



GOVERNMENT OF INDIA  
MINISTRY OF HOUSING AND URBAN AFFAIRS

11<sup>th</sup>

Urban Mobility India  
Conference & Expo 2018



**Learnings from  
PBS Mysuru**



*Presented by:*  
Mr. Darpan Jain, IAS, Commissioner, DULT &  
Mr. N. Murali Krishna, ITS, Special Officer, DULT





# System Brief

- ❑ 10000+ registered members (as on October,2018)
- ❑ 52 Docking stations are operational over 28 sq km. area.
- ❑ 450 no. of cycles are in the system
- ❑ The system is experiencing ~3rides/cycle/day
- ❑ A central control centre has been set-up for controlling and monitoring
- ❑ A website and Mobile phone app (Android and iOS) has been developed
- ❑ User can register through the 6 Registration centres, 6 Mysuru One centres and through mobile app.
- ❑ CCTV streaming is available for 51locations
- ❑ 6 Redistribution vehicles are operational

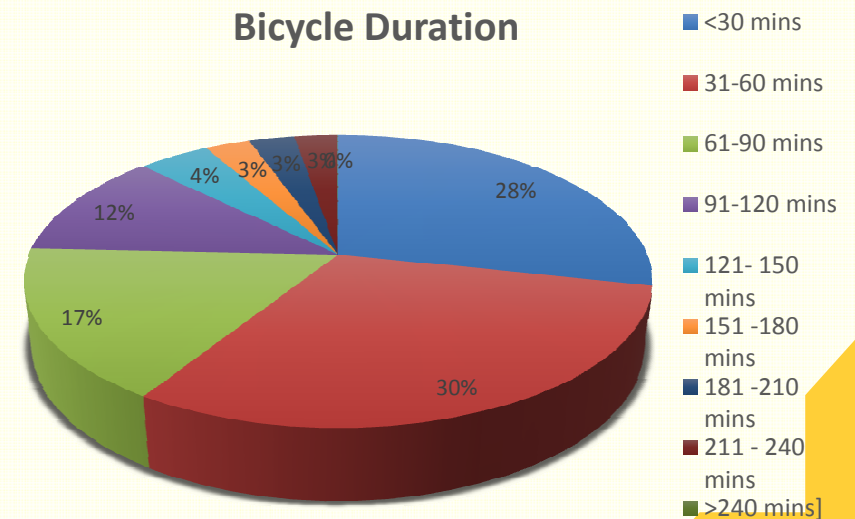
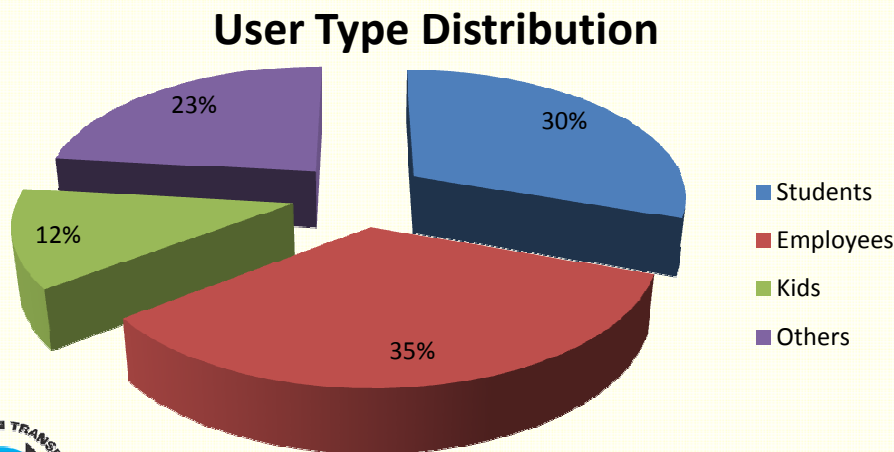
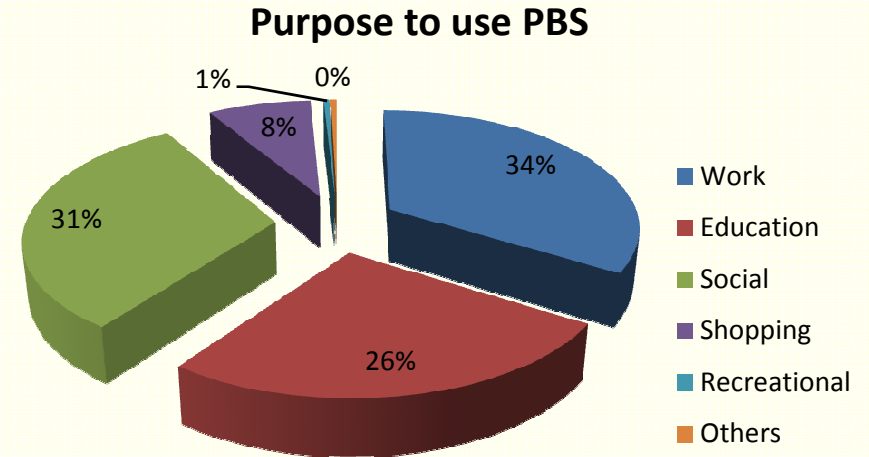


