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Making Distribution Efficient and
Affordable using AI

FMCG Distribution is

FRAGMENTED

10K+

FMCG
Companies

High cost of
distribution

Lost Sales

Fill Rate

O2D > 4 days

Distributor Attrition

50K+

Distributors

Limited Working
Capital

Negligible
Technology

High Opex cost

Low ROI

10M+

Retailers

MARICO Distribution - Delhi

in

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NUMBERS

150Cr

Annual Sales

250 SKUs
1300 Bills/Day
115 DSRs

11

Distributors

18K sq ft. warehouse space
110 People
60 Trucks/day
3% Distribution Margin
20% YoY Attrition

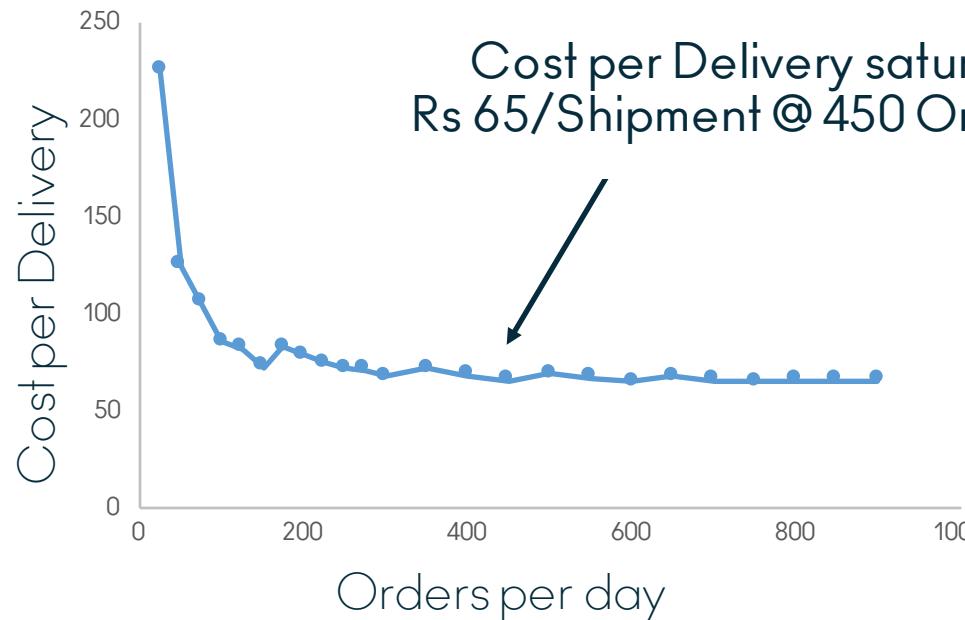
23K

Retailers

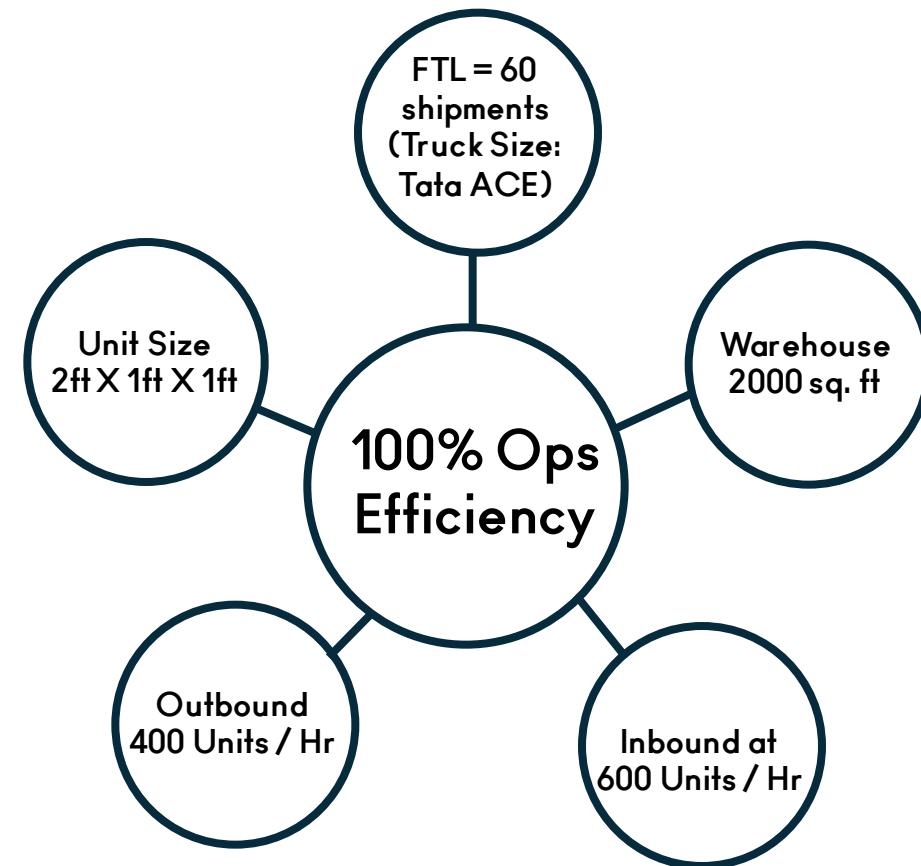
2.5 Bills/Month
2500 Avg Bill Value
~12 SKUs
85% Fill Rate

