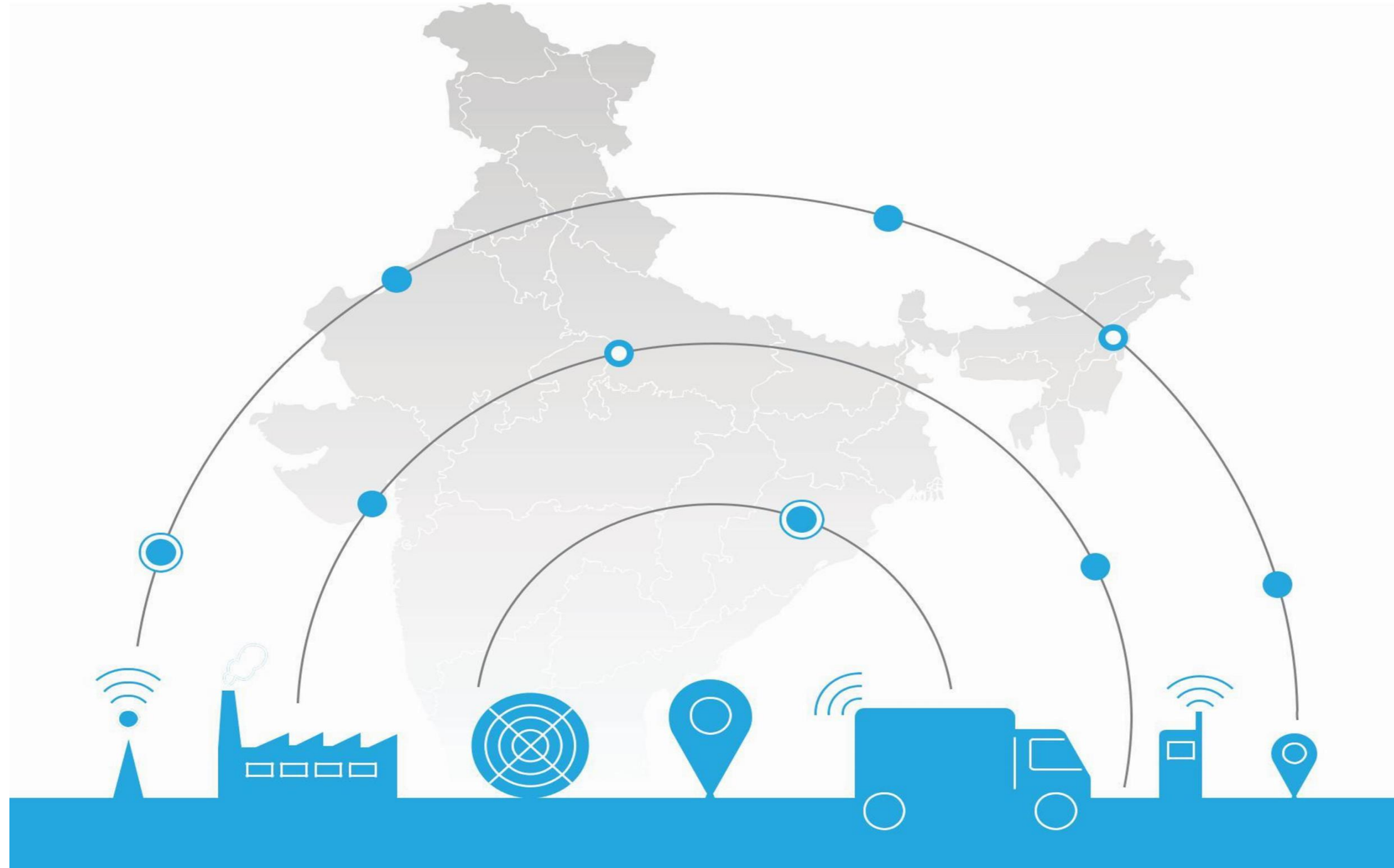


Logistics Databank Analytics Report for JNPT- August 2018



Western Corridor

- Overall Port Dwell time performance of western corridor in import cycle has decreased by 11% in comparison to previous month month(7% decrease in handling Truck bound containers has resulted in this decline)
- Overall In-land container depot's (ICD) dwell time performance has improved by 7% in comparison to previous month

JNPT Port Terminals

- Improvement in container handling at JNPT rail siding has resulted in increased Port Dwell Time performance for rail bound containers
- Overall JNPT Port Dwell time performance for Export cycle has improved by 13% in comparison to previous month(13.5% improvement in handling Truck bound containers has resulted in this improvement)

- Dwell time performance of Container Freight Station(s) around JNPT region has continued to decrease (7% in August'18 and 14% in July'18 as compared to previous months)
- Dwell time of Direct Port Delivery(DPD) container handling performance decreased by 25.6% in comparison to previous month. (51.75hrs in July'18 to 65.01hrs in August'18)
- Dwell time of Direct Port Export(DPE) container handling performance improved by 19.7% in comparison to previous month. (from 77.93hrs in July'18 to 62.54hrs in August'18)
- Transit time between JNPT Port and ICDs(NCR region) has improved by 8-16% in comparison to previous month

JNPT region Transit Time	July'18 (in hrs)	August'18 (in hrs)	Improvement (in %)
Port to ICD	75.06	62.79	16%
ICD to Port	75.56	69.28	8%

Port Dwell Time

IMPORT

Mode	July'18 (in hrs)	Aug'18 (in hrs)
Overall	36	40.03
Truck	31	33.32
Train	166	151.97

EXPORT

Mode	July'18 (in hrs)	Aug'18 (in hrs)
Overall	87	78.26
Truck	86	75.97
Train	99	93.07

Container Freight Stations(CFS)/Inland Container depots(ICD) - Dwell Time

Inland Container Depot (ICD)

Container Freight Stations

Entity	July'18 (in hrs)	Aug'18 (in hrs)
CFS	91.05	100.10
ICD	137.06	127.84

The marked entries showcase increase in performance in comparison to previous month

The marked entries showcase decrease in performance in comparison to previous month

Container Lifecycle (Import Cycle)

Mode	July'18 (in hrs)	Aug'18 (in hrs)
Overall	37.14	42.82
Truck	31.27	36.19
Train	184.67	142.91

Mode	July'18 (in hrs)	Aug'18 (in hrs)
Overall	76.25	66.64
Truck	74.28	64.25
Train	102.54	95.45

Transit Cycle	July'18 (in hrs)	Aug'18 (in hrs)
Port to ICD	75.06	62.79
Port to CFS	2.89	3.53
ICD to Port	75.56	69.28
CFS to Port	5.24	6.00

Entity	July'18 (in hrs)	Aug'18 (in hrs)
CFS	91.05	97.76
ICD	137.06	127.84

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

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

Container Lifecycle (Export Cycle)

Container Transportation- JNPT Port Terminals

IMPORT CYCLE DWELL TIME (Aug'18 - in hrs)

PORT DWELL TIME	Overall Dwell Time of Truck and Train Bound Containers	42.82	15%	↓
	Port Dwell Time for Train Bound Containers	142.91	23%	↑
	Port Dwell time for Truck Bound Containers	36.19	16%	↓
	Port Dwell time Direct Port Delivery containers	65.01	26%	↓
	Port Dwell time Containers bound for CFS	32.20	9%	↓
	Port Dwell time Containers bound for ICD	151.71	27%	↓
TRANSIT TIME	Port to ICD	62.79	16%	↑
	Port to CFS	3.53	22%	↓
LCO DWELL TIME	CFS Dwell Time	97.76	7%	↓
	ICD Dwell Time	127.84	7%	↑

EXPORT CYCLE DWELL TIME (Aug'18- in hrs)

PORT DWELL TIME	Overall Dwell Time of Truck and Train Bound Containers	66.64	13%	↑
	Port Dwell Time for Train Bound Containers	95.45	7%	↑
	Port Dwell time for Truck Bound Containers	64.25	14%	↑
	Port Dwell time Direct Port Export containers	62.54	20%	↑
	Port Dwell time Containers bound from CFS	65.36	18%	↑
	Port Dwell time Containers bound from ICD	96.22	9%	↑
TRANSIT TIME	ICD to Port	69.28	8%	↑
	CFS to Port	6.00	15%	↓
LCO DWELL TIME	CFS Dwell Time	97.76	7%	↓
	ICD Dwell Time	127.84	7%	↑

↑↓ The arrows depict increase/decrease in performance of the stakeholders in comparison to previous month

The below tables depict the Dwell Time of containers based on their transit and occupancy at JNPT port

IMPORT

Port Dwell time based on transit type

August'18	Direct Port Delivery containers	Containers bound for CFS	Containers bound for ICD
Dwell time	65.01	32.20 hrs	151.70

Port Dwell time based on container type

August'18	Laden Containers		Empty Containers	
Volume	131221		10419	
Dwell time	43.54	14% ↓	36.91	13% ↓

EXPORT

Port Dwell time based on transit type

August'18	Direct Port Export Containers	Containers bound from CFS	Containers bound from ICD
Dwell time	62.54	65.36	96.22

Port Dwell time based on container type

August'18	Laden Containers		Empty Containers	
Volume	64878		32499	
Dwell time	63.96	13% ↑	65.43	10% ↑

↓↑ The arrows depict increase/decrease in performance of the stakeholders compared to July'18



Performance Benchmarking - Port Terminals



Performance benchmarking for Port Terminals covered under LDB project for August'18

Top Performing Terminal

Gateway Terminals India (GTI)
54.5 hrs



Low Performing Terminal

Adani International Container Terminal (AICT)
79.8 hrs



Note: The performance benchmarking is based on performance index

↑↓ The arrows depict increase/decrease in overall performance of the stakeholders in comparison to previous month

Performance Index-Port Terminals

In order to assess the relative performance of Port terminals, 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 i.e. Dwell time and Volume

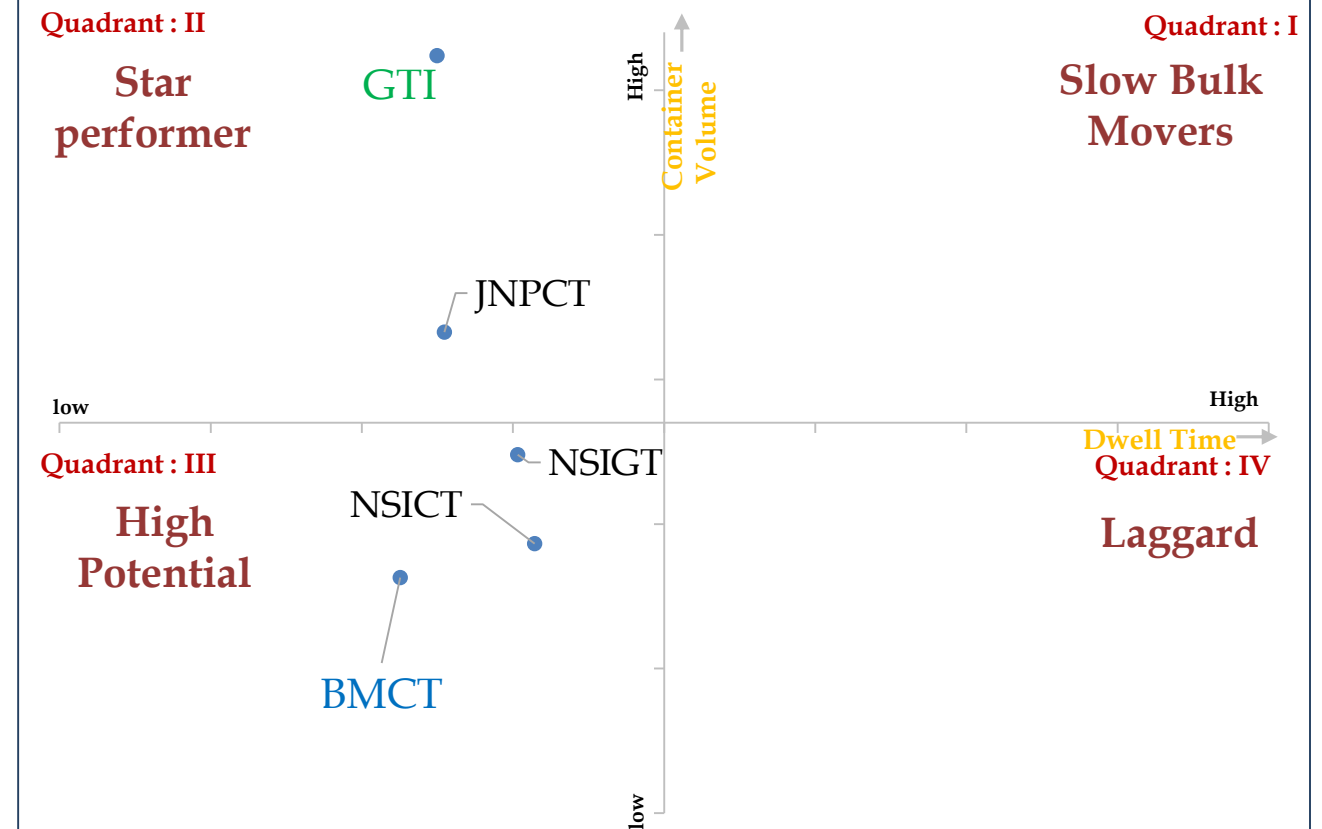
Star Performer: consist of Ports which have catered relatively high container volume in lower dwell time

Slow Bulk Movers : consist of Ports which have catered higher container volume at higher 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 : Aug'18



Performance Benchmarking - CFS(s)