India 2018



# Usage Profile

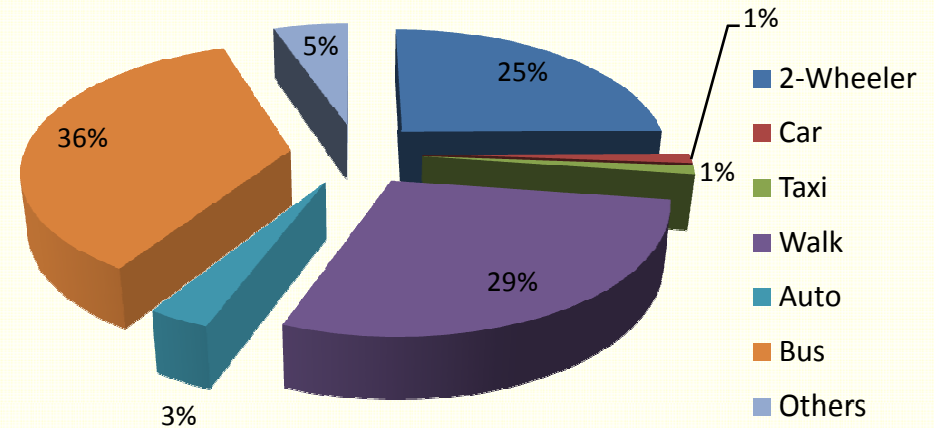
- ❑ The **work & educational trips** comprises **60%** of the total usage.
- ❑ The **usage up to 1 hour** comprises **58%** of the total usage.
- ❑ Very minimum no. of usage have been observed for more than 2 hours of usage continuously.



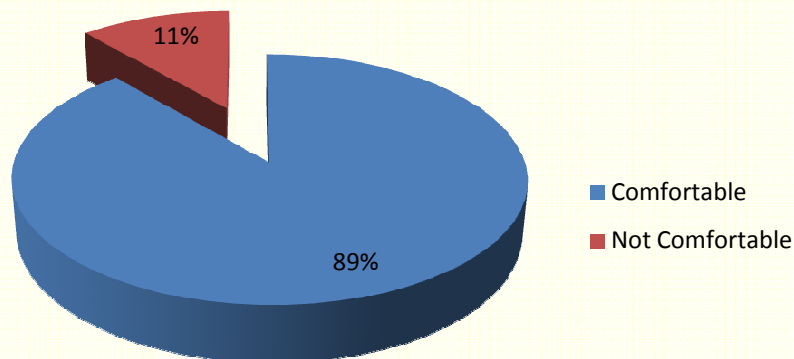
# Analysis of Survey Conducted amongst Users

- Based on the user survey, **25% of the users have shifted from 2-wheeler to the PBS System.**
- About 89% of the users feel that the cycles are comfortable to use.
- Overall, 93% of the users feel that the system outcome is positive.