Why is General Trade FMCG Distribution not attractive, even at scale?

We did the Math!



Cost per delivery modeled as end to end cost including warehouse, personnel and logistics. Details in Appendix 1.



High order density allows you to lower cost per delivery ☺



But is that enough?

We did a pilot with a large FMCG company to validate

Company - Marico

Region - East Delhi

Stores - 1500

Distributor Margin - 3%

OTIF - 96% (was 82% before Dropshop)

Delivered Value - 98% (was 95% before Dropshop)

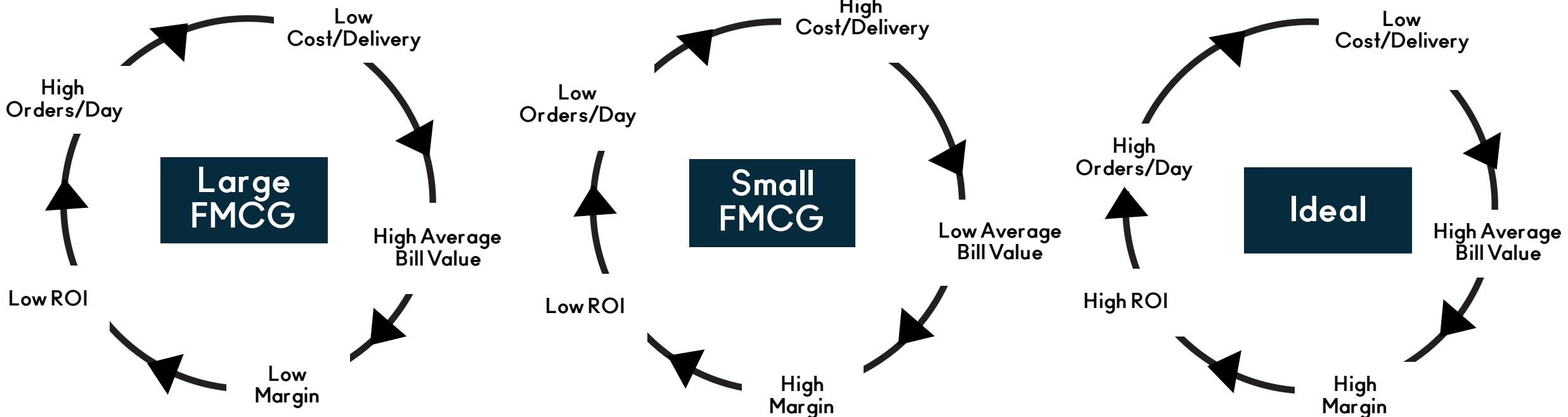
Details provided in Appendix 2

				Net Income
	GMV	Orders	Actual	100% Efficiency
Feb 2019	Rs 9200000	2509	Rs -67733	Rs 5028
March 2019	Rs 5600000	2306	Rs -168399	Rs -98112
April 2019	Rs 13800000	3216	Rs 12000	Rs 98832

Problem 1 - Most large FMCG Distributor's get only < 150 orders/day ☹

Problem 2 - Even at < 150 orders/day and maximum efficiency ROI's are poor ☹

The nature of the problem is cyclic



High order densities, and high number of distributors hence low orders/distributor.