Performance benchmarking for CFS(s) covered under LDB project for August'18

Top Performing CFS

Ashutosh CFS, Mundra 74.3 hrs

Low Performing CFS

Hind Terminal CFS, Hazira 131.5 hrs

Note: The performance benchmarking is based on performance index

The arrows depict increase/decrease in overall performance of the stakeholders in comparison to previous month

Performance Index-Container Freight Stations (CFS)

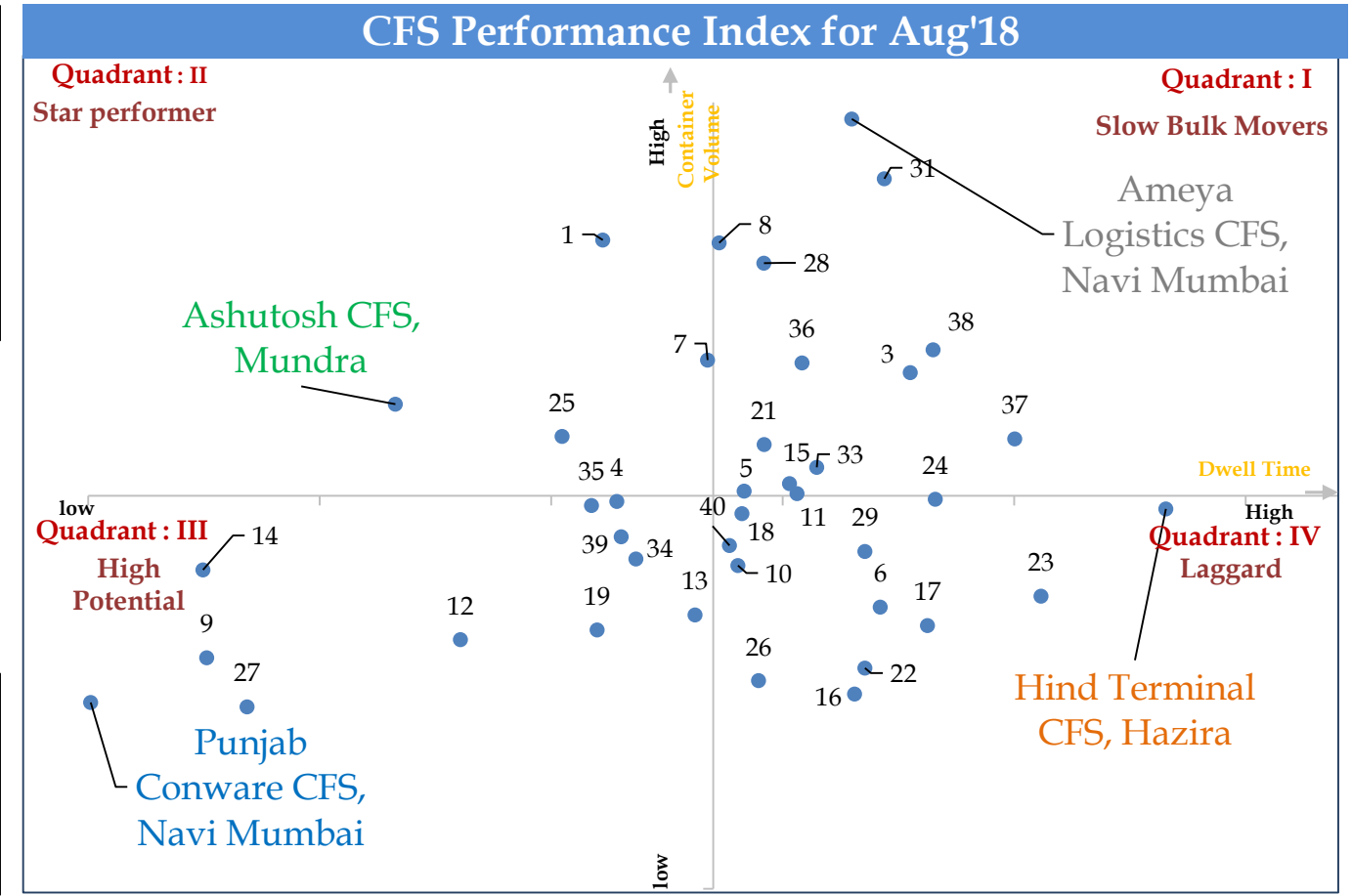
In order to assess the relative performance of CFS, the relative Dwell time as well as the volume of containers handled by them are depicted graphically in the form of an index to portray the performance of a particular organisation on the basis of these two combined factors i.e. Dwell time and Volume

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

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

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

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



Performance Benchmarking - ICD



Performance benchmarking for ICDs covered under LDB project for August'18

Top Performing ICD

Albatross Inland Ports ICD, Dadri ↑
114.9 hrs

Low Performing ICD

CWC ICD, Patparganj ↓
191.62 hrs

Note: The performance benchmarking is based on performance index

↑↓ The arrows depict increase/decrease in overall performance of the stakeholders in comparison to previous month

Performance Index-Inland Container Depot (ICD)

In order to assess the relative performance of ICD's, 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 i.e. Dwell time and Volume

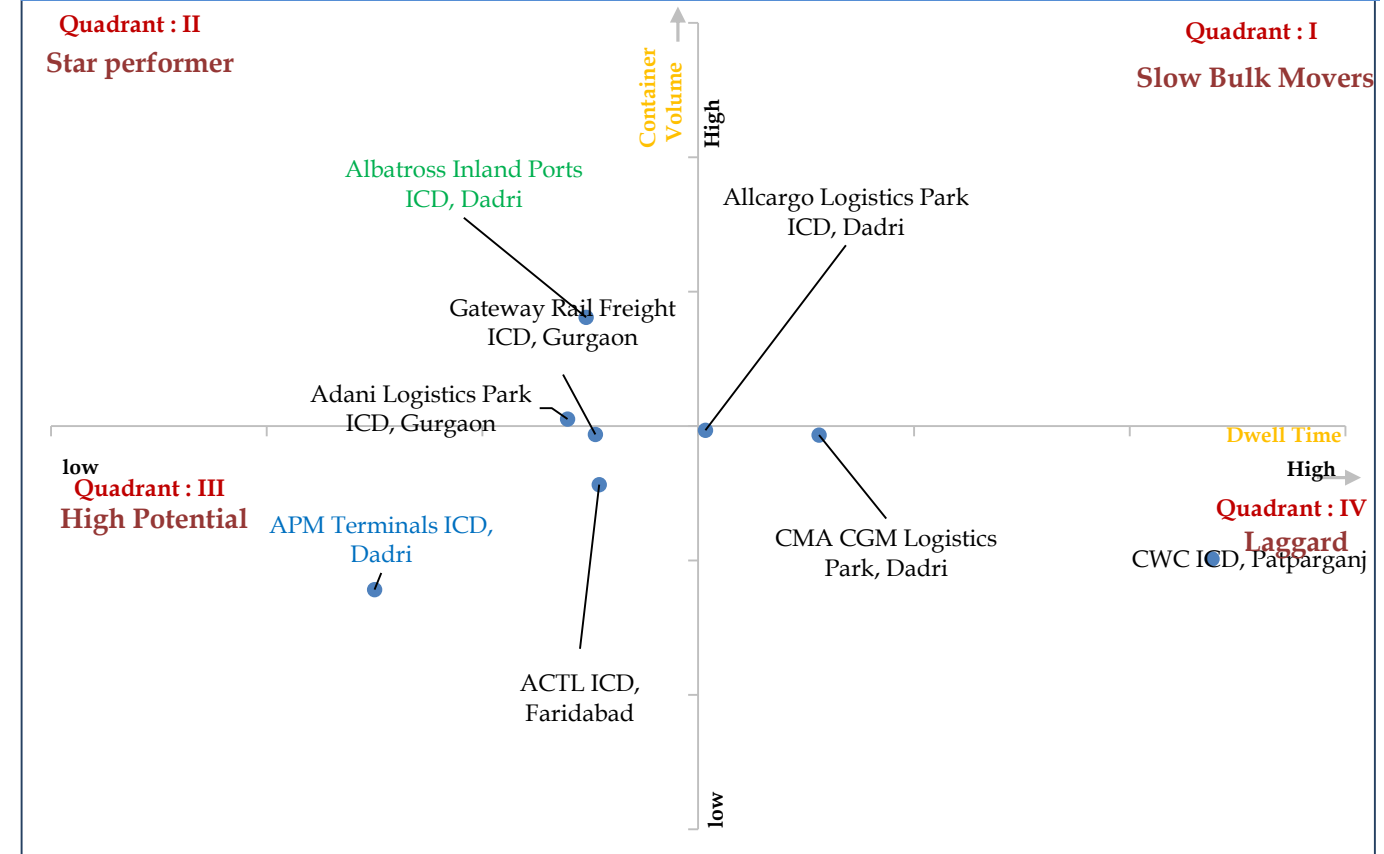
Star Performer: consist of ICD's which have catered relatively high container volume in lower dwell time

Slow Bulk Movers : consist of ICD's which have catered higher container volume at higher dwell time

High Potential : consist of ICD's which have catered relatively lower container volume in lower dwell time

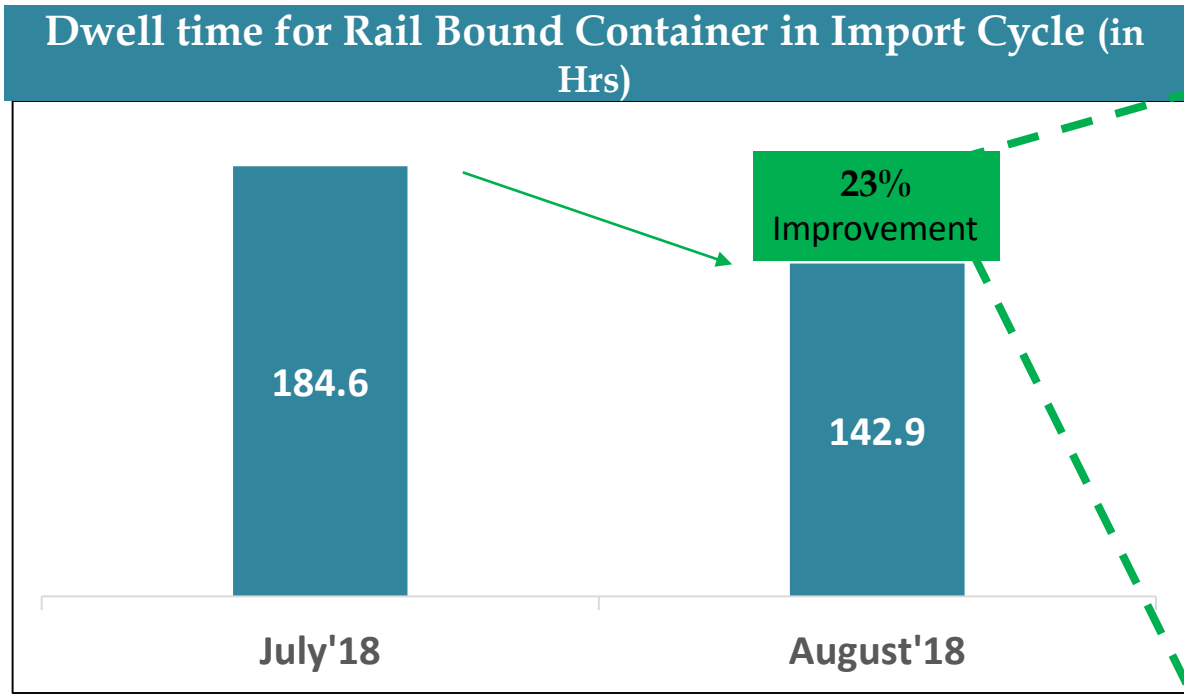
Laggard : consist of ICD's which have catered relatively lower container volume at higher dwell time

ICD Performance Index for Aug'18



Key Findings
**JNPT - Improvement in Rail Bound
Container Movement Analysis**

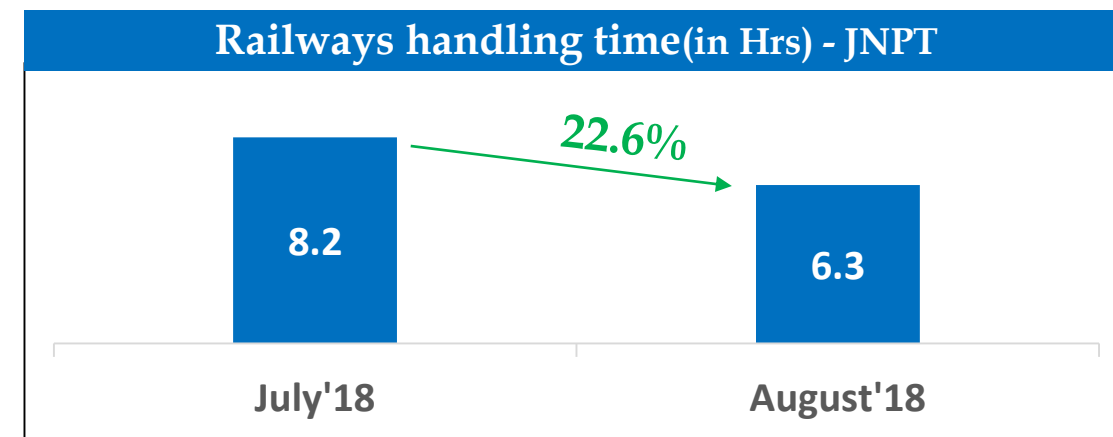
The Dwell time performance for Rail bound containers in Import Cycle at JNPT port has improved from last month, which is primarily due to better railway operations



