Business Problem Statement

**Business Problem:**

Swire Coca Cola experiences a loss of approximately 60 million dollars a year due to machine down times annually. Currently workers are deployed in a reactive fashion to fix the broken machines but this is a slow process that limits productivity. A solution to this problem would be implementing a predictive model that could alert workers of machines with a high probability of malfunctioning prior to the incident itself thus reducing the time the machine is down and increasing productivity.

**Benefit Of A Solution:**

The proposed solution aims to reduce downtime thus increasing productivity by using historical data from the IWC system. This data will train the model to predict which machines will go down thus allowing for Coca Cola to stock the appropriate parts to fix the machine ahead of time, thus reducing down time and increasing productivity and the companies ability to appropriately meet demand.

**Success Metrics:**

This project will be deemed successful if downtime is reduced by at least 15%, translating to an increase in production capacity and a reduction in maintenance costs by 20%. Other success metrics could include a reduction of OPEX costs due to an ability to reduce staffing.

**Analytics Approach:**

A predictive maintenance model will be developed using machine learning algorithms trained on historical data from the IWC system. The model will use features such as machine location, part descriptions, failure types, and repair times to predict when a machine is likely to fail. The output will be a ranked list of machines most likely to experience downtime, which can be integrated into a dashboard for real-time monitoring by the production team.

**Scope:**

The project will deliver a predictive maintenance model and a real-time dashboard displaying the likelihood of machine failures across Swire Coca-Cola’s six production plants. The scope is limited to predictive analytics and excludes any in-depth analysis of machine failure causes. Additional functionalities, such as the ability to track inventory of spare parts or analyze preventive maintenance, may be added in future phases.

**Details:**

The data science team will develop the model and dashboard in collaboration with the production and supply chain teams. The project is scheduled for completion by March 1, 2025, with an initial draft of the findings ready for review by February 1, 2025. At that point, feedback will be incorporated, and final deliverables will be prepared by March 15, 2025.