

HAPPIEST MINDS TECHNOLOGIES

# Delivery Planning & Fulfilment Optimization

Solution whitepaper



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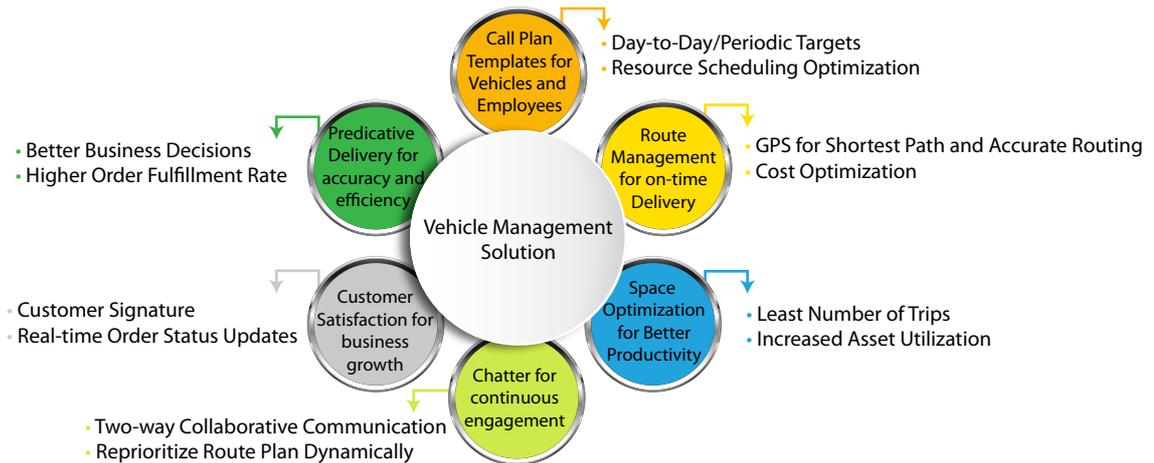
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## Introduction

For most businesses today, logistics and supply chain are major concerns that require constant improvement. Organizations spend ample amount of time and effort in optimizing their procurement and delivery cycle. Effective utilization of available resources is one area where businesses can focus on, thereby improving productivity and cutting down on additional cost.

Delivery planning & fulfillment solution helps businesses to effectively utilize their existing vehicle force by implementing priority based algorithm. This algorithm has helped improve delivery service in stipulated time frame. Solution comes with an important feature of dynamically adjusting route plan of vehicles on the go.



## Problem Description

To improve on efficiency of delivery cycle, the solution should address and fulfill the following requirements:

- **Work-load Balancing:**
  - Ability to decide on which vehicle should take which route to fulfill customers on a daily basis demand
  - To effectively segment customers and products in a given region
- **Productivity Efficiency:**
  - Utilize vehicles effectively to maximize area coverage
  - To track vehicle's route plan and dynamically change it on need- basis
- **Performance Effectiveness:**
  - Utilize vehicle space profitably
  - Track performance (Based on Area/Product/Customer)

HappiestMinds conceptualized and designed a solution addressing the above requirements by leveraging technologies of SFDC and Google maps API. The details of the approach and solution concept are explained in the following section. The same concept can be implemented on customer's chosen platform.

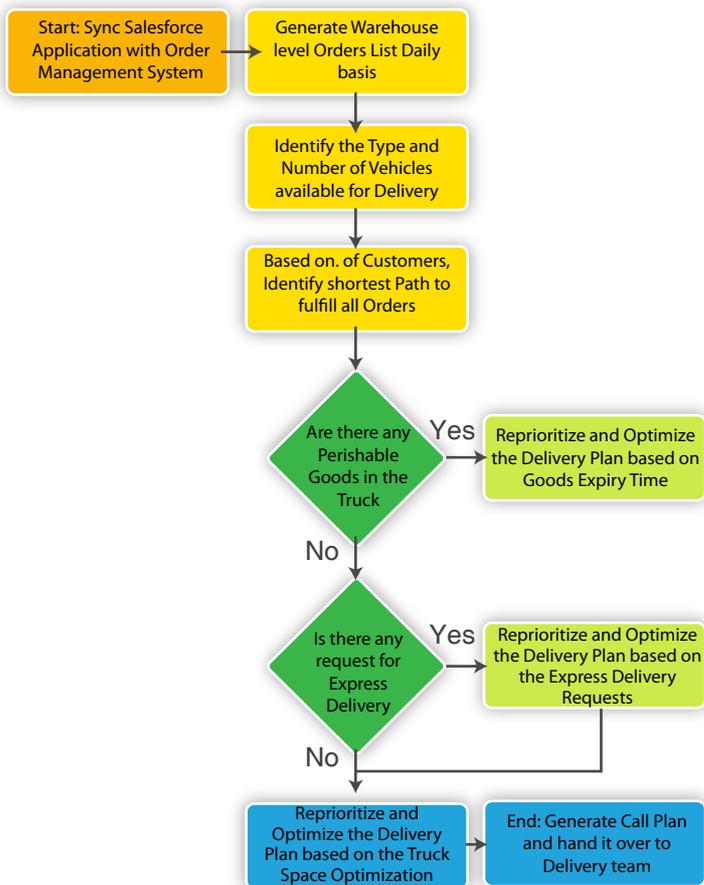
## Solution

The main component of the delivery planning & fulfillment solution is the priority based optimization algorithm which helps in addressing all the requirements mentioned in the above section