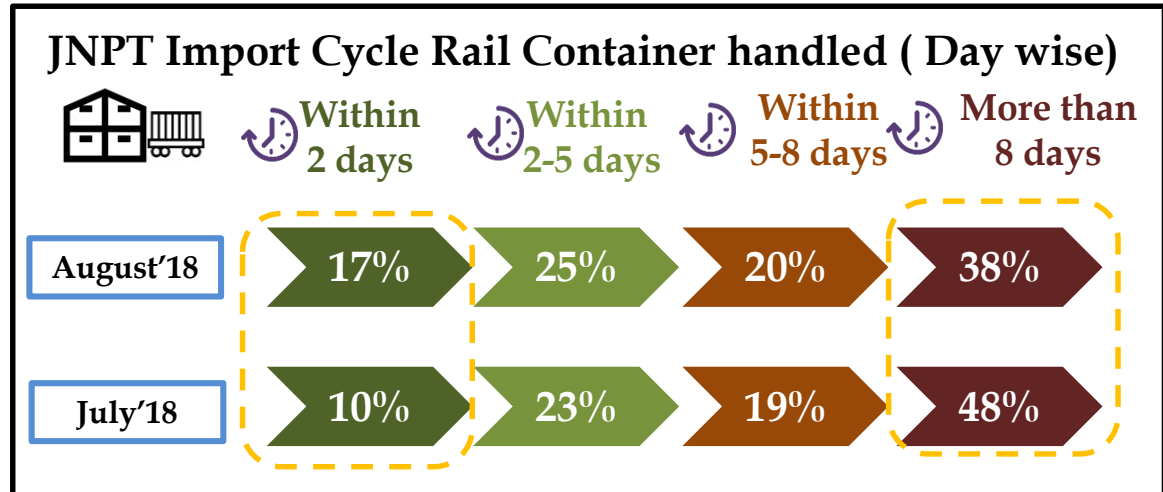
Improvement in Railway operations - Improved Dwell time for handling rail bound containers

To measure the Railway operations at Port we analyse the container handling time at railway siding for import cycle. The Improvement in container handling time at railway siding depicts the increased efficiency in railway operations to schedule the train movement properly

Less container handling time at Rail Siding = Less container waiting time inside Port



Container Handling time at Railway siding = The average time taken by containers to reach JNPT railway station from the moment they have been cleared from Port (i.e. Port Out).



Import Cycle Analysis

JNPT Port Region: Import Cycle

The below tables depict the port dwell time performance at JNPT port for truck and train bound containers in import cycle

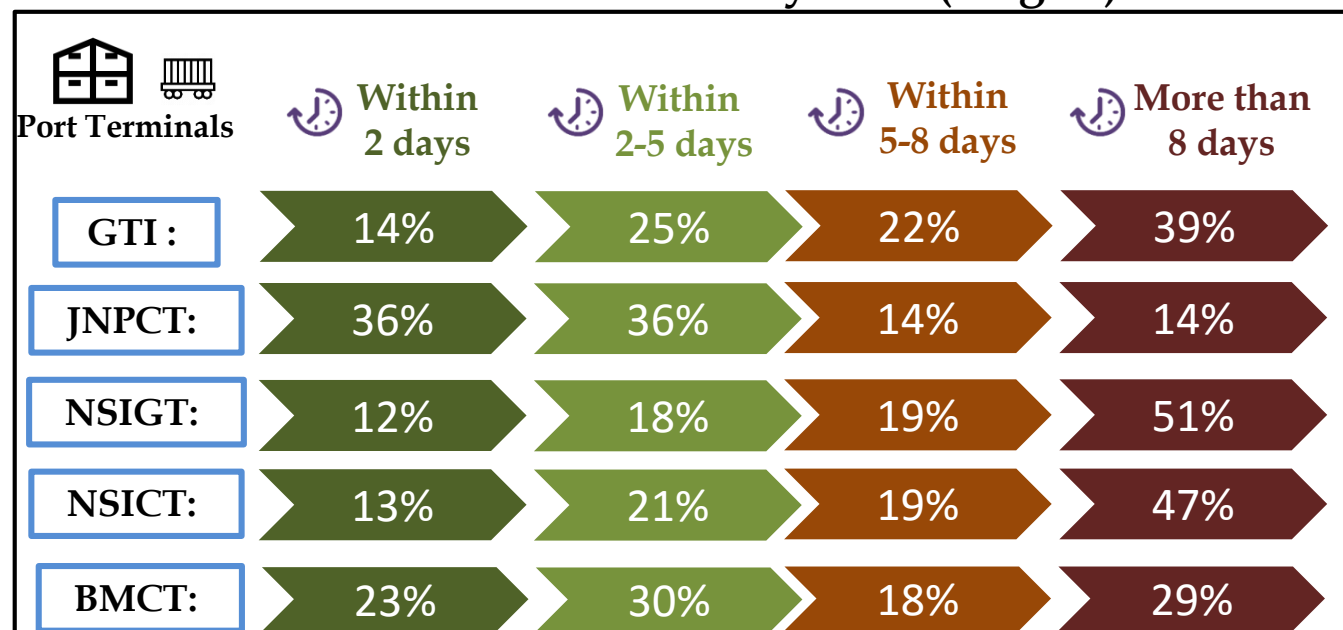
PORT IMPORT via TRAIN

(18% of total import volume at JNPT Port)

The Port Dwell time data for train bound container 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	July'18 (in hrs)	Aug'18 (in hrs)
GTI	203.9	153.8
JNPCT	114.5	66.2
NSIGT	149.5	169.7
NSICT	254.7	201.1
BMCT	124.2	110.9

Container Handled: Day wise (Aug'18)



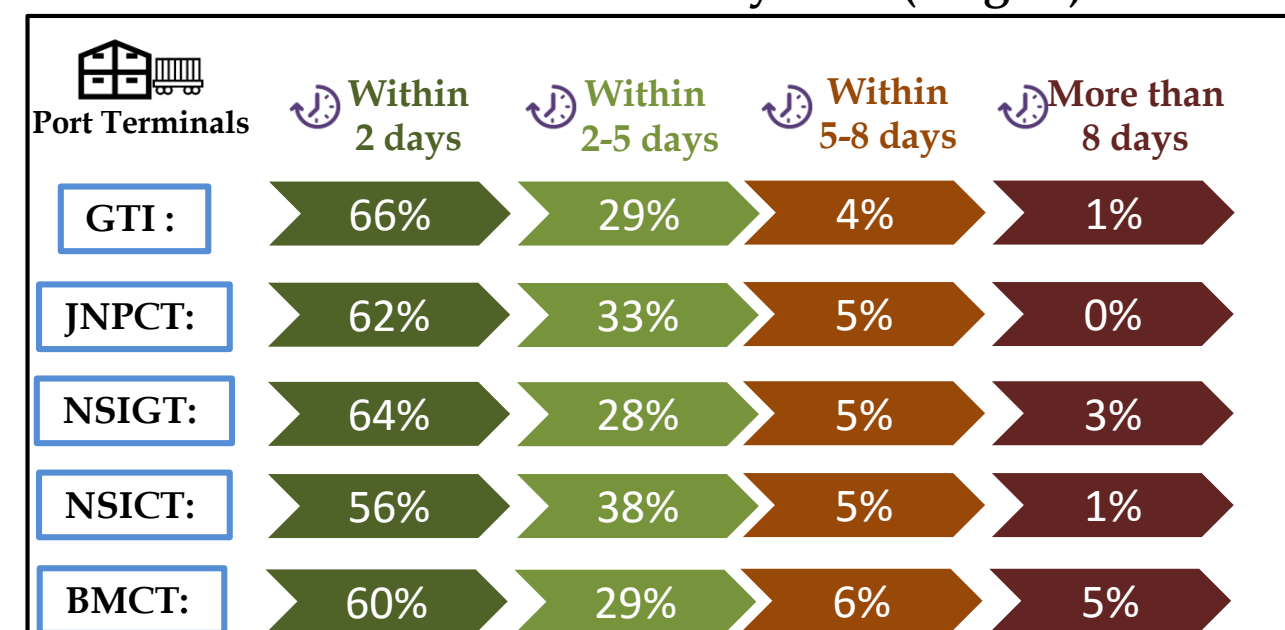
PORT IMPORT via TRUCK

(82% of total import volume at JNPT Port)

The Port Dwell time data for Truck bound container 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	July'18 (in hrs)	Aug'18 (in hrs)
GTI	26.3	34.0
JNPCT	36.8	37.3
NSIGT	34.0	42.6
NSICT	30.3	35.5
BMCT	39.3	37.8

Container Handled: Day wise (Aug'18)



The below tables depict the detailed JNPT region port performance in the month of August'18

JNPCT			
Port Dwell time based on transit type			
August'18	Direct Port Delivery containers	Containers bound for CFS	Containers bound for ICD
Dwell time (in hrs)	50.6	34.7	45.0
Port Dwell time based on container type			
August'18	Laden Containers	Empty Containers	
Volume	29458	2269	
Dwell time (in hrs)	42.8	33.9	

GTI			
Port Dwell time based on transit type			
August'18	Direct Port Delivery containers	Containers bound for CFS	Containers bound for ICD
Dwell time (in hrs)	69.6	31.3	174.0
Port Dwell time based on container type			
August'18	Laden Containers	Empty Containers	
Volume	59118	3649	
Dwell time (in hrs)	42.5	29.7	

JNPT region Port Performance Import Cycle

The below tables depict the detailed JNPT region port performance in the month of August'18

NSICT			
Port Dwell time based on transit type			
August '18	Direct Port Delivery containers	Containers bound for CFS	Containers bound for ICD
Dwell time (in hrs)	-	36.24	164

Port Dwell time based on container type		
August'18	Laden Containers	Empty Containers
Volume	11758	1526
Dwell time (in hrs)	52.5	36.2

NSIGT			
Port Dwell time based on transit type			
August '18	Direct Port Delivery containers	Containers bound for CFS	Containers bound for ICD
Dwell time (in hrs)	-	31.31	174

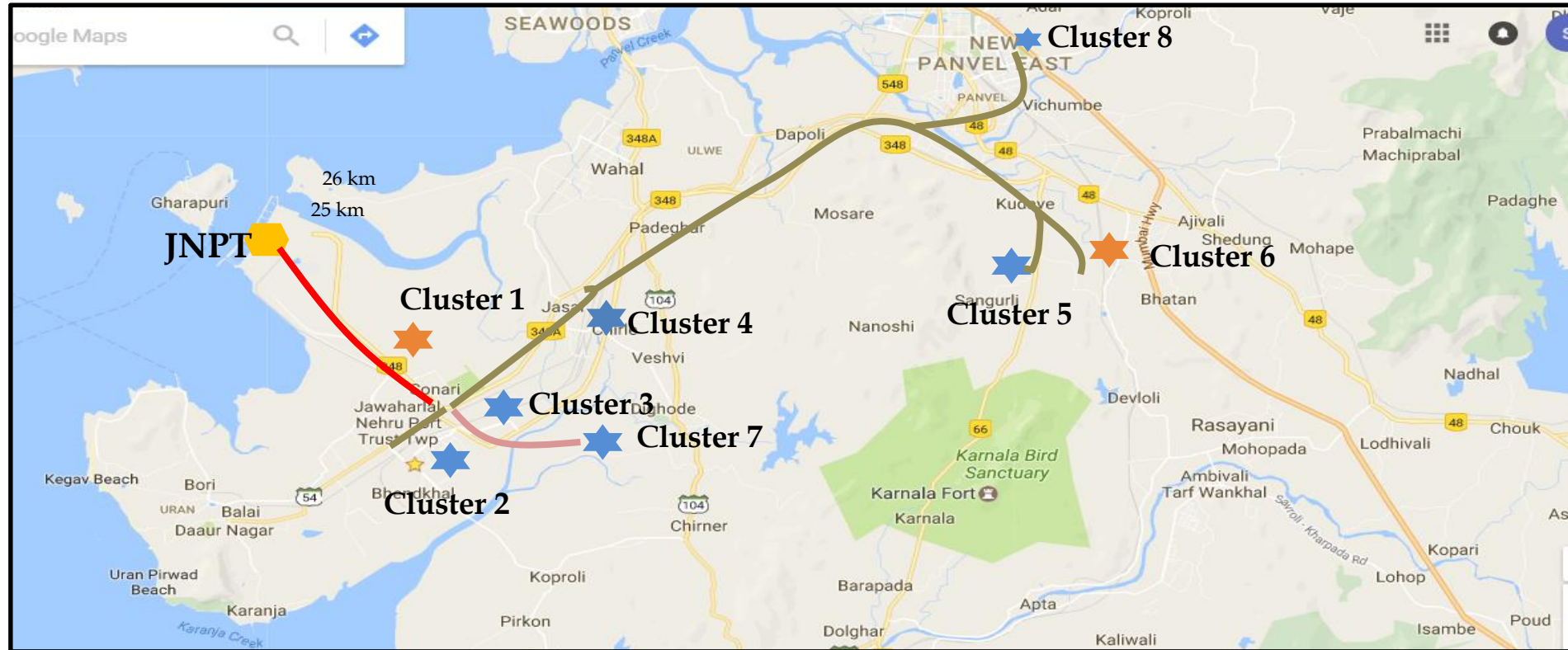
Port Dwell time based on container type		
August'18	Laden Containers	Empty Containers
Volume	22547	1234
Dwell time (in hrs)	44.5	34.9

BMCT			
Port Dwell time based on transit type			
August '18	Direct Port Delivery containers	Containers bound for CFS	Containers bound for ICD
Dwell time (in hrs)	79.4	29.09	-

