LDB ANALYTICS : May‘18 Report for JNPT

Logistics Redefined

EXECUTIVE SUMMARY

The current report highlights the performance of the stakeholders for the month of **May 2018**.

- The port performance of JNPT Port region for the month of May 2018 , saw a decrease by approximately 21% in comparison to the performance in April 2018 , primarily due to the below reasons:
  - Import dwell time performance of JNPT port region saw a decline by 41% in month of May'18 in comparison to previous month.
  - Dwell time for Truck bound container movement during the Import cycle of JNPT port region increased by 39% in comparison to April 2018.

- GTI terminal in JNPT is the best performing terminal across western corridor with overall dwell time of 52.9 hrs

- There was a increase in the Lead time between Port and NCR region ICD by 15% for the month of May'18.

Container Movement around JNPT region

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Container Lifecycle (Import Cycle)

IMPORT

Port

Mode	May'18 (Import Cycle) Dwell Time	April'18 (Import Cycle) Dwell Time
Overall	51.80 hrs	33.8 hrs.
Truck	47.58 hrs	30.7 hrs.
Train	87.88 hrs	72.1 hrs.

Transit

Toward ICD

Station

Transit Cycle	May'18 Transit Time	Apri'18 Transit Time
Port to ICD	71.20 hrs	70.9 hrs.
Port to CFS	2.37 hrs	2.39 hrs.

Toward CFS

CFS/ICD

ICD

CFS

LCO	May'18 Dwell Time	Apr'18D well time
CFS	80.69 hrs	83.8 hrs.
ICD	141.07 hrs	130.9 hrs.

EXPORT

Port

Mode	May18 (Export Cycle) Dwell Time	April'18 (Export Cycle) Dwell Time
Overall	69.28 hrs	70.4 hrs.
Truck	66.56 hrs	67.4 hrs.
Train	103.7 Hrs	112.8 hrs.

Transit

From ICD

Station

Transit Cycle	May'18 Transit Time	Apr'18 Transit Time
ICD to Port	67.84 hrs	70.2 hrs.
CFS to Port	4.04 hrs	5.36 hrs.

From CFS

Container Lifecycle (Export Cycle)

The marked entries showcase the increase in performance as compare to previous month

The marked entries showcase the decrease in performance as compare to previous month

Export/Import Cycle Container Movement around JNPT region

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IMPORT CYCLE DWELL TIME (May'18)		
PORT DWELL TIME	*Overall Dwell Time For Train & Truck Bound Containers*	51.80 hrs
	Train bound Container	87.88 hrs
	Truck Bound Container (DPD + CFS/ICD)	47.58 hrs
	• Direct Port Delivery Containers	51.56 hrs
	• CFS/ICD bound Containers	50.78 hrs
TRANSIT TIME	*Port to ICD*	71.20 hrs
	Port to CFS	2.37 hrs
LCO DWELL TIME	*CFS DWELL TIME*	80.69 hrs
	ICD DWELL TIME	141.07 hrs

EXPORT CYCLE DWELL TIME (May'18)		
PORT DWELL TIME	*Overall Dwell Time For Train & Truck Bound Containers*	69.28 hrs
	Train bound Container	103.7 Hrs
	Truck Bound Container (DPD + CFS/ICD)	66.56 hrs
	• Direct Port Delivery Containers	64.35 hrs
	• CFS/ICD bound Containers	70.47 hrs
TRANSIT TIME	*ICD TO Port Terminals*	67.84
	CFS TO Port Terminals	4.04 hrs
LCO DWELL TIME	*CFS DWELL TIME*	80.69 hrs
	ICD DWELL TIME	141.07 hrs

JNPT region Port Performance

The below tables depicts the detailed JNPT region port performance in the month of May'18

IMPORT

Port Dwell time based on transit type		
May'18	Direct Port Delivery containers	Containers bounds for CFS/ICD
Volume	5 %	95 %
Dwell time	51.56 hrs	50.78 hrs

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	90 %	10 %
Dwell time	49.91 hrs	60.22 hrs

EXPORT

Port Dwell time based on transit type		
May'18	Direct Port Export containers	Containers bounds for CFS/ICD
Volume	25 %	75 %
Dwell time	64.35 hrs	70.47 hrs

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	76 %	24 %
Dwell time	66.82 hrs	74.18 hrs

Western Corridor PORT Terminals : Benchmarking and Performance Index

Performance Benchmarking based on Dwell time - Port Terminals

Performance benchmarking for Western Corridor for May'18

Top Performing Terminal	
GTI	Dwell Time : **52.9** hrs.

Performance Index – Port Terminals

In order to assess the relative performance Port, Container Freight Station and Inland Container Depot ,the relative dwell time as well as the volume of containers handled by them are depicted graphically in the form of an index to portray the performance of a particular organisation on the basis of these two combined factors.

The figure depicts the Frequency Index i.e. volume by dwell time performance for Port terminals covered under LDB for May'18. The Quadrant II represents the high performing ports with high frequency Index i.e. high container volume at lower dwell time

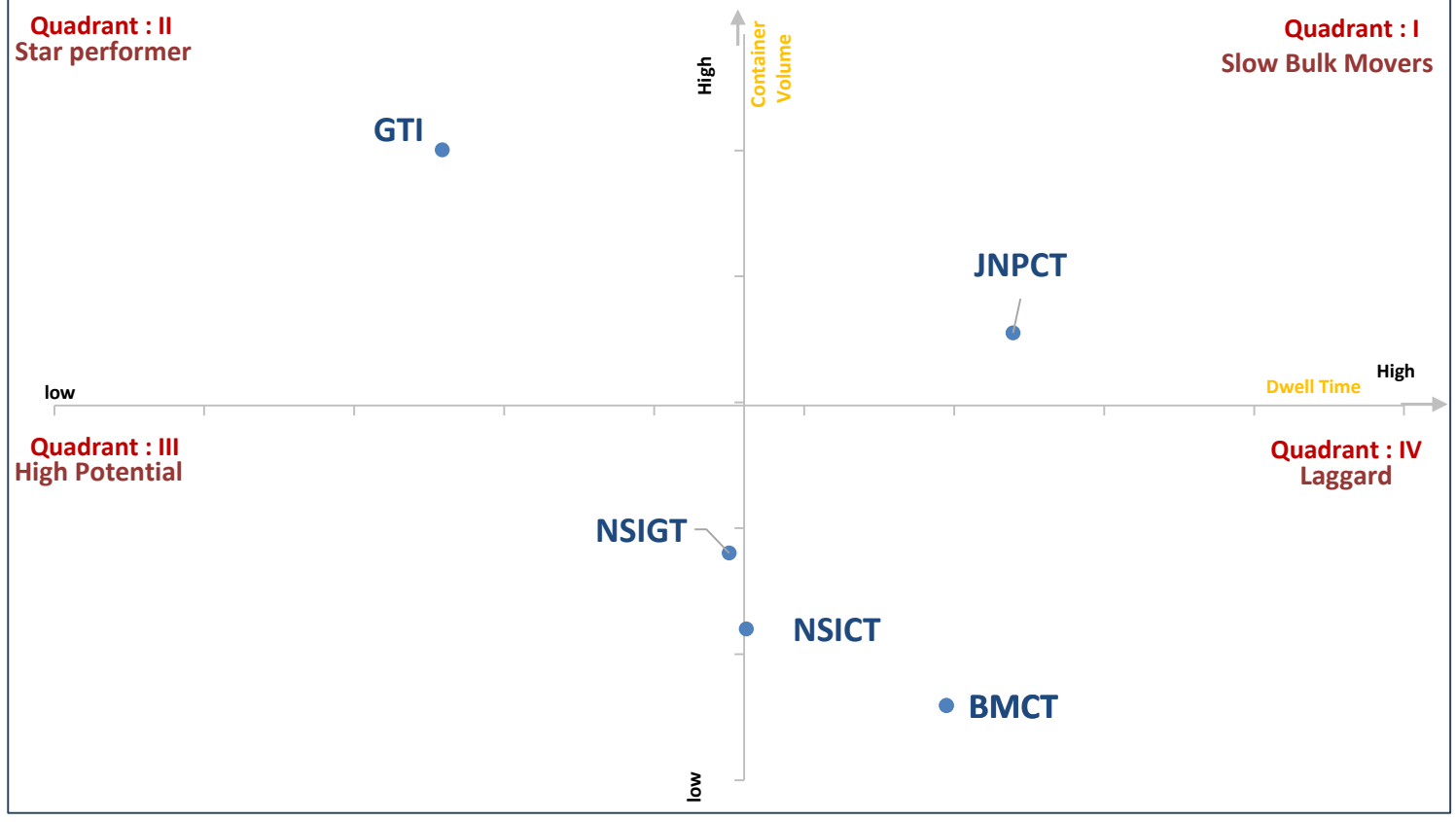
Slow Bulk Movers : consist of Ports which have catered higher container volume at higher dwell time

Star Performer: consist of Ports which have catered relatively high container volume in lower dwell time

High Potential : consist of Ports which have catered relatively lower container volume in lower dwell time

Laggard : consist of Ports which have catered relatively lower container volume at higher dwell time

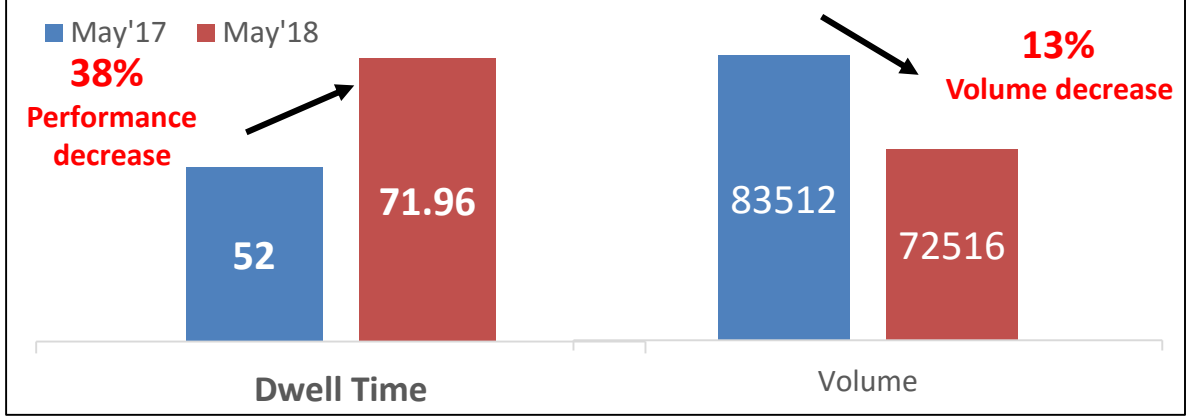
Port Terminal Performance Index : May18



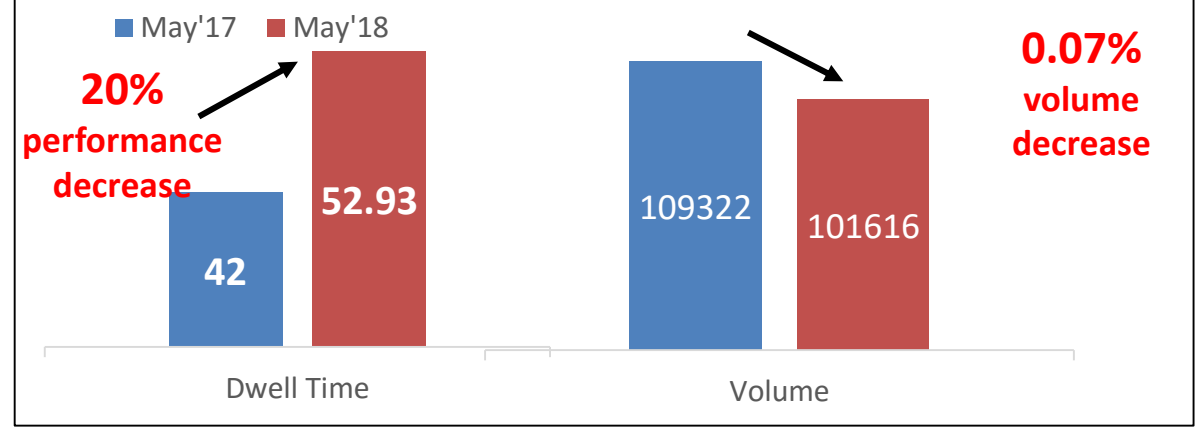
JNPT Port terminals performance(Year-on-Year)

The below graphs display the Year-on-Year overall dwell time performance and volume across the JNPT Port terminals for May’17 and May’18.

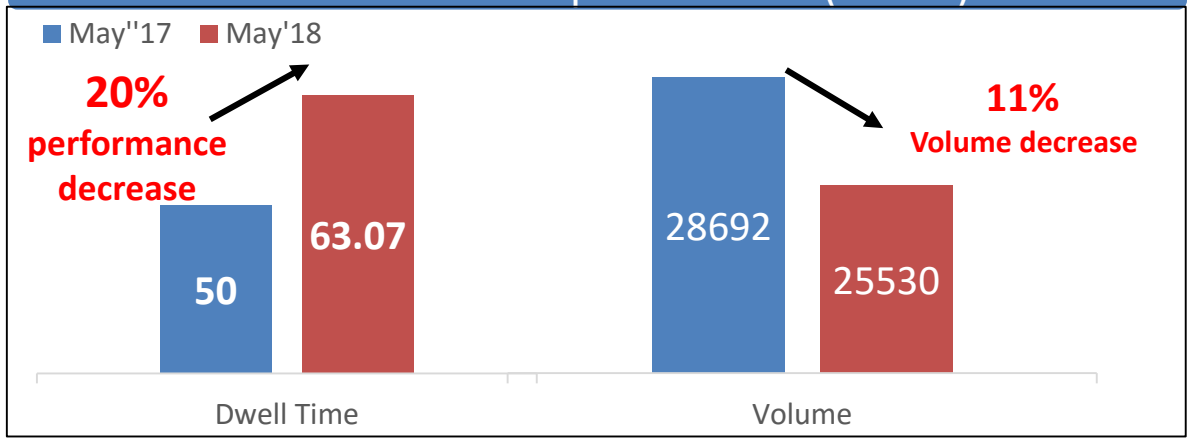
JNPCT Dwell time performance(in hrs.)



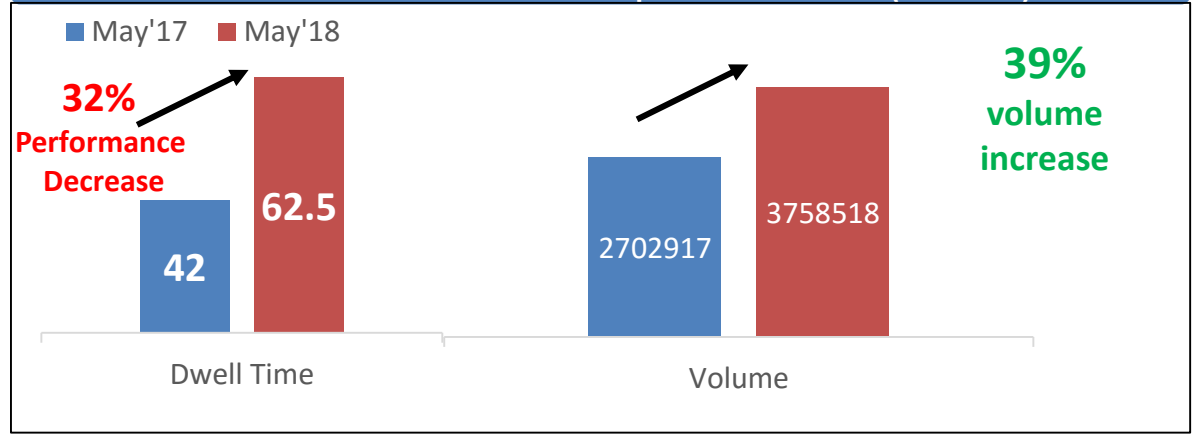
GTI Dwell time performance(in hrs.)



NSICT Dwell time performance(in hrs.)



NSIGT Dwell time trend performance(in hrs.)



