



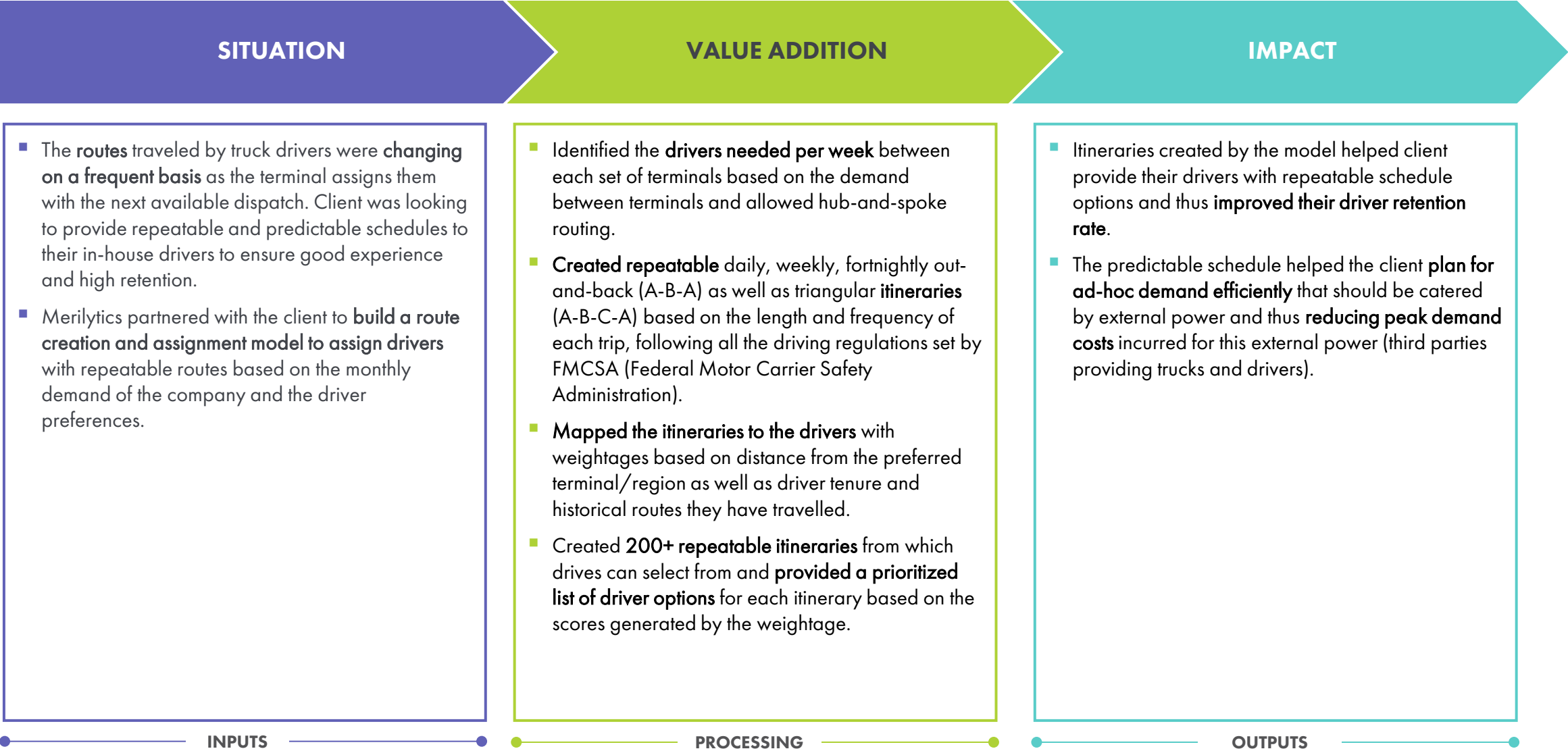
## **Driver Scheduling Model**

(LTL (Less-than-truckload) Shipping Services Company)

Created a model to generate repeatable and predictable itineraries that can be assigned to drivers

► **Driver Scheduling for Less Than Truck Load (LTL) Company**

**ABOUT THE CLIENT:** Client is a B2B Less than Truck Load (LTL) logistics company providing transportation services across all major metro cities in the U.S.