Port Dwell time based on container type		
August'18	Laden Containers	Empty Containers
Volume	8340	1741
Dwell time (in hrs)	38.0	96.9

JNPT Region Import Cycle: Congestion Analysis

The below figure shows the congestion around JNPT port in import cycle for Aug'18. The movement of containers from JNPT port to adjacent CFS(s) in import cycle has been analyzed. Based on the movement, congestion is highlighted in the area. The CFS(s) are divided into cluster based on their vicinity



Clusters with bottleneck

Cluster 1	JNPT Y Junction Area
Cluster 6	Salva apta rd area, Bangalore highwa

Clusters without bottleneck

Cluster 2	Bhendkhal area, Khopate road
Cluster 3	Sonari area, JNPT road
Cluster 4	Chirle area, JNPT road
Cluster 5	Plaspa area, Coachi kanyakumari Highway
Cluster 7	Patilpada area, Khopate JNPT road
Cluster 8	Taloja, Navi Mumbai

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 Congestion Level Import Cycle :-	JNPCT Terminal Congestion Level Import Cycle :-	NSICT Terminal Congestion Level Import Cycle :-	NSIGT Terminal Congestion Level Import Cycle :-
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Note : 1) Congestion is measured w.r.t actual time taken to cover the respective distance between clusters and terminals
 2) Analysis consist of CFS covered under LDB project

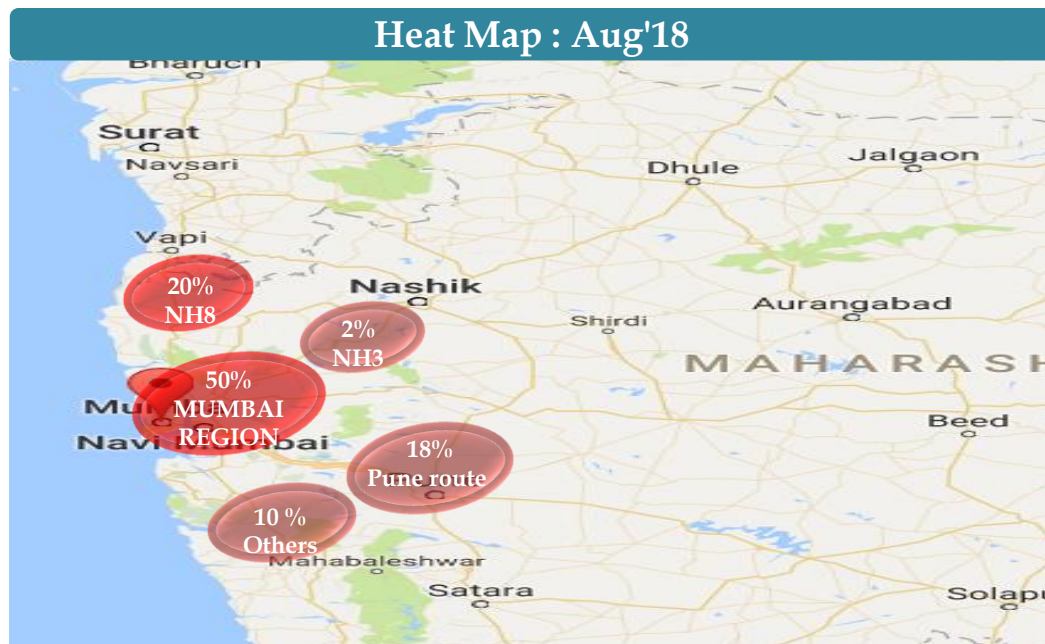
The below table and graphs depict the container movement across JNPT port region in Import cycle

Truck

HEAT MAP : OVERALL MUMBAI REGION

Region	Aug'18
Mumbai region	50%
NH3	2%
Pune	18%
NH8	20%
others	10%

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

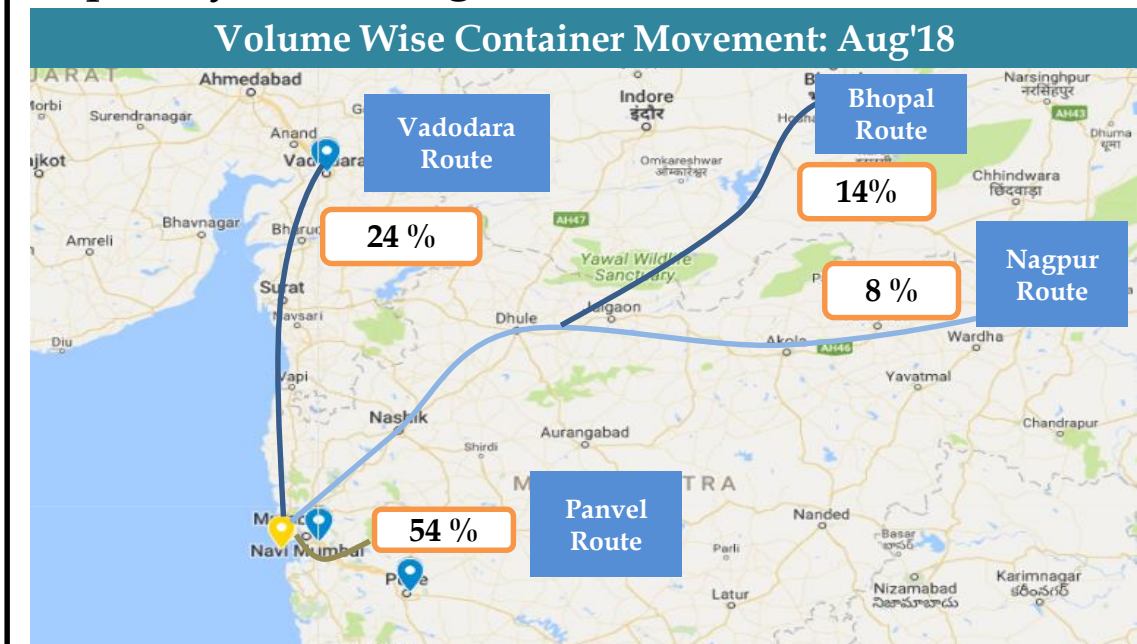


Train

VOLUME WISE CONTAINER MOVEMENT

Region	Aug'18
Vadadora Route	24%
Bhopal Route	14%
Nagpur Route	8%
Panvel Route	54%

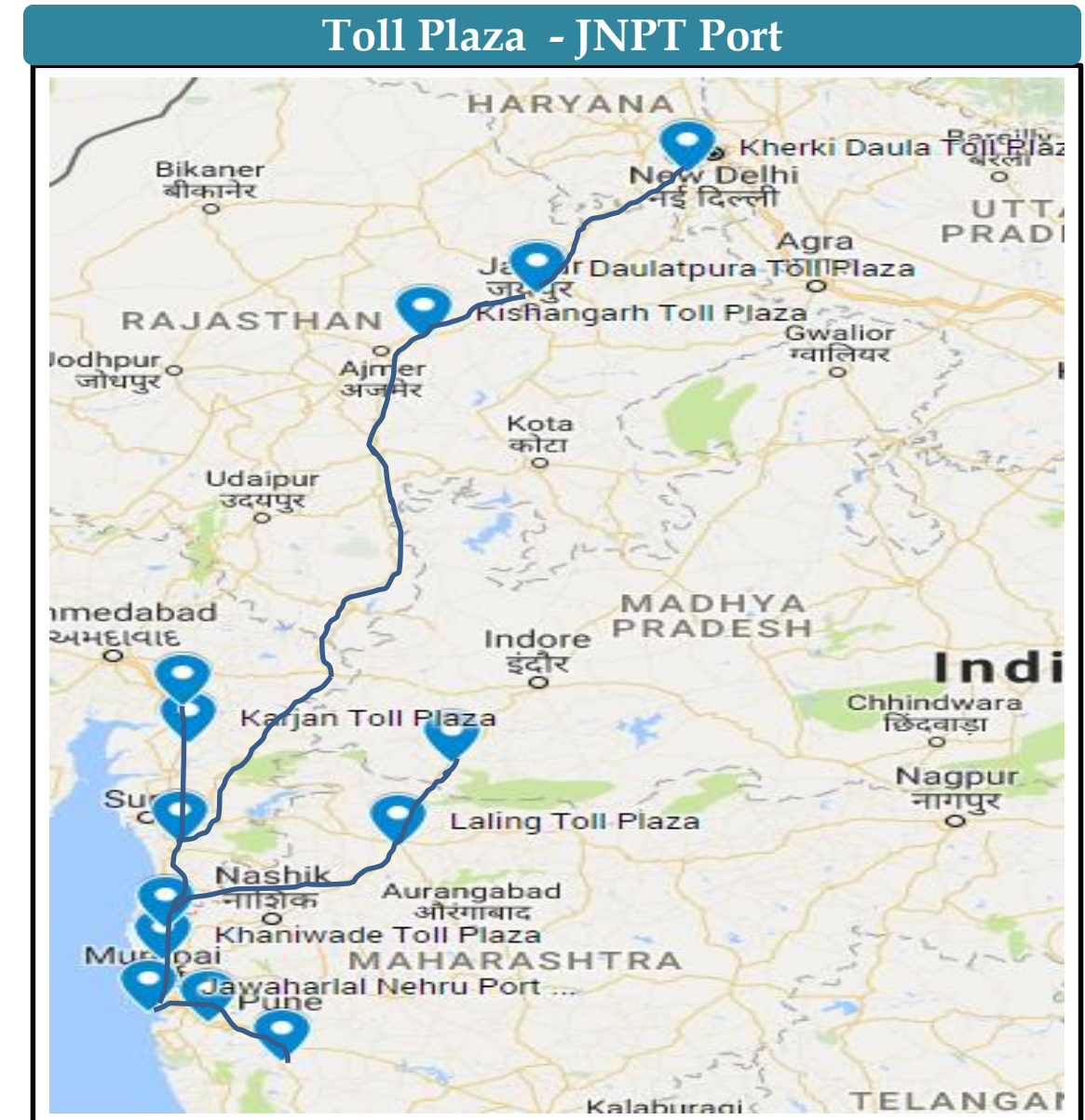
The map shows the volume wise container movement through different railway routes in import cycle for Aug'18



JNPT Region Import Cycle: Toll plaza analysis

The below table depicts the container movement across the toll plazas connected with JNPT port. The movement is depicted in term of average speed by which container moved across these specific toll plaza routes

Avg. Travel Time & Speed between Toll Plazas (Aug'18)					
Source	Destination Toll Plaza	Inter Distance (Km)	Avg. Travel Time (Hr)	July'18 Avg. Speed (Km/Hr.)	Aug'18 Avg. Speed (Km/Hr.)
JNPT	Khaniwade	94	7.3	11.7	7.2
JNPT	Khalapur	60	4.1	5.2	4.9
Khaniwade	Charoti	50	1.30	31.8	31.2
Charoti	Boriach	126	4.60	25.6	25.7
Boriach	Bharthan	142	4.30	26.8	30.1
Bharthan	Vasad	60	1.53	40.9	43.4
Khalapur	Khedshivpur	105	3.7	27.9	26.8
Daulatpura	Kherki	199	8.8	23.7	23.8



Export Cycle Analysis

JNPT Port Region: Export Cycle

The below tables depict the port dwell time performance at JNPT port for truck and train bound containers in import cycle

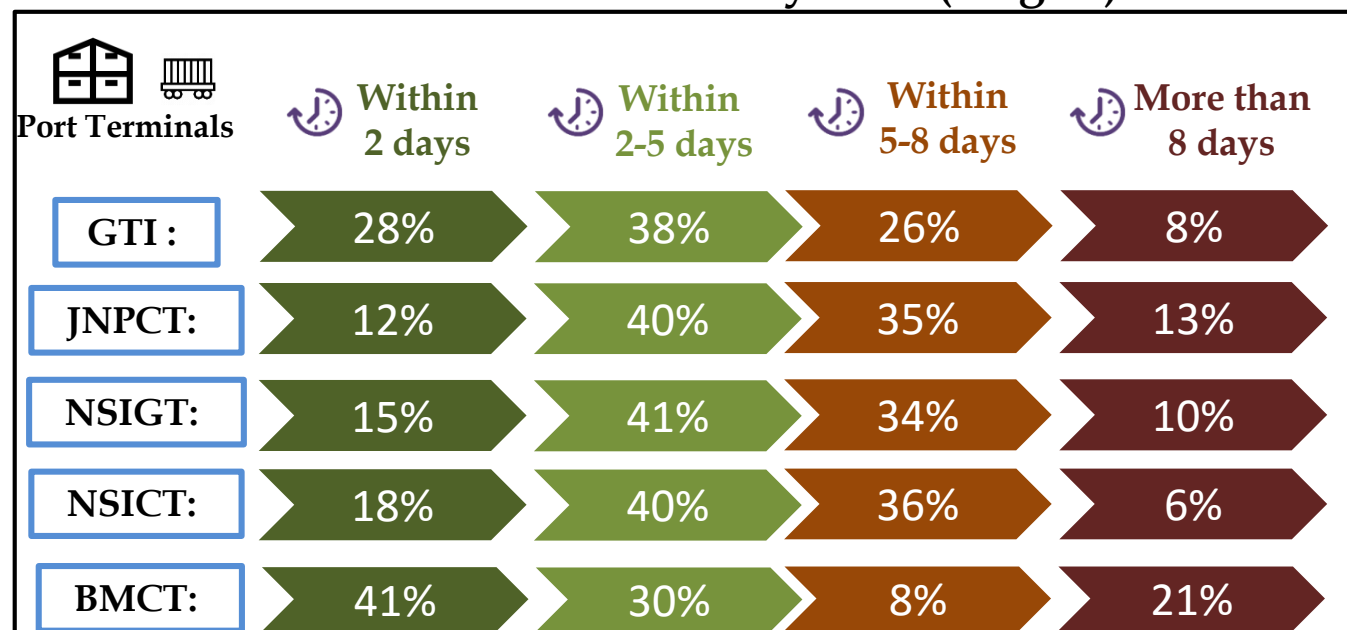
PORT EXPORT via TRAIN

(13% of total import volume at JNPT Port)