Dwell time for all terminal has been increased from previous year(may’17) although the volume handled by all terminals expect NSIGT is lesser than the previous year

Import Cycle Analysis

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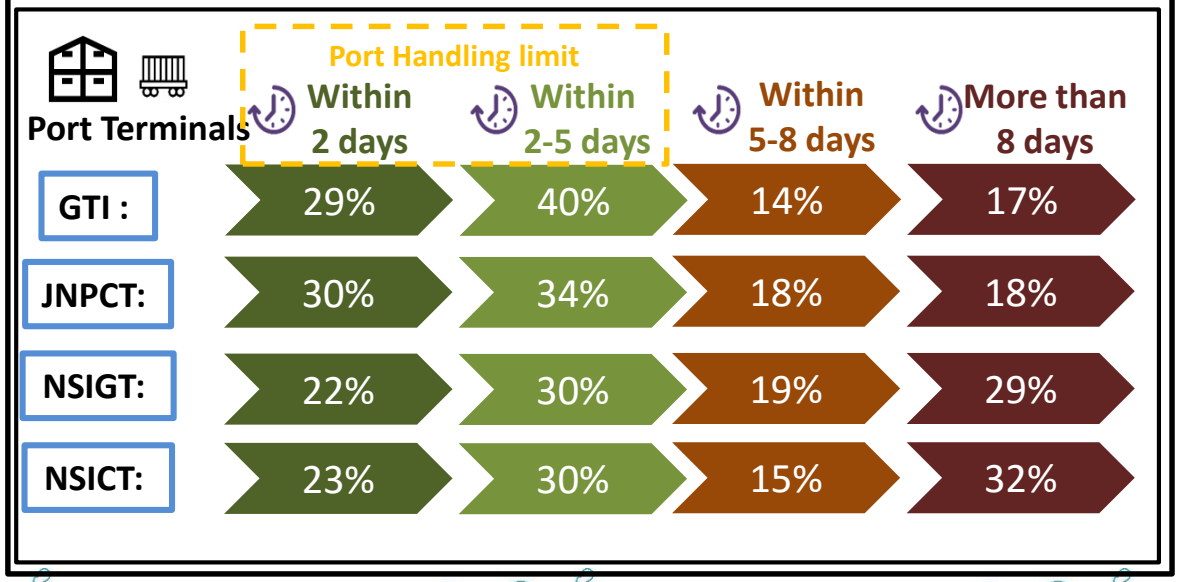
Port performance Import Cycle : JNPT region

PORT IMPORT via TRAIN

The Port Dwell time data for train movement in import cycle is depicted below. Port dwell time is the time duration between the entry of the container in Port terminal to the time it moves out of the Port terminal

Port	Apr'18 (in Hrs)	May'18 (in Hrs)
GTI	62.05	82.91
JNPCT	62.68	77.98
NSIGT	86.49	114.91
NSICT	115.22	113.78
BMCT	-	91.59

PORT IMPORT via TRAIN

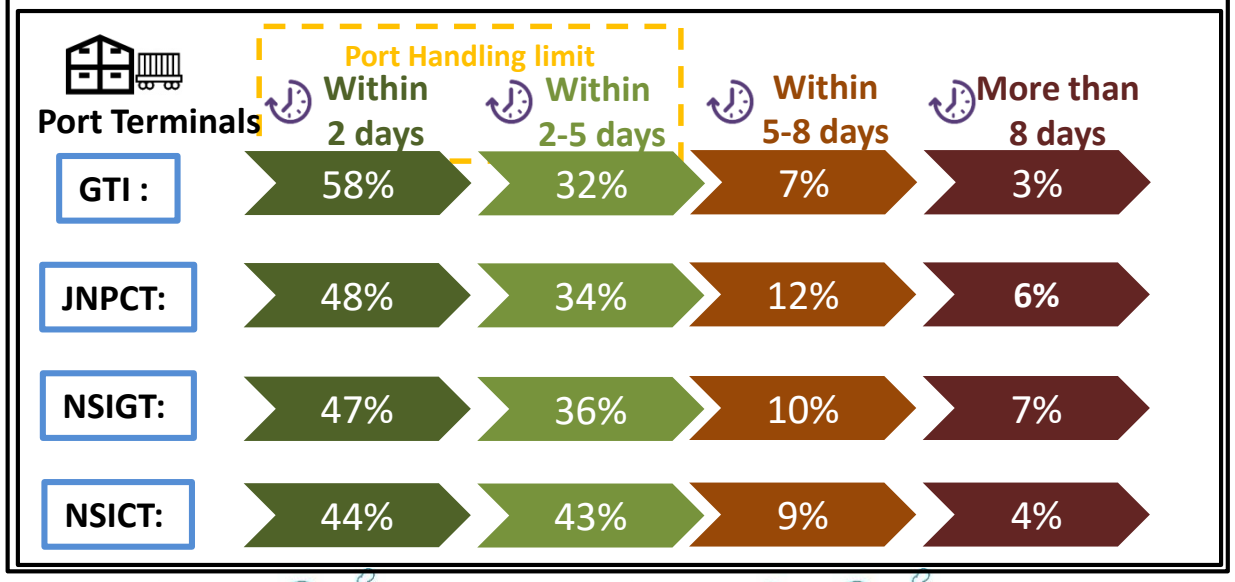


PORT IMPORT via TRUCK

The Port Dwell time data for Truck movement in import cycle is depicted below. Port dwell time is the time duration between the entry of the container in Port terminal to the time it moves out of the Port terminal

Port	Apr'18 (in Hrs)	May'18 (in Hrs)
GTI	26.4	40.18
JNPCT	30.7	50.80
NSICT	42.5	51.23
NSIGT	32.2	53.83
BMCT	-	60.64

PORT IMPORT via TRUCK



JNPT region Port Performance Import Cycle

The below tables depicts the detailed JNPT region port performance in the month of May'18

JNPCT

Port Dwell time based on transit type		
May'18	Direct Port Delivery containers	Containers bounds for CFS/ICD
Volume	2155	37787
Dwell time (in hrs)	36.45	56.48

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	34669	5271
Dwell time	54.31	52.43

GTI

Port Dwell time based on transit type		
May'18	Direct Port Delivery containers	Containers bounds for CFS/ICD
Volume	4755	51862
Dwell time	67.55	43.49

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	51439	5176
Dwell time	43.54	67.3

JNPT region Port Performance Import Cycle

The below tables depicts the detailed JNPT region port performance in the month of May'18

NSICT

Port Dwell time based on transit type		
May'18	Direct Port Delivery containers	Containers bounds for CFS/ICD
Volume	9615	1554
Dwell time	55.3	98.12

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	738	10421
Dwell time	60.78	58

NSIGT

Port Dwell time based on transit type		
May'18	Direct Port Delivery containers	Containers bounds for CFS/ICD
Volume	0	21721
Dwell time	-	56.93

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	20388	1331
Dwell time	57.9	47.8

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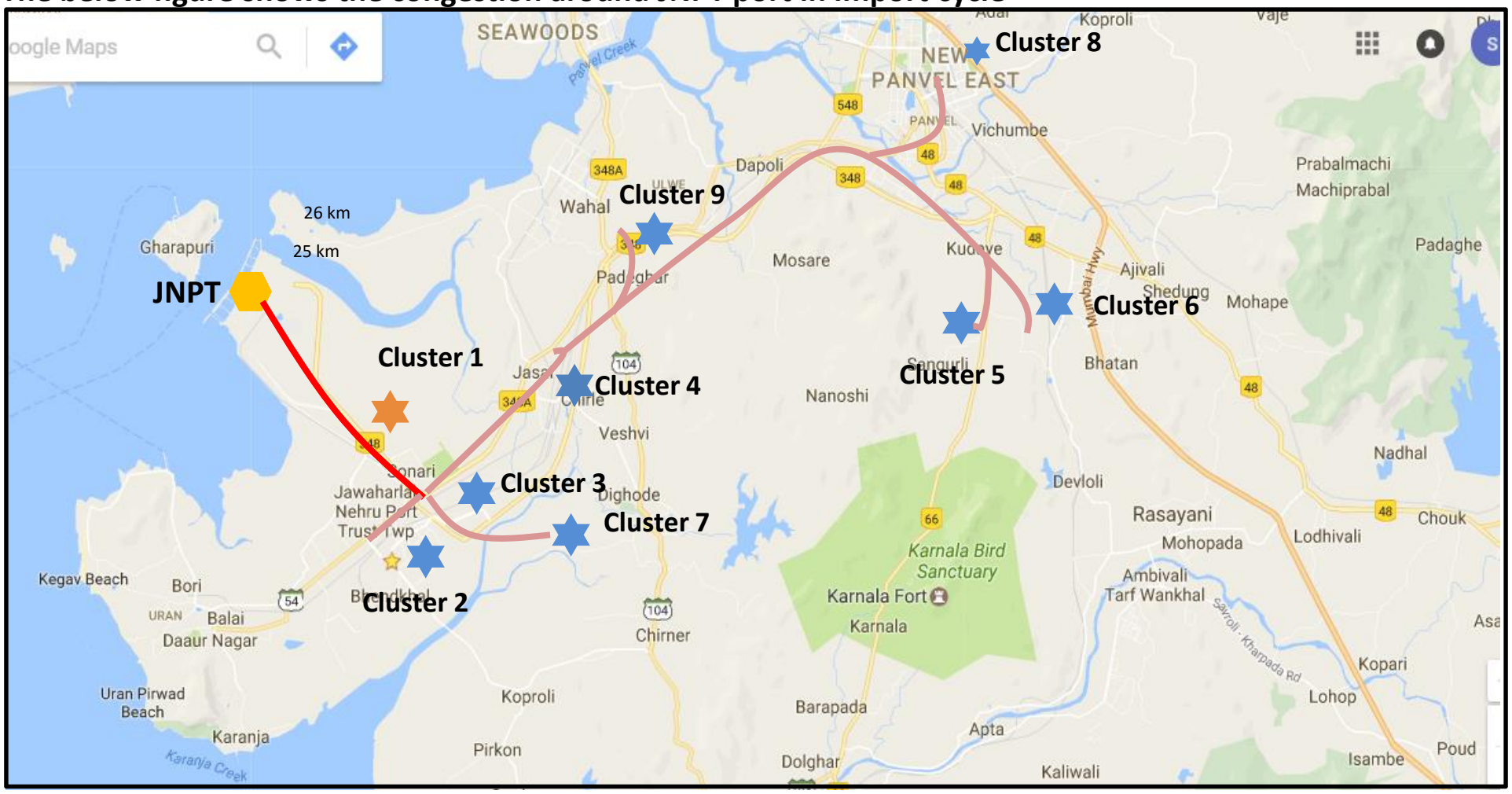
JNPT TRANSIT TIME: CONGESTION ANALYSIS

The below figure shows the congestion around JNPT port in Import cycle



Cluster 1	Cluster 2
JNPT Area	Bhendkhal area, Khopate road
Cluster 3	**Cluster 4**
Sonari area,JNPT road	Chirle area , JNPT road
Cluster 5	**Cluster 6**
Plaspa area, Coachi kanyakumari Highway	Salva apta rd area, Bangalore highway
Cluster 7	**Cluster 8**
Patilpada area, Khopate JNPT road	Taloja, Navi Mumbai
Cluster 9	
Padhegar area	

Note : Please find the respective CFS in each cluster in annexure section

GTI Terminal	JNPCT Terminal	NSICT Terminal	NSIGT Terminal
Congestion Level	**Congestion Level**	**Congestion Level**	**Congestion Level**
Import Cycle :-	Import Cycle :-	Import Cycle :-	Import Cycle :-

Note : Congestion is measured w.r.t actual time taken to cover the respective distance between clusters and terminals

Legends

- **High Congestion**
- **Medium Congestion**
- **Low Congestion**
- **Cluster with bottleneck**
- **Cluster without bottleneck**

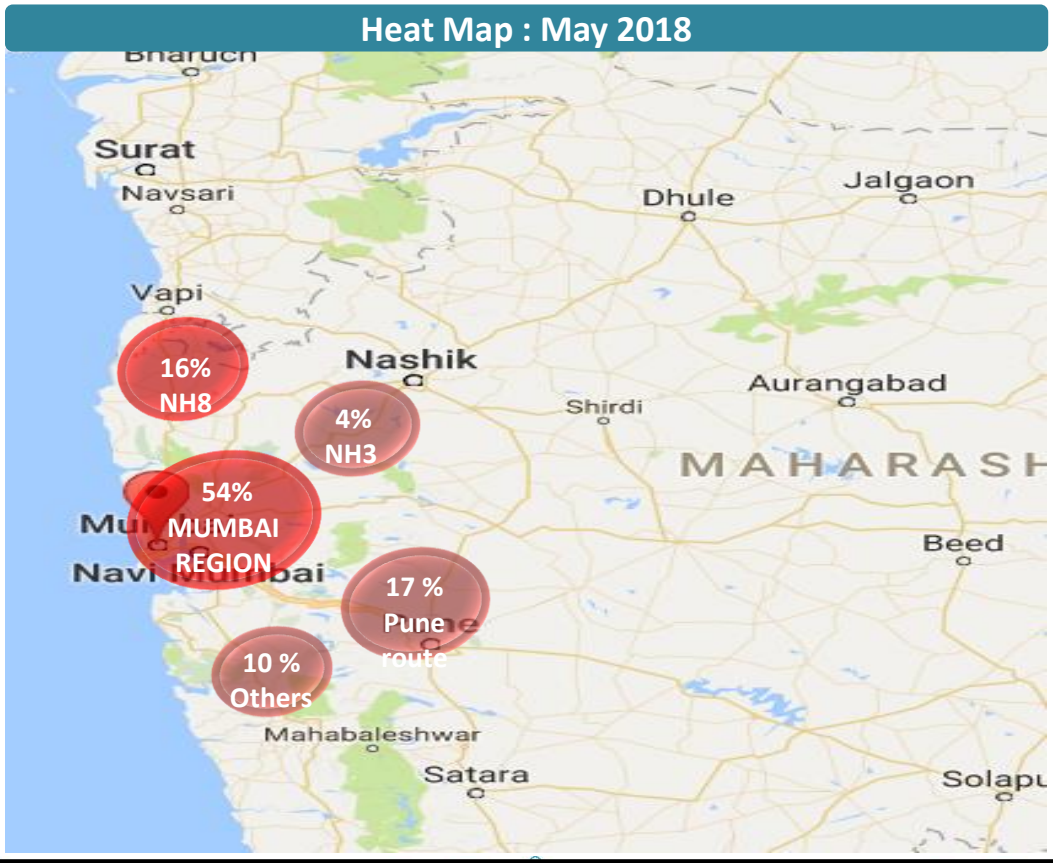
JNPT TRANSIT TIME: Container Movement

Via Truck

HEAT MAP : OVERALL MUMBAI REGION

Region	Transit Time- May ’18
Mumbai Region	54%
NH1	16%
NH3	3%
Pune Route	17%
Others	10%

The figure depicts the movement of containers via truck in and around Mumbai region.

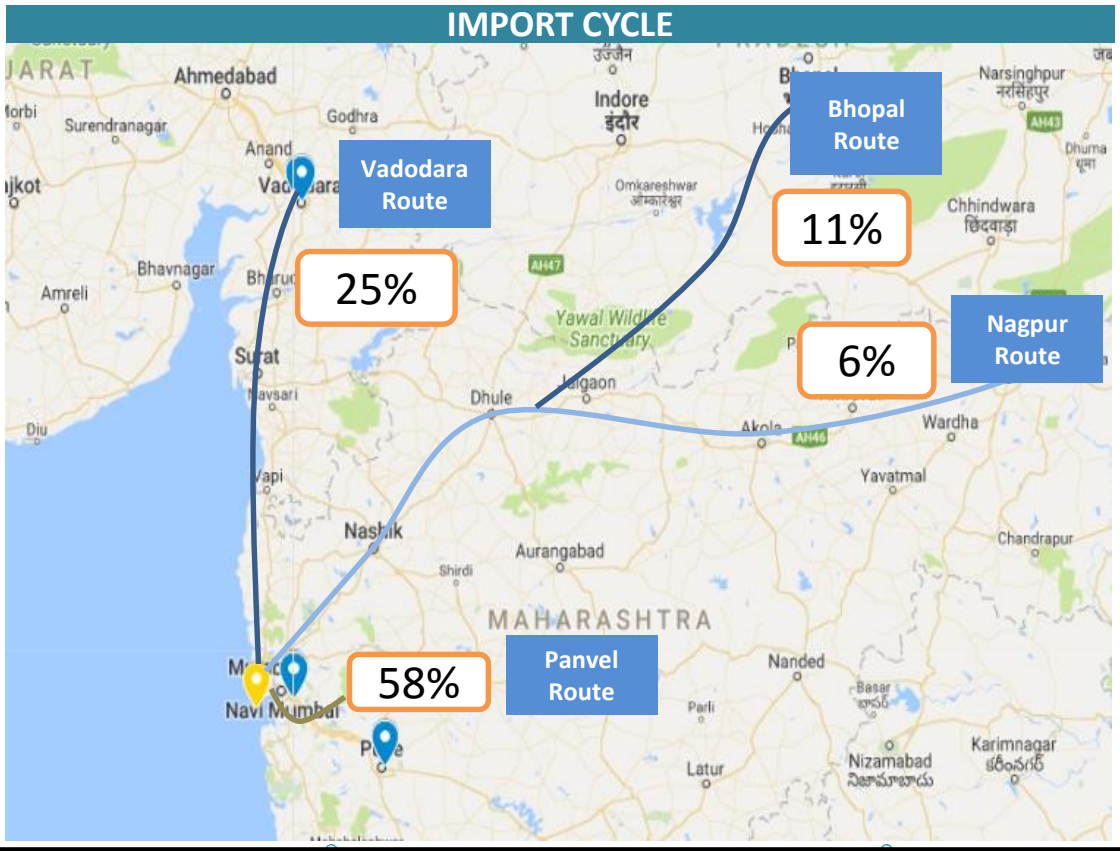


via Train

VOLUME WISE CONTAINER MOVEMENT

Region	Transit Time- May ’18
Vadadora Route	25%
Bhopal Route	11%
Nagpur Route	6%
Panvel Route	58%