## ► Methodology/ Approach

### Itinerary Building – Dispatch creation

Created the dispatch timings of each dispatch based on the demand between legs and the frequency table (Friday, Tuesday, Thursday, Monday, Wednesday)

- If there are 2 dispatches from A-B, they will happen on Friday and Tuesday from A.
- If there are multiple dispatches on the same day (if A-B has > 5 dispatches/week), stagger the dispatches by 2 hrs from the terminal closing time.

### Itinerary Building – Triangular route creation

From all the remaining dispatches, identified triangular paths A-B-C-A based on the distance to make the itinerary repeat in 2 weeks.

Followed the same Dispatch Matching methodology, starting with the leg that has least number of dispatches remaining.

### Driver Assignment

Calculated the score for each driver and itinerary combination based on the following factors (weightages depend on the client):

Whether driver travelled to those terminals historically

Did the driver select the terminals in his preferences

Tenure of the driver

Created the file to show the preferred drivers for each itinerary based on the score

### Route Analysis and Selection

Calculated the weekly demand between each set of terminals from the monthly demand and the desired route input (eg. desired route for A-B could be A-C-B or A-B or A-D-C-B, depending on the terminals), Identified the routes that can lead to a daily or weekly or fortnightly out-and-back, based on the trip length.

- A driver can travel a maximum of 3000 mi/week (configurable) and needs a min of 2000 mi/week (configurable) to make a living. Driver drives for 10-11 hrs/day at 50 mi/hr speed.
- A driver needs a 34 hr rest before starting the next trip.

### Itinerary Building – Dispatch matching

For each of pairs identified, created itinerary by selecting right match of dispatches from A-B and B-A, starting from terminal with less dispatches. If A-B has 2 dispatches/week (Tue, Fri) and B-A has 5/week (1 each, Mon–Fri), identify corresponding trips for B-A, for each of the 2 A-B trips

If the truck dispatched from A on Tuesday reaches B by

- Thursday before noon, pick up Wednesday load from B (i.e., if load needs to wait for <12 hours)
- Thursday post noon, pick up Thursday load from B (i.e., next available load)

### Itinerary Building – Validation

Revalidated the itineraries and shortlist the ones that fall under the criteria defined in Selection. Additionally, validated that the trips are strictly within the designated duration i.e., returning to terminal before the end of 24 hrs, 7 days or 14 days accordingly.

## ► Exhibit #1 – Itineraries Created

ILLUSTRATIVE

Driver can be assigned using the drop down functionality provided in Column "C" for each itinerary

