



# Business Framing Document



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# Agenda

## Objectives

- Business Problems
- Background
- Success Goals

## Data

- Data Requirement
- Data Assumptions
- Data Constraints
- Data Limitations
- Risk and Contingencies

## Plan

- Stretch Goals
- Project Timeline

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# Objectives

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# Business Problem

- Unclear impact of carrier's geographical location and risk appetite impact their performance:
  - Market Volatility in terms of volume
  - Varying profitability based on preference in load selection and markets

## Objective

- Recommend strategies- routes, load choice or carrier behavior to improve the performance of carriers based on geographical analysis.

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# Background

## History of Problem

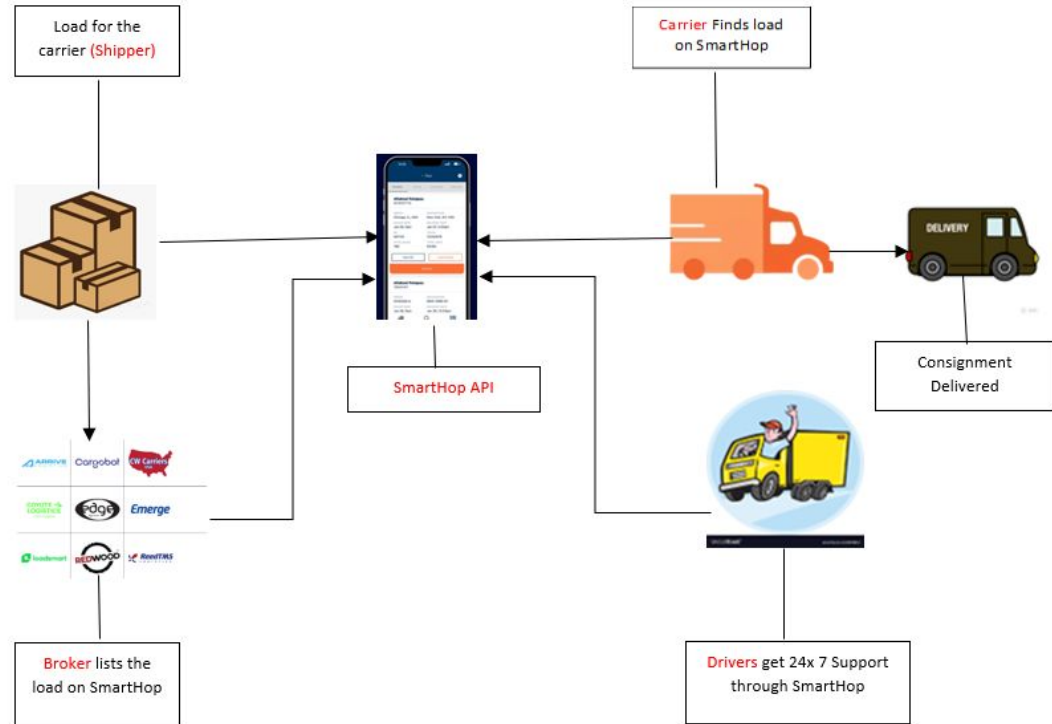
- SmartHop's Carrier operating system facilitated dispatchers with faster, more informed decisions making booking loads easy, with tools to support the entire fleet like: Load ranker, Market analysis, Trip strategies.
- The geographical influence over bookings is uncertain, negatively impacting trip strategies.
- Improving carrier's profits by identifying profitable clusters, minimizing profit trade off for dead markets.
- Understanding carrier preferences may help identify trends in carrier behavior.