**Key features of the solution are as follows:**

- **Planning for work:**
  - Prioritize and optimize algorithm to generate daily route plan for vehicles from warehouse to delivery locations
  - Defining and mapping customers on route plan for delivery based on daily demand
- **Division for efficiency:**
  - Optimization of trips in a territory against available time and cost
  - Duplication of tasks and efforts for delivery team
- **Facility to accommodate ad-hoc needs and change Route Plan dynamically**
  - Analyze for effectiveness
  - Analytics to analyze performance continuously

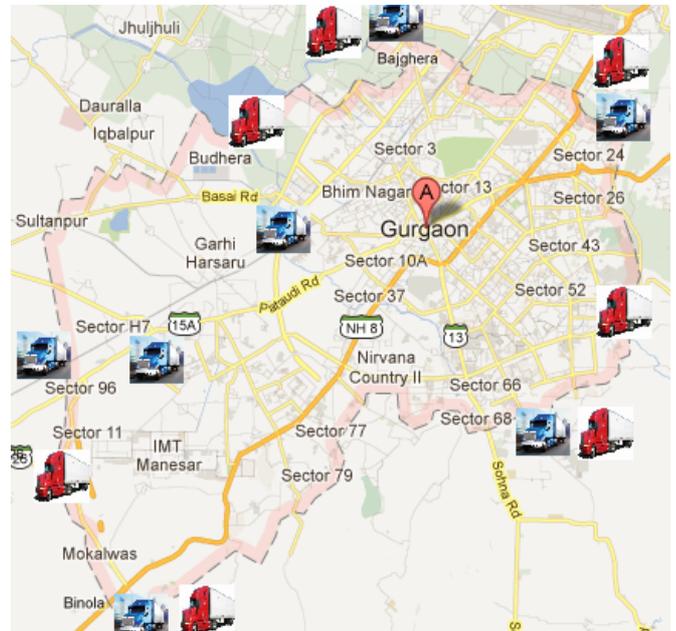
Following flow chart depicts the delivery optimization process of the application:



On a day-to-day basis, the solution helps users play a role of the delivery planner wherein they can define sales order by generating warehouse level list, identifying type and number of vehicle available for delivery. Most importantly, identifying the shortest path for fulfillment.

While the delivery planner configures these parameters, the applications helps the user realize the route which can cover maximum warehouse check-points and available space in vehicle running on this route. Thus balancing the workload to nullify the need of running multiple partially filled vehicles on the same route. Exception scenarios of vehicle containing perishable goods and items which are required to be delivered on high priority are marked separately in the system and assigned as express delivery requests.

Sales orders are automatically synced with back-end the order management system to generate daily call plans which allow one view of the customer and order related information (products) and follow ups based on real-time demand (daily or periodic basis).



With the help of Google Map APIs, the application uses latitudes and longitude codes to create custom colour markers to identify different types of trucks in a given city.

This is beneficial in displaying delivery catchment areas covered within an area and provide with available truck options to optimize operational costs.



Further, drill down option identifies available trucks in a given area, within a city and provides additional information related to the selected vehicle. This ensure continuous communication between warehouse managers and delivery team to come up with possible schedules of delivery from warehouse, based on available truck options.

Using Chatter an inbuilt communication feature on salesforce.com platform, the Central Warehouse team can communicate with vehicle driver and re-schedule the delivery plan. Reprioritizing delivery schedule, generating new route plan and real time order status-tracking can be easily done over chatter.

**HOST SYSTEM**  
GPRS/WiFi to HOST SYSTEM  
Manifest Download & Real Time POD Upload

ANTENNA ARRAY  
IN VEHICLE COMPUTER  
RFID READER  
DISPLAY

**028-NAUSORI**

Delivery No: 5821  
 Delivery Dt: 20-SEP-10  
 Account No: 028000002915  
 Customer Id: 16/04/1977/ROHS  
 Name: ROHIT SHALENDRA S  
 Address: LOT 20 CARGIL STREET, DAVUILEVU

ItemNo	Qty	Price	Value	Item
DT	1	696.81	696.81	SER
PEARL2	1	0	0	***
NOEL	1	0	0	DEL
DF010	1	10	10	DOC
00991	3	0	0	SUR

Sign Below

SAVE CLEAR LOAD VIEW EXIT

To enable acknowledgment of delivery, teams can also capture customer's' digital signature on delivery. Touchscreen hand-held devices like iPad is integrated with the system to capture information and provide receipts of acknowledgment on the go.

Use of RFID system on the vehicles helps in better visibility and reduces pilferage. This also enables ascertainment of goods delivered on time and inventory tracking from source to delivery point.

## Conclusion

In conclusion, delivery planning & fulfillment solution has a huge scope in the present logistics space and certainly is the right step in the direction offorward in improvising operational efficiency by leveraging technology. It has found to be extremely effective in reducing operational cost, improve space utilization and reduce stock outs, returns there by adequately helping businesses focus more on their core functions.

## About the Author



**Anantpal Singh Saluja**  
*Sr. Business Analyst, Retail & E-Commerce*

At Happiest Minds, Anantpal works with ITS Division as Sr. Business Analyst and handles project requirement definition, elicitation and execution, industry research and proposal design for clients from a variety of industry verticals. He has completed his management education from Welingkar Institute, Bangalore and is an IT engineer by graduation from Pune University.

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