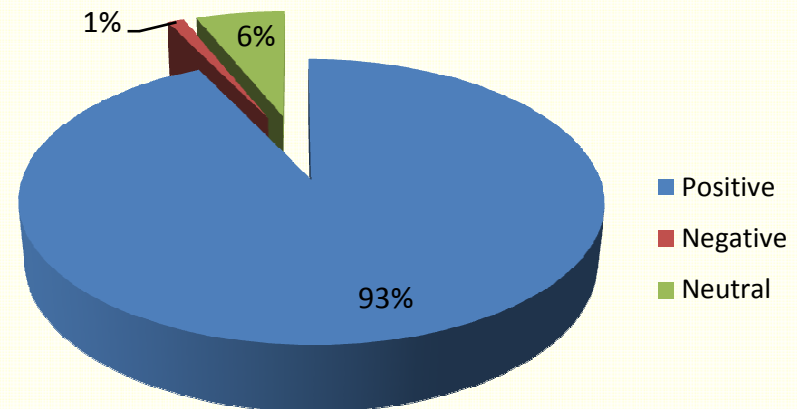
### Modal Shift to PBS



### User Comfortness



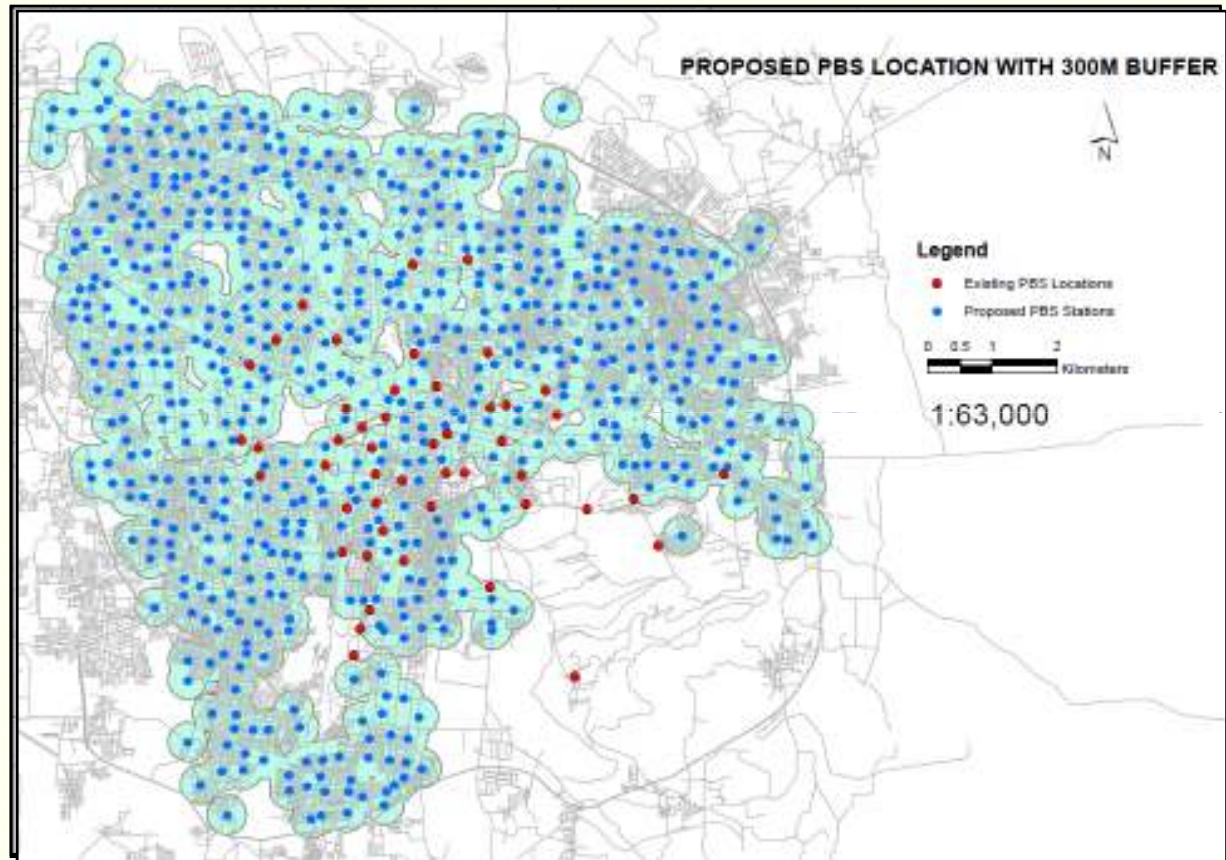
### Overall User Experience





## Expansion Plan

- ❑ A total no of **626 docking station** have been selected to have a city level PBS connectivity.
- ❑ The proposed system will be **dock less in nature**.
- ❑ The expanded capacity would be minimum **10 times higher than the existing system**.
- ❑ The **business model and the expansion plan** are yet to be decided.
- ❑ A total area of **80 sq km will be covered** (Out of 128 Sq Km Mysuru area) through the proposed +existing PBS system.



# Implementation & Operational Challenges

## Implementation challenges:

- ❑ **Site Clearance** : Although most of the sites belong to the Mysuru City Corporation, getting site clearance taking longer time than expected.
- ❑ **Alternate Site locations:** Getting the alternate site locations with a provision of 1.5m clear footpath space was time consuming.