The map shows the volume wise container movement through different railway routes in import cycle for **May** ’18

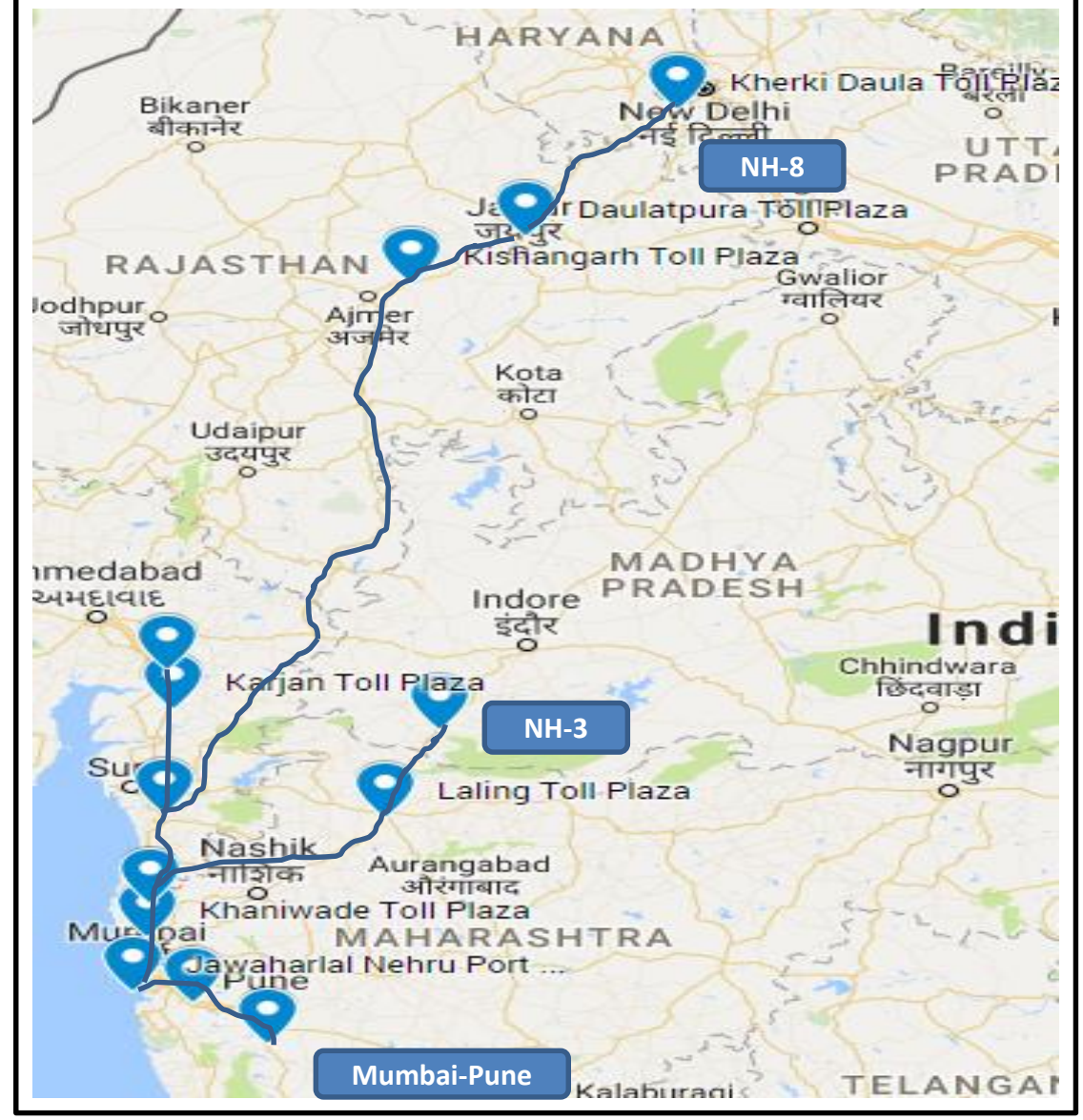


JNPT TRANSIT TIME: Toll Plaza Congestion Analysis

The below table shows all the toll plazas covered under DLDS connected with JNPT

Avg. Travel Time & Speed between Toll Plazas (May'18)					
Source	Destination Toll Plaza	Inter Distance (Km)	Avg. Travel Time (Hr)	May'18 Avg. Speed (Km/Hr.)	Apr'18 Avg. Speed (Km/Hr.)
JNPT	Khaniwade	94	7.3	13.3	12.7
JNPT	Khalapur	60	4.1	18.5	13.6
Khaniwade	Charoti	50	1.30	24.9	35.6
Charoti	Boriach	126	4.60	20.3	23.7
Boriach	Bharthan	142	4.30	31.6	31.8
Bharthan	Vasad	60	1.53	38.4	38.2
Kishangarh	Daulatpura	128	3.10	36.7	36.7
Khalapur	Khedshivpur	105	3.7	28.6	28.5
Daulatpura	Kherki	199	8.8	24.0	22.7

Map



Export Cycle Analysis

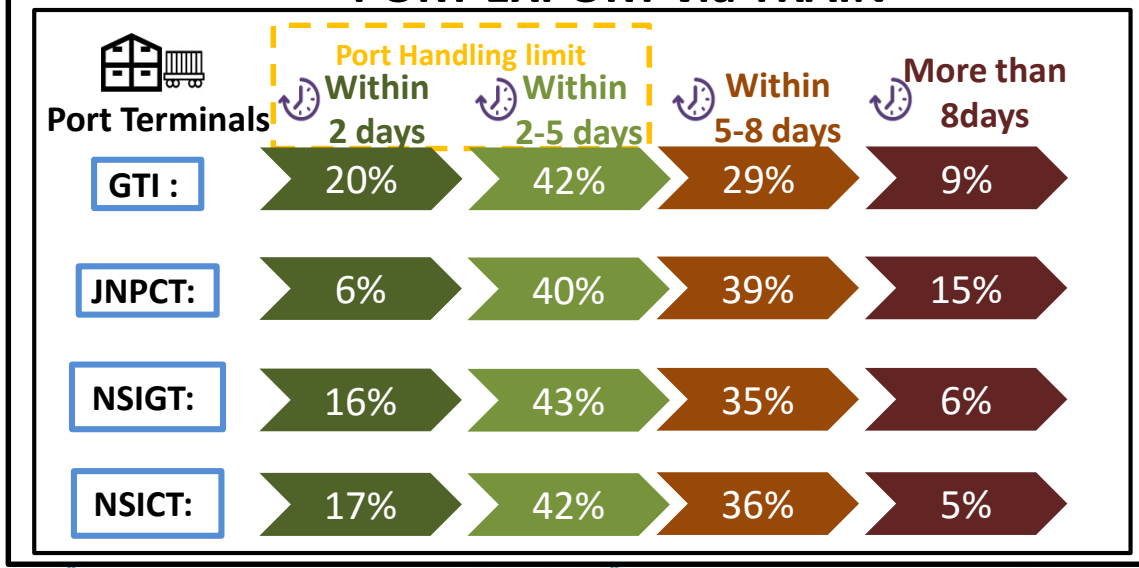
JNPT PORT DWELL TIME ANALYSIS : EXPORT CYCLE

PORT EXPORT via TRAIN

The Port Dwell time data for train movement in Export cycle is depicted below. Port dwell time is the time duration between the entry of the container in Port terminal to the time it moves out of the Port terminal

Port	Apr'18 (in Hrs)	May'18 (in Hrs)
GTI	108.79	95.84
JNPCT	136.35	127.77
NSIGT	99.81	101.31
NSICT	120.68	103.69
BMCT	-	-

PORT EXPORT via TRAIN

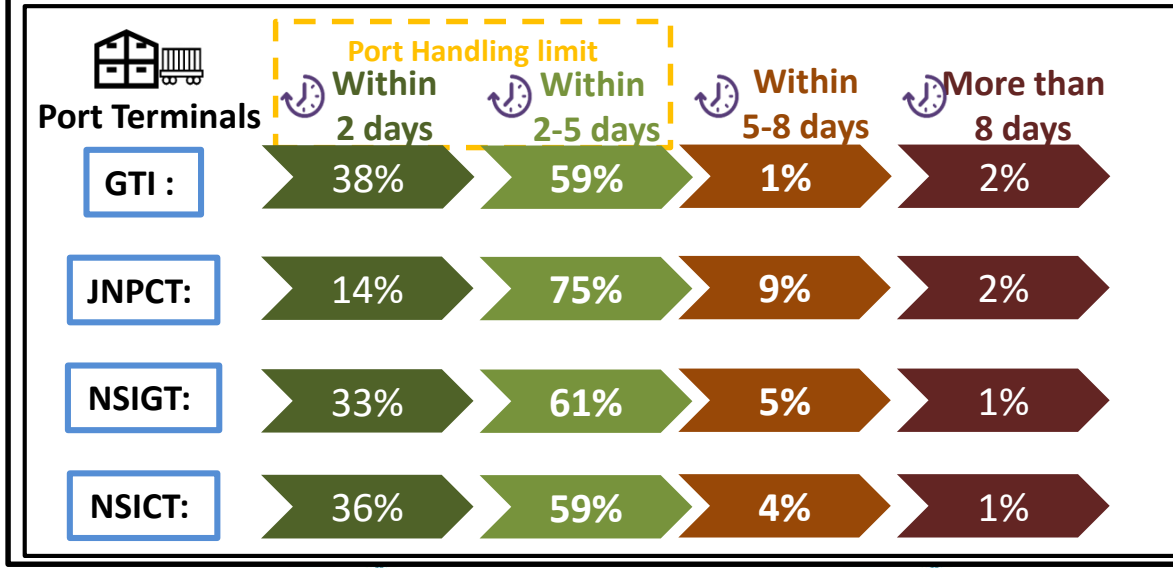


PORT EXPORT via TRUCK

The Port Dwell time data for Truck movement in Export cycle is depicted below. Port dwell time is the time duration between the entry of the container in Port terminal to the time it moves out of the Port terminal

Port	Apr'18 (in Hrs)	May'18(in Hrs)
GTI	61.70	56.25
JNPCT	76.61	82.81
NSIGT	63.53	62.81
NSICT	67.87	61.96
BMCT	-	80.02

PORT EXPORT via TRUCK



JNPT region Port Performance Export Cycle

The below tables depicts the detailed JNPT region port performance in the month of May'18

JNPCT

Port Dwell time based on transit type		
May'18	Direct Port Export containers	Containers bounds for CFS/ICD
Volume	10194	22380
Dwell time (in hrs)	76.89	123.50

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	20030	12543
Dwell time (in hrs)	78.20	92.06

GTI

Port Dwell time based on transit type		
May'18	Direct Port Export containers	Containers bounds for CFS/ICD
Volume	16839	28160
Dwell time (in hrs)	57.29	60

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	34482	10483
Dwell time (in hrs)	59.88	56.5

JNPT region Port Performance Export Cycle

The below tables depicts the detailed JNPT region port performance in the month of May'18

NSICT

Port Dwell time based on transit type		
May'18	Direct Port Export containers	Containers bounds for CFS/ICD
Volume	0	14371
Dwell time	-	65.68

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	12177	2194
Dwell time	67.18	57.4

NSIGT

Port Dwell time based on transit type		
May'18	Direct Port Export containers	Containers bounds for CFS/ICD
Volume	0	15864
Dwell time (in hrs)	-	67.18

Port Dwell time based on container type		
May'18	Laden Containers	Empty Containers
Volume	15562	302
Dwell time (in hrs)	67.2	66.97

JNPT REGION : CONGESTION ANALYSIS May'18

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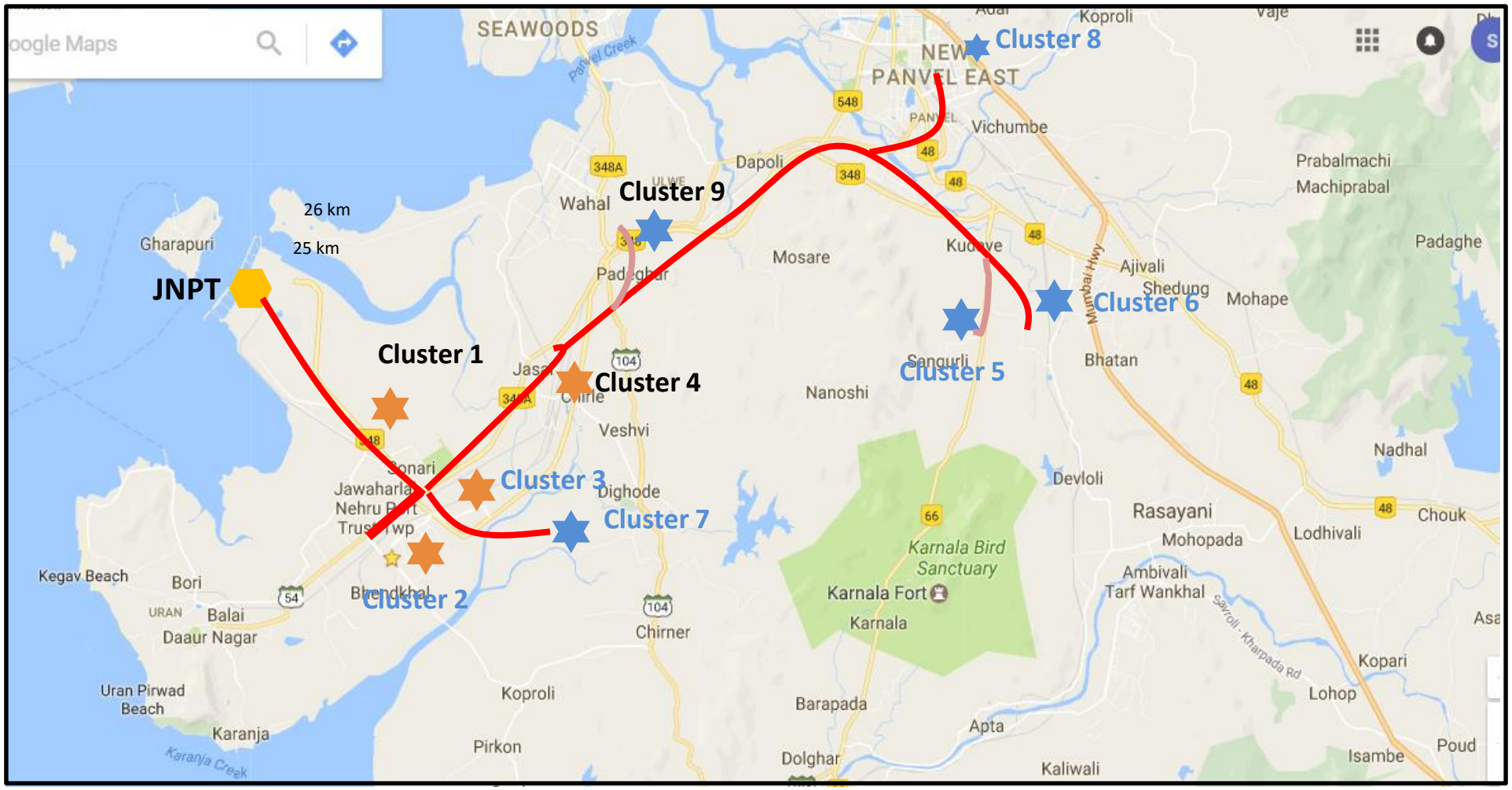
Congestion Analysis around Mumbai Region
The below figure shows the congestion around JNPT port in Export cycle



Cluster 1	Cluster 2
JNPT Area	Bhendkhal area, Khopate road
Cluster 3	**Cluster 4**
Sonari area,JNPT road	Chirle area , JNPT road
Cluster 5	**Cluster 6**
Plaspa area, Coachi kanyakumari Highway	Salva apta rd area, Bangalore highway
Cluster 7	**Cluster 8**
Patilpada area, Khopate JNPT road	Taloja, Navi Mumbai
Cluster 9	
Padhegar area	

