousing \rightarrow Visualization Ready



Evolution



Build a sturdy table, change out the tablecloth



Data management \rightarrow Warehousing \rightarrow Visualization Ready



Where we started

- Motorola CRM
- Pet Point
- Contracting Information DB

19 items Offline status: Online Offline availability: Not availa

- Fleets Anywhere
- LIMO
- MARS
- SERIS
- SLATE
- SLIM
- Summit



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Limitations of approach

Connectivity

- Time consuming manual intervention
 - Irregularly misbehaving excel files, Tableau Server requires a long UNC file path to update, Business rules and permission management
- Missing a well structured source of data
- Capacity
 - The limit of Excel's capabilities for data analysis had been reached in terms of analysis, rows and load time
 - Difficult to use Excel to find errors, do data validation or handle null values
 - Needed something more consistent and automated than pivots of pivots in excel
 - It was difficult to map data latitude and longitude had to be derived manually using Google Maps





Developed a data warehouse and shifted our process to connect to the warehouse





Benefit 1: Data Management

- A stable platform maintained by Seattle IT
- SQL Server database, configured as a data warehouse
- SQL views that are automatically refreshed with current data that many Tableau visualizations are based off of
- A secure repository for data with easily managed permissions
- Data reformatted in a reporting friendly format



Benefit 2: Ability to automate data connections

- Processing occurs on the server, with the server's resources, not those of the desktop
- We're now able to utilize the power of SQL Server to calculate missing measures, duplicates, and gaps in data
- Consistent application of business rules on the data, removing human error
- The size of data sets are no longer limited to Excel's limits



Data Automation Process



Similar to building a house from plan to blue prints to construction

- **Requirements**: Business Rules, What are we solving for, agreement of expectations?
- **Design**: Taking a relational database and flattening it out in the most efficient way possible. This often means taking a database meant for transactions and turning the data into something usable for reporting.
- ETL (Extract / Transform / Load) Development: This is the process of setting up rules that will automate the extraction of data from the source system(s), transformation of the data and loading of the data into a data warehouse optimized for reporting.
- SQL Views Development: The product of the ETL is still not pretty or usable, so there is an addition interface that needs to be created between the data and the user. The SQL views can roll up the data in different ways depending on the analysis. This data is visualization ready.
- **Testing/Defect Resolution**: Validating the data and making sure that the numbers match between source system and analysis.
- Implementation/Stabilization: Everything is moved from test mode to production mode. Spend a few minutes per day checking that the jobs are running successfully. This time tapers as the process stabilizes.



2017 Examples



First project: Human Services Department





Influence on Human Services Dept Engagement One data set many measures!

HSD Data Team worked with John Alton to create a view specifically for the department engagement project.

CWPM_DataWarehouse connects to the Contract Mgmt System (CMS) view. Mike worked with John to set-up credentials to allow the two systems to communicate.

HSD Data Team worked with Citywide Performance Team to figure out a 'standardized visualization' protocol that enabled department staff to quickly pull together meaningful and consistent visualizations.



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Department staff are reviewing their work



Preparing Youth for Success: All youth living in Seattle successfully transition to adulthood

HSD Engagement





Fleet Engagement





Prompt Pay Engagement

Mayor Jenny A. Durkan



21

Claims





Public Facing- Streetcar ridership



Thank you!

Questions?

