

NINJAVAN DELIVERY

BUSINESS PLAN

Team: JIAKK



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Problem Statement



PROBLEM STATEMENT



Target: NinjaVan Station Managers

Current methods of manpower allocation at NinjaVan stations are inefficient in addressing manpower shortages in stations that are short-handed.



02

Gaps in Current Practices

MANAGER JOURNEY



Start of the Day

Manager receives the information of the no. of parcels to be delivered for the day



Planning

Allocates parcels to drivers using knowledge of drivers' efficiency from past experiences



Awareness of Problem

In the later part of the day, manager receives information of insufficient manpower



Finding Solution

Requests other station managers for backup drivers

PROBLEM DESCRIPTION



- Start of the Day:
 - Existing allocation of parcels to deliveryman is manually done
- Allocation Planning
 - Prone to human errors
 - Difficult to foresee manpower crunch for the day
- Awareness of Problem
 - Realising the problem late
- Finding Solution
 - Close to drivers' off-work time
 - Increased anxiety and pressure on manager
 - May not be able to find backup help

1. Inaccuracies in Parcel Allocation

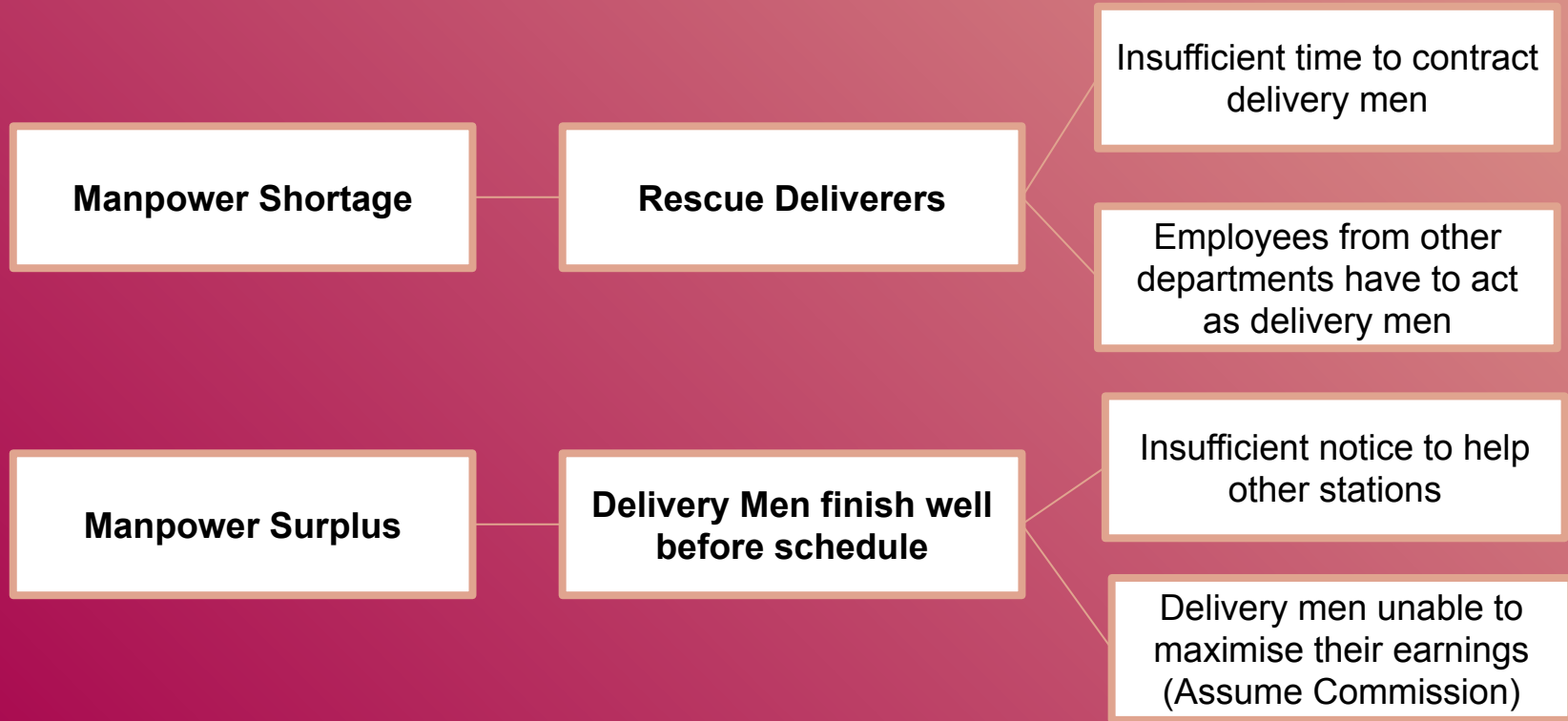
Existing Method

- Each delivery man is manually assigned to a quantity of parcels
- This is subjective, and based on the perceived performance of delivery man