Note : Please find the respective CFS in each cluster in annexure section

Legends

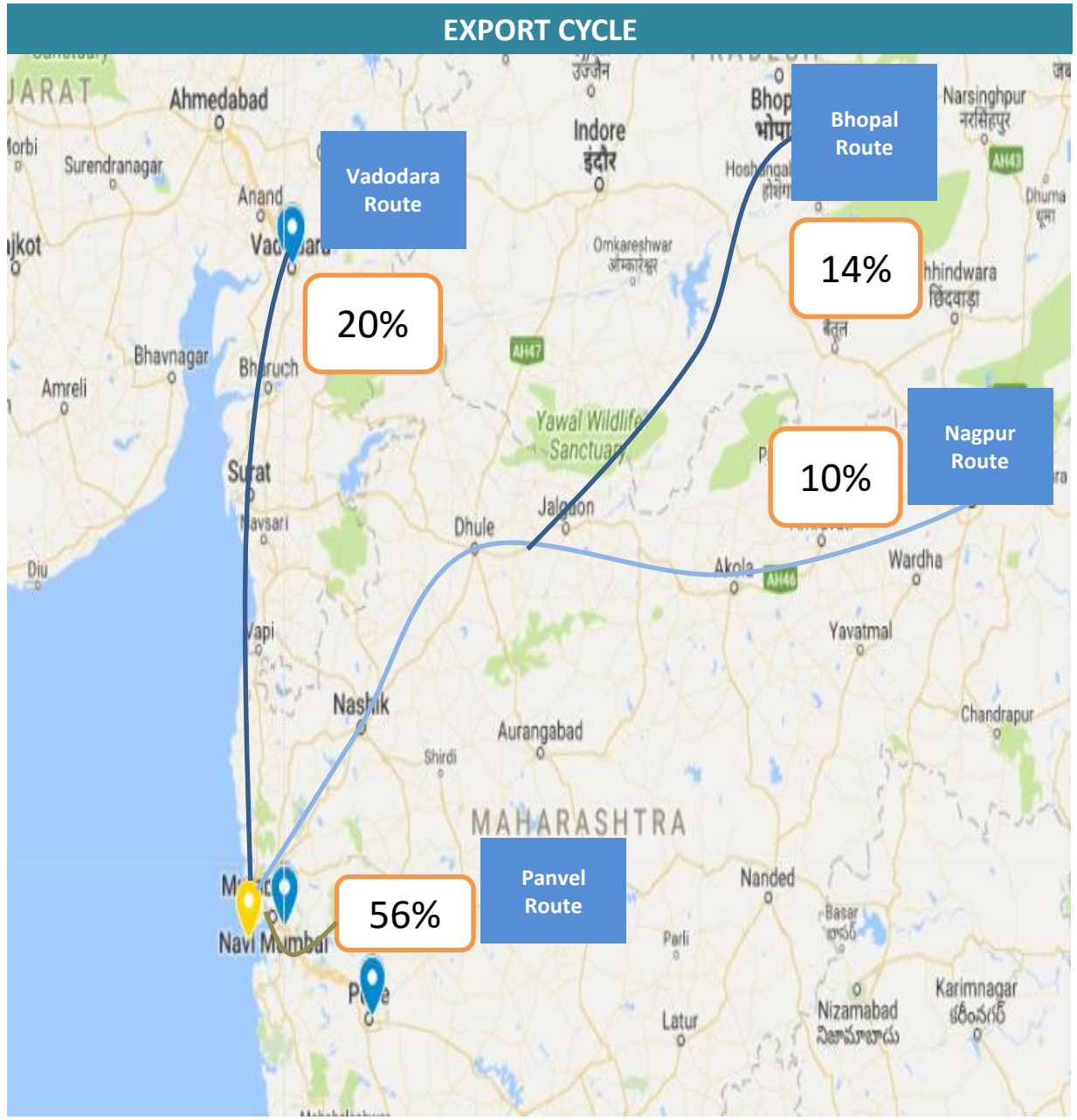
- High Congestion
- Medium Congestion
- Low Congestion
- Cluster with bottleneck
- Cluster without bottleneck

GTI Terminal	JNPCT Terminal	NSICT Terminal	NSIGT Terminal
Congestion Level	Congestion Level	Congestion Level	Congestion Level
Export Cycle :-	Export Cycle :-	Export Cycle :-	Export Cycle :-

Note : Congestion is measured w.r.t actual time taken to cover the respective distance between clusters and terminals

Container movement around JNPT Port terminal region via Train

The map shows the volume wise container movement through different railway routes in export and import cycle for May'18



CFS and ICD

Performance

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JNPT region CFS : CFS DWELL TIME ANALYSIS

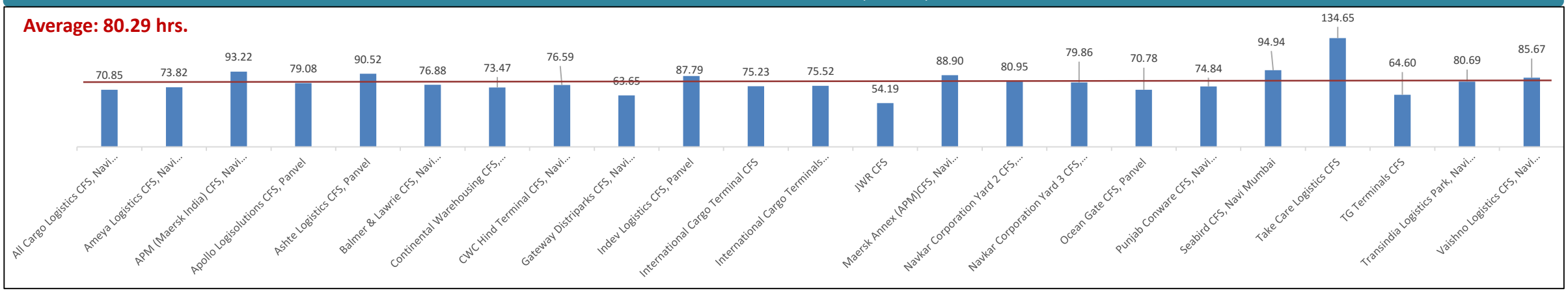
Below table shows the dwell time for the respective CFS's .

CFS Dwell Time (in hrs)

CFS	April'18	May'18
All Cargo Logistics CFS, Navi Mumbai	71.01	70.85
Ameya Logistics CFS, Navi Mumbai	82.74	73.82
APM (Maersk India) CFS, Navi Mumbai	68.51	93.22
Apollo Logisolutions CFS, Panvel	89.08	79.08
Ashte Logistics CFS, Panvel	108.18	90.52
Balmer & Lawrie CFS, Navi Mumbai	82.46	76.88
Continental Warehousing CFS, Navi Mumbai	75.84	73.47
CWC Hind Terminal CFS, Navi Mumbai	91.60	76.59
Gateway Distriparks CFS, Navi Mumbai	83.53	63.65
Indev Logistics CFS, Panvel	78.80	87.79
Punjab Conware CFS, Navi Mumbai	75.78	74.84

CFS	April'18	May'18
Seabird CFS, Navi Mumbai	71.86	94.94
Take Care Logistics CFS	99.67	134.65
TG Terminals CFS	149.65	64.60
Transindia Logistics Park, Navi Mumbai	73.74	80.69
Vaishno Logistics CFS, Navi Mumbai	77.10	85.67
International Cargo Terminal CFS	71.41	75.23
International Cargo Terminals (ULA) CFS, Navi Mumbai	81.47	75.52
JWR CFS	56.15	54.19
Maersk Annex (APM)CFS, Navi Mumbai	99.00	88.90
Navkar Corporation Yard 2 CFS, Panvel	63.97	80.95
Navkar Corporation Yard 3 CFS, Panvel	89.24	79.86
Ocean Gate CFS, Panvel	75.78	70.78

CFS – DWELL OVERVIEW (IN HRS)

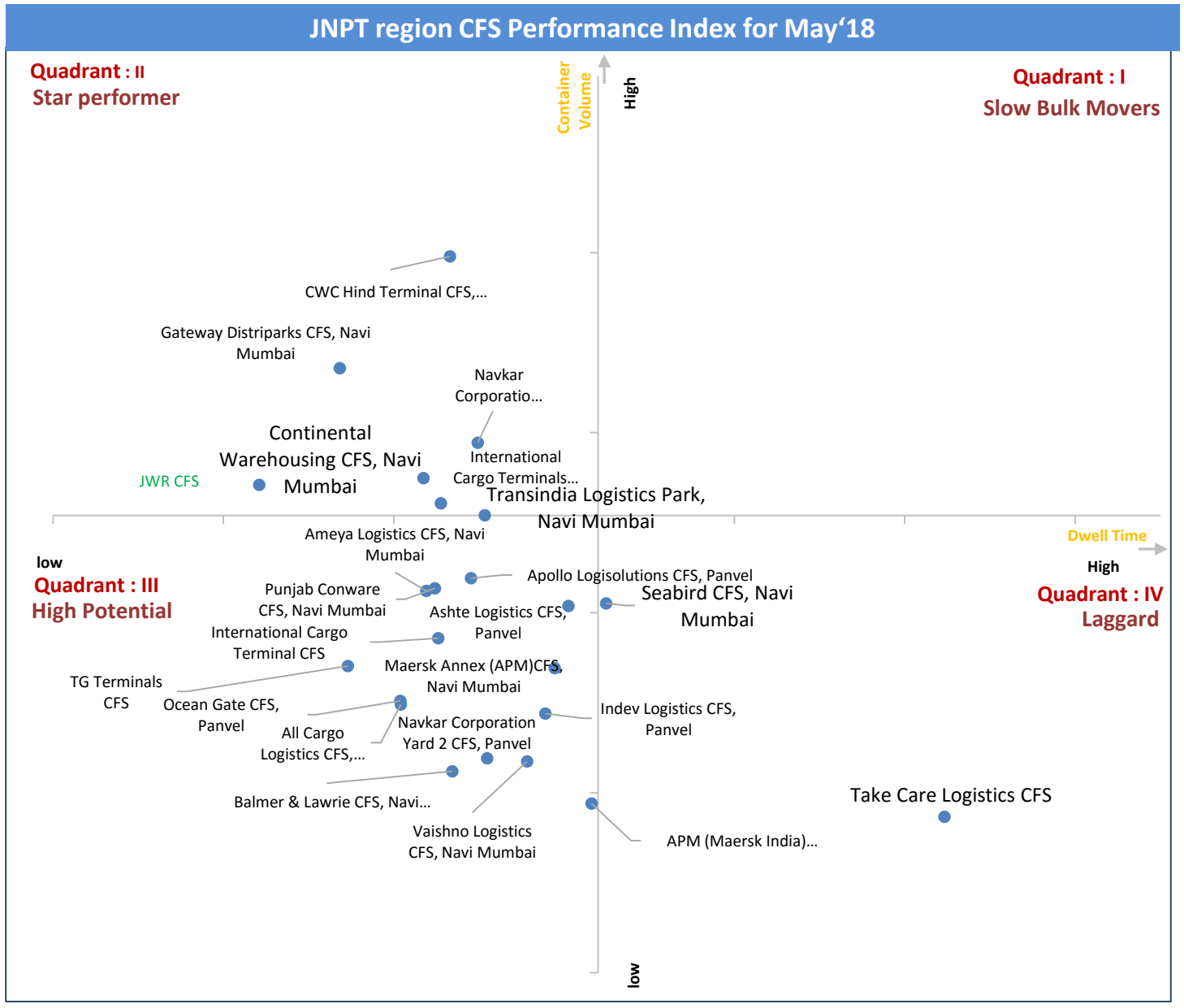


Top Performing CFS	
JWR CFS	**Dwell Time : 54.19 Hrs**

Low Performing ICD	
Take Care Logistics CFS	**Dwell Time : 134.65 Hrs**

JNPT region CFS : Performance Index

The below graph depicts the Performance Index for all CFS for Apr'18 quarter. The Quadrant II represent the best CFS with high frequency Index i.e. high container volume at lower dwell time



Legends

Top in category

- **Star performer**
- **Slow bulk mover**
- **High potential**
- **Laggard**

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ICD DWELL TIME ANALYSIS

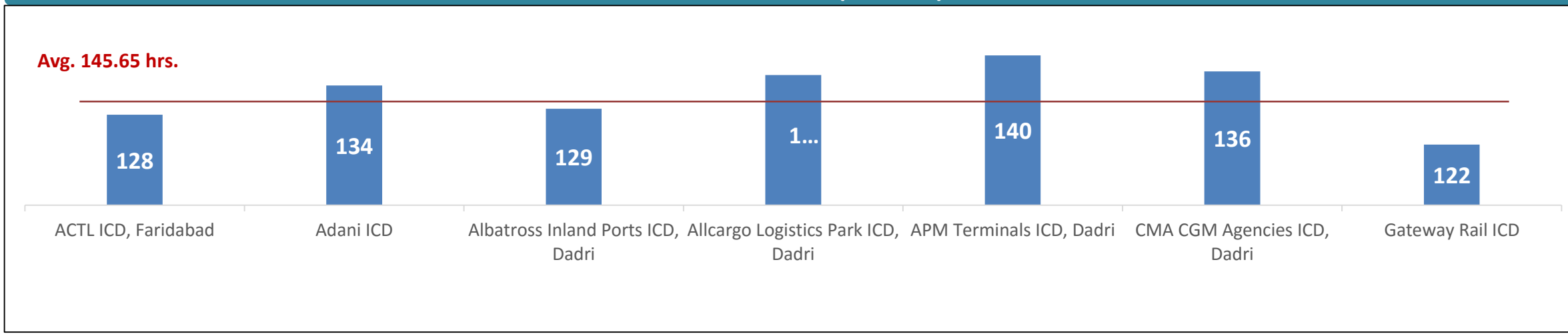
The table below depicts the dwell of all ICDs for month Apr'18 and May'18.

Dwell Time (in Hrs)		
ICD	Apr'18	May'18
ACTL ICD, Faridabad	138	128
Adani ICD	131	134
Albatross Inland Ports ICD, Dadri	115	129
Allcargo Logistics Park ICD, Dadri	168	136
APM Terminals ICD, Dadri	114	140
CMA CGM Agencies ICD, Dadri	153	136
Gateway Rail ICD	108	122

Top Performing ICD	
Gateway Rail ICD	122 hrs.

Low Performing ICD	
APM Terminals ICD, Dadri	140 hrs.

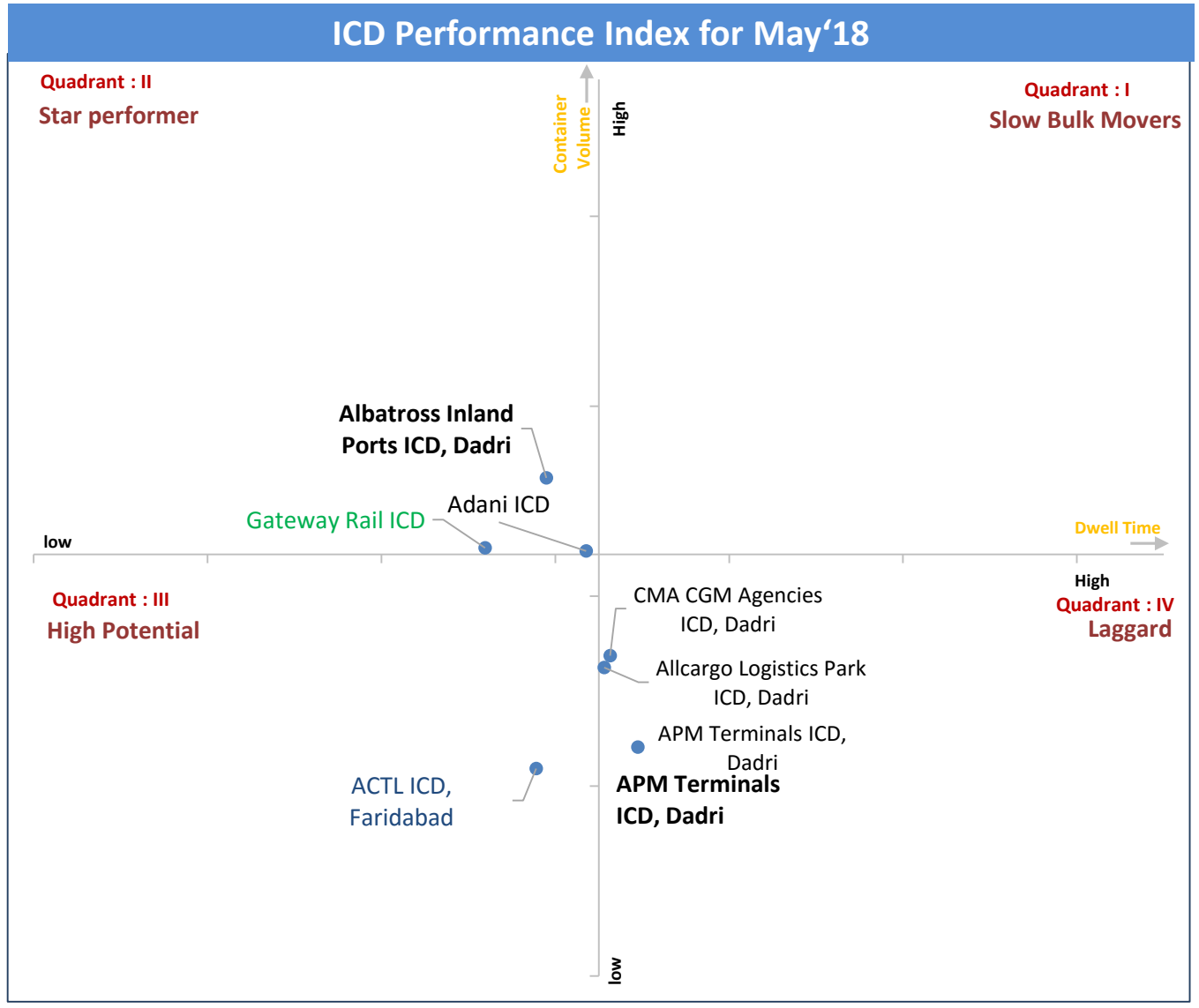
ICD – DWELL OVERVIEW (MAY'18) (IN HRS)