The Port Dwell time data for train bound container 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	July'18 (in hrs)	Aug'18 (in hrs)
GTI	87.4	87.9
JNPCT	139.4	114.6
NSIGT	107.9	105.1
NSICT	112.6	105.7
BMCT	-	65.0

Container Handled: Day wise (Aug'18)



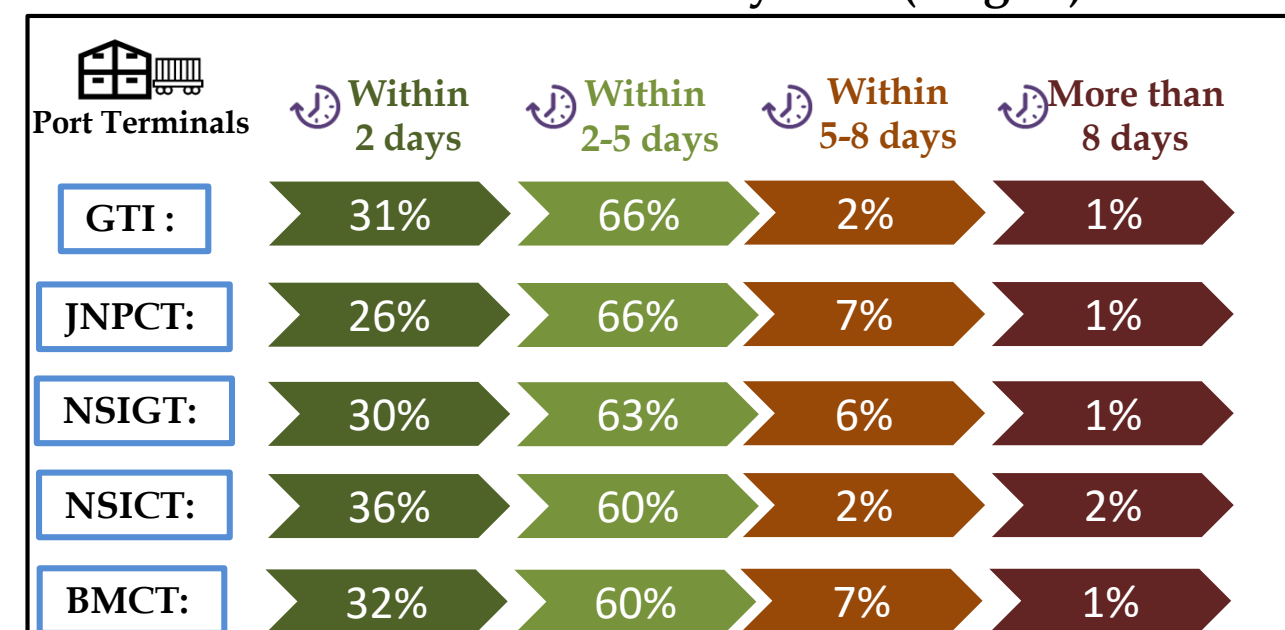
PORT EXPORT via TRUCK

(87% of total import volume at JNPT Port)

The Port Dwell time data for Truck bound container 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	July'18 (in hrs)	Aug'18 (in hrs)
GTI	64.6	61.4
JNPCT	103.2	69.2
NSIGT	66.8	65.9
NSICT	66.9	61.5
BMCT	68.6	68.1

Container Handled: Day wise (Aug'18)



The below tables depict the Dwell Time of containers based on their transit and occupancy at JNPT port

JNPCT

Port Dwell time based on transit type			
August'18	Direct Port Export containers	Containers bound from CFS	Containers bound from ICD
Dwell time (in hrs)	63.3	68.5	102.0

Port Dwell time based on container type		
August'18	Laden Containers	Empty Containers
Volume	10529	13453
Dwell time (in hrs)	63.9	73.9

GTI

Port Dwell time based on transit type			
August'18	Direct Port Export containers	Containers bound from CFS	Containers bound from ICD
Dwell time (in hrs)	62.3	63.4	84.0

Port Dwell time based on container type		
August'18	Laden Containers	Empty Containers
Volume	26508	14161
Dwell time (in hrs)	61.7	61.1

The below tables depict the Dwell Time of containers based on their transit and occupancy at JNPT port

NSICT			
Port Dwell time based on transit type			
August'18	Direct Port Export containers	Containers bound from CFS	Containers bound from ICD
Dwell time (in hrs)	-	54.47	54

Port Dwell time based on container type		
August'18	Laden Containers	Empty Containers
Volume	9317	1877
Dwell time (in hrs)	63.08	57.74

NSIGT			
Port Dwell time based on transit type			
August'18	Direct Port Export containers	Containers bound from CFS	Containers bound from ICD
Dwell time (in hrs)	-	72.38	118

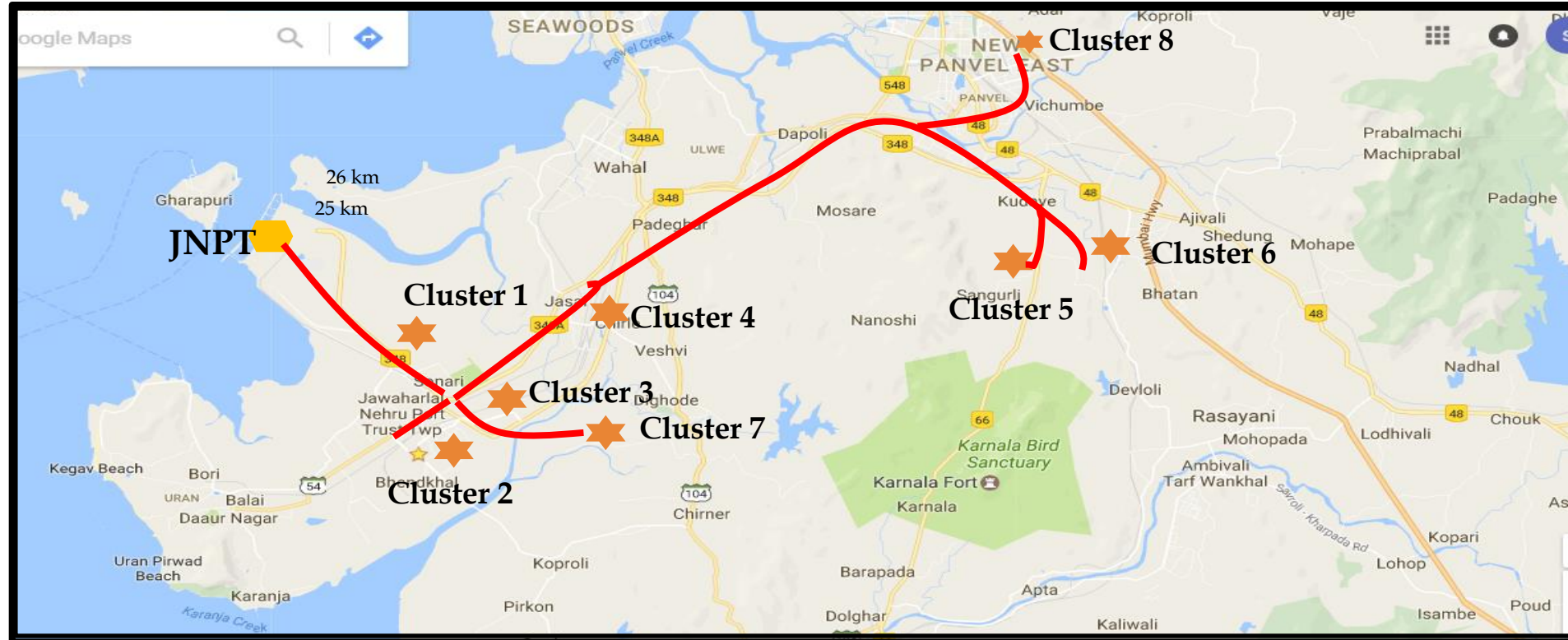
Port Dwell time based on container type		
August'18	Laden Containers	Empty Containers
Volume	13302	562
Dwell time (in hrs)	67.06	58.74

BMCT			
Port Dwell time based on transit type			
August'18	Direct Port Export containers	Containers bound from CFS	Containers bound from ICD
Dwell time (in hrs)	-	63.35	-

Port Dwell time based on container type		
August'18	Laden Containers	Empty Containers
Volume	5222	2446
Dwell time (in hrs)	72.43	55.08

JNPT Congestion Analysis

The below figure shows the congestion around JNPT port in export cycle for Aug'18. The movement of containers from adjacent CFS(s) to JNPT port in export cycle has been analyzed. Based on the movement, congestion is highlighted in the area. The CFS(s) are divided into cluster based on their vicinity



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

Legends

- High Congestion (Red line)
- Medium Congestion (Green line)
- Low Congestion (Pink line)
- Cluster with bottleneck (Orange star)
- Cluster without bottleneck (Blue star)

GTI Terminal

Congestion Level
Export Cycle :- [Red bar]

JNPCT Terminal

Congestion Level
Export Cycle :- [Red bar]

NSICT Terminal

Congestion Level
Export Cycle :- [Red bar]

NSIGT Terminal

Congestion Level
Export Cycle :- [Red bar]

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

Note : 1) Congestion is measured w.r.t actual time taken to cover the respective distance between clusters and terminals
2) Analysis consist of CFS covered under LDB project

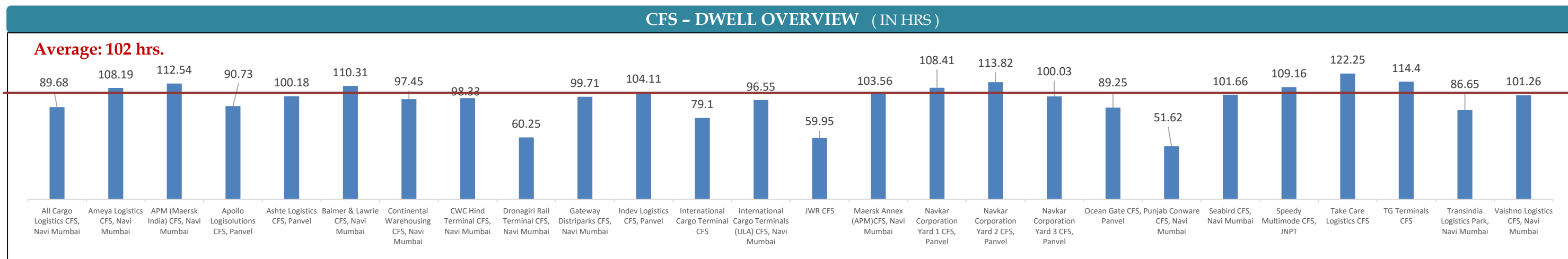
CFS and ICD Performance

JNPT region CFS : CFS DWELL TIME ANALYSIS

Below table and graphs show the dwell time of the respective CFSs for the month of Aug'18