Moreover, distribution margins are lowest.

Low order densities, resulting in high cost per delivery. Distribution margins are high, but average bill value is low.

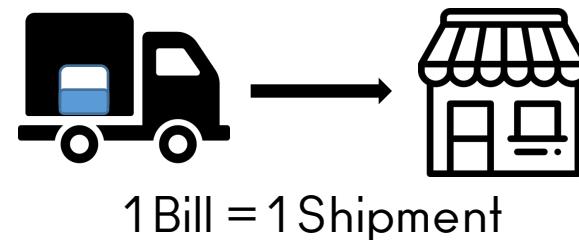
Net income is negative or negligible.

Need high order density, high average bill value and high distribution margin.

HOW??

Scenario 1

Working with one Large FMCG



Average Bill Value - Rs 2500

Packing Efficiency - 50%

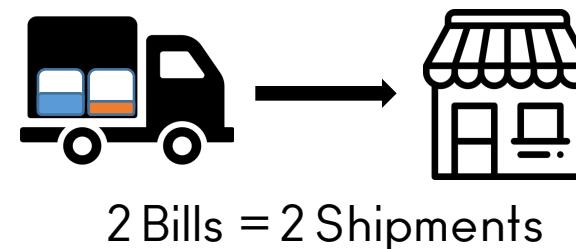
Cost per Delivery - Rs 80 per shipment

Distributor Margin- $3\% \times \text{Rs } 2500 = \text{Rs } 75$ per shipment

Net Income = Rs -5 per shipment

Scenario 2

Working with one Large FMCG and one Small FMCG



Average Bill Value - Rs 2500 and Rs 400

Packing Efficiency - 50% and 25%

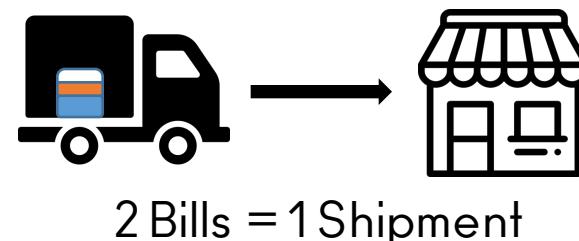
Cost per Delivery - Rs 80 per shipment

Distributor Margin- $(3\% \times \text{Rs } 2500) + (20\% \times \text{Rs } 400) = \text{Rs } 155$ per shipment

Net Income = Rs -5 per shipment

Scenario 3

Working with one Large FMCG and one Small FMCG



Average Bill Value - Rs 2500 and Rs 400

Packing Efficiency - 75%

Cost per Delivery - Rs 90 per Shipment

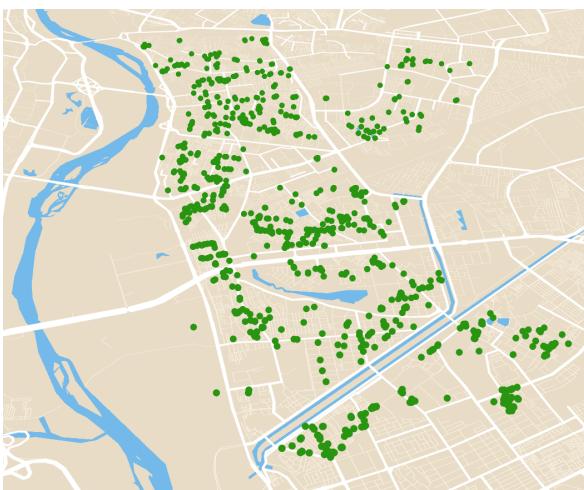
Distributor Margin- $(3\% \times \text{Rs } 2500) + (20\% \times \text{Rs } 400) = \text{Rs } 155$ per shipment

Net Income = Rs 65 per shipment

The success of distribution lies in maximizing Delivered Value per Shipment while marginally increasing Cost per Delivery.

But is it straightforward?