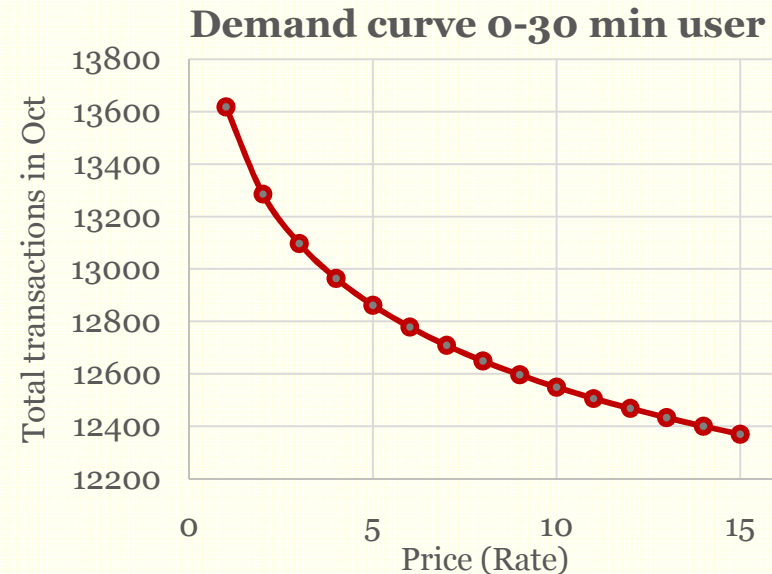
## Operational Challenges:

- ❑ **Price sensitive fare:** The no of **daily trips have been reduced significantly, when the PBS usage fee has been increased by the authority.** The “**Price Elasticity Of Demand**” study was carried out to find out the relation between the fare changes and the ridership.
- ❑ **Network Connectivity:** Initially, the docking stations were connected with the central control centre through Microwave tower. **Since, the microwave connectivity was not steady, Optical Fibre based system was adopted.** System is presently stable.
- ❑ **Kiosk & Port Failure:** The **kiosk and ports were getting hanged frequently in the initial phase.** A “**Route Cause Analysis**” study has been preformed to identify the port failure causes & corrective measures was taken accordingly.

# Price Elasticity of Demand

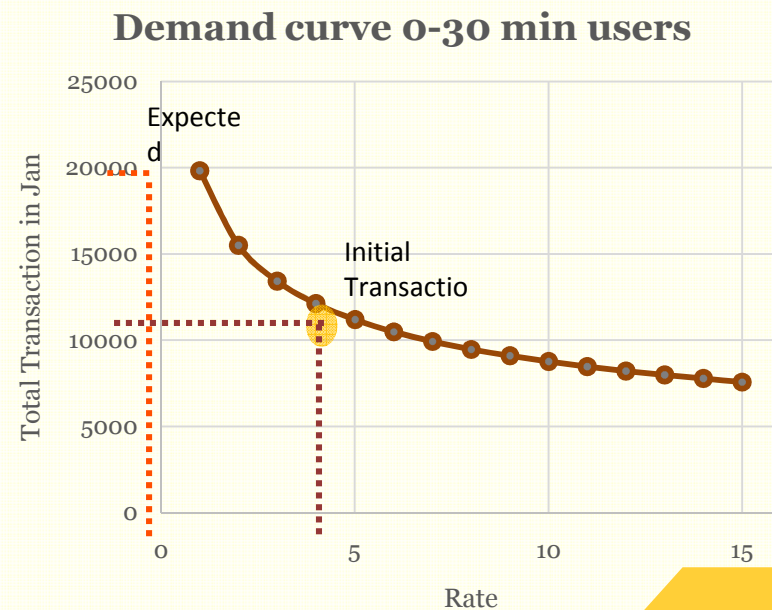
## After first fare revision in Nov 17

- ❑ 0-30 minutes range is highly price sensitive
- ❑ Maximum transactions occurred in this range (13000 -14000 transactions per month)
- ❑ Increase in price from INR 0 to 5 led to decrease of approximately 1000 transactions per month
- ❑ The curve is very steep which indicates a strong relationship between price and demand



