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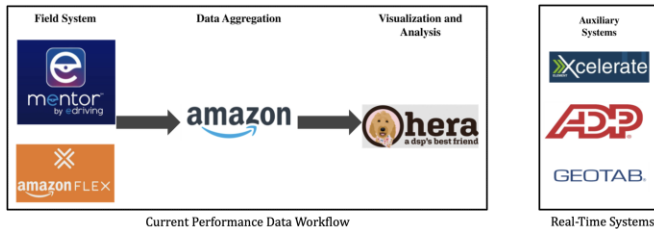
## Latrobe LLC and their Amazon Delivery Service Partnership

Located in Memphis Tennessee, Latrobe LLC was founded in 2010 and is a multi-dimensional company specializing in manufacturing consulting and Final Mile Delivery for Amazon. They operate with the vision of empowering and educating their employees to become future entrepreneurs.



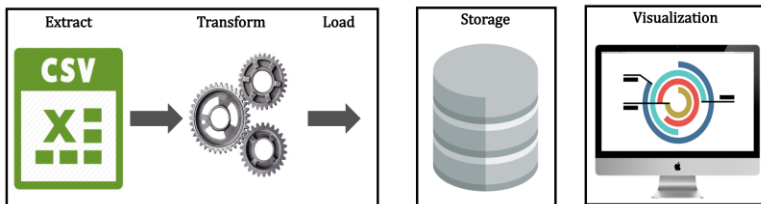
## Latrobe's Main Problem

Latrobe currently uses several redundant and incompatible systems to collect and report their Final Mile Delivery data. This prohibits Latrobe from efficiently monitoring its delivery operations and from making quantitatively informed business decisions. Furthermore, a lack of standard data practices, Amazon's application restrictions, and the lack of an internal IT team exacerbate data visibility issues.



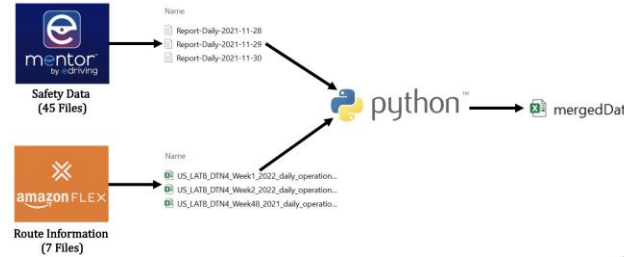
## System Design

We designed a system, composed of three subsystems, to synthesize, store, and visualize Latrobe's data. Through stakeholder analysis we identified required system functions and defined the Minimum Viable Product (MVP) of our solution. We also used stakeholder analysis to identify the Perceived User Value (PUV) of each function, allowing us to prioritize the development of system functions.



## ETL and Storage Solutions

Latrobe's main data sources are synthesized using python's pandas package to join the data on the composite key of date and driver. Python is run within PowerBI, which takes our scripts output and automatically updates all visualizations.

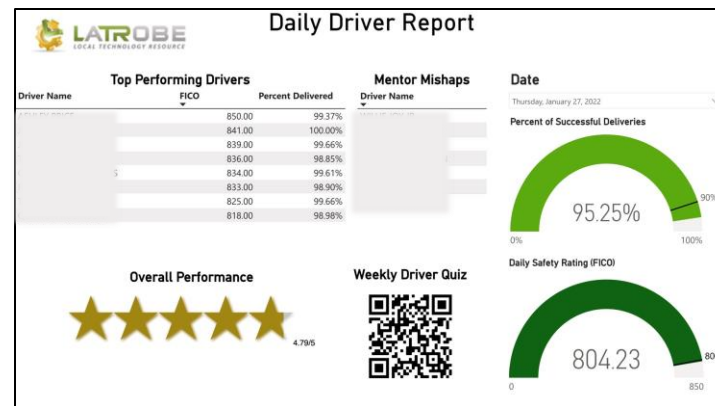


Many options for data storage were explored including local Oracle and Microsoft Access implementations, or cloud-based solutions such as BigQuery or Azure. Given the small size of the data, our system stores Latrobe's data on PowerBI's server alongside the visualizations. This allows for easy exports, visualization, and 3<sup>rd</sup> party support.



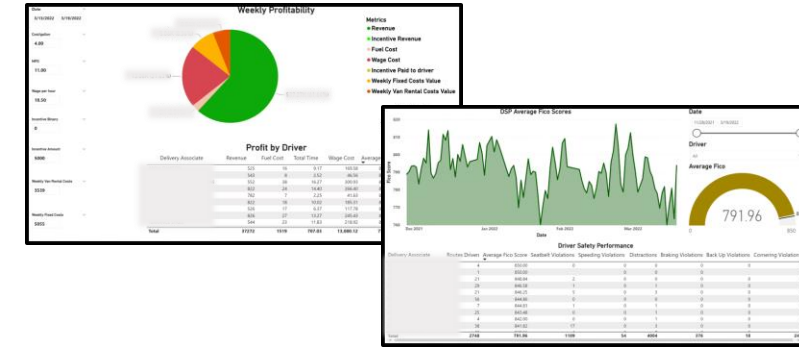
## High-Level Driver Visualization

We created a high-level PowerBI dashboard to be displayed for drivers as they walk to their vans. The dashboard allows for a quick gauge on performance and includes a safety quiz, the top performing drivers, and the drivers who had errors in their reporting data.



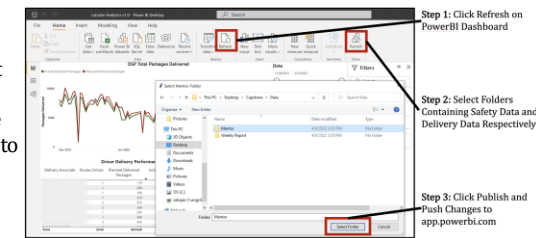
## Senior-Level Visualizations

Our team created several dashboards that allow senior leaders to deeply explore Latrobe's data. Specifically, we created dashboards enabling interactive exploration of weekly profitability, driver safety, driver delivery performance, and business revenue.



## Implementation

Latrobe's employees can update all dashboards with just a few additional clicks, while maintaining their current processed for data exportation. Then, a Latrobe Employee can push updates to PowerBI's online platform allowing anyone in the company to view the visualizations.



## Future Work

We have shared our solution with Latrobe along with extensive documentation. In addition, we have provided specific recommendations for Latrobe to increase the automation of our system, if they are willing to manage the additional complexity.