1000s of kirana stores served from a single warehouse



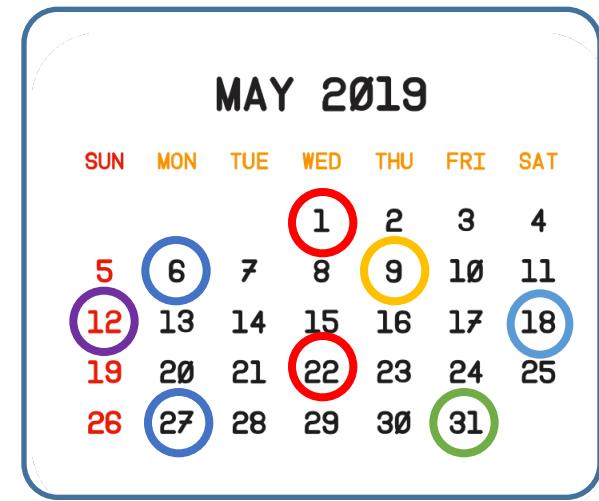
- Each metro has >100K Stores
- Traditionally, a distributor fulfills orders on a fixed schedule and route
- Clustering stores to increase truck utilization is a challenge
- Routing dynamically makes sense, but minimally used

An average kirana store has 1000+ SKUs across 100+ FMCG companies



- An average distributor stocks 1-3 FMCG cos only
- Limited scope to aggregate individual store orders across multiple brands
- Paper based operations, or siloed systems for each brand
- No scope to optimize

An average kirana stores orders 50+ times in a month



- Multiple orders per store across 15-20 distributors
- Different distributors servicing stores on different days
- Static scheduling of orders hence no scope to aggregate
- Lack of predictive visibility despite data being present

Artificial Intelligence to the Rescue



Store Profiler AI

Continuously learn from a store's ordering history and patterns across multiple brands to predict future orders

Challenges: each brand/distributor uses a separate store id, all order/bills are in silos



Shipment Merger AI

Decides what orders can be merged into a single shipment, based on order volume, order value