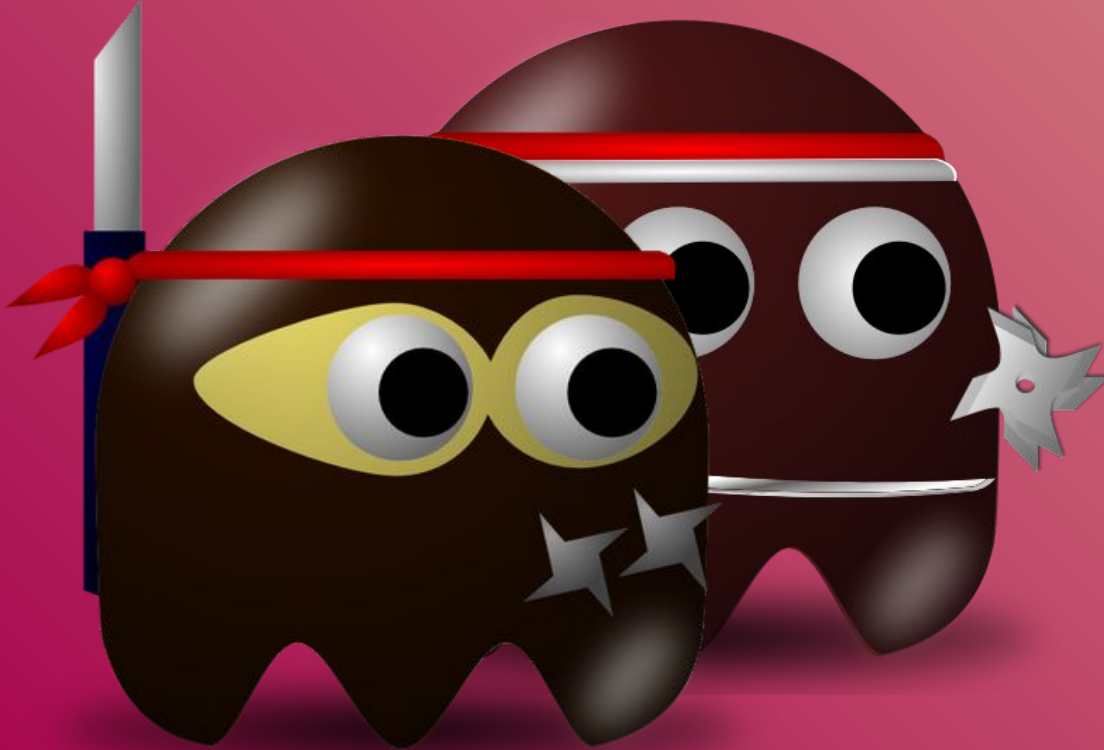
Gaps

- Mismatch of perceived performance and actual delivery amount.
- Parcels failed to be delivered
- Loss of consumer goodwill and reputation

2. Poor Utilisation of Manpower Surplus



3. Increased Work Pressure



How ah? Now 3pm
already still got **300
parcels**. Wa sians last
minute need go find
rescue :(((

CONSEQUENCES



Unpunctuality

If backup help is unavailable, parcels will not be delivered on time.



Low Customer Satisfaction

Inability to retain customers. Unsatisfied customers tend to leave bad reviews, leading to reputational damage.



Low Operational Efficiency

The excess manpower from other stations could have been utilised. This wastage of manpower resource lowers the productivity of stations.



Reduced Profits

The above consequences lead to a reduction in profits.



03

Our Solution

WEBPAGE


Target Users: Station Managers

- Purpose:**
- Display information:
 - Expected no. of parcels to be delivered for the day
 - Total predicted capability of the station for the day
 - By predicting the no. of parcels that each driver can deliver for the day
 - Summing the no, of parcels that each driver can deliver for the day
 - Notify manager if there would be a predicted manpower crunch for the day
 - If the station is predicted to have:
 - Manpower shortage:
 - Automatically request help from other stations with manpower surplus
 - Manpower surplus:
 - Accept requests to help other stations with manpower shortage (Within capability)

Login Page


Login Page



Login



☒ Remember password [Forget password](#)

Register





By signing in you are agreeing our
Term and privacy policy

For driver to login with their email and password with 'Remember password' and 'Forget Password' functions

For driver to register an account using registered company email and password

Review Station's Information

Date of predicted information for managers to plan ahead

Green: Manpower surplus/sufficient
Red: Manpower shortage

Displays:

- expected no. of parcels to be delivered on that day (Sent prior to the day)
- total predicted no. of parcels the station could deliver for that day
- Spare capacity
- Capacity offered to other stations
- Remaining capacity

Name of station, Current date and time

Homepage showcase surplus or shortage

ninjavan **Yio Chu Kang** Today: 25 Feb 2023

Check: **26 Feb 2023**

Expected arrival: 60 Pc
Total Predicted Capability: 150 Pc

Additional Capability: 90 Pc

Help for other stations: 80 Pc

Remaining Capacity: 10 Pc

Help Other Stations

✓	✕	Needs: 80 Pc	Distance: 1km	!
✓	✕	Needs: 30 Pc	Distance: 2km	!
✓	✕	Needs: 65 Pc	Distance: 2.5km	!

Filter by increasing distance

Upon accepting, the webpage will navigate to the accept request form (See next slide)

Shows the list of stations that require backup drivers for the day and is within the spare capacity of the station

Manager can choose to accept or decline the request

Accepting Help Request

Homepage showcase surplus or shortage

ninjavan Yio Chu Kang Today: 25 Feb 2023

26 Feb 2023

Request Details

Requester

Clementi Station

Routes/Waypoints

Blk 123 — Blk 124 — Blk 125 — Blk 126

Blk 311A — Blk 311B — Blk 311C — Blk 311D — Blk 311E

Request Information

Parcel Quantity: Drivers:

Provider

Number of Employees Allocated :

Names of Employees : **Phone Number:**

Done

Display auto-generated information about the station that needs backup drivers

Suggested routes for backup drivers

For managers who accept to help, they can send the details, such as the no. of backup drivers and their information, to the station requesting for help

Comments:
To increase accountability of backup drivers

Upon clicking details, both stations' information pages would be updated accordingly. Station would be notified of changes.

Review Station's Information

View help details (See next slide)

Homepage showcase surplus or shortage

ninjavan

Yio Chu Kang Today: 25 Feb 2023

Check:

26 Feb 2023



Expected arrival: 60 Pc
Total Predicted Capability: 50 Pc

Required Additional Capability: 10 Pc

+ Help from other stations: 0 Pc

Remaining Capacity: -10 Pc

Help From Other Stations

Help is on the way!



Manpower shortage

Homepage showcase surplus or shortage

ninjavan

Yio Chu Kang Today: 25 Feb 2023

Check:

26 Feb 2023



Expected arrival: 60 Pc
Total Predicted Capability: 50 Pc

Required Additional Capability: 10 Pc

+ Help from other stations: 10 Pc

Remaining Capacity: 0 Pc

Help From Other Stations



Woodlands
Provides: 10 Pc

Distance: 1km




Manpower shortage
(Upon receiving help)

Help Details

For managers who
need help to view

Homepage showcase surplus or shortage


 **Yio Chu Kang** Today: 25 Feb 2023

26 Feb 2023 Y

Help Details

Acceptor: **Woodlands**

Routes/Waypoints



Blk 123 Blk 124 Blk 125 Blk 126

Blk 311A Blk 311B Blk 311C Blk 311D Blk 311E

Number of Parcels to be delivered : 10

Number of Drivers provided : 2

Number of Employees Allocated : 2

Names of Employees Allocated : Tan Benjamin, 95132845
Nicholas Lim, 9654255



04

Overcoming Limitations

Limitation 1: Low Pick-up Rate

Station Managers may not use the website because:

Reasons



They assume that they **know the capacity of the drivers better** and feel that they are skilful enough to determine optimal allocation of parcels to drivers.



They do not know how to use the website.

Solutions

Workshops should be conducted for station managers to learn about the efficiency of the application in streamlining the manpower allocation process.

Lesson guides to teach station managers how to use the website.



05

Future Extensions

Future Extension 1: Consideration Factors

Current:

Average daily delivery rate of all drivers in the station is used to obtain our results

Improvement:

To obtain more representative results:

- Prediction using Machine Learning Models
- Personalisation of average daily delivery rate to individual drivers
 - Possible factors including parcel delivery time, such as weather conditions, size of package, distance between parcels

Future Extension 2: Improved Dashboard Experience

Current:

- Dashboard is provided to station managers in the form of text and numbers
- Text and numbers are bland to look at, failing to engage
- Station Managers are not trained to deal with the information

Improvement:

- Provide dashboard in a more interactive form (e.g Graphs, Charts etc) within our website
- Connection with Power BI or collaboration with the Business Intelligence Department to provide actionable insights and next course of actions

THANKS!