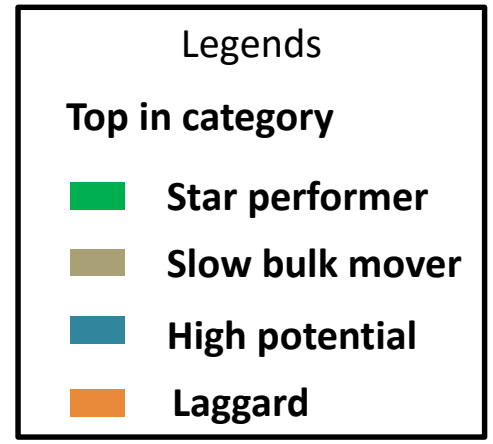


Note: CONCOR ICDs has been excluded from the analytics report

ICD : Performance Index

The below graph depicts the Performance Index for all ICDs for May'18. The Quadrant II represent the best ICD with high frequency Index i.e. high container volume at lower dwell time





Note: CONCOR ICDs has been excluded from the analytics report

ICD ANALYSIS : Transit Time Analysis

Transit Time Analysis

Below table shows the average delivery time of ICD in import cycle i.e. Port out to ICD in via rail transportation

ICD- AVG DELIVERY TIME PORT OUT TO ICD IN (TRAIN)	
Region	**May'18**
NCR region	3.41 days

Below table shows the average delivery time of ICD in export cycle i.e. ICD out to port in via rail transportation

ICD- AVG DELIVERY TIME ICD OUT TO PORT IN (TRAIN)	
Region	**May'18**
NCR region	2.83 days

LEAD TIME ANALYSIS

Below table shows the average lead time of ICD in import cycle i.e. Port in to ICD out via train. The ICD's in NCR region have low dwell time as compare to Aurangabad region, thus making the lead time for the Aurangabad region higher as compare to NCR region

ICD- AVG LEAD TIME (TRAIN)		
Region	**May'18**	**April'18**
NCR region	8.36 days	9.85 days

Calculation :

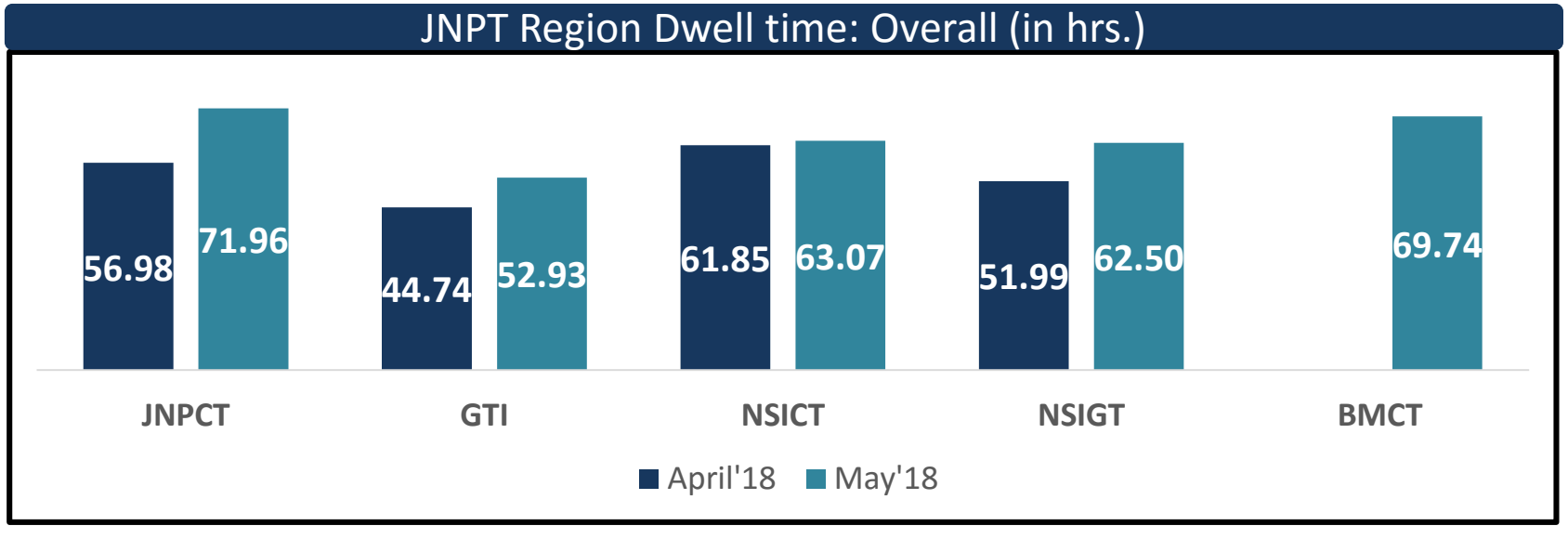
Port Dwell Time + Port to ICD Delivery Time + ICD Dwell Time = Avg. Lead Time from Port to ICD

Trend Analysis

JNPT PORT DWELL TIME TREND: Month on Month

JNPT port dwell time trend :

The below table shows the overall port dwell time (i.e. import and export cycle combine) trend of all the JNPT Port terminals for May'18. Port dwell time is the time duration between the entry of the container in Port terminal to the time it moves out of the Port terminal

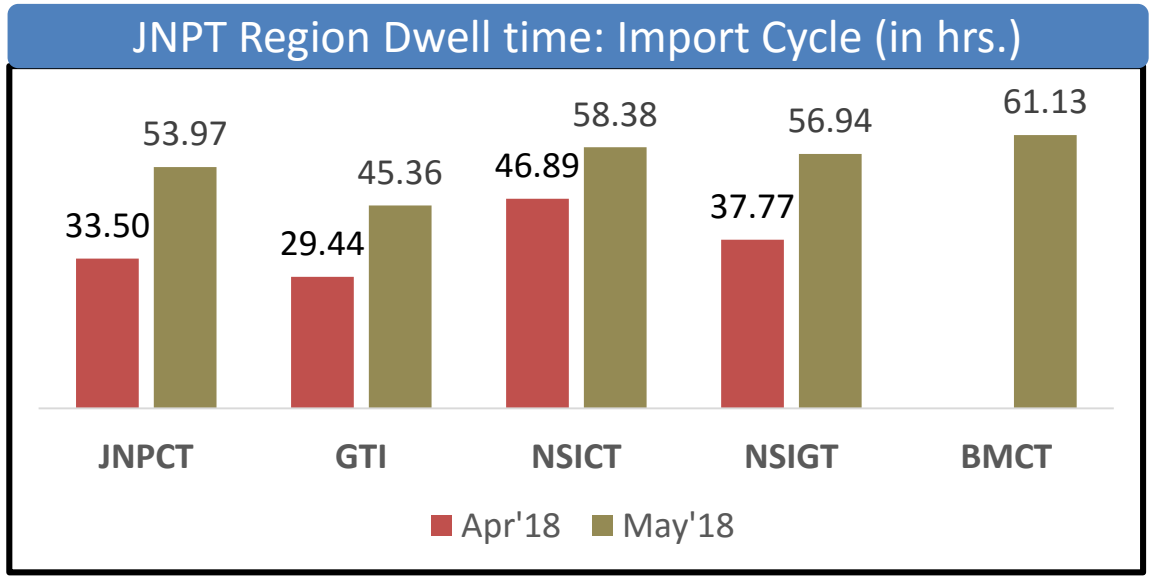


The overall JNPT region average dwell time for May'18 is 61.46 hrs as compared to 52 hrs. in April'18

The below tables showcase the Import and Export cycle dwell time for both rail and truck bound containers for month of Feb'18 ,March'18 and May'18

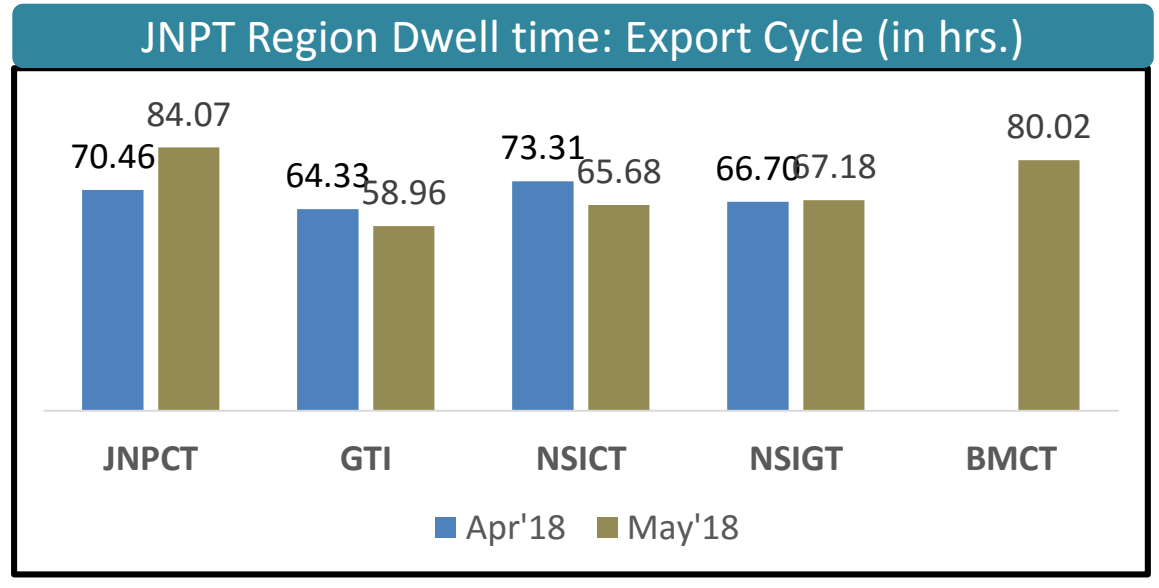
JNPT Import cycle Trend

The average import cycle dwell time of JNPT region port terminals for May'18 is 51.8 hrs.



JNPT Export cycle Trend

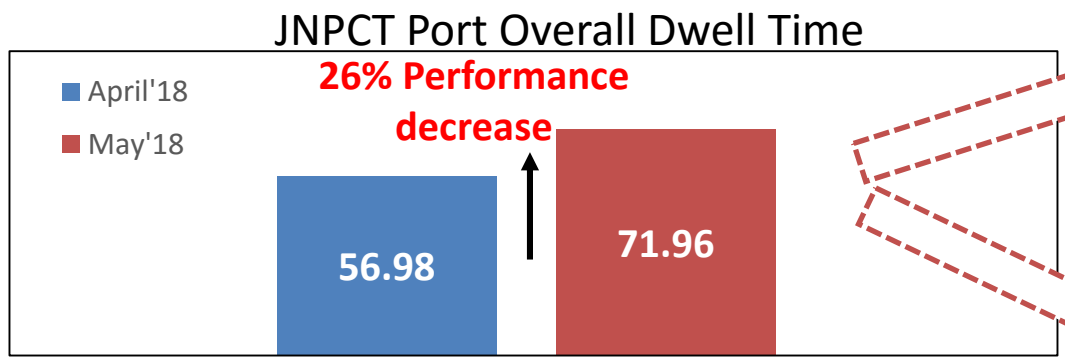
The average export cycle dwell time of JNPT region port terminals for May'18 is 69.28 hrs.

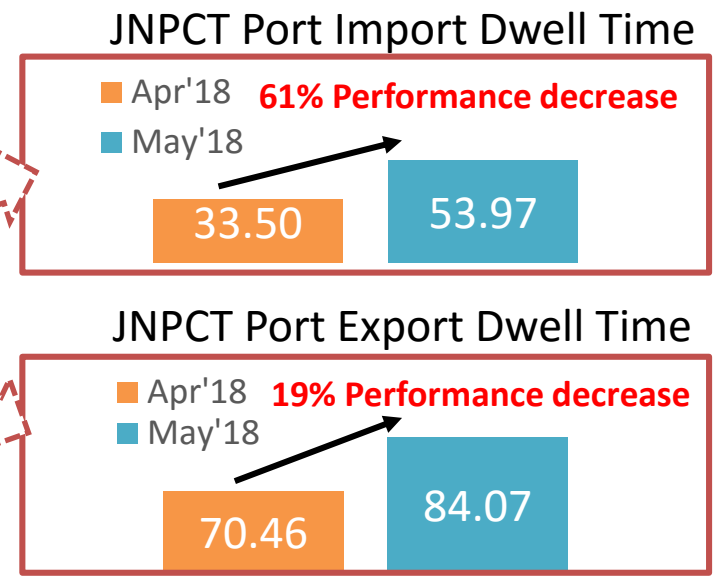


JNPCT Terminal Container Movement

Overall Port Dwell Time for JNPCT Terminal is 71.96 hrs, further calculation of dwell time on the basis of mode of transport (truck or train) used in the export and import cycle is done below

In May'18 overall Port Dwell Time has increased by 26% compared April'18





Similar trend is been observed in Import(61% decrease) and Export cycle (19% decrease)

Further analysis of container handling by port

Container Movement via Truck

Cycle	Container Handled within 2 days		Container Handled after 2 days		% Change in container handling within 2 days
	April'18	May'18	April'18	May'18	
Import	70%	48%	30%	52%	-32%
Export	19%	14%	81%	86%	-24%

Container Movement via Train

Cycle	Container Handled within 2 days		Container Handled after 2 days		% Change in container handling within 2 days
	April'18	May'18	April'18	May'18	
Import	38%	30%	62%	70%	-19%
Export	8%	6%	92%	94%	-29%

It is been observed that there has been 19% to 32% decrease in volume handled by JNPCT port within 2 days which has impacted the overall dwell time of the port

JNPT Port terminals Dwell Time Trend and Forecast

For the 4 terminals of JNPT i.e. JNPCT, GTI, NSIGT & NSICT prediction analysis has been done on Dwell Time

Dwell time dependence on terminal volume has been evaluated i.e. intercept coefficient, this helped in predicting the dwell time of the terminal based on the forecasted volume for the month June'18 and July'18

Logic for predicting Dwell Time = Intercept Coefficient + (x variable * forecasted volume)

Terminal	Intercept Coefficient
JNPCT	60.23
GTI	40.62
NSIGT	61.59
NISCT	48.43

Note: The prediction has been done with the error rate of 35%

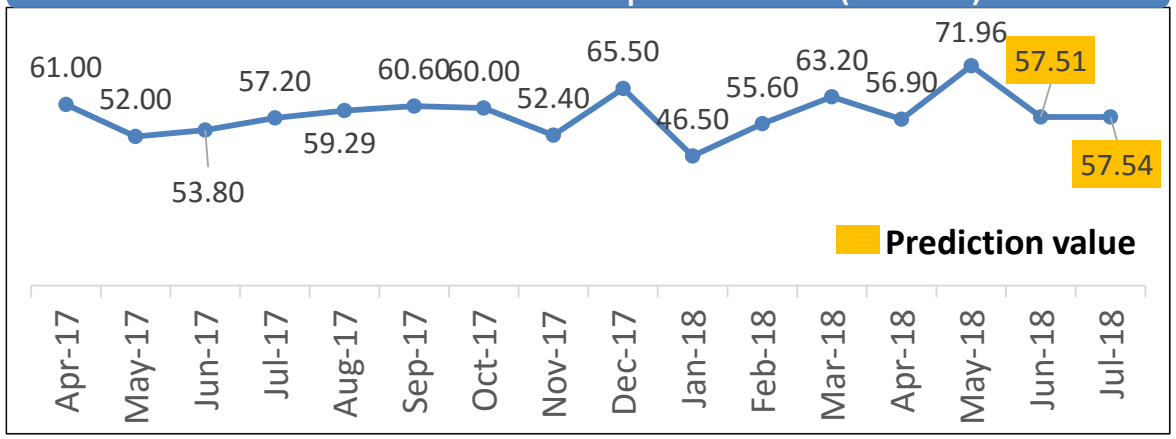
JNPT Port terminals Dwell time Trend and Forecast

DLDS Logistics Redefined
DMICDC LOGISTICS DATA SERVICES LTD

The below graphs display the dwell time and volume trend across the year of JNPT Port terminals from April'17 to May'18. The highlighted data points are the projections for the month of June'18 and July'18

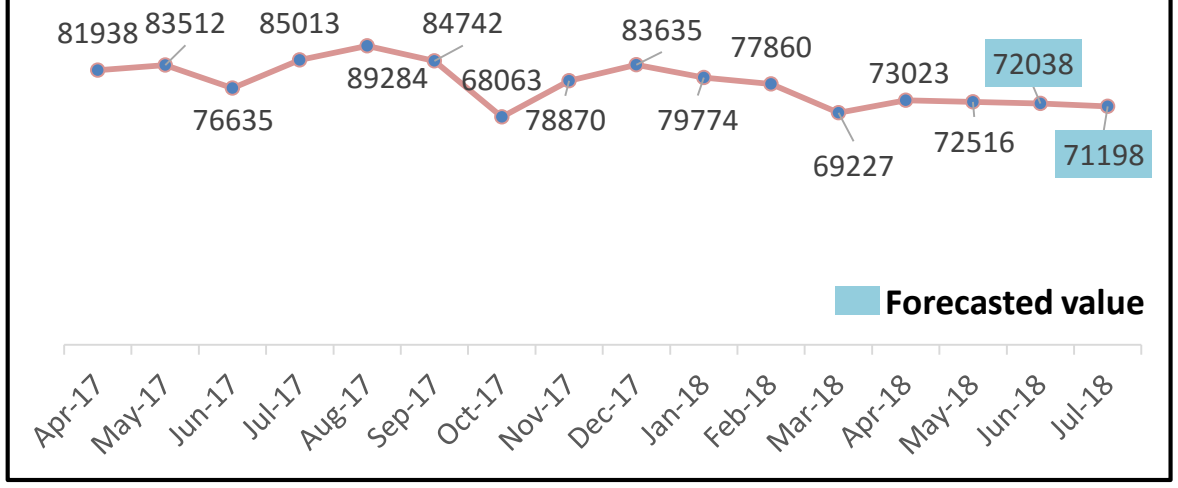
JNPCT

Dwell Time Trend and prediction (in hrs.)