Challenges: different size and volume of individual SKUs, pick and pack



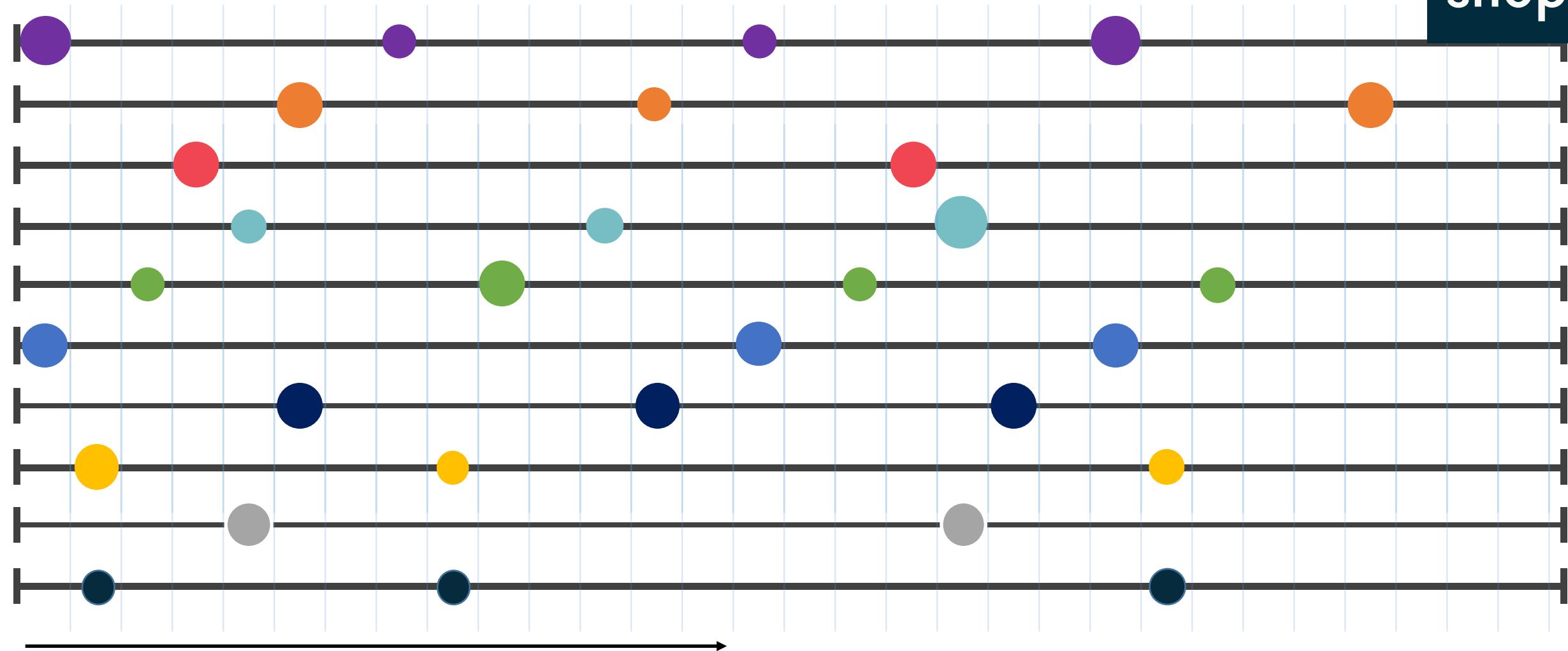
Scheduler AI

Decides what orders can be shipped on a given day to maximise truck utilisation, route optimisation

Challenges: different FMCG cos have different o2d constraints

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Current scenario: each order goes as a separate shipment