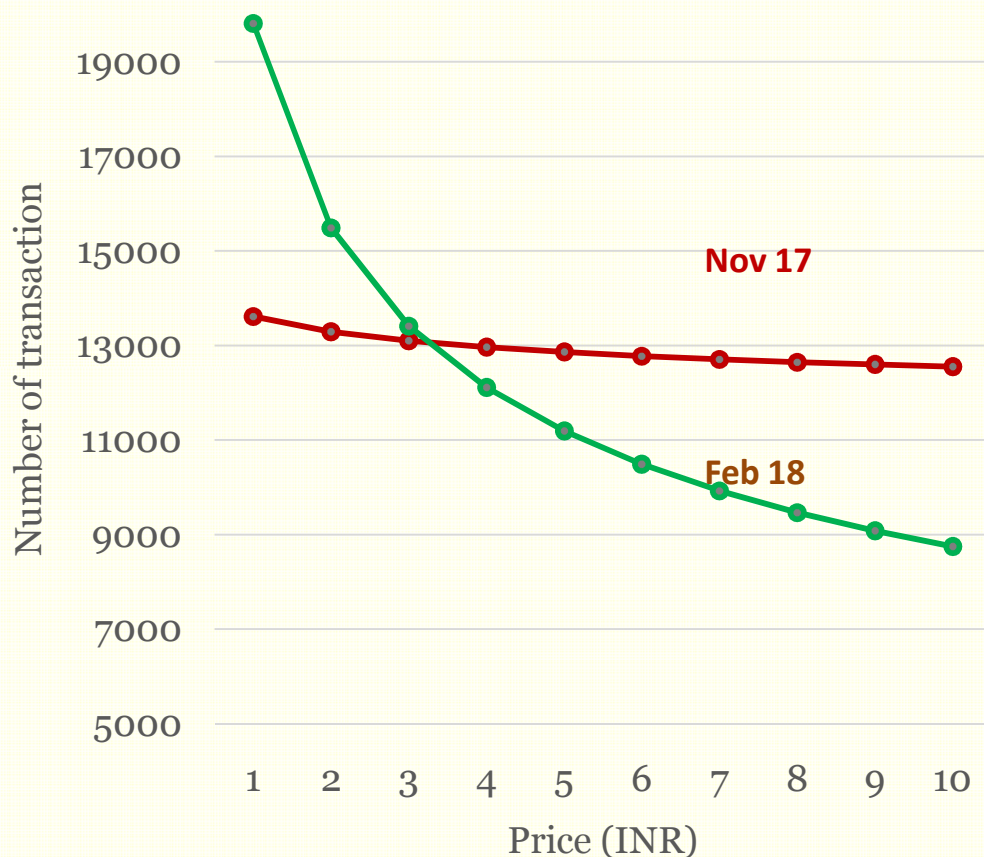
## After second fare revision in Feb 18

- ❑ After price revision in Feb18 from INR 5 to 0, there was an exponential increase in transactions (an increase of 5000 to 6000 transaction per month)



