

Memo to Data Analyst

Subject: Knowledge Sharing by Prototyping - Tailored Dashboards and Reports for Customer Stakeholders

1. Introduction:

FlexDrive is a dynamic Swedish startup known for its innovative and collaborative culture. Based in Stockholm, a leading tech hub in Europe, we are committed to sustainability and operate as a responsible Corporate Sustainability Reporting Directive (CSRD) company. Our focus on diversity and inclusion is integral to our operations. By leveraging advanced data tools and partnering with experts worldwide, FlexDrive consistently delivers top-quality solutions faster and at more competitive price points than traditional in-house development.

2. Dataset Overview:

- **Driver and Vehicle Data:** Detailed logs of specific drivers and cars, allowing for individual or grouped analysis.
 - **Usage Patterns:** Includes short vs. long trips, city vs. motorway driving, weekday vs. weekend usage, and work hours vs. outside work hours.
 - **Vehicle Specifications:** Data on fuel type, emissions, electrical range, and hybrid capabilities.
 - **Fuel Costs:** Prices per liter or kilowatt for different fuel types.
 - **Data Sources:** The primary datasets will be sourced from "Gurtam Wialon," with additional data sources used for data mapping and references.
 - **Data Formats:** The data sources will initially be file-based, utilizing static data files in formats such as CSV, XML, or JSON. The possibility of transitioning to API-based data sources will be considered at a later stage.
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3. User Role-Specific Dashboards:

A. Drivers:

- **Focus:** Personal driving behavior, vehicle performance, and cost efficiency.
- **Key Features:**
 - **Trip Suitability:** Recommendations on vehicle selection based on trip patterns.
 - **Cost Analysis:** Calculations of fuel costs for logged trips and potential savings if switching vehicles.
 - **UI Design:** Simple, intuitive interface for personalized insights and vehicle recommendations.

B. Business Managers:

- **Focus:** Fleet usage, driver performance, and operational efficiency.
- **Key Features:**
 - **Fleet Optimization:** Analysis of fleet composition based on usage patterns and vehicle specs.
 - **Cost Efficiency:** Tools for comparing fleet costs across different vehicles and fuel types.
 - **UI Design:** Advanced filtering to analyze specific drivers or vehicles, with comprehensive trend analysis.

C. Fleet Managers:

- **Focus:** Optimizing fleet operations and minimizing maintenance and fuel costs.
- **Key Features:**
 - **Vehicle Assignment:** Predictive tools for matching vehicles to specific trip demands.
 - **Maintenance Scheduling:** Real-time vehicle health monitoring and alerts.
 - **UI Design:** Dashboard with tools to predict and suggest vehicle assignments based on trip data and vehicle specs.

D. Financial Controllers:

- **Focus:** Cost management, ROI on vehicles, and financial efficiency.
 - **Key Features:**
 - **Cost Analysis:** Detailed breakdown of fuel costs and financial impact per vehicle and driver.
 - **Scenario Estimation:** Tools to estimate financial implications of switching vehicles, focusing on potential savings.
 - **UI Design:** Detailed reports and visualizations that allow filtering by vehicle type, driver, and usage patterns.
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4. Future Development:

Vehicle Space and Capabilities:

- **Additional Data:** Incorporate detailed specifications such as passenger capacity, compartment space, all-wheel drive capability, and maximum towing weight.
- **Potential Features:**
 - **Space Requirements:** Match vehicles to trips based on passenger count and cargo space.
 - **Capability Matching:** Recommend vehicles based on specific needs like all-wheel drive or towing capacity.
 - **Driver Requirements:** Allow drivers to set their space and capability requirements, so the dashboard only displays matching vehicles.

- **Impact:** Enhance decision-making by considering vehicle suitability not just by cost and fuel efficiency, but also by space and functional requirements. This customization ensures that drivers can select vehicles best suited to their specific needs, improving satisfaction and operational efficiency.
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5. Further Future Development:

Simulation and Scenario Analysis:

- **Simulation Tools:** Develop features that allow users to select alternative vehicles and simulate how these vehicles would perform under their typical driving patterns.
 - **Key Simulation Features:**
 - **EV Range Analysis:** Calculate how many trips could be completed entirely on electric power, with or without charging opportunities.
 - **Fuel Consumption Estimates:** Estimate fuel consumption and costs based on different vehicle options.
 - **Cost per Trip:** Provide detailed cost per trip calculations considering fuel prices and potential savings or increases when switching vehicles.
 - **Impact:** Empower users with the ability to make informed decisions on vehicle changes by understanding the financial and operational implications through detailed simulations. This will help optimize vehicle assignments, reduce costs, and improve overall fleet efficiency.
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6. Multilanguage Support:

Language Considerations:

- **Primary Language:** The initial development and interface will be in English.
 - **Multilanguage Support:** Upon finalization and production, the model will support multiple languages, specifically including Swedish, to cater to local users.
 - **User Experience:** This multilingual capability will ensure that all stakeholders can interact with the dashboards and reports in their preferred language, enhancing accessibility and usability.
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7. ETL Process and Data Handling:

Data Handling during Prototyping:

- **Data Source:** Pre-washed, static files will be used as the data sources during the prototyping phase. ETL is time consuming and we don't want that in the prototyping phase.
- **ETL Process:** ETL data transformations will be performed primarily on the sources. Any data errors encountered can be addressed by manually fixing the source files to save on time and complexity in the first phase.

Focus on Visuals:

- **Work Concentration:** The main effort during prototyping will be on designing and refining the visualizations.
- **Data Integrity:** Since the data sources are static files, maintaining data integrity and accuracy during this phase is crucial, and any necessary corrections will be handled manually.

Additional Power Queries and DAX Scripts:

- **Development:** Additional Power Query transformations and DAX scripts will be coded as needed by the data analyst or requested from the team.
- **Tool Support:** Utilize tools such as Power BI assistants in ChatGPT, CoPilot, or similar to assist in script development and optimization.

Prototyping Tool:

- **Tool of Choice:** Microsoft Power BI will be used during the prototyping phase to create and refine the dashboards and reports.
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8. Next Steps:

1. **Develop Prototypes:** Incorporate the outlined datasets into role-specific dashboards, focusing on delivering actionable insights and cost-efficient recommendations.
2. **Ensure Interactivity:** Design dashboards with user-friendly interfaces that allow stakeholders to filter, compare, and analyze data based on their specific needs.
3. **Scenario Analysis:** Include tools for estimating the benefits of switching vehicles based on trip data and fuel cost calculations.