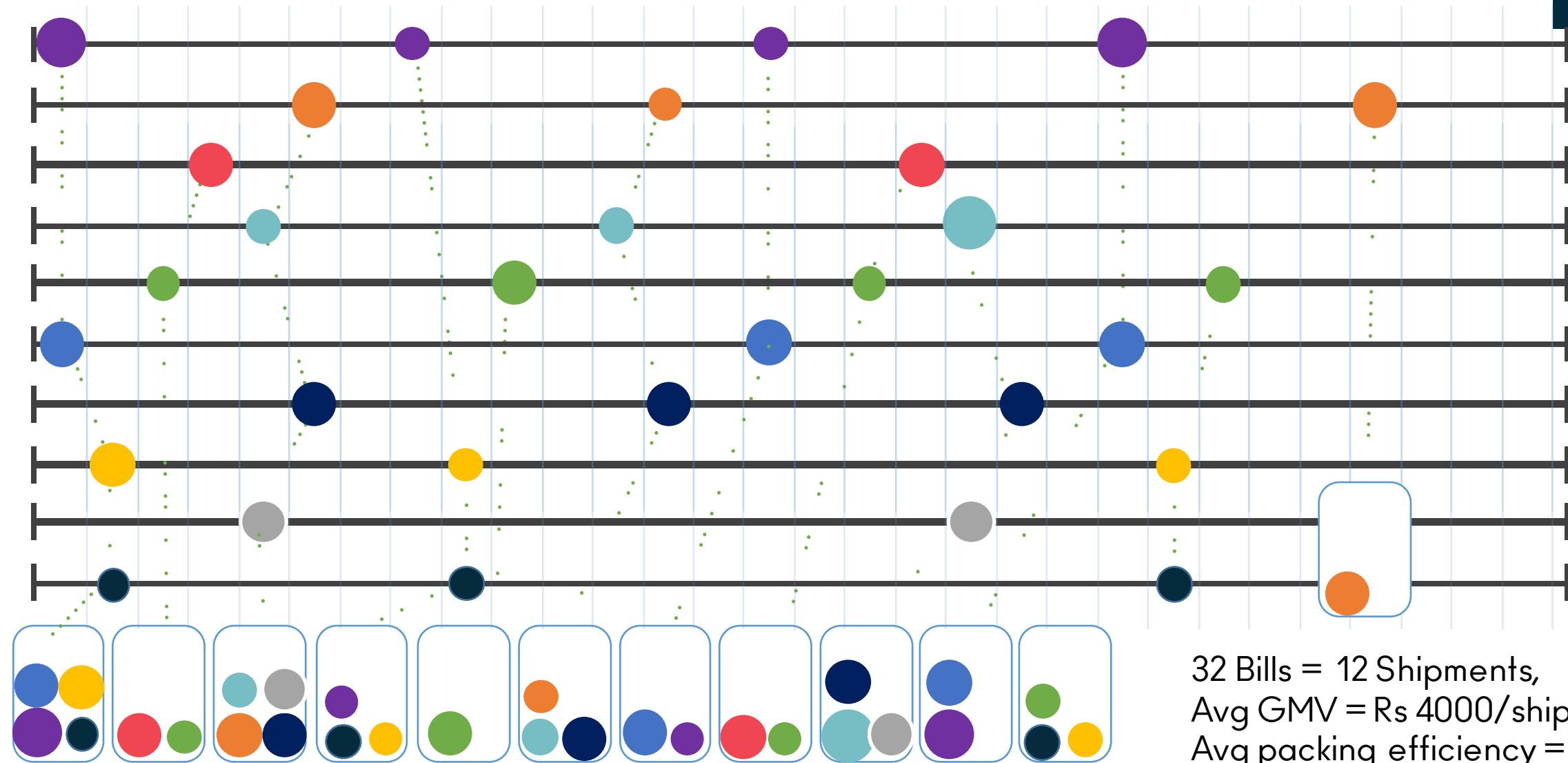


Days

Circle represents order, Color represents FMCG co., Size represents order volume

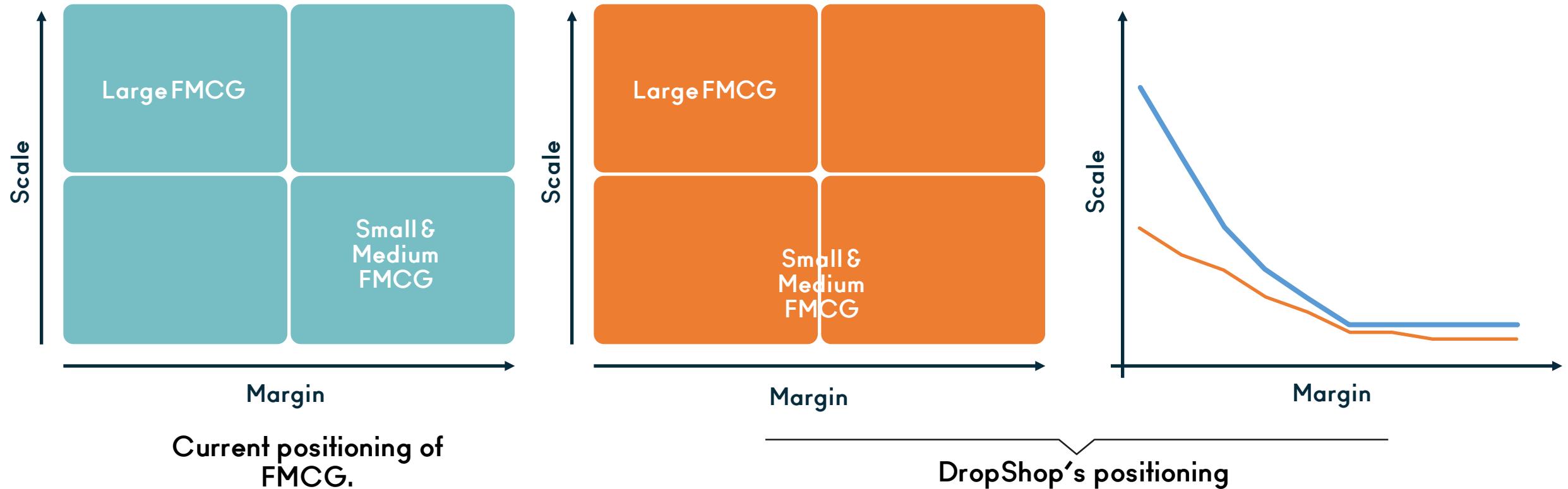
32 Bills = 32 Shipments,
Avg GMV = Rs 1500/shipment
Avg packing efficiency = 50%