# Price Elasticity of Demand

Demand Curve 0-30 min users



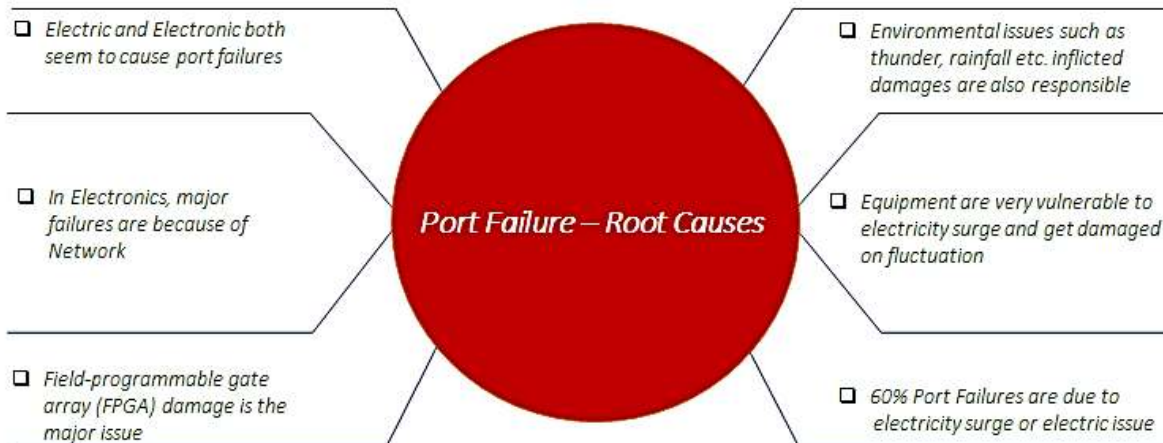
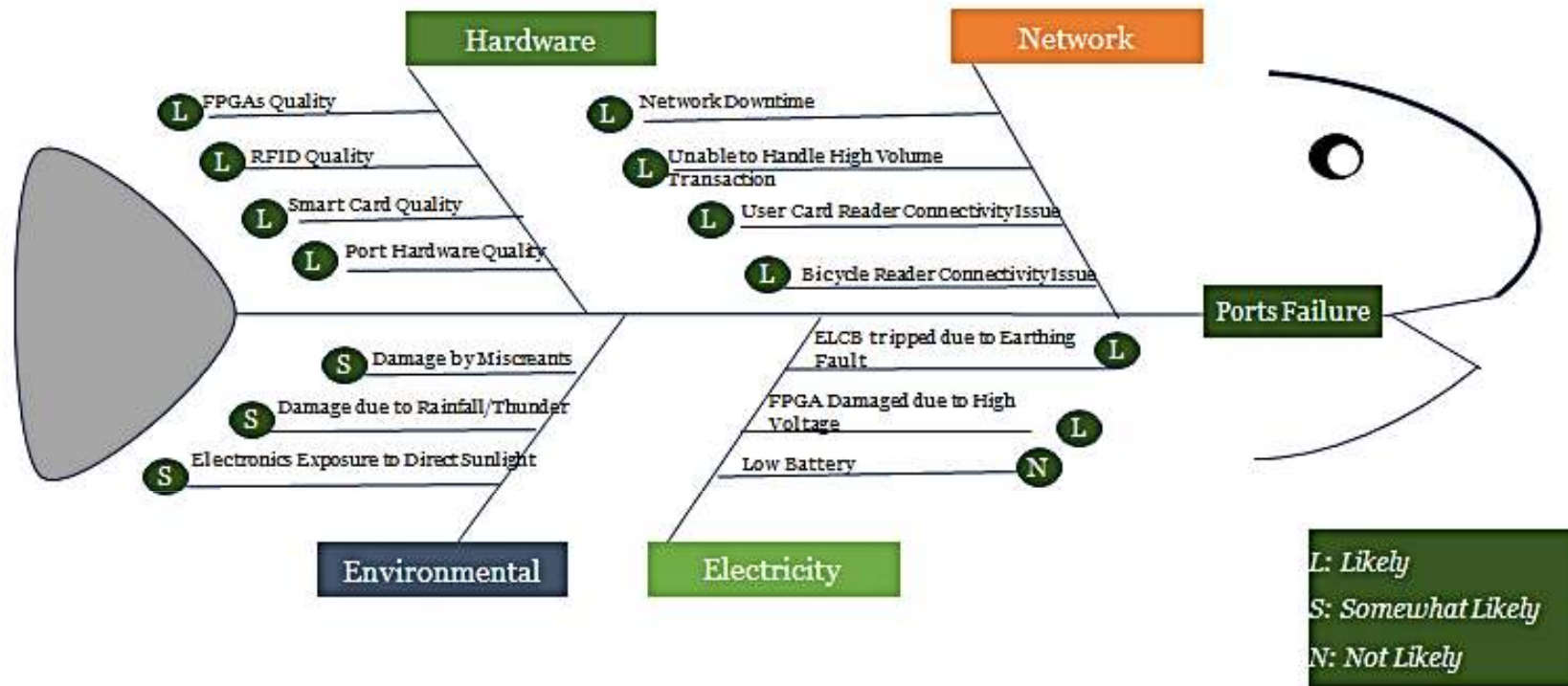
- Graph shows comparison of PED in Nov 17 and Feb 18
- Maximum change in transaction is observed after rate decreased from INR 5 to 0 in February.**
- The Feb curve is very steep which indicates increase in ridership after revision of rates.**

\* Elasticity curve is based on change in rates after 20<sup>th</sup> Nov (Oct17 and Dec 17 Data is used to calculate PED)

\* Elasticity curve is based on change in rates after 1<sup>st</sup> Feb18 (Jan 18 and Mar18 Data is used to calculate PED)



