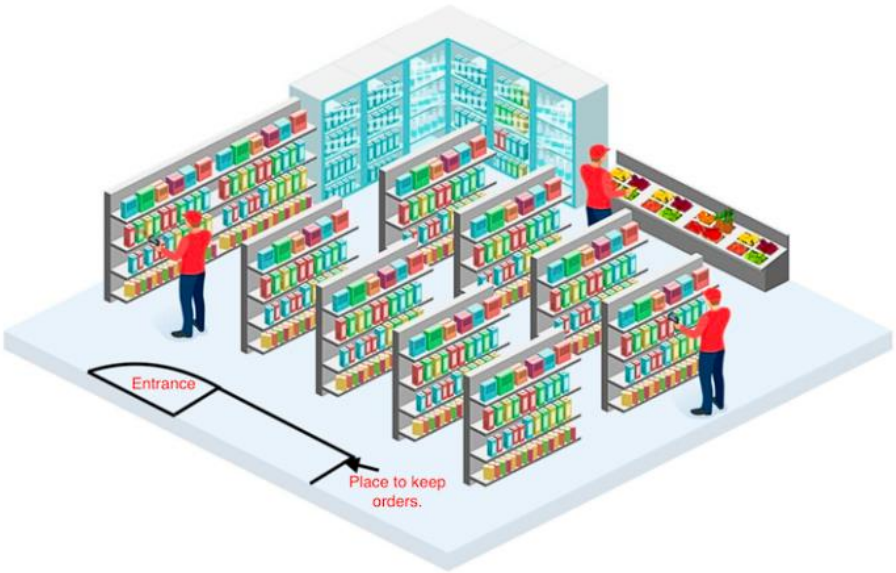
Blinkit Case Study

Problem Statement:

Blinkit is about to launch a store in a city of your choice. This store will be open for **18 hours every day**, **seven days a week**, and is expected to handle **2000 orders daily**. The store's size will be **2000 square feet**, with specific dimensions of **50 feet by 40 feet**, resembling the attached image. Some points to keep in mind:

- The orders will be assigned to a delivery partner (driver) only if they are available at the store.
- Given that this is a new store, the challenge at hand is to organize and manage inventory within the store.

1. How many delivery partners (drivers) would be necessary to fulfill the orders without compromising Blinkit's unique selling proposition (USP) and customer experience?
2. How many workers would be required inside the store to pick and pack the orders, taking into account an average of 5 items per order?



Solution
1) How many delivery partners (drivers) would be necessary to **fulfill** the orders

Calculation from given information:

Orders per hour: 2000 orders per day / 18 hours of operation = 111.1 ~ 112 orders per hour.

Assumption:

1) Blinkit's customer experience standards (likely delivery within 10 minutes to 15 min)

2) Distance radius blinkit driver cover 1 – 5 KM.
3) For Beyond 5Km delivery with in 20-30 minute.

4) We assume that 70% order comes from with in 1- 5 Km and 30% order from beyond 5Km

5) Peak hours: 6 hours (e.g., 12 PM - 2 PM, 6 PM - 8 PM)

Non-peak hours: 12 hours (remaining hours of operation)

Order distribution:

- **60% of orders occur during peak hours.**
- **40% of orders occur during non-peak hours.**

Calculation for Orders Within 1-2 km:

1. **Orders within 1-2 km=** 2000×0.7=1400 orders

   Order per hour= 1400/18 hour operation=78

2. **Drivers required for 1-2 km radius**: With a **10-minute delivery time**, each driver can handle 6 deliveries per hour.
   Required drivers per hour for 1-2 km= 78/6 =**13 drivers per hour.**

Calculation for Orders Within beyond 5 km:

1. **Orders beyond 5km=** 2000 x 0.3 =600 orders
   Order per hour = 600/18 hour operation= 34 orders per hour
2. **Drivers required for beyond 5 km radius:** With a **30-minute delivery time**, each driver can handle **2 deliveries per hour.**
   Require driver per hour for beyond 5km = 34/2 =17 driver per hour.