CAGR: -0.45%

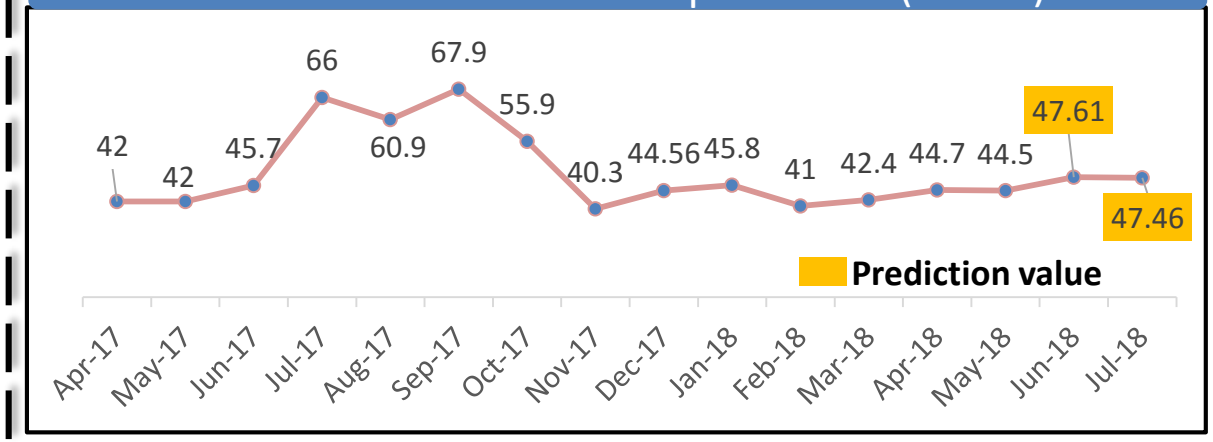
Container Volume Trend and forecast



CAGR: -1.07%

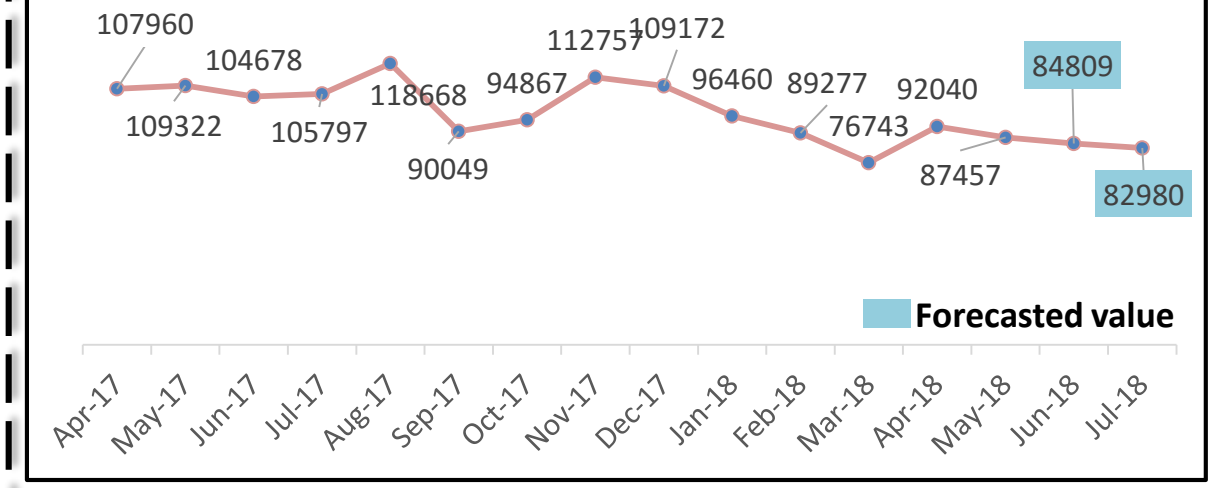
GTI

GTI Dwell time trend and prediction (in hrs.)



CAGR: 0.94%

GTI Container volume trend and forecast



CAGR: 2%

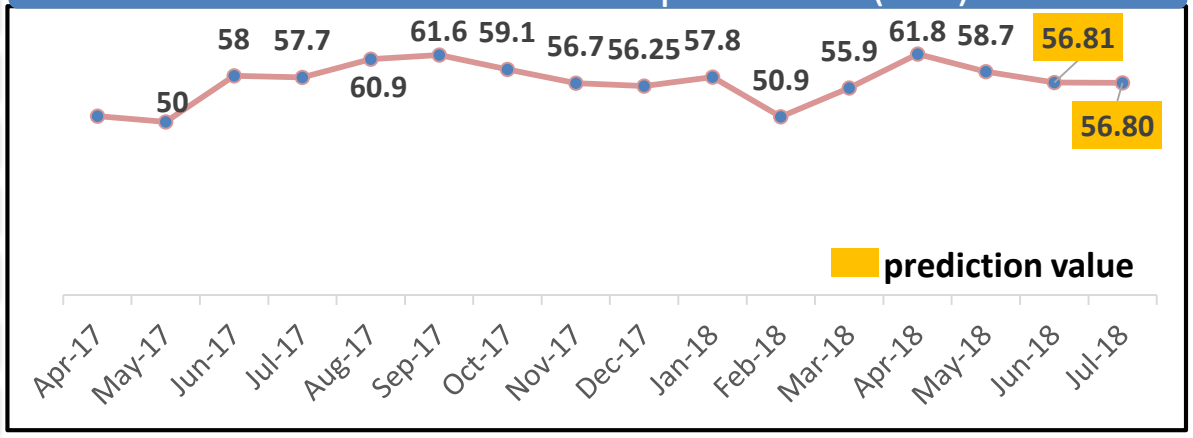
JNPT Port terminals Dwell time Trend and Forecast

DLDS Logistics Redefined
DMICDC LOGISTICS DATA SERVICES LTD

The below graphs display the dwell time and volume trend across the year of JNPT Port terminals from April'17 to May'18. The highlighted data points are the projections for the month of June'18 and July'18

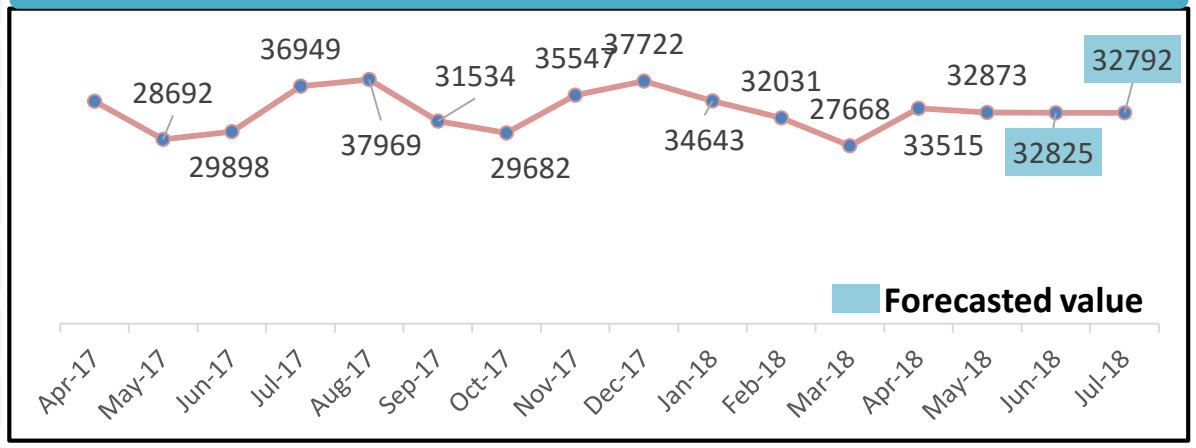
NSICT

Dwell Time Trend and prediction (hrs.)



CAGR: 0.99%

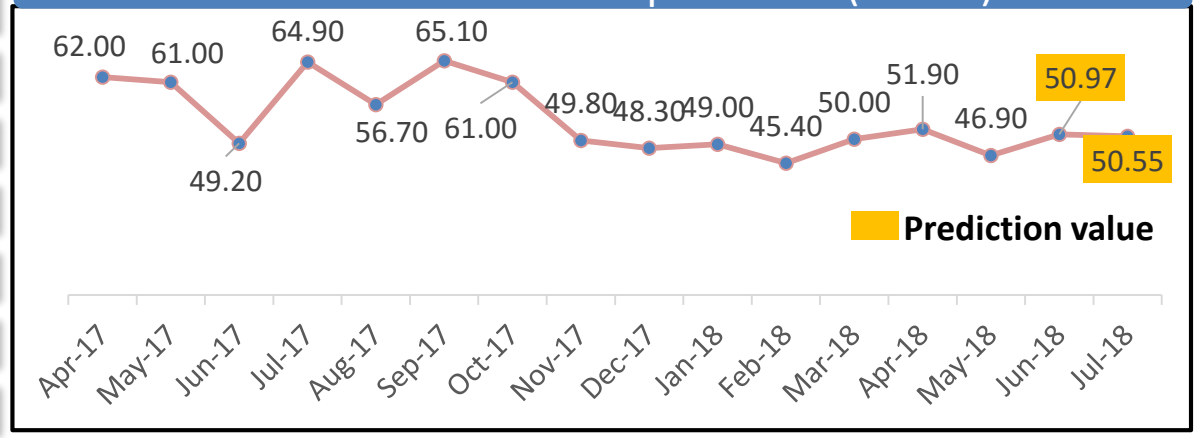
Container Volume Trend and forecast



CAGR: 1.03%

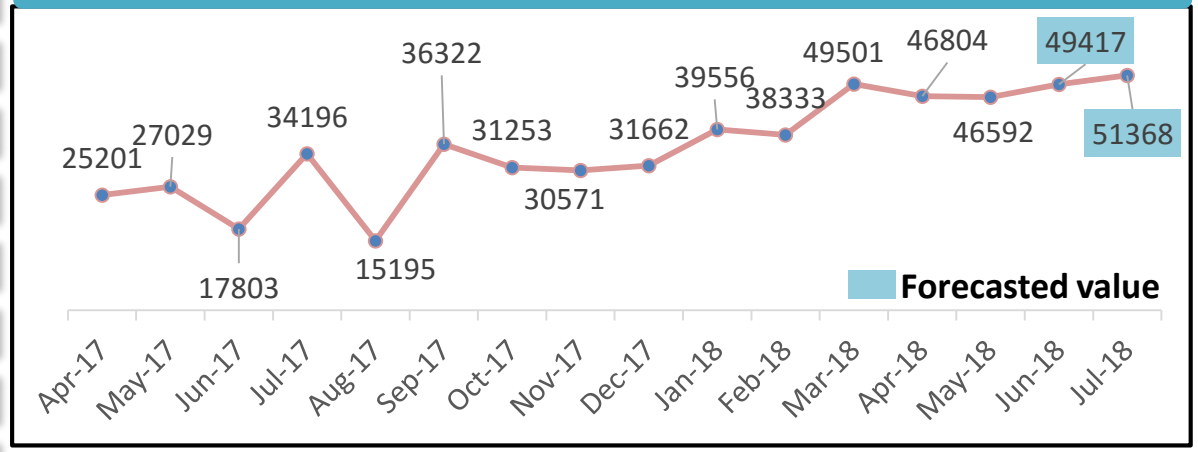
NSIGT

Dwell Time Trend and prediction(in hrs.)



CAGR: -1.56%

Container Volume Trend and forecast



CAGR: 5.63%

SECTION III:

ANNEXURE

JNPT

CO 2 Emission : Calculations

- **Carbon emission has been calculated for N3 tractor trailer (most commonly used in India) along with the support of white paper published by INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION and ECTA**
- **Fuel consumption per litre depicts the figure the truck will consumes while its ignition is turn on (truck in motion + truck waiting in queue with engine turned on)**
- **Please find the calculations in below excel sheet**

Vehicle	Gross vehicle weight (tonnes)	Axle cong	Speed	Fuel consuptio upper limit (l/100km)
N3 Tractor Trailers	40.2-49.0	6x2	40 km/hr	37.4
	40.2-49.0	6x4		43

Average fuel consumption (l/100km)
40

CFS

Import Cycle		
Average distance covered by truck around JNPT	Feb'17	Dec'17
19	3.84	2.4
Fuel consumed	**61.44**	**38.4**

Average distance covered by truck around J
19
Fuel consumed

Carbon Emission in Import cycle				
Formula	For Dieseal (Kg CO2/ltr)	Feb'17	Dec'17	Improvement
Carbon Emissio	2.9	178.176	111.36	38%

Formula
Carbon Emission = fuel consumed * Fu

Toll Plaza

Toll plazas	Toll Plaza		
	erage distance covered btw toll pl	July'17	Nov'17
Khaniwade to Charoti	50	1.6	1.3
	Fuel consumed	**25.6**	**20.8**
JNPT to Khaniwade	94	7.2	6.6
	Fuel consumed	**115.2**	**105.6**
Kishangarh to Daulatpura	128	3.6	3.2
	Fuel consumed	**57.6**	**51.2**
Bharthan to Vasad	60	1.7	1.6
	Fuel consumed	**27.2**	**25.6**

Formula
Carbon Emission = fuel consumed * Fu
Khaniwade to Charoti
JNPT to Khaniwade
Kishangarh to Daulatpura
Bharthan to Vasad

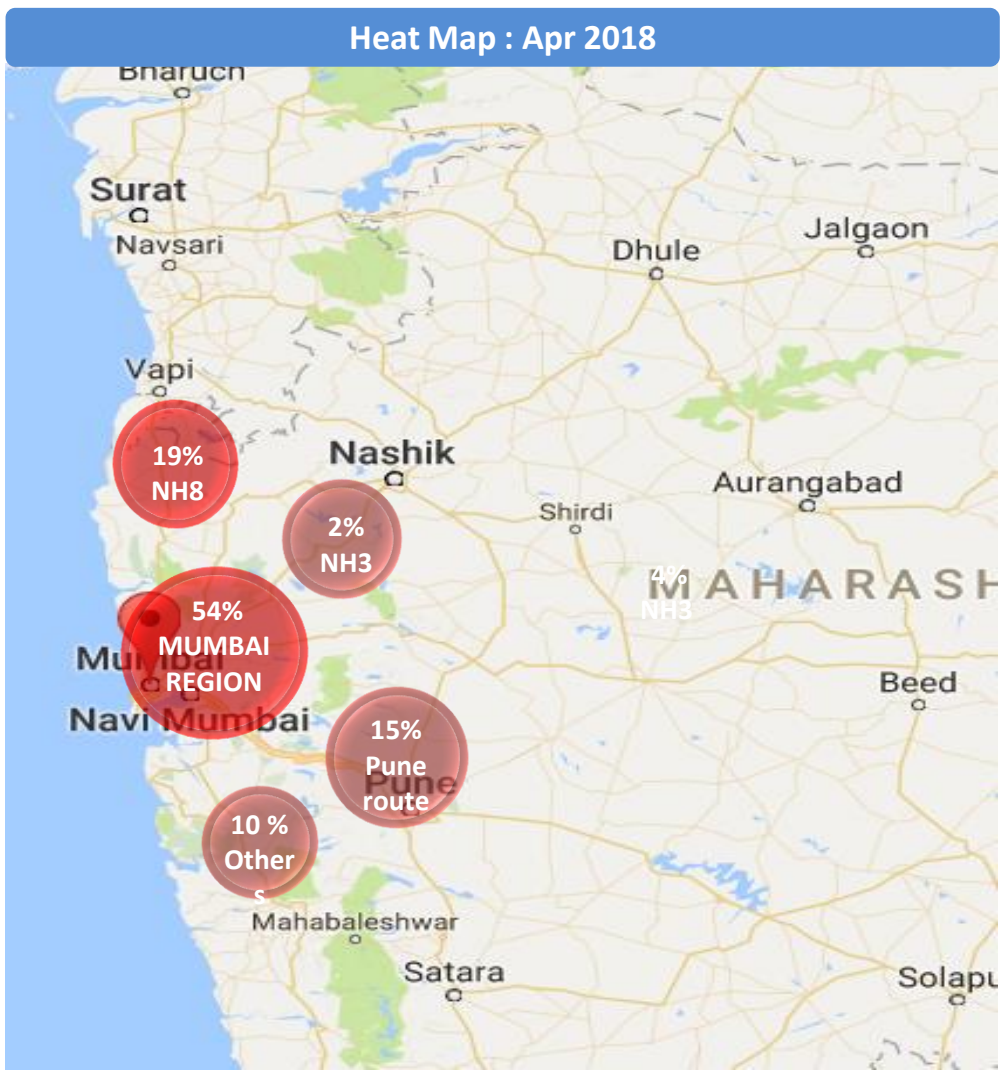
Source
INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION https://www.ecta.com/resources/Documents/Best%20Practices%20Guidelines/guideline_for_measuring_and_managing_co2.pdf
ECTA https://www.theicct.org/sites/default/files/publications/ICCT_India-HDV-fuel-consumption_policy-update_20171207.pdf
NECTI analysis