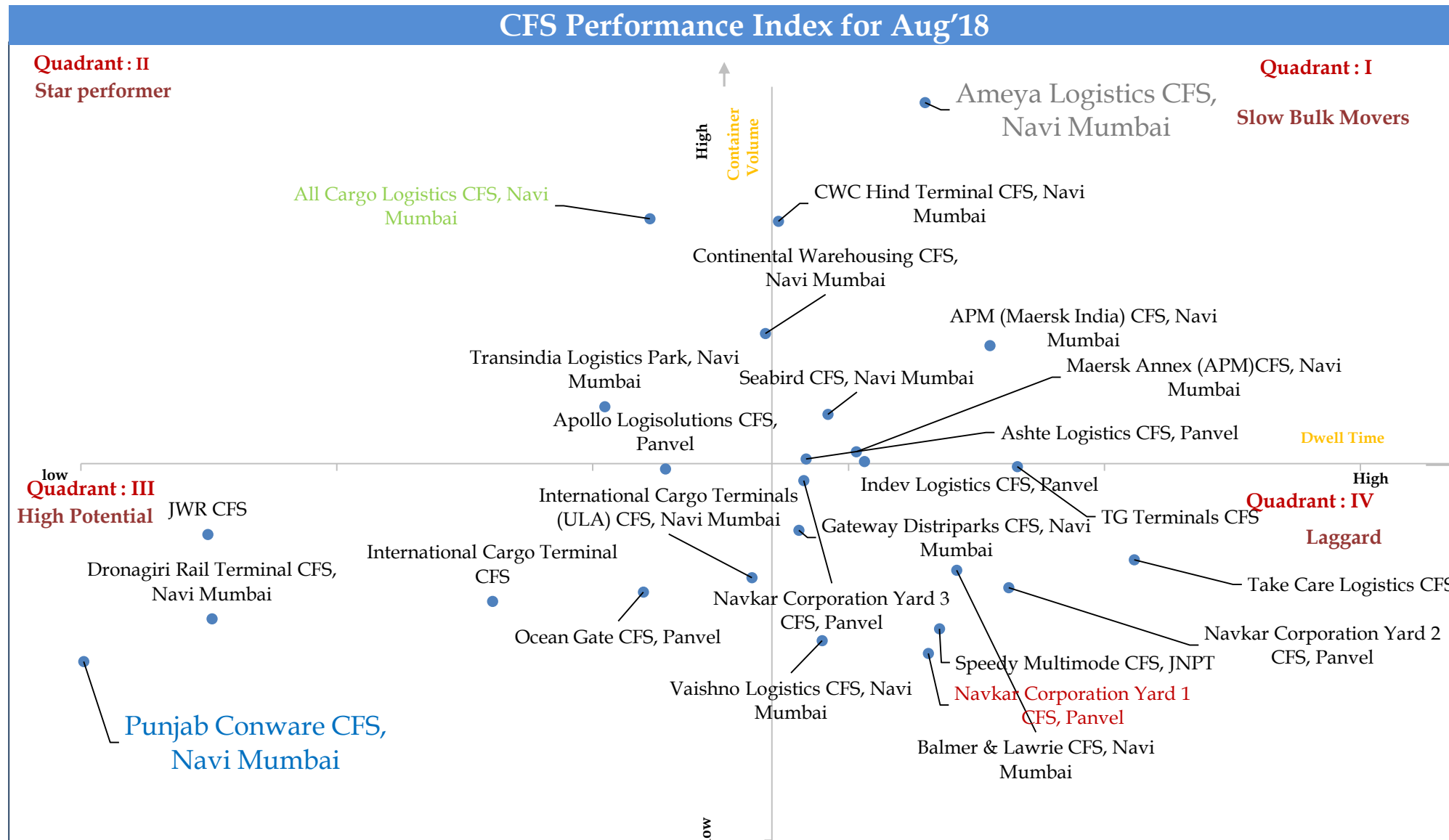
CFS Dwell Time (in hrs)					
CFS	July'18	Aug'18	CFS	July'18	Aug'18
All Cargo Logistics CFS, Navi Mumbai	84.2	89.68	JWR CFS	66.22	59.95
Ameya Logistics CFS, Navi Mumbai	87.71	108.19	Maersk Annex (APM)CFS, Navi Mumbai	112.54	103.56
APM (Maersk India) CFS, Navi Mumbai	99.32	112.54	Navkar Corporation Yard 1 CFS, Panvel	106.03	108.41
Apollo Logisolutions CFS, Panvel	90.19	90.73	Navkar Corporation Yard 2 CFS, Panvel	101.57	113.82
Ashte Logistics CFS, Panvel	98.75	100.18	Navkar Corporation Yard 3 CFS, Panvel	94.16	100.03
Balmer & Lawrie CFS, Navi Mumbai	100.64	110.31	Ocean Gate CFS, Panvel	91.06	89.25
Continental Warehousing CFS, Navi Mumbai	79.26	97.45	Punjab Conware CFS, Navi Mumbai	88.73	51.62
CWC Hind Terminal CFS, Navi Mumbai	100.06	98.33	Seabird CFS, Navi Mumbai	97.22	101.66
Dronagiri Rail Terminal CFS, Navi Mumbai	58.30	60.25	Speedy Multimode CFS, JNPT	73.77	109.16
Gateway Distriparks CFS, Navi Mumbai	93.81	99.71	Take Care Logistics CFS	118.05	122.25
Indev Logistics CFS, Panvel	93.68	104.11	TG Terminals CFS	97.28	114.40
International Cargo Terminal CFS	77.91	79.10	Transindia Logistics Park, Navi Mumbai	71.28	86.65
International Cargo Terminals (ULA) CFS, Navi Mumbai	90.09	96.55	Vaishno Logistics CFS, Navi Mumbai	83.52	101.26

Top Performing CFS	
Punjab Conware CFS, Navi Mumbai	51.62 hrs
Low Performing CFS	
Take Care Logistics CFS	122.25 hrs



JNPT region CFS : Performance Index

The below graph depicts the Performance Index for all CFS for August'18. 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

ICD DWELL TIME ANALYSIS

The table below depicts the dwell of all ICDs for Aug'18 and July'18.

ICD Dwell Time (in Hrs)		
ICD	July'18	Aug'18
ACTL ICD, Faridabad	128.04	116.49
Adani Logistics Park ICD, Gurgaon	126.48	112.61
Albatross Inland Ports ICD, Dadri	150.57	114.89
Allcargo Logistics Park ICD, Dadri	134.60	129.52
APM Terminals ICD, Dadri	134.66	88.94
CMA CGM Agencies ICD, Dadri	130.78	143.46
CWC ICD, Patparganj	145.97	191.62
Gateway Rail Freight ICD, Gurgaon	117.54	116.01

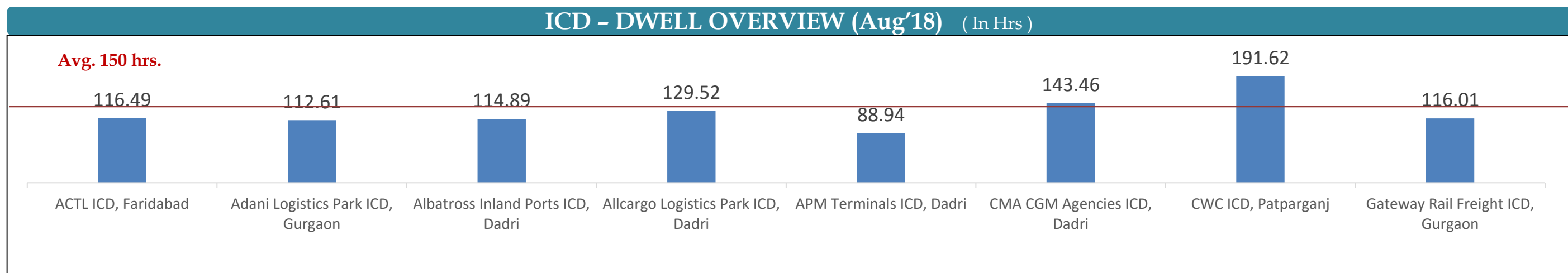
Top Performing ICD

APM Terminals ICD, Dadri	88.94 hrs
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Low Performing ICD

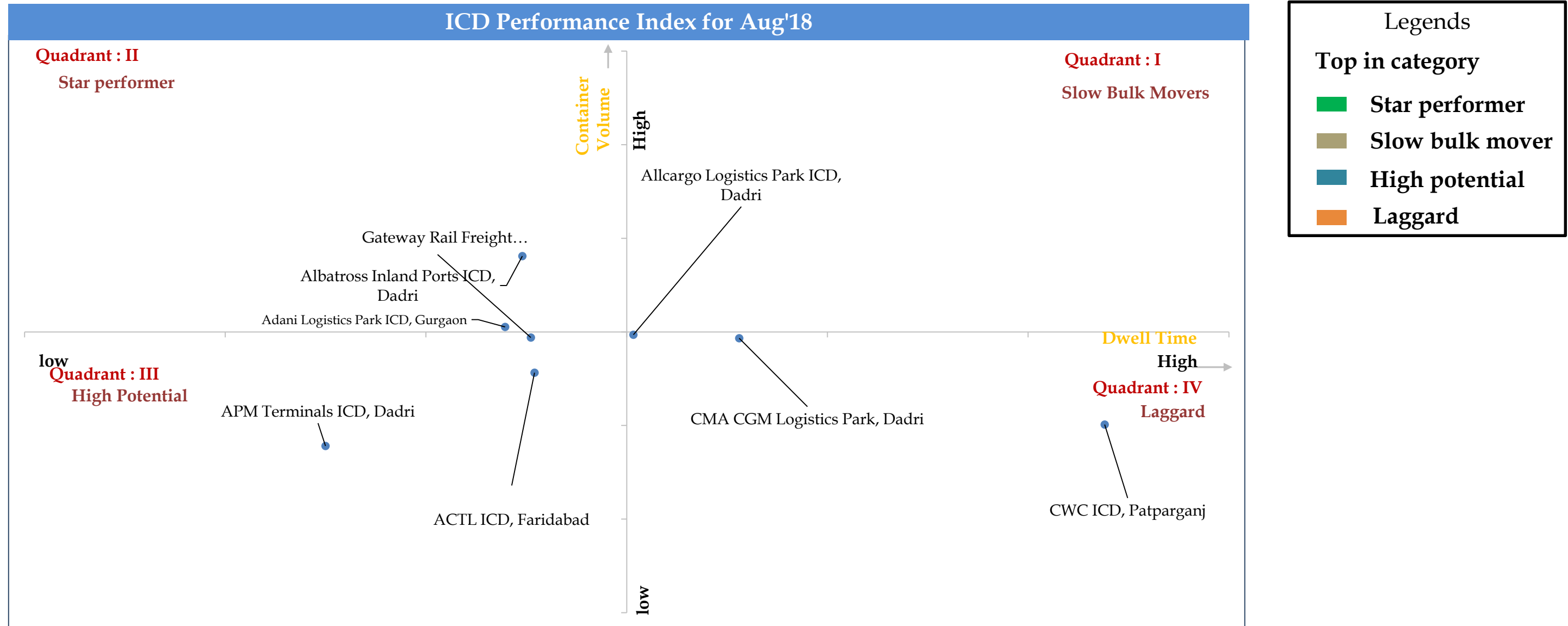
CWC ICD, Patparganj	191.62 hrs
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*Based on Dwell time for Aug'18



ICD : Performance Index

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



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	July'18	Aug'18
NCR region	3.13 days	2.7 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	July'18	Aug'18
NCR region	3.15 days	2.8 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 ICDs in NCR region have low dwell time as compared to Aurangabad region, thus making the lead time for the Aurangabad region higher as compared to NCR region

ICD- AVG LEAD TIME (TRAIN)		
Region	July'18	Aug'18
NCR region	10.39 days	9.8 days

Calculation :

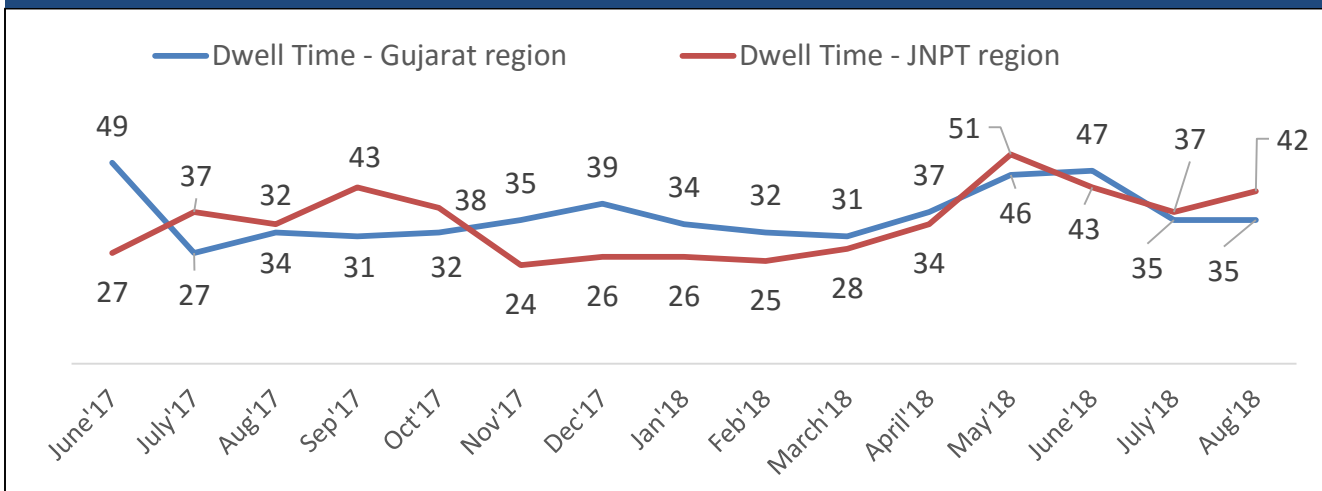
Port Dwell Time + Port to ICD Delivery Time + ICD Dwell Time = Avg. Lead Time from Port to ICD

Trend Analysis

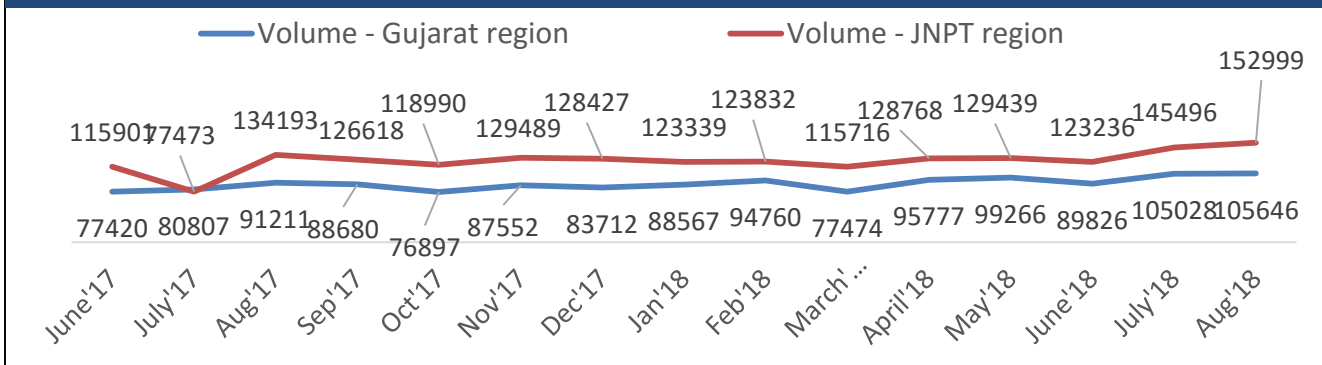
Container Volume and Dwell time of all the terminals in JNPT and Gujarat Port has been analysed until Aug'18