## Stakeholders

- |            |           |
|------------|-----------|
| • Smarthop | • Drivers |
| • Carriers | • Brokers |



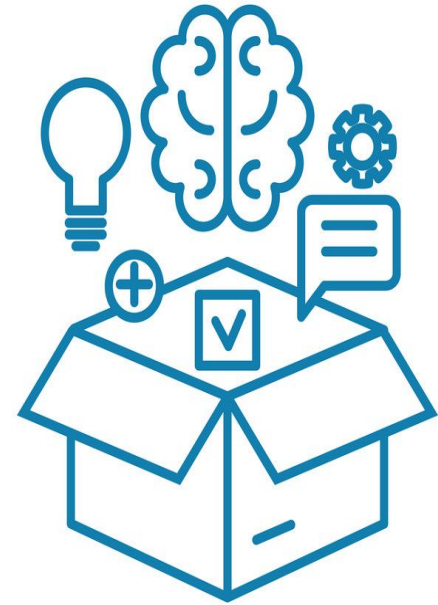
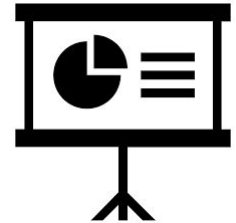
# Background (stakeholders)



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# Resources

- Smarthop's data on Snowflake (booked trips, carriers, drivers, loads, truck)
- Smarthop's staff and professor Suresh
- Smarthop Project Description and Slides





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# Success Criteria

## Quantitative

- Identify profitable **clusters** or **routes** based on statistical analysis of **geographical segmentation**, etc.
- Examine the **profitability** of a particular stakeholder – is it higher/lower, particularly **unpopular lanes**

## Qualitative

- Understand **market volatility** – high volume v/s dead markets
- Understand a pattern in **carrier behavior**



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# Data

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# Data Requirements

## Columns Required:

- CARRIER\_OBJ\_ID
- TRUCK\_OBJ\_ID
- DRIVER\_OBJ\_ID
- CREATED\_AT
- PICKUP\_DATE
- DELIVERY\_DATE
- EMPTY\_MILES
- MILES
- RPM\_RAW
- TRIP\_STATUS
- LOADED\_RPM
- OCLUSTER
- DCLUSTER
- CARRIER\_COSTS
- NUM\_CARRIER\_TRUCKS
- ROUTES\_NOT\_PREF\_ID
- ROUTES\_PREF\_ID
- PRICE
- PICKUPBY
- DELIVERYBY
- CITY
- ECITY
- TRIPID



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## Data Assumptions

- The profitability of a carrier will be determined based on data available to us from SmartHop.
- Only drivers having substantial quantifiable historical record will be used for analysis
- Revenue will be calculated by using rate of a trip ignoring any extra tariff that may be levied.
- Distance between clusters will be averaged for the sake of analysis.
- Base location of a carrier/driver will be determined by the data if not readily available



Search the most loads;  
Book yours instantly.



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## Data Constraints

1. Only data from SmartHop is used for analysis.
2. Limited dataset volume for one year.
3. Analyzing data for non-blank values ( e.g a blank cluster, or a cluster without a unique ID).
4. Number of loads available at the destination city are unknown at the time of booking.





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## Data Limitations

- Criteria of analysis considered only for geography and carrier behaviour.
- “Loads” data on Snowflake is too large data to be extracted.
- No consistent data as some carriers could be inactive or out of business or using some other application.
- Data on a aggregated level is too granular for a prediction analysis.
- Increased granularity of analysis from carrier level to driver/truck level due to difference in carrier capacity.
- Analysis done based on geographical clusters determined by smartHop and results might change if clusters are redefined.

# Risk & Contingencies



**Limited trip history for a truck is a hindrance to analyze profitability.**

- Prioritize trucks with long standing history with Smarthop



**Unable to identify trucks origin**

- Data based estimation of truck/carrier origin based on starting and destination.



**Confusing measure of Carrier performance: Profitability/Revenue?**

- Identify rightful parameters to account for varied costs : SmartHop's advise needed



**Complicated data extraction from Snowflake due to volume.**

- Use advanced SQL queries to filter precise data (SmartHop assistance needed to identify columns)



**Live Dynamic Data on Snowflake**

- Consider data analysis for a certain time period.