- **Please find toll plaza details below**

Toll plaza	Name	Toll plaza	Name
T1	**Khaniwade**	T3	**Kishangarh**
T2	**Charoti**	T4	**Daulatpura**
		T5	**Bharthan**
		T6	**Vasad**

Container movement around JNPT Port terminal region via Truck

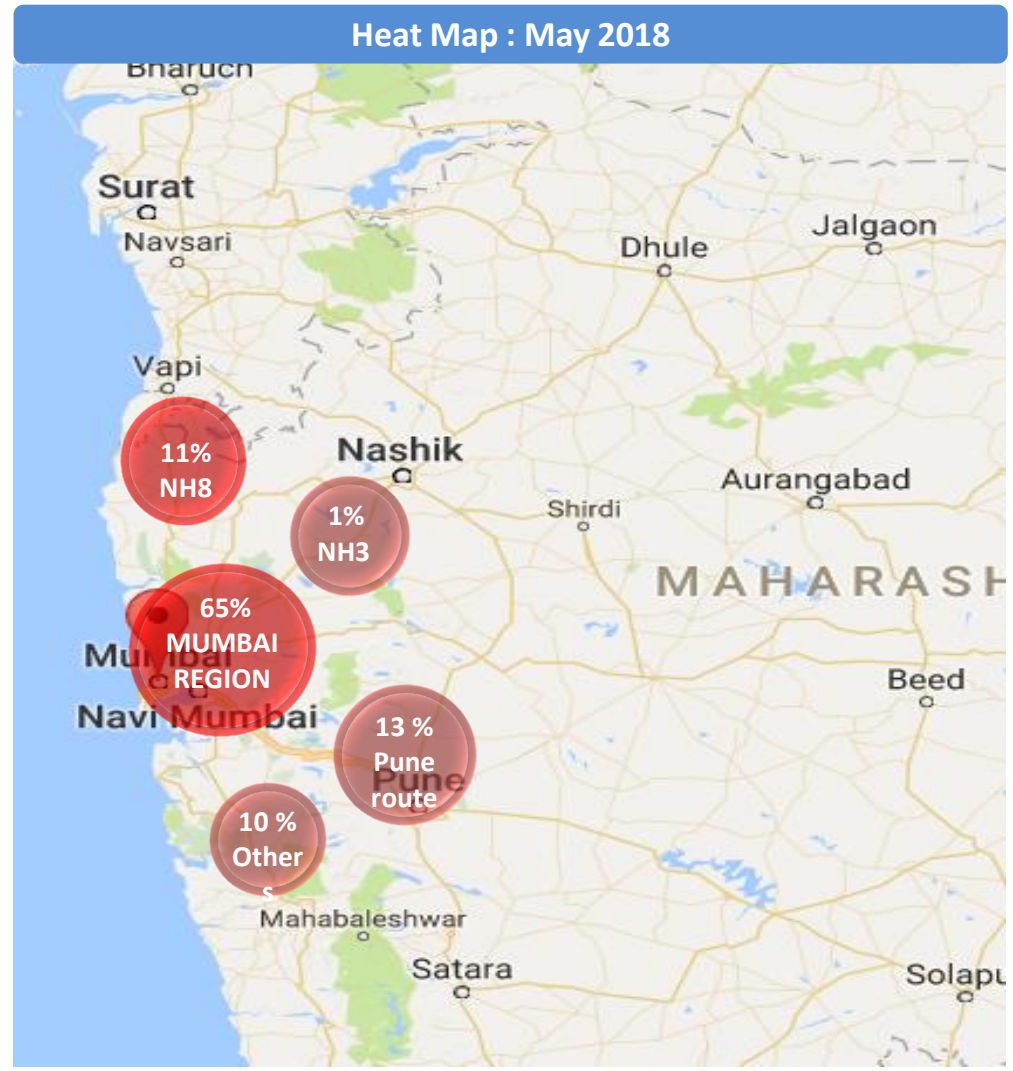
HEAT MAP : JNPCT Port Terminal



Region	Apr'18	May'18
Mumbai region	59%	54%
NH3	1%	2%
Pune	12%	15%
NH8	18%	19%
others	10%	10%

The heat map above depicts the movement of containers in and around the Mumbai region.

HEAT MAP : GTI Port Terminal

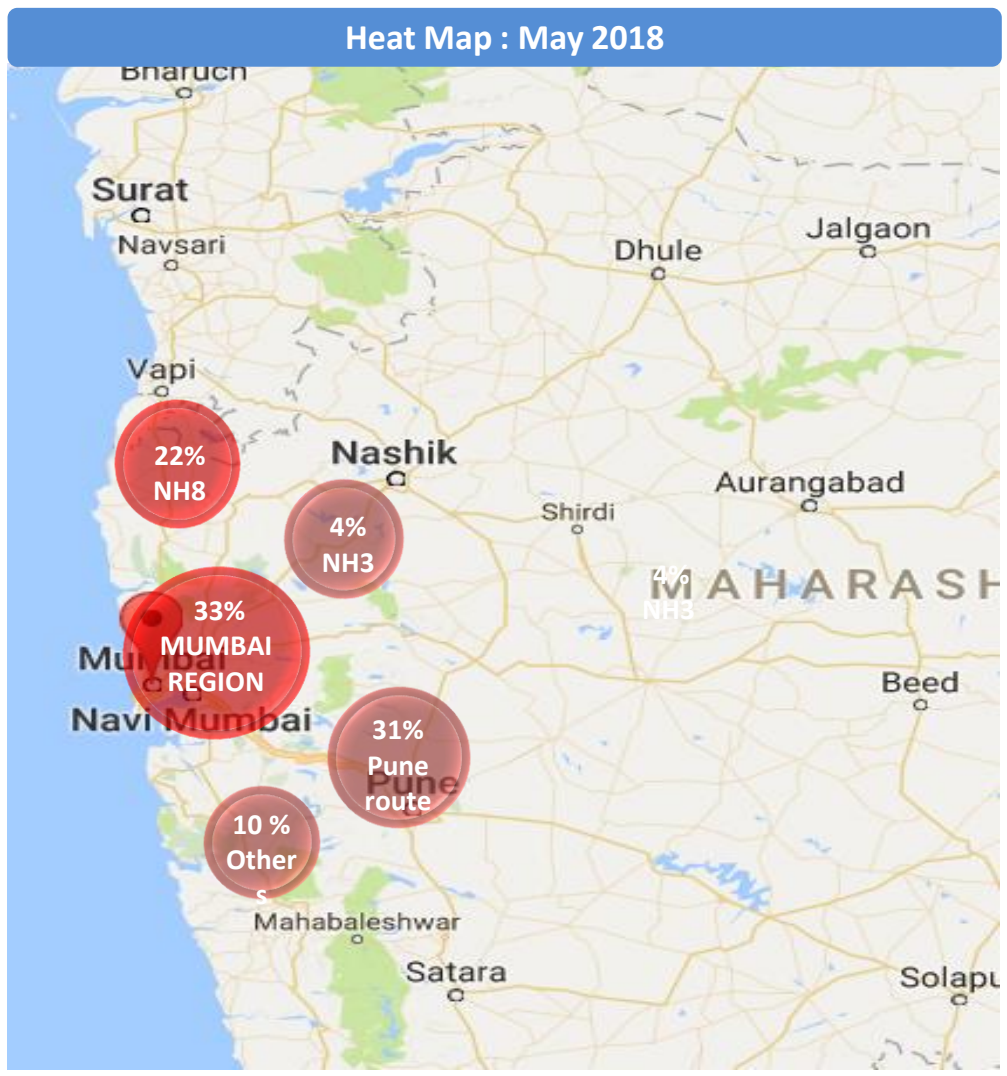


Region	Apr'18	May'18
Mumbai region	60%	65%
NH3	1%	1%
Pune	14%	13%
NH8	15%	11%
others	10%	10%

The heat map above depicts the movement of containers in and around the Mumbai region.

Container movement around JNPT Port terminal region via Truck

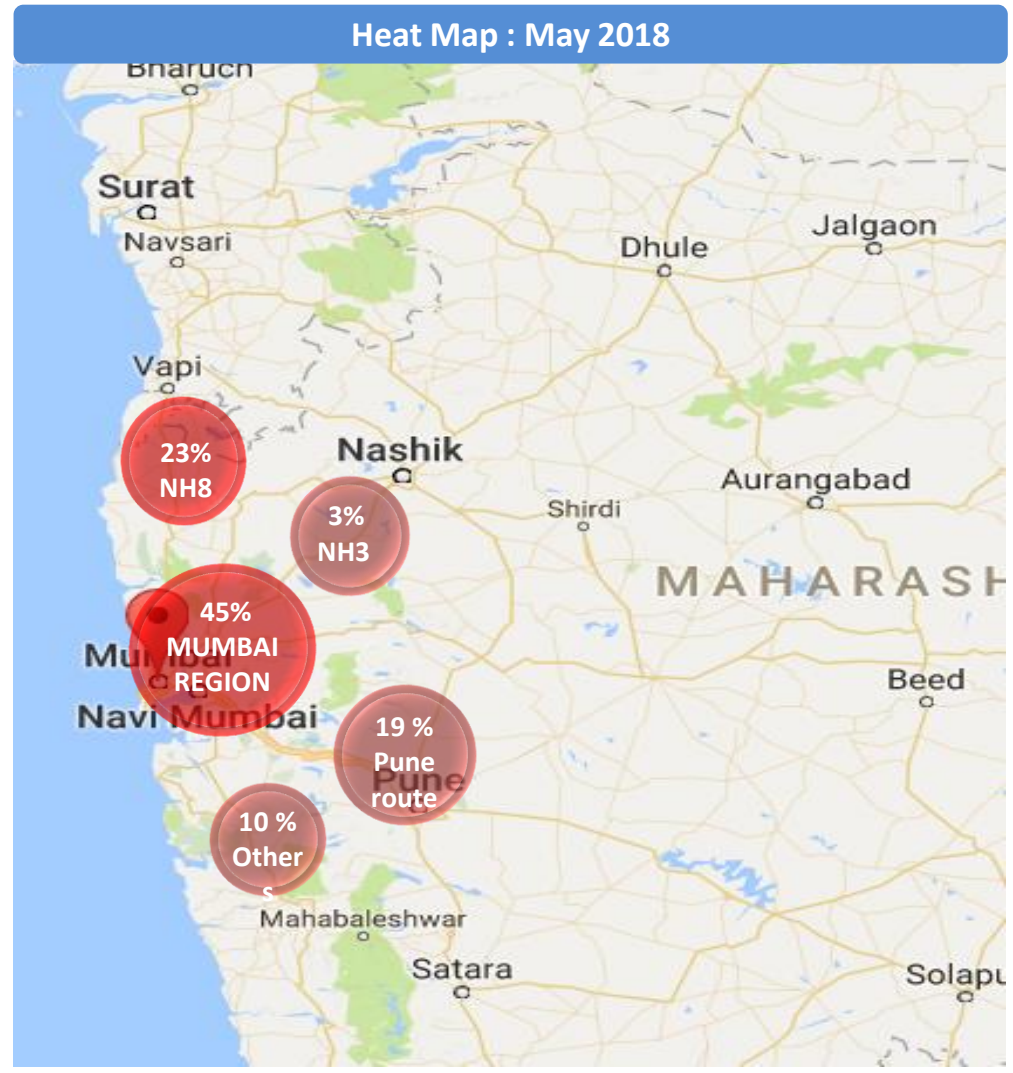
HEAT MAP : NSIGT Port Terminal



Region	Apr'18	May'18
Mumbai region	49%	33%
NH3	2%	4%
Pune	23%	31%
NH8	15%	22%
others	10%	10%

The heat map above depicts the movement of containers in and around the Mumbai region.

HEAT MAP : NSICT Port Terminal



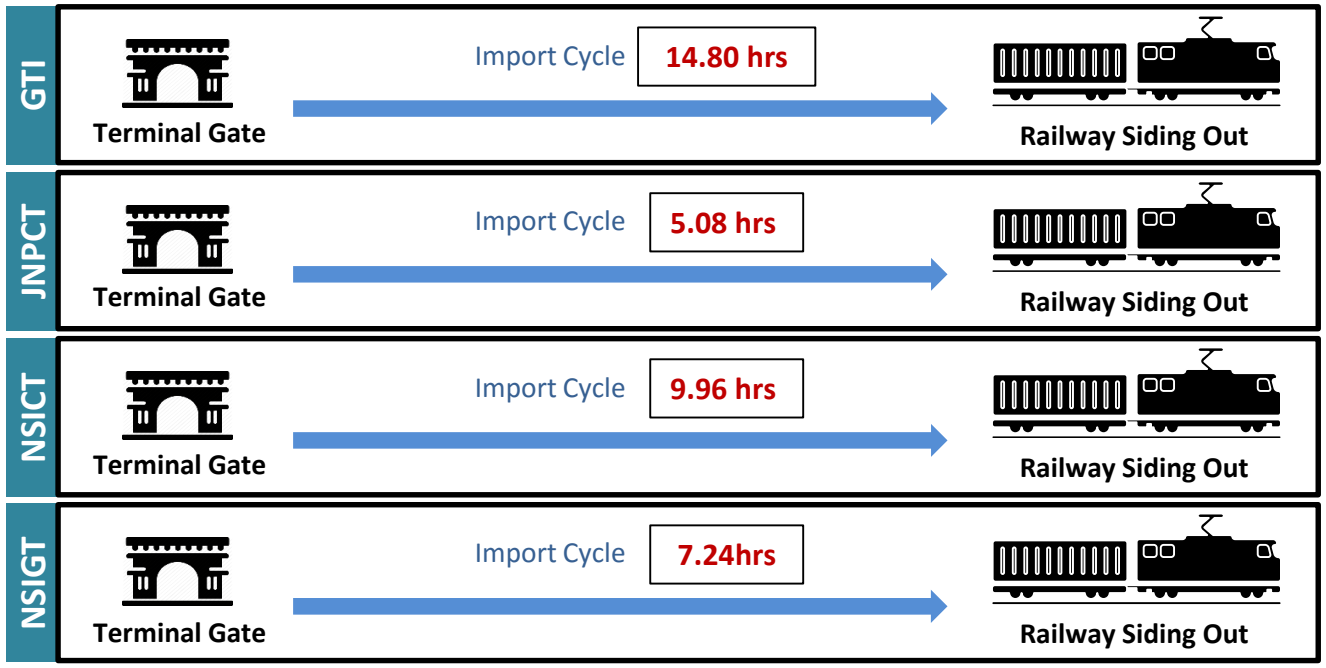
Region	Apr'18	May'18
Mumbai region	58%	45%
NH3	3%	3%
Pune	15%	19%
NH8	15%	23%
others	10%	10%

The heat map above depicts the movement of containers in and around the Mumbai region.