DRIVER ITINERARIES													
Itinerary number	Driver No	Leg 1				Leg 2				Leg 3			
		Origin	Destination	Departure from Origin	Arrival at Destination	Origin	Destination	Departure from Origin	Arrival at Destination	Origin	Destination	Departure from Origin	Arrival at Destination
1	10119	L	CHI	Tue 10:00:00 PM	Wed 10:57:29 PM	CHI	ATL	Fri 6:00:00 AM	Sat 6:57:14 AM	ATL	CHI	Mon 6:00:00 AM	Tue 6:57:29 AM
2	10125	I	ATL	Tue 3:00:00 AM	Wed 3:57:14 AM	ATL	CHI	Thu 8:00:00 AM	Fri 8:57:29 AM	CHI	ATL	Sat 11:00:00 PM	Sun 11:57:14 PM
3	10130	R	ATL	Fri 10:00:00 PM	Sat 3:04:26 AM	ATL	CHR	Mon 6:00:00 AM	Mon 11:02:46 AM	CHR	ATL	Thu 10:00:00 PM	Fri 3:04:26 AM
4	10153	N	ATL	Wed 1:00:00 AM	Wed 10:59:17 AM	ATL	CIN	Fri 5:00:00 AM	Fri 2:57:36 PM	CIN	ATL	Sat 1:00:00 AM	Sat 10:59:17 AM
5	10164	L	DLS	Fri 6:00:00 AM	Sat 8:18:58 AM	DLS	ATL	Mon 6:00:00 AM	Tue 8:19:12 AM				
6	10167	S	ATL	Fri 10:00:00 PM	Sun 12:19:12 AM	ATL	DLS	Mon 6:00:00 AM	Tue 8:18:58 AM				
7	10179	DLS	ATL	Wed 3:00:00 AM	Thu 5:19:12 AM	ATL	DLS	Sat 2:00:00 AM	Sun 4:18:58 AM				
8	10193	ATL	HOU	Thu 4:00:00 AM	Fri 6:05:53 AM	HOU	ATL	Sat 7:00:00 AM	Sun 9:06:00 AM				
9		HOU	ATL	Thu 4:00:00 AM	Fri 6:06:00 AM	ATL	HOU	Sat 7:00:00 AM	Sun 9:05:53 AM				
10		IND	ATL	Fri 6:00:00 AM	Sat 3:06:00 AM	ATL	IND	Mon 6:00:00 AM	Tue 3:06:22 AM	IND	ATL	Thu 4:00:00 AM	Fri 1:06:00 AM
11		ATL	MIA	Wed 4:00:00 PM	Thu 3:03:36 PM	MIA	ATL	Fri 6:00:00 AM	Sat 5:04:19 AM	ATL	MIA	Mon 6:00:00 AM	Tue 5:03:36 AM
12		MIA	ATL	Fri 6:00:00 AM	Sat 5:04:19 AM	ATL	MIA	Mon 6:00:00 AM	Tue 5:03:36 AM	MIA	ATL	Thu 4:00:00 AM	Fri 3:04:19 AM
13		ORL	ATL	Fri 6:00:00 AM	Fri 2:43:05 PM	ATL	ORL	Mon 6:00:00 AM	Mon 2:42:36 PM	ORL	ATL	Thu 4:00:00 AM	Thu 12:43:05 PM
14		BLT	CHI	Fri 6:00:00 AM	Sat 6:16:05 AM	CHI	BLT	Thu 4:00:00 AM	Fri 4:17:31 AM				
15		CHI	BLT	Fri 6:00:00 AM	Sat 6:17:31 AM	BLT	CHI	Mon 6:00:00 AM	Tue 6:16:05 AM	CHI	BLT	Thu 10:00:00 PM	Fri 10:17:31 PM
16		CHR	BLT	Fri 5:00:00 AM	Fri 1:34:48 PM	BLT	CHR	Sat 1:00:00 AM	Sat 9:34:41 AM				
17		PHI	BOS	Fri 10:00:00 PM	Sat 2:44:53 AM	BOS	PHI	Mon 6:00:00 AM	Mon 10:39:29 AM	PHI	BOS	Thu 4:00:00 AM	Thu 8:44:53 AM
18		CHI	CHR	Thu 4:00:00 AM	Fri 5:11:31 AM	CHR	CHI	Sat 7:00:00 AM	Sun 8:11:02 AM	CHI	CHR	Sun 11:00:00 PM	Tue 12:11:31 AM
19		CHR	CHI	Wed 3:00:00 AM	Thu 4:11:02 AM	CHI	CHR	Sat 2:00:00 AM	Sun 3:11:31 AM	CHR	CHI	Tue 3:00:00 AM	Wed 4:11:02 AM
20		CHR	CHI	Wed 3:00:00 AM	Thu 4:11:02 AM	CHI	CHR	Tue 3:00:00 AM	Wed 4:11:31 AM				
21		CLV	CHI	Wed 11:00:00 PM	Thu 6:24:50 AM	CHI	CLV	Sat 10:00:00 PM	Sun 5:25:05 AM	CLV	CHI	Tue 3:00:00 AM	Tue 10:24:50 AM
22		DET	CHI	Tue 3:00:00 AM	Tue 8:30:50 AM	CHI	DET	Tue 10:00:00 PM	Wed 3:31:12 AM	DET	CHI	Thu 8:00:00 AM	Thu 1:30:50 PM

► **Exhibit #2 – Driver Matching**

ILLUSTRATIVE

This tab lists the compatible drivers for the selected itinerary.  
It also provides their availability status based on any previous allocation to other itinerary

**TOP AVAILABLE DRIVERS**

**Itinerary Number**

Rank	Driver No	Driver Name	Compatibility score	Availability
1	11439	DRIVER 1	130	Available
2	2253	DRIVER 2	130	Available
3	5002	DRIVER 3	118	Available
4	11744	DRIVER 4	90	Available
5	6751	DRIVER 5	90	Available
6	10371	DRIVER 6	50	Available
7	10874	DRIVER 7	50	Available
8	10966	DRIVER 8	50	Available
9	11120	DRIVER 9	50	Available
10	11265	DRIVER 10	50	Available
11	11416	DRIVER 11	50	Available
12	11438	DRIVER 12	50	Available
13	11453	DRIVER 13	50	Available
14	11469	DRIVER 14	50	Available
15	11527	DRIVER 15	50	Available