With Dropshop AI: shipments aggregated using our AI system



Mission

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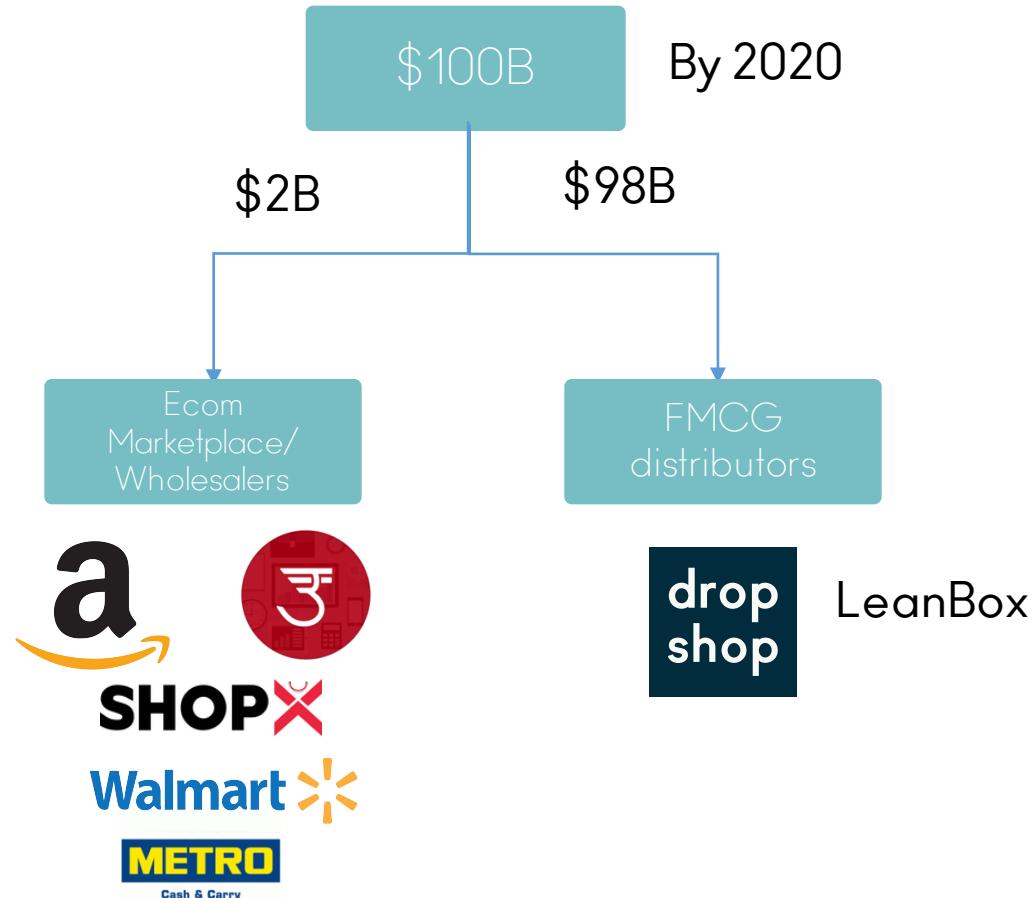
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Competitive Landscape

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Most technology players
only solve for routing and
truck utilization



Customers and Road Ahead

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marico
1.5K Kirana
1 Large FMCG
14Cr/annum GMV
60L/annum Rev

24K Kirana
3 Cities
1 Large FMCG
5 Medium FMCGs
10 Small FMCGs

75K Kirana
5 Cities
2 Large FMCGs
25 Medium FMCGs
50 Small FMCGs

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Month 6

10K Kirana
2 Cities
1 Large FMCG
2 Medium FMCGs
2 Small FMCGs

Month 12

Month 18

48K Kirana
5 Cities
2 Large FMCGs
15 Medium FMCGs
25 Small FMCGs

Month 24



In talks with



goingnuts

Founders



ROHIT FERNANDES

- Founder and CEO Shippr (2015-2019)
- Managed P&L of 50Cr/annum across Amazon, BigBasket, Delhivery, ABB, Flipkart.
- 10+ years experience in Supply Chain Management and Logistics
- MS Supply Chain Management, University of Nottingham, BE Electronics VTU 2008



UDIT DHAWAN

-
- Founding Member and R&D Chief, Dozee (2016-2019).
 - Research Scientist, Intel Labs (2015-2016)
 - MS + PhD (ABD), University of Pennsylvania, 2010-2014, B.Tech. IIT Roorkee 2009
 - 10 publications, 4 patents
 - Inventor of metadata-based computer security, currently being commercialized by Dover Microsystems, USA

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Appendix 1: Operational Cost Model

Warehouse Cost	
Units/Bill	65
Inventory Days	15
Warehouse productivity (Units/sqft)	100
Warehouse Space	2000
Rent/Sqft	25