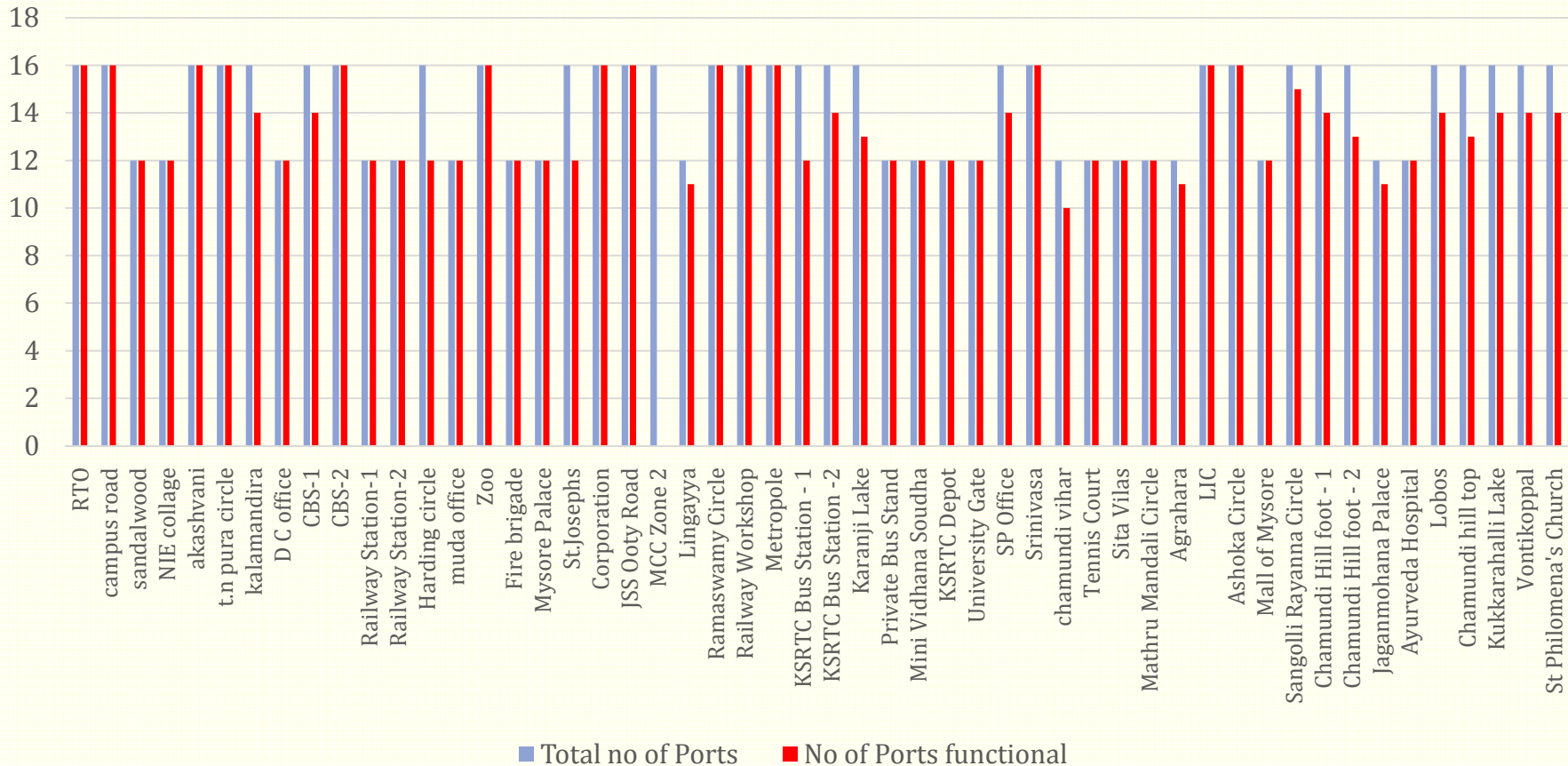
# Route Cause Analysis



The functionality of the ports has been observed as 68% before performing the route cause analysis study.

# Improvements observed after Route Cause Analysis

Port Failure Report - After Corrective Action taken



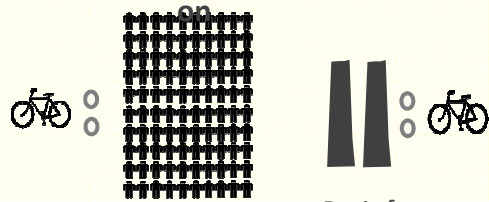
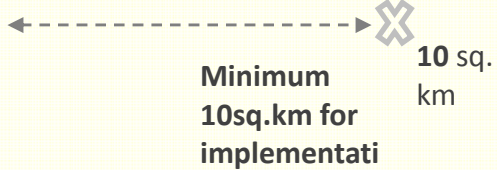
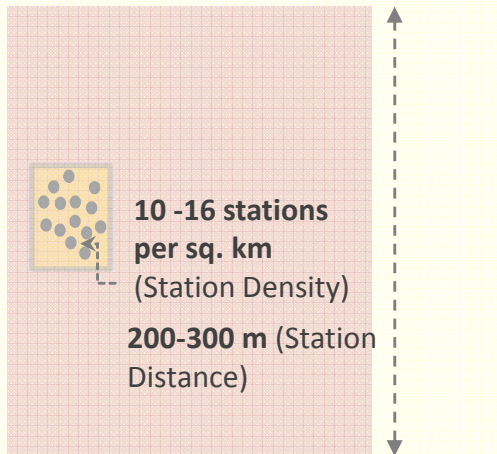
- Operator has **replaced damaged radars, antennas and FPGA's**
- Operator has also done **re-earthling, Installed smart plug** at docking station to resolve electrical issue.
- Currently, **92% of the ports are found functional.**