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# Plan

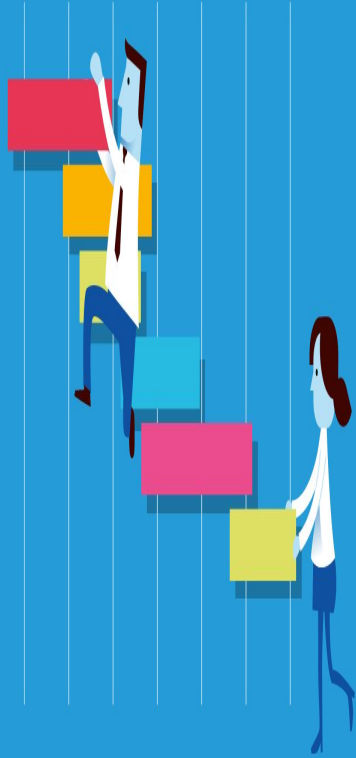
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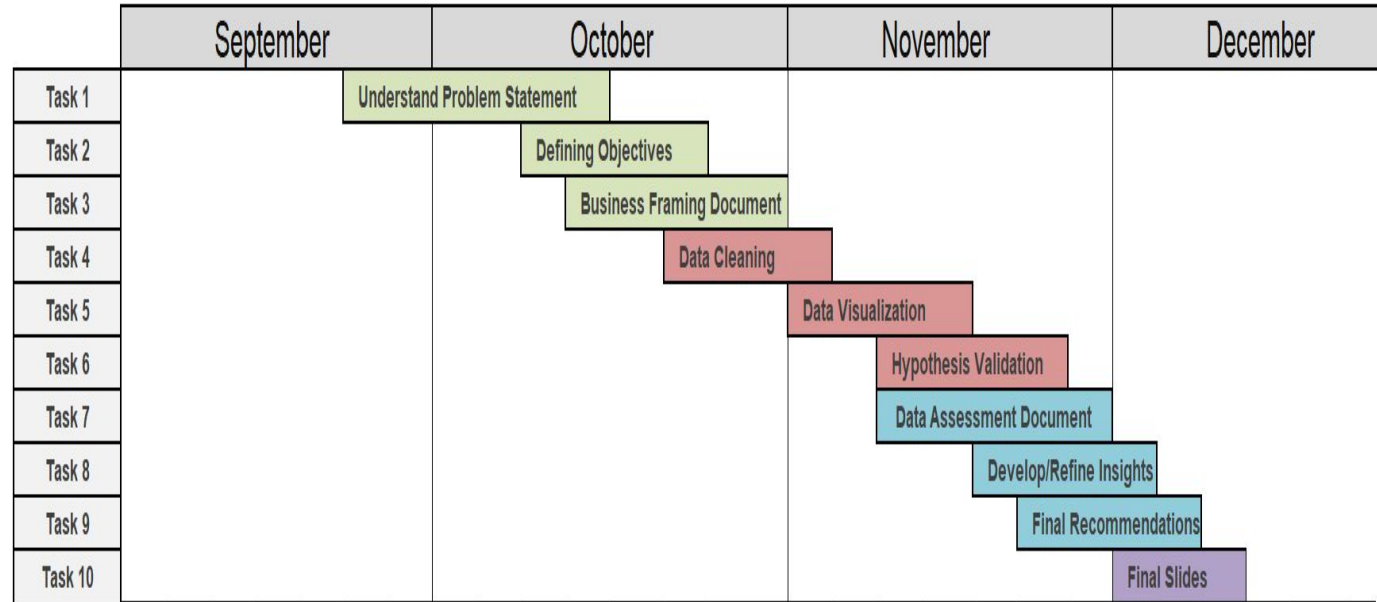
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## Stretch Goals

- Driver/Carrier Inactivity or large spacings in time period of booked trips analysis.
- Evaluating Cancelled trips data to identify carrier behavior.
- Understanding negotiable prices to identify patterns.



## Project Timeline



# Thanks

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