Container movement : JNPT region via Train

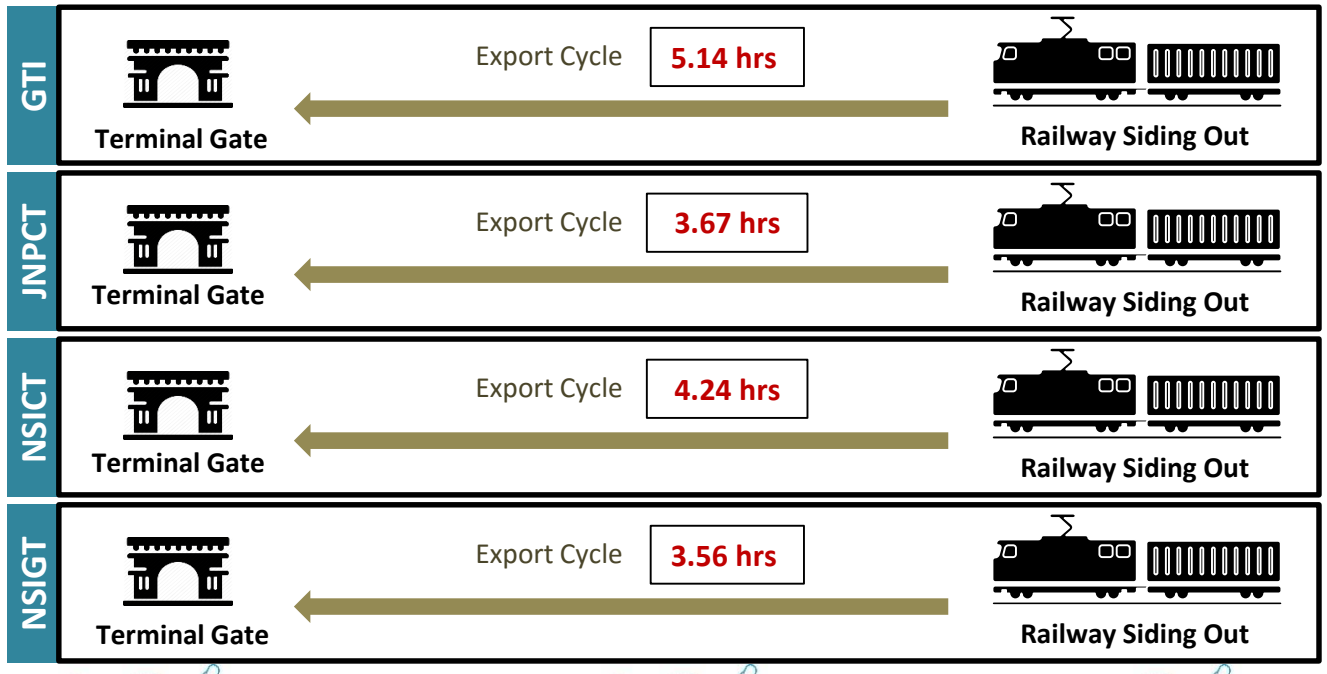
Container Handling time : Import Cycle

Container handling time in import cycle refers to the time taken by container to reach 1st railway station (i.e. JNPT railway station) from the moment they have been cleared from Port (i.e. Port Out). The below data is for month of May'18



Container Handling time : Export Cycle

Container handling time in export cycle refers to the time taken by container to reach Port terminal (i.e. Port In) from last railway station (i.e. JNPT railway station). The below data is for month of May'18



CFS - AVERAGE DELIVERY TIME – all CFS in Mumbai TO JNPT Port

DLDS Logistics Redefined
DMICDC LOGISTICS DATA SERVICES LTD

Below table shows the delivery time in export cycle from the CFS's to PORT terminals

For May'18				
CFS Out Port in (Export Cycle in Hrs)				
CFS	JNPCT	GTI	NSICT	NSIGT
CWC LOGISTIC PARK - Opr.Hind Trmnl.	1.8	3.4	3.3	3.3
CWC Dronagiri CFS	4.4	3.1	5.6	2.7
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	1.6	2.7	1.9	3.1
Indev Logistics Pvt. Ltd.CFS	2.5	4.1		6.1
PUNJAB CONWARE (PW)	2.0	3.5	3.2	3.2
Transindia Logistics Park Pvt, Ltd CFS	1.8	3.2	5.1	5.8
Apollo Logisolutions Ltd.	3.7	5.8	5.4	7.4
JWR CFS	2.6	4.0	4.1	4.1
NAVKAR CORPORATION LTD.YARD-III CFS	5.0	8.2	4.1	6.4
Ameya Logistics Pvt. Ltd.	2.4	4.8	3.5	5.2
Ashte Logistics Pvt. Ltd.	2.3	5.1	4.9	5.5
DRONAGIRI RAIL TERMINAL	2.8	3.5	5.2	7.2
TG Terminals CFS	2.6	3.8	4.6	5.0
Vaishno Logistics Yard CFS	2.1	3.4		4.7
NAVKAR CORPORATION LTD.,YARD-II CFS	5.2	7.5	6.6	7.7
Gateway Distriparks Ltd	1.8	3.1	4.9	5.7
All Cargo Logistics Ltd., CFS	4.8	4.7	2.8	4.0
International Cargo Terminal CFS	1.2	4.4	4.0	
Balmer & Lawrie & Co. Ltd.,CFS	2.0	2.8	5.5	9.8
Continental Warehousing (Nhava Sheva) Ltd.	1.9	4.3	3.8	4.4
Seabird Marine Services Pvt Ltd.	1.5	3.2	2.9	3.3
Ocean Gate Container Terminals Pvt. Ltd.CFS	2.3	4.3	9.2	6.0
MAHARASHTRA STATE WARE. CORP. CFS	1.6	3.6	5.8	4.5
International Cargo Terminals & Infrastructure Private Limited-CFS	2.5	4.8	7.5	3.2
APM (Maersk India Pvt. Ltd)CFS	2.0	3.2	3.2	3.6

CFS DELIVERY TIME ANALYSIS

CFS - AVERAGE DELIVERY TIME - GTI TO ALL CFS's IN MUMBAI

Below table shows the average delivery time in import cycle from GTI to all the CFS's

AVERAGE DELIVERY TIME (In Hrs)- GTI TO ALL CFS IN MUMBAI	
CFS	May'18
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	2.2
Balmer & Lawrie & Co. Ltd.,CFS	2.1
Gateway Distriparks Ltd	2.7
APM (Maersk India Pvt. Ltd)CFS	1.8
Continental Warehousing (Nhava Sheva) Ltd.	1.9
Seabird Marine Services Pvt Ltd.	2.4
JWC Logistics Park Ltd CFS	2.7
Ameya Logistics Pvt. Ltd.	2.2
Ashte Logistics Pvt. Ltd.	3.4
NAVAKAR CORPORATION LTD.,YARD-1 CFS	3.1
Apollo Logisolutions Ltd.	5.5
Ocean Gate Container Terminals Pvt. Ltd.CFS	2.8
Indev Logistics Pvt. Ltd.CFS	4.4
Transindia Logistics Park Pvt, Ltd CFS	2.3
All Cargo Logistics Ltd., CFS	1.9
Vaishno Logistics Yard CFS	3.0
NAVKAR CORPORATION LTD.,YARD-II CFS	5.6
PUNJAB CONWARE (PW)	2.1
DRONAGIRI RAIL TERMINAL	1.8
CWC LOGISTIC PARK - Opr.Hind Trmnl.	1.8
NAVKAR CORPORATION LTD.YARD-III CFS	3.5
International Cargo Terminals & Infrastructure Private Limited-CFS	2.7
Maersk Annex (APM)CFS	2.7
International Cargo Terminal CFS	2.2
SBW Logistics CFS , Navi Mumbai	4.0
JWR CFS	3.5

CFS - AVERAGE DELIVERY TIME - JNPCT TO ALL CFS's IN MUMBAI

Below table shows the average delivery time in import cycle from JNPCT to all the CFS's

AVERAGE DELIVERY TIME (In Hrs)- JNPCT TO ALL CFS IN MUMBAI	
CFS	May'18
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	1.2
Balmer & Lawrie & Co. Ltd.,CFS	2.0
Gateway Distriparks Ltd	2.5
APM (Maersk India Pvt. Ltd)CFS	1.7
Continental Warehousing (Nhava Sheva) Ltd.	1.5
Seabird Marine Services Pvt Ltd.	2.4
JWC Logistics Park Ltd CFS	2.9
Ameya Logistics Pvt. Ltd.	2.0
Ashte Logistics Pvt. Ltd.	2.5
NAVAKAR CORPORATION LTD.,YARD-1 CFS	3.2
Apollo Logisolutions Ltd.	4.7
Ocean Gate Container Terminals Pvt. Ltd.CFS	2.6
Indev Logistics Pvt. Ltd.CFS	3.4
Transindia Logistics Park Pvt, Ltd CFS	2.2
All Cargo Logistics Ltd., CFS	1.6
Vaishno Logistics Yard CFS	1.8
NAVKAR CORPORATION LTD.,YARD-II CFS	3.7
PUNJAB CONWARE (PW)	1.9
MAHARASHTRA STATE WARE. CORP. CFS	1.5
CWC LOGISTIC PARK - Opr.Hind Trmnl.	1.8
NAVKAR CORPORATION LTD.YARD-III CFS	3.0
International Cargo Terminals & Infrastructure Private Limited-CFS	2.0
Maersk Annex (APM)CFS	2.7
International Cargo Terminal CFS	2.0
SBW Logistics CFS , Navi Mumbai	3.8
JWR CFS	2.5

CFS DELIVERY TIME ANALYSIS

CFS - AVERAGE DELIVERY TIME - NSICT TO ALL CFS's IN MUMBAI

Below table shows the average delivery time in import cycle from NSICT to all the CFS's

AVERAGE DELIVERY TIME (In Hrs)- NSICT TO ALL CFS IN MUMBAI	
CFS	May'18
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	2.7
Balmer & Lawrie & Co. Ltd.,CFS	2.0
Gateway Distriparks Ltd	2.4
APM (Maersk India Pvt. Ltd)CFS	2.0
Continental Warehousing (Nhava Sheva) Ltd.	1.5
Seabird Marine Services Pvt Ltd.	2.2
JWC Logistics Park Ltd CFS	2.6
Ameya Logistics Pvt. Ltd.	2.1
Ashte Logistics Pvt. Ltd.	2.8
NAVAKAR CORPORATION LTD.,YARD-1 CFS	2.3
Apollo Logisolutions Ltd.	4.8
Ocean Gate Container Terminals Pvt. Ltd.CFS	2.3
Indev Logistics Pvt. Ltd.CFS	3.2
Transindia Logistics Park Pvt, Ltd CFS	2.3
All Cargo Logistics Ltd., CFS	1.8
NAVKAR CORPORATION LTD.,YARD-II CFS	3.4
PUNJAB CONWARE (PW)	2.2
DRONAGIRI RAIL TERMINAL	1.4
CWC LOGISTIC PARK - Opr.Hind Trmnl.	1.7
NAVKAR CORPORATION LTD.YARD-III CFS	2.7
International Cargo Terminals & Infrastructure Private Limited-CFS	2.3
Maersk Annex (APM)CFS	2.4
International Cargo Terminal CFS	2.3
SBW Logistics CFS , Navi Mumbai	4.1
JWR CFS	18.8

CFS - AVERAGE DELIVERY TIME - NSIGT TO ALL CFS's IN MUMBAI

Below table shows the average delivery time in import cycle from NSIGT to all the CFS's

AVERAGE DELIVERY TIME (In Hrs)- NSIGT TO ALL CFS IN MUMBAI	
CFS	May'18
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	1.5
Balmer & Lawrie & Co. Ltd.,CFS	2.0
Gateway Distriparks Ltd	2.4
APM (Maersk India Pvt. Ltd)CFS	1.7
Continental Warehousing (Nhava Sheva) Ltd.	1.6
Seabird Marine Services Pvt Ltd.	1.8
JWC Logistics Park Ltd CFS	2.7
Ameya Logistics Pvt. Ltd.	2.1
Ashte Logistics Pvt. Ltd.	3.0
NAVAKAR CORPORATION LTD.,YARD-1 CFS	2.2
Apollo Logisolutions Ltd.	3.7
Ocean Gate Container Terminals Pvt. Ltd.CFS	2.7
Indev Logistics Pvt. Ltd.CFS	4.1
Transindia Logistics Park Pvt, Ltd CFS	2.2
All Cargo Logistics Ltd., CFS	1.9
Vaishno Logistics Yard CFS	1.8
NAVKAR CORPORATION LTD.,YARD-II CFS	4.3
PUNJAB CONWARE (PW)	1.8
DRONAGIRI RAIL TERMINAL	1.5
MAHARASHTRA STATE WARE. CORP. CFS	1.0
CWC LOGISTIC PARK - Opr.Hind Trmnl.	1.8
NAVKAR CORPORATION LTD.YARD-III CFS	3.2
International Cargo Terminals & Infrastructure Private Limited-CFS	1.9
Maersk Annex (APM)CFS	2.4
International Cargo Terminal CFS	2.3
SBW Logistics CFS , Navi Mumbai	4.3
JWR CFS	5.0

JNPT Region : Cluster Analysis

Base on container movement from port to CFS in Mumbai region, 29 CFS's have been grouped into 9 Clusters on the basis of their vicinity. Below table shows all the clusters and the relevant data for NSICT and NSIGT terminal

CFS Cluster : NSICT Terminal

- In export cycle the NSICT terminal is having congestion for traffic from cluster 3 and cluster 6
- In import cycle the movement of traffic towards cluster 9 is facing congestion

NSICT terminal for month of May'18				
Clusters	No. of CFS's in Cluster	Distance from Port (Km)	Import cycle time (in Hrs)	Export cycle time (in Hrs)
Cluster 1	1	8	2.7	1.88
Cluster 2	6	13	2.3	4.48
Cluster 3	6	11	0.7	5.15
Cluster 4	1	13	0.0	4.56
Cluster 5	2	25	2.4	4.58
Cluster 6	6	25	3.0	4.88
Cluster 7	4	12	1.9	3.64
Cluster 8	1	34	4.1	0.00
Cluster 9	1	20	18.8	4.11

CFS Cluster : NSIGT Terminal

- In export cycle the NSIGT terminal is having traffic congestion from cluster 1 and Cluster 7
- In import cycle the NSIGT terminal is having traffic congestion from cluster 9

NSIGT terminal for month of May'18				
Clusters	No. of CFS's in Cluster	Distance from Port (Km)	Import cycle time (in Hrs)	Export cycle time (in Hrs)
Cluster 1	1	8	1.5	3.09
Cluster 2	6	13	2.0	3.46
Cluster 3	6	11	1.5	3.34
Cluster 4	1	13	1.8	4.71
Cluster 5	2	25	2.7	3.02
Cluster 6	6	25	3.5	6.27
Cluster 7	4	12	2.0	4.78
Cluster 8	1	34	4.3	0.00
Cluster 9	1	20	5.0	4.08

Export container usually aren't allowed in the port before the arrival of their respective vessel so this unplanned transportation of the export containers from the CFS's to Port can cause **bottlenecks**

JNPT Region : Cluster Analysis

Base on container movement from port to CFS in Mumbai region, 29 CFS's have been grouped into 9 Clusters on the basis of their vicinity. Below table shows all the clusters and the relevant data for GTI and JNPCT terminal

CFS Cluster : GTI Terminal

GTI terminal for month of May18				
Clusters	No. of CFS's in Cluster	Distance from Port (Km)	Import cycle time (in Hrs)	Export cycle time (in Hrs)
Cluster 1	1	8	2.2	2.69
Cluster 2	6	13	2.2	3.23
Cluster 3	6	11	1.8	3.53
Cluster 4	1	13	3.0	3.39
Cluster 5	2	25	2.7	2.14
Cluster 6	6	25	4.0	5.43
Cluster 7	4	12	2.0	4.48
Cluster 8	1	34	4.0	20.76
Cluster 9	1	20	3.5	4.03

CFS Cluster : JNPCT Terminal

JNPCT terminal for month of May'18				
Clusters	No. of CFS's in Cluster	Distance from Port (Km)	Import cycle time (in Hrs)	Export cycle time (in Hrs)
Cluster 1	1	8	1.2	1.6
Cluster 2	6	13	2.0	1.8
Cluster 3	6	11	1.7	2.0
Cluster 4	1	13	1.8	2.1
Cluster 5	2	25	2.7	1.2
Cluster 6	6	25	3.3	3.7
Cluster 7	4	12	1.8	2.1
Cluster 8	1	34	3.8	6.4
Cluster 9	1	20	2.5	2.6

Export container usually aren't allowed in the port before the arrival of their respective vessel so this unplanned transportation of the export containers from the CFS's to Port can cause **bottlenecks**

Below mentioned are all the CFS in the respective Clusters :

Cluster 1

(JNPT Area)

- Speedy Multimode CFS,JNPT

Cluster 2

(Bhendkhal area, Khopate road)

- APM (Maersk India) CFS, Navi Mumbai
- Maersk Annex (APM)CFS, Navi Mumbai
- Balmer & Lawrie CFS, Navi Mumbai
- CWC Hind Terminal CFS, Navi Mumbai
- International Cargo Terminals (ULA) CFS, Navi Mumbai & Infrastructure Private Limited
- Gateway Distriparks CFS, Navi Mumbai
- International Cargo Terminal CFS

Cluster 3

Sonari area,JNPT road

- Punjab Conware CFS, Navi Mumbai
- Dronogiri Rail Terminal CFS, Navi Mumbai
- CWC Impex Park CFS, Navi Mumbai
- CWC Dronagiri CFS, Navi Mumbai
- Maharashtra State Corp CFS
- Seabird CFS, Navi Mumbai

Cluster 4

(Chirle area , JNPT road)

- Vaishno Logistics CFS, Navi Mumbai

Cluster 5

(Plaspa area, Coachi kanyakumari Highway)

- JWC Logistics Park CFS
- Ocean Gate CFS, Panvel

Cluster 8

SBW

Cluster 6

(Salva apta rd area, Bangalore highway)

- Ashte Logistics CFS, Panvel
- Apollo Logisolutions CFS, Panvel
- Indev Logistics CFS, Panvel
- Navkar Corporation Yrd 1 CFS, Panvel
- Navkar Corporation Yard 2 CFS, Panvel
- Navkar Corporation Yard 3 CFS, Panvel

Cluster 7

(Patilpada area, Khopate JNPT road)

- All Cargo Logistics CFS, Navi Mumbai
- Transindia Logistics Park, Navi Mumbai
- Ameya Logistics CFS, Navi Mumbai
- Continental Warehousing CFS, Navi Mumbai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Thank You !!