

# IDS 560

**LABELMASTER-TEAM 1**

**FORECASTING SALES**

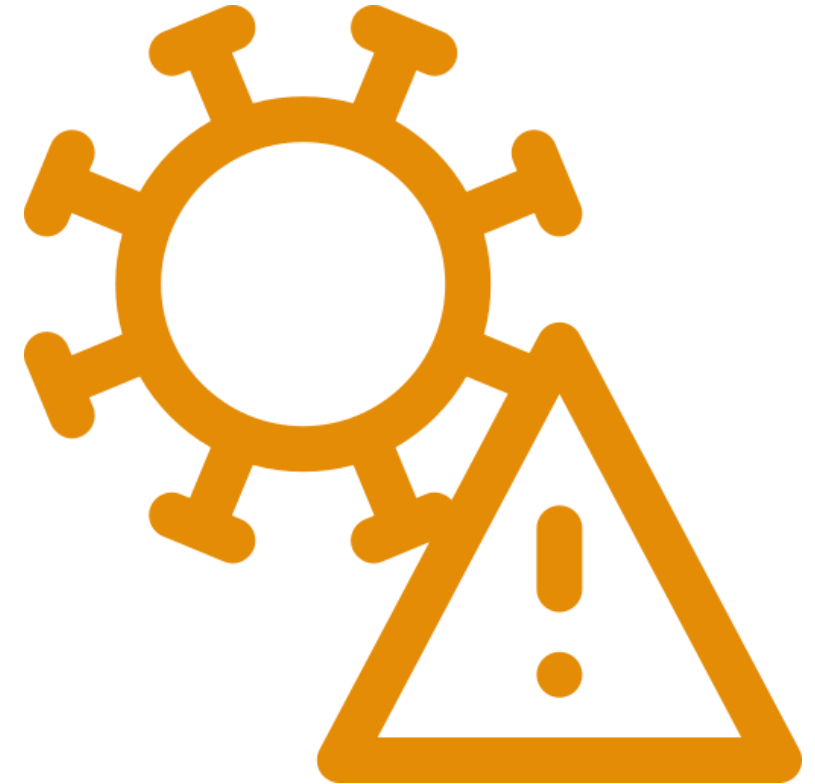
# BUSINESS OVERVIEW

- Labelmaster is a Chicago based supplier in hazmat and dangerous goods industry and provides variety of solutions from software to labelling to help businesses navigate and comply with regulations.
- The main expertise of the organization lies in shipping dangerous goods in an efficient, safe and compliant manner. Through continual review of quality management systems Labelmaster adapts management of processes to satisfy customers' changing needs.
- The products are used on the trucks and trailers used to ship hazardous goods.



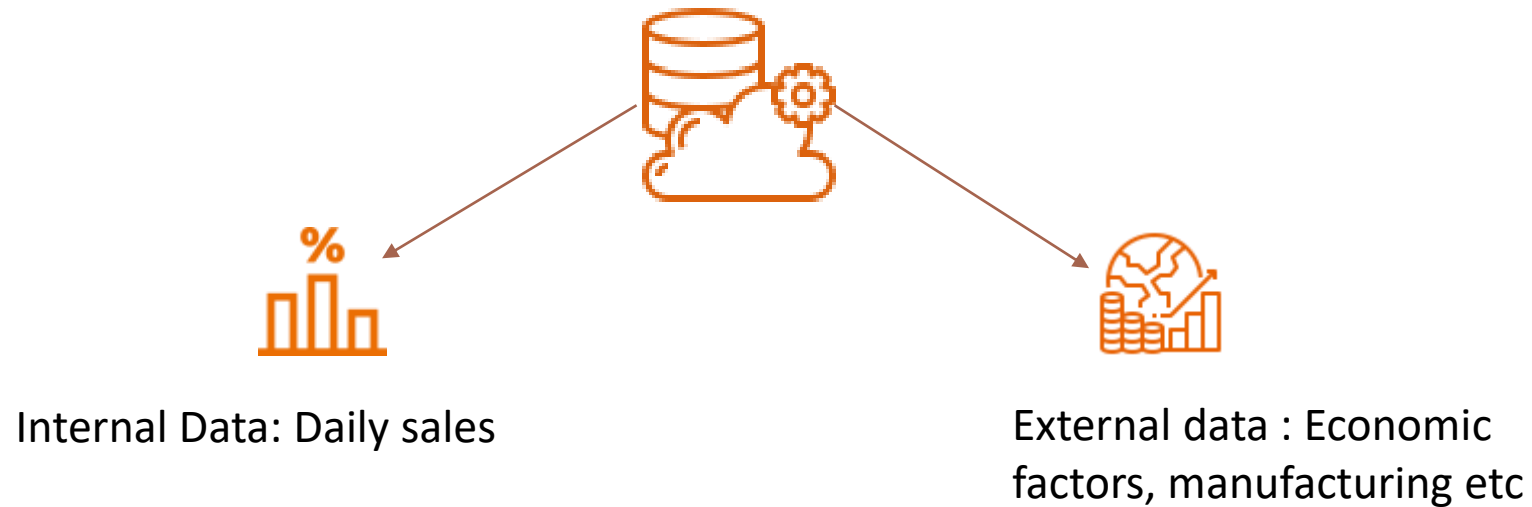
# Business Problem and Context

- Labelmaster's business is heavily dependent on supply chain industry of dangerous goods and all its individual components from manufacturing of trucks to the type of material being shipped.
- As a result of the COVID-19 pandemic the recession that followed and the disruption of supply chain as a whole, Labelmaster's monthly sales started to deviate by a great margin.
- The two existing machine learning models did not account for economic uncertainty and as a result forecasting was inaccurate.
- The business need of having a model generating robust predictions was realised.



# Research Problems and Data

- How can the data be better utilized to maximise robustness of the models?
- What are the key features in the dataset? How are they correlated?
- What parameters can be tuned ensure high accuracy?
- What combination of metrics are essential to enhance the existing models?



# Insights



- The following insights are key to enhancing the forecasts and driving sales
- The integration of economic indicators with the sales patterns
- The seasonality and cyclical patterns in the volume of sales of different products.
- Key features impacting the machine learning models and how they can be improvised.
- Patterns of product sales during strong and weak economic conditions
- Relation of supply chain metrics with different products.



# Project Milestones

Milestone	Description	Accountable Team Member	Date
Milestone 1	Business Understanding: Signed project plan	Shambhavi Chati	09/25/20
Milestone 2	Data Understanding: Data topology document	Parth Paliwal	10/09/20
Milestone 3	Data Preparation: Data prep process document	Rini Thomas	10/23/20
Milestone 4	Modeling: Model management doc	Rini Thomas	11/06/20
Milestone 5	Evaluation: Model performance document	Shambhavi Chati	11/20/20
Milestone 6	Deployment: Business integration document	Parth Paliwal	12/04/20

# Team Organisation



Parth

- EDA of daily sales data.
- Identifying and understanding Spline Regression model code.
- Being the POC for project related activities with sponsor and academic team.



Shambhavi

- EDA of economic indicators data.
- Feature Engineering and variable selection for Spline Regression
- Tuning Spline Regression model.



Rini

- Identifying bugs with the LSTM model
- Feature engineering and variable selection
- Code review and performance optimisation