# PBS in Bengaluru

## System Sizing

## Phasing: Pilot Clusters for Cycle Infrastructure

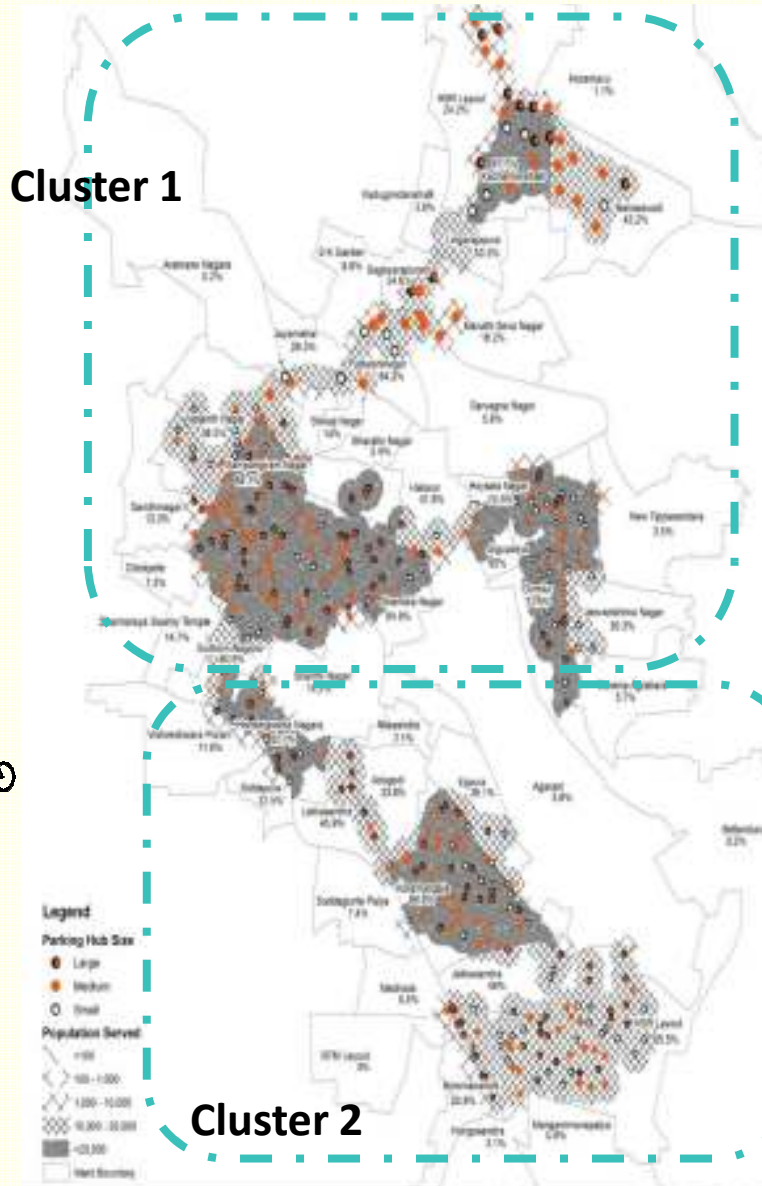


10 – 30 bikes per 1000 residents

6 Operators

6000+ Bicycles

402 Parking Hubs



## STATUS

- Detailed Site Report prepared
- Permit rules and regulations formulated
- Permit issued to the 3 operators.
- NOC from Bengaluru Traffic Police obtained

## INSTITUTIONAL MECHANISM

- DULT has formed a society-KNMTA for the financing and monitoring of operations of NMT. PBS shall be financed through this society.
- BBMP shall be the implementing agency
- BTP shall be the enforcement agency



# Thank You...

**Nagpur 3<sup>rd</sup> November, 2018**