Last Mile Cost	
Shipments/truck	60
Cost of Vehicle Day	1100
Delivery Associate/Truck	1
Cost of Delivery Associate	14000

Loader cost	
Shipments/loader/day	250
Wage/loader	12000

Pick & Pack Cost	
Average units in a casepack	60
Manpower Productivity -Inbound - Units/Manhour	600
Manpower Productivity -Outbound - Units/Manhour	400
No of Man hours a day	10
Manpower wage per month	15,000
Pick&Pack Manpower per Supervisor	20
Supervisor Salary per month	25000

Appendix 2: 100% efficiency vs Reality

Marico – Pilot
 Region - East Delhi
 # Stores - 1500
 1 Warehouse
 4 trucks/day
 P&P - 4 People
 DAs - 4
 Supervisors - 2
 Distributor Margin - 3%

	100%	GMV	Orders	ABV	GM	Rev	Unit cost	COGS	Net Margin	%
Feb	9200000	2509.00	3666.799522	3%	276000	108	270972	5028	1.82%	
March	5600000	2306	2428.447528	3%	168000	115.4	266112.4	-98112.4	-58.40%	
April	13800000	3216	4291.044776	3%	414000	98	315168	98832	23.87%	

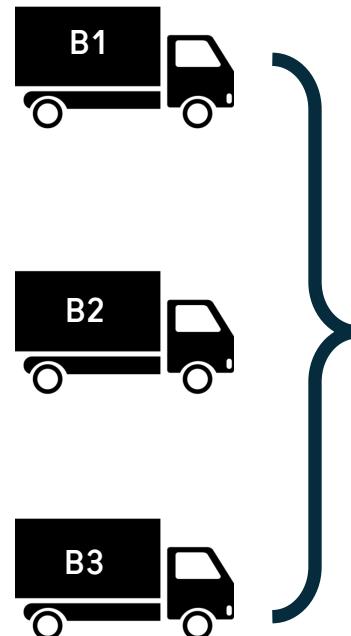
	Reality	GMV	Orders	ABV	GM	Rev	Unit cost	COGS	Net Margin	%
Feb	9200000	2509.00	3666.799522	3%	276000	137	343733	-67733	-24.54%	
March	5600000	2306	2428.447528	3%	168000	145.88	336399.28	-168399.28	-100.24%	
April	13800000	3216	4291.044776	3%	414000	125	402000	12000	2.90%	

Top FMCG Distributor gets 120 Orders/day | Works with 1 or 2 FMCG cos
 Incurs a cost of Rs101/order at 100% efficiency

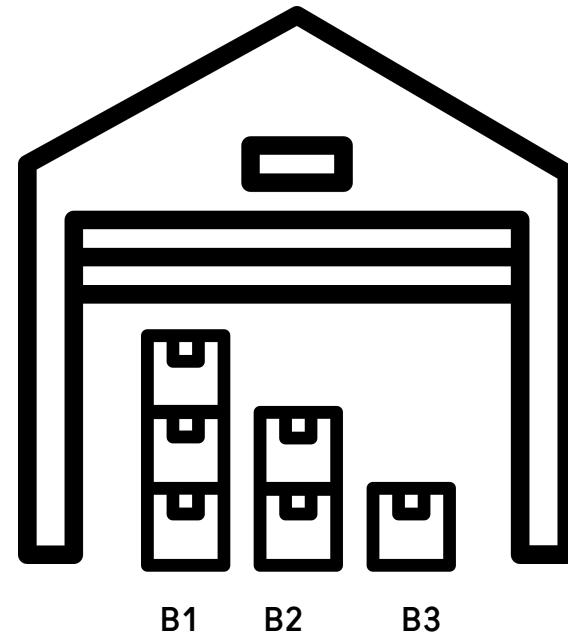
The Distributor ROI is negligible hence the 20% YoY attrition

Appendix 3 – Dropshop Workflow

Pull Based Replenishment



Multiple Store Orders for B1| B2 | B3



Inbound

Warehouse

Store Profile AI + Shipment Merger AI + Scheduler AI

Demand Aggregation at Shipment Level



Scheduling



Routing



Pick & Pack



Last-mile Delivery



Fulfillment