Import Cycle

Dwell Time – Gujarat Region Vs JNPT Region



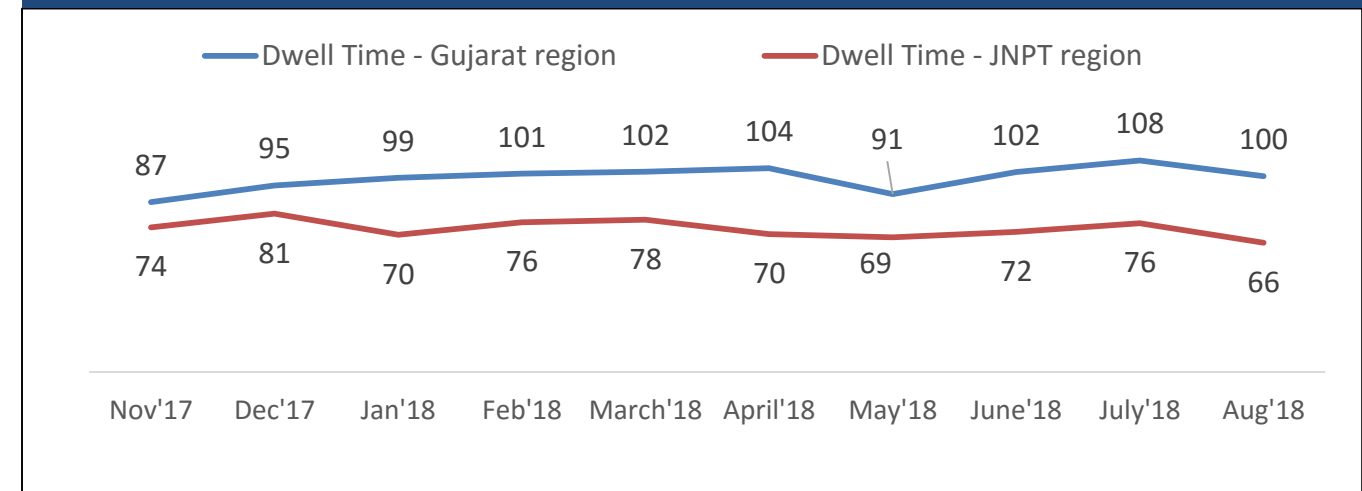
Volume – Gujarat Region Vs JNPT Region



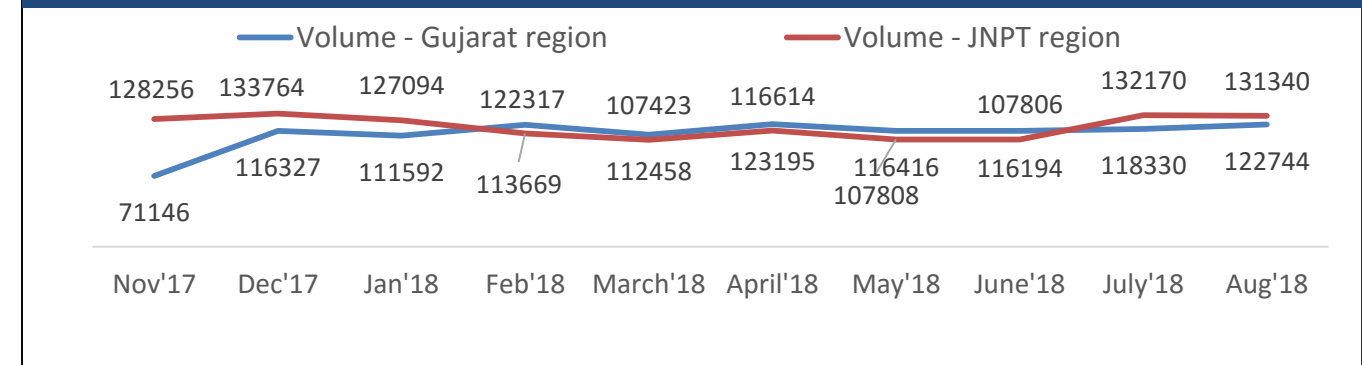
In Import cycle, for the month of Aug'18 JNPT port has catered **44% more volume** than APSEZ Port, while keeping its **dwell time 16% less** than APSEZ Port

Export Cycle

Dwell Time – Gujarat Region Vs JNPT Region



Volume – Gujarat Region Vs JNPT Region

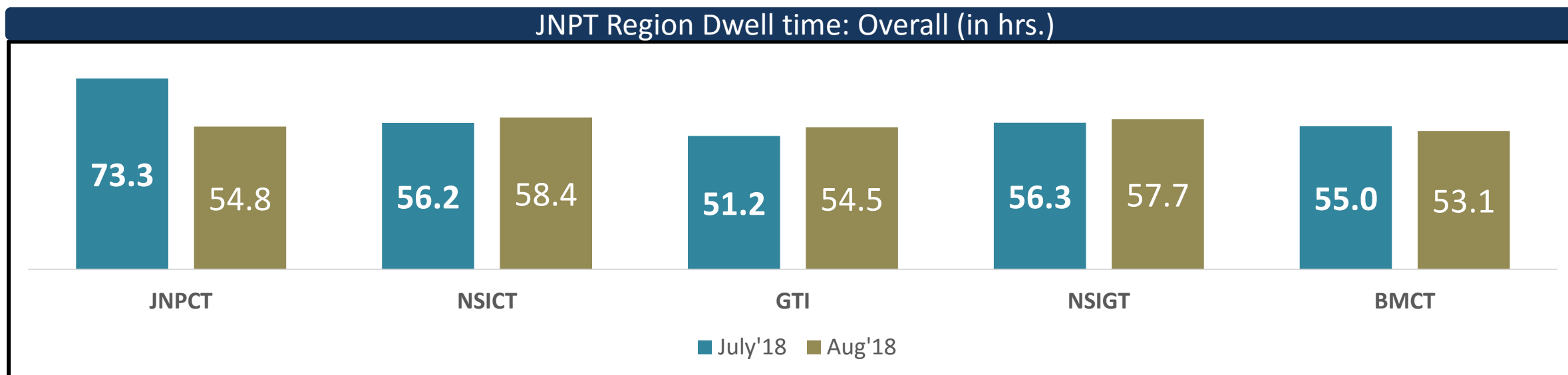


In Export cycle, Volume catered by APSEZ port in Aug'18 is just **7% less** than JNPT Port, yet the dwell time is **34% higher** than JNPT Port

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(Month of Month) of all the JNPT Port terminals. 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

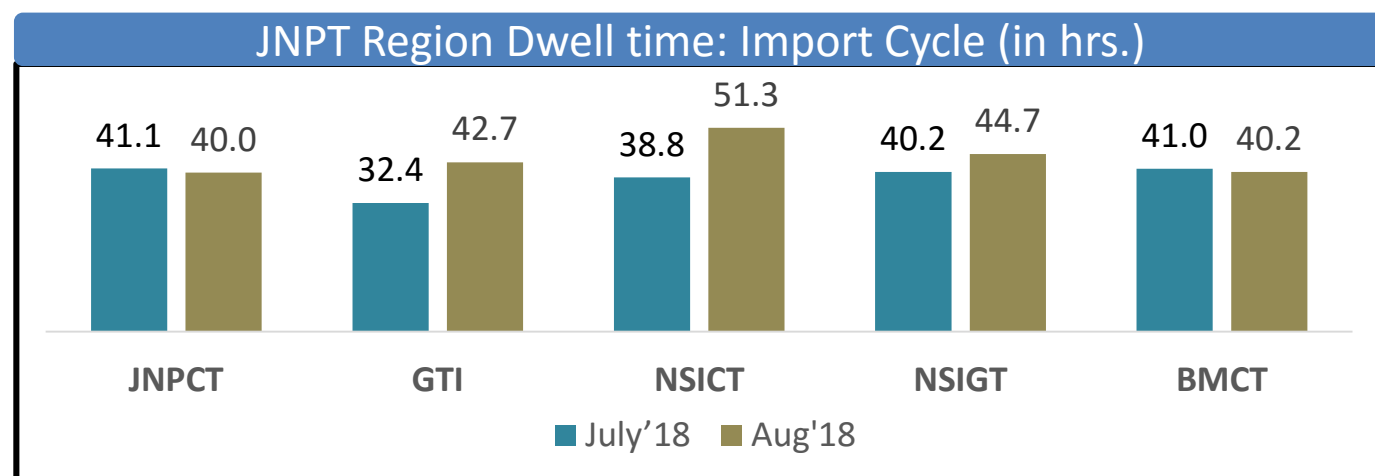


The overall JNPT region average dwell time for Aug'18 is 55hrs as compared to 57hrs in July'18

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

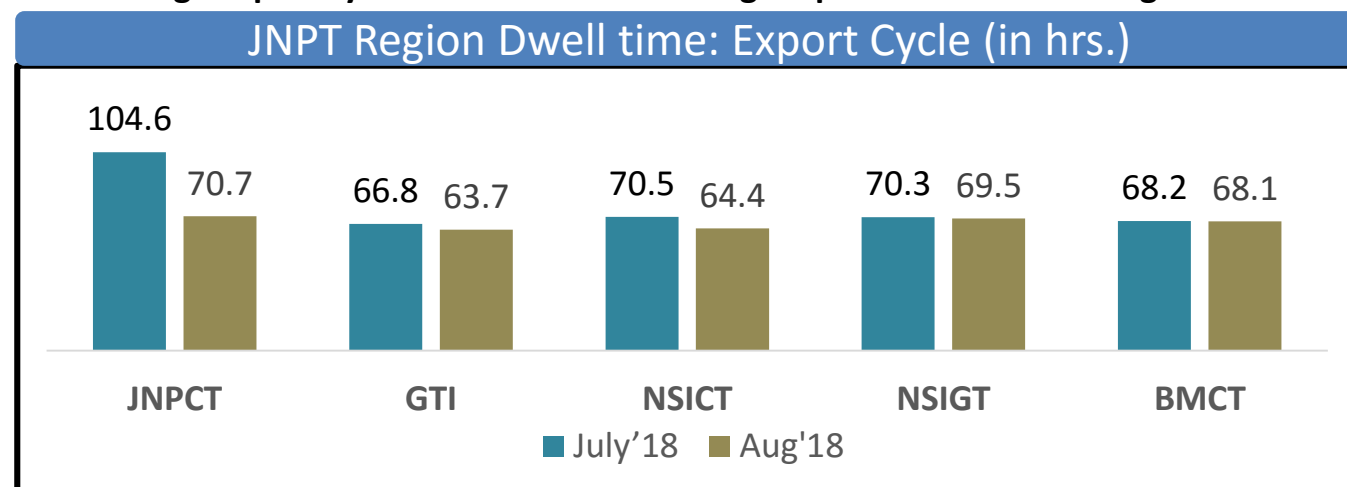
JNPT Import cycle Trend

The average import cycle dwell time of JNPT region port terminals for Aug'18 is 43hrs.



JNPT Export cycle Trend

The average export cycle dwell time of JNPT region port terminals for Aug'18 is 67hrs.



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 August'18

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

Terminal	Intercept Coefficient
JNPCT	73.18
GTI	37.46
NSIGT	50.64
NISCT	59.70

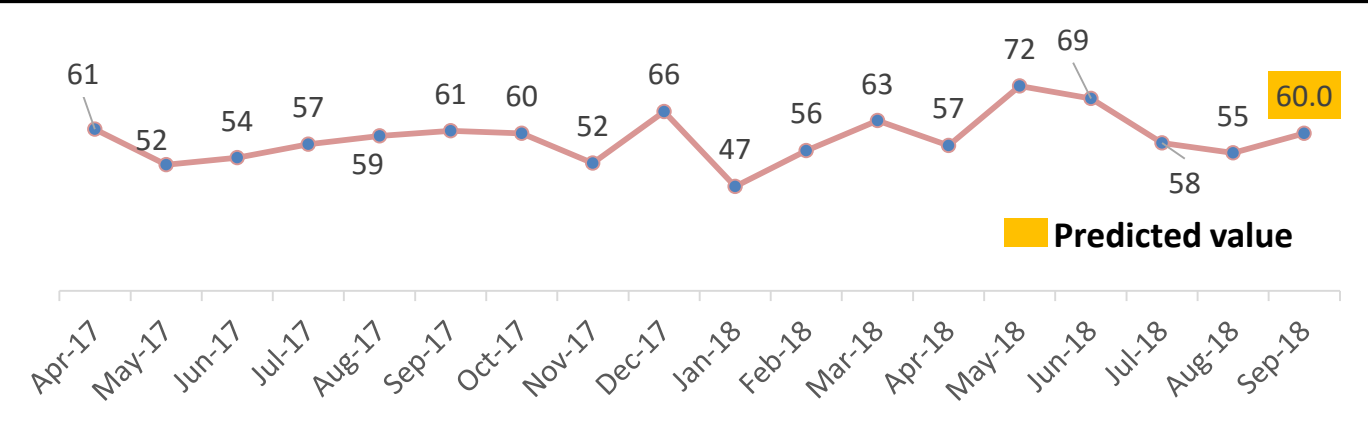
Note: The prediction has been done with the error rate of 16%

JNPT Port terminals Dwell time Trend and Forecast

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

JNPT

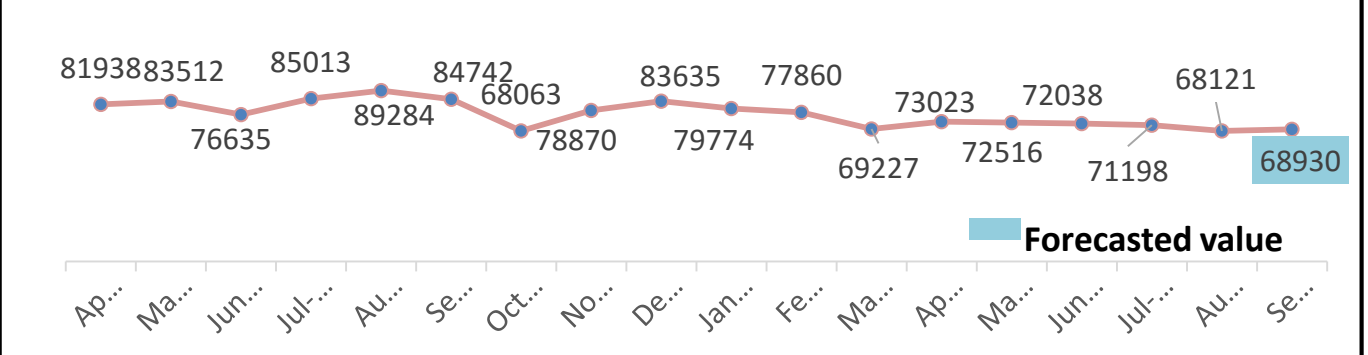
Dwell Time Trend and prediction (in hrs.)