Peak and Non-Peak Breakdown for Both Categories:

1. Within 1-2 km (10-minute delivery):

- **Peak hours (60% of orders):**

  Peak orders within 1-2 km=1400×0.6=840 orders

  Orders per hour within 1-2 km during peak= 840/6 =140 orders per hour

  Required drivers during peak=140/6=23.3≈**24 drivers per hour during peak**

- **Non Peak hour (40% of orders):**

  Peak orders within 1-2 km=1400×0.4=560 orders

  Orders per hour within 1-2 km during peak= 560/12 =47 orders per hour

  Required drivers during peak=140/6=23.3≈24 drivers per hour during peak

  Required drivers during non-peak=47/6=7.83≈**8 drivers per hour during non-peak**

2 Beyond 5km(30 minutes delivery):

- **Peak hours (60% of orders):**
  Peak orders beyond 5 km=600×0.6=360 orders
  Orders per hour beyond 5 km during peak=360/6=**60 orders per hour**
  Required drivers during peak for beyond 5 km=60/2=**30 drivers per hour during peak**
- **Peak hours (60% of orders):**

  Orders per hour beyond 5 km during non-peak=240/12=**20 orders per hour**
  Required drivers during non-peak for beyond 5 km=20/2=**10 drivers per hour during non-peak**

Total Drivers Needed (with 5-10% buffer):

- **Peak hours: 24 + 30 = 54 drivers per hour (buffer: ~57-60 drivers).**
- **Non-peak hours: 8 + 10 = 18 drivers per hour (buffer: ~20 drivers).**

Over all driver needed:

- **Driver hour peak hour=** 54X6= 324 hour
- **Driver hour non peak hour=**18X12= 216 hour
- **Total Driver needed=**324+216= 540 hour
- **Driver in shift**=540 /8= 68 driver need

  So conclusion we need to appoint 68 delivery partners to run operation needed.

2) How many workers would be required inside the store to pick and pack the orders, taking into account an average of 5 items per order

Considerations Due to Store Size:

- **Store dimensions:** 50 feet x 40 feet**.**
- **Space allocation:** Part of the store will be dedicated to storage/inventory, aisles, picking stations, and packing areas.
- **Worker movement efficiency:** A compact store layout could reduce the time spent by workers to pick items but could also introduce congestion if too many workers are picking in the same aisle**.**

Revised Assumptions:

1. **2000 orders per day.**
2. **Store operates for 18 hours daily.**
3. **Average of 5 items per order.**
4. **Time to pick each item: 40 seconds (considering a slightly slower process due to potential space constraints).**
5. **Time to pack each order: 1.5 minutes per order.**
6. **Workers will still be divided between picking and packing tasks.**

Total items per day=2000×5=10,000 items per day

2. Total Time for Picking:

Assuming it takes **40 seconds** per item due to possible space limitation**s:**

Time per item=40 seconds=40/60=0.67 minutes per item

Total picking time per day=10,000×0.67=6,700 minutes per day

3. Total Time for Packing:

Packing takes **1.5 minutes** per order**:**

Total packing time per day=2000×1.5=3000 minutes per day

4. Total Worker-Hours Required for Picking and Packing:

- **Picking worker-hours per day**
  6700/60 = 112 worker hour per day
- **Packing worker-hours per day:**
  3000/60 = 50 worker hour per day

Total worker hour per day= 112(Picking)+50(Packing)= 162 worker per hour day

5. Total Workers Required:

If each worker works an **8-hour shift**, the number of workers required is**:**

Number of workers required= 162/8=20.25≈21 workers

6. Distribution Between Pickers and Packers:

Based on the total worker-hours required:

- **Pickers: 112/8 = 14 pickers**
- **Packers: 50/8=6.25≈7 packers**

Conclusion:

You would need approximately 21 workers in total for picking and packing tasks.