Dwell Time CAGR: - 0.9%

JNPT	August'18	Predicted Values	Error rate
Dwell time	55	61	8%

Container Volume Trend and forecast

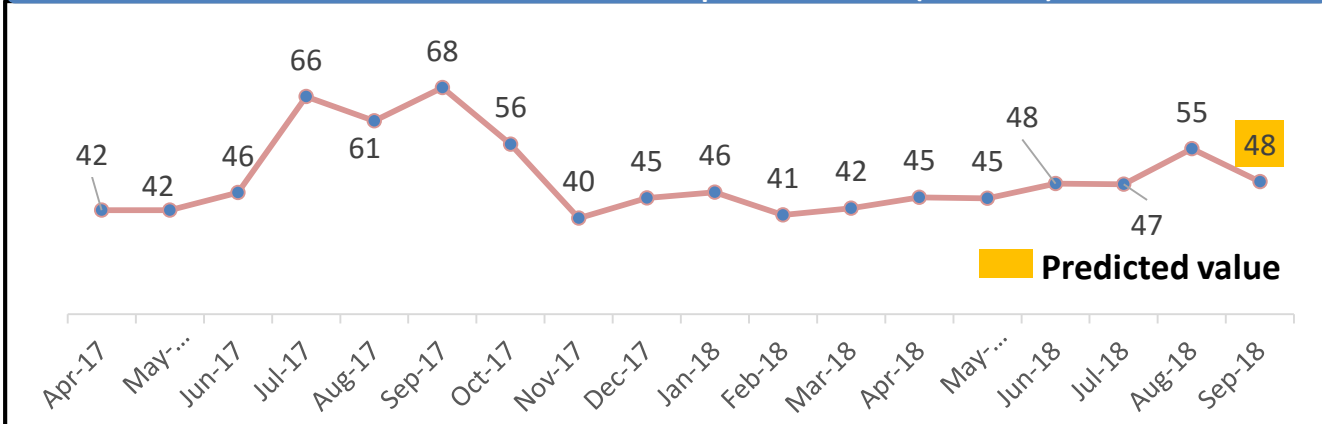


CAGR: -0.96%

CAGR – Compound Annual Growth Rate

GTI

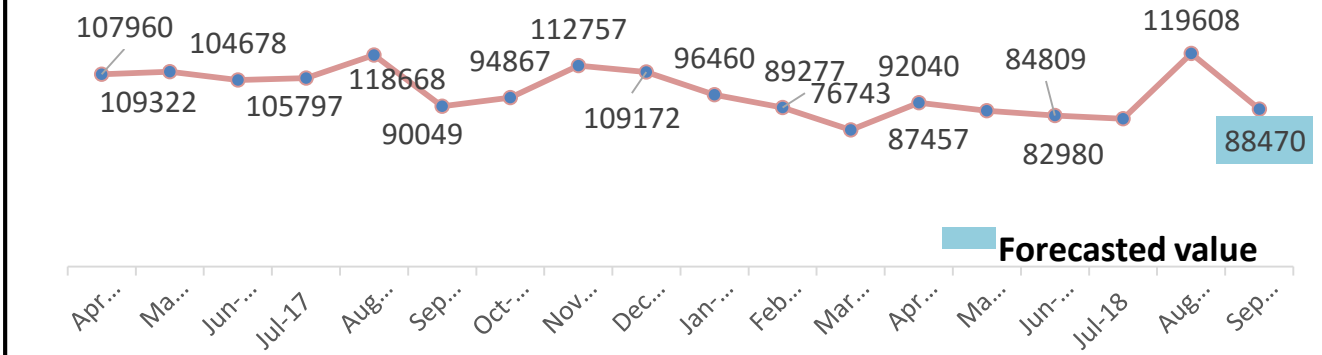
Dwell time trend and prediction (in hrs.)



Dwell Time CAGR: 0.74%

GTI	August'18	Predicted Values	Error rate
Dwell time	55	47	16%

Container volume trend and forecast



CAGR: -1.1%

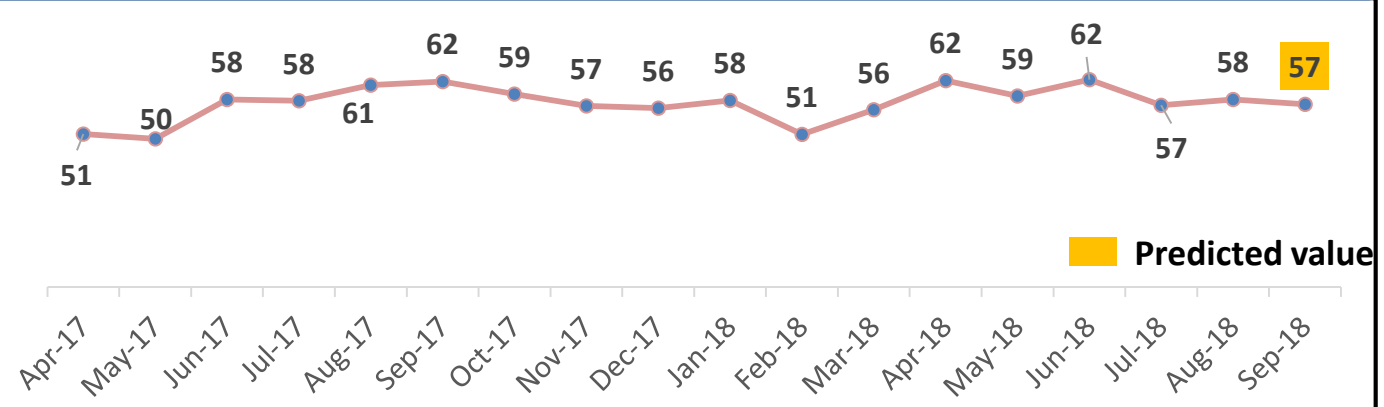
JNPT Port terminals Dwell time Trend and Forecast

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

CAGR – Compound Annual Growth Rate

NSICT

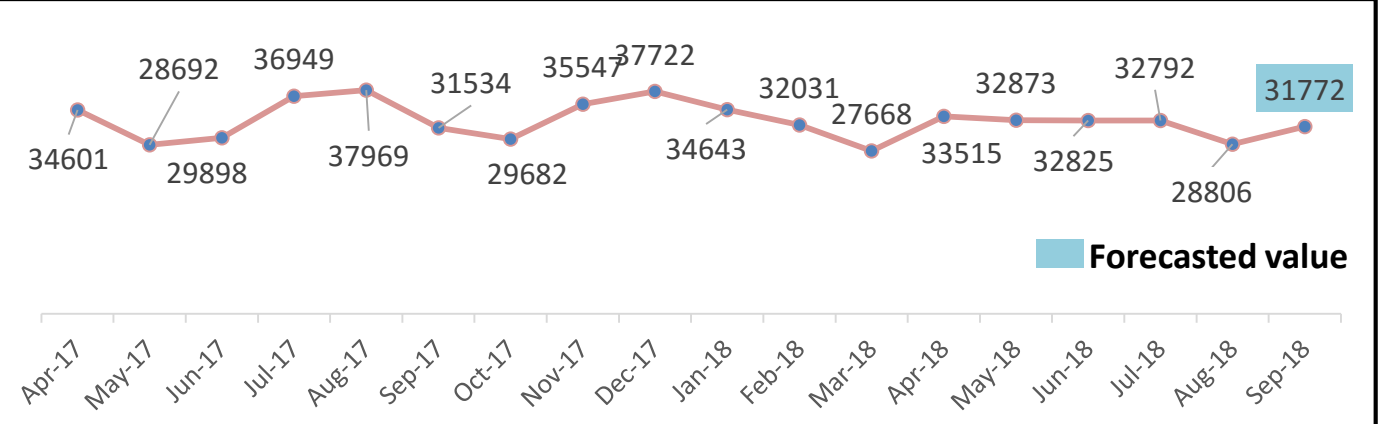
Dwell Time Trend and prediction (hrs.)



Dwell Time CAGR: 0.62%

NSICT	August'18	Predicted Values	Error rate
Dwell time	58	57	2%

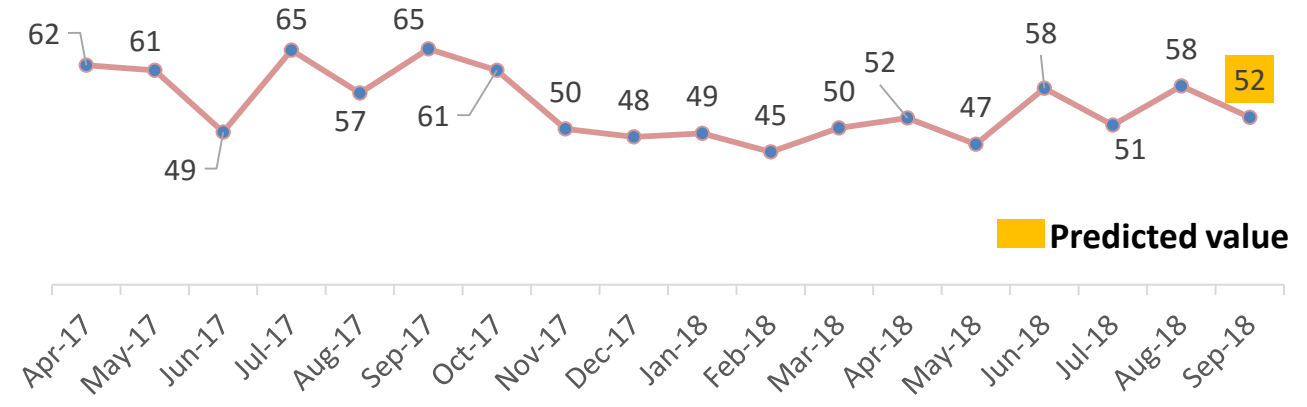
Container Volume Trend and forecast



CAGR: - 0.47%

NSIGT

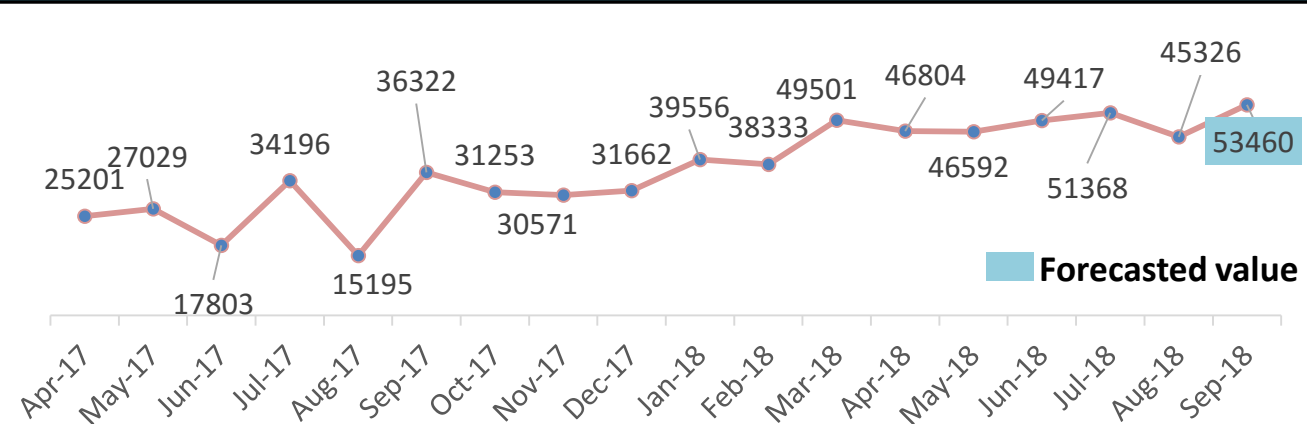
Dwell Time Trend and prediction (in hrs.)



Dwell Time CAGR: - 0.97%

NSIGT	August'18	Predicted Values	Error rate
Dwell time	58	52	10%

Container Volume Trend and forecast



CAGR: 4.27%

ANNEXURE

- 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 consuption 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
	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 Diesel (Kg CO2/ltr)	Feb'17	Dec'17	Improvement
Carbon Emission	2.9	178.176	111.36	38%

Formula	
Carbon Emission	= fuel consumed * Fu

Toll Plaza

Toll plazas	Toll Plaza		
	Average distance covered btw toll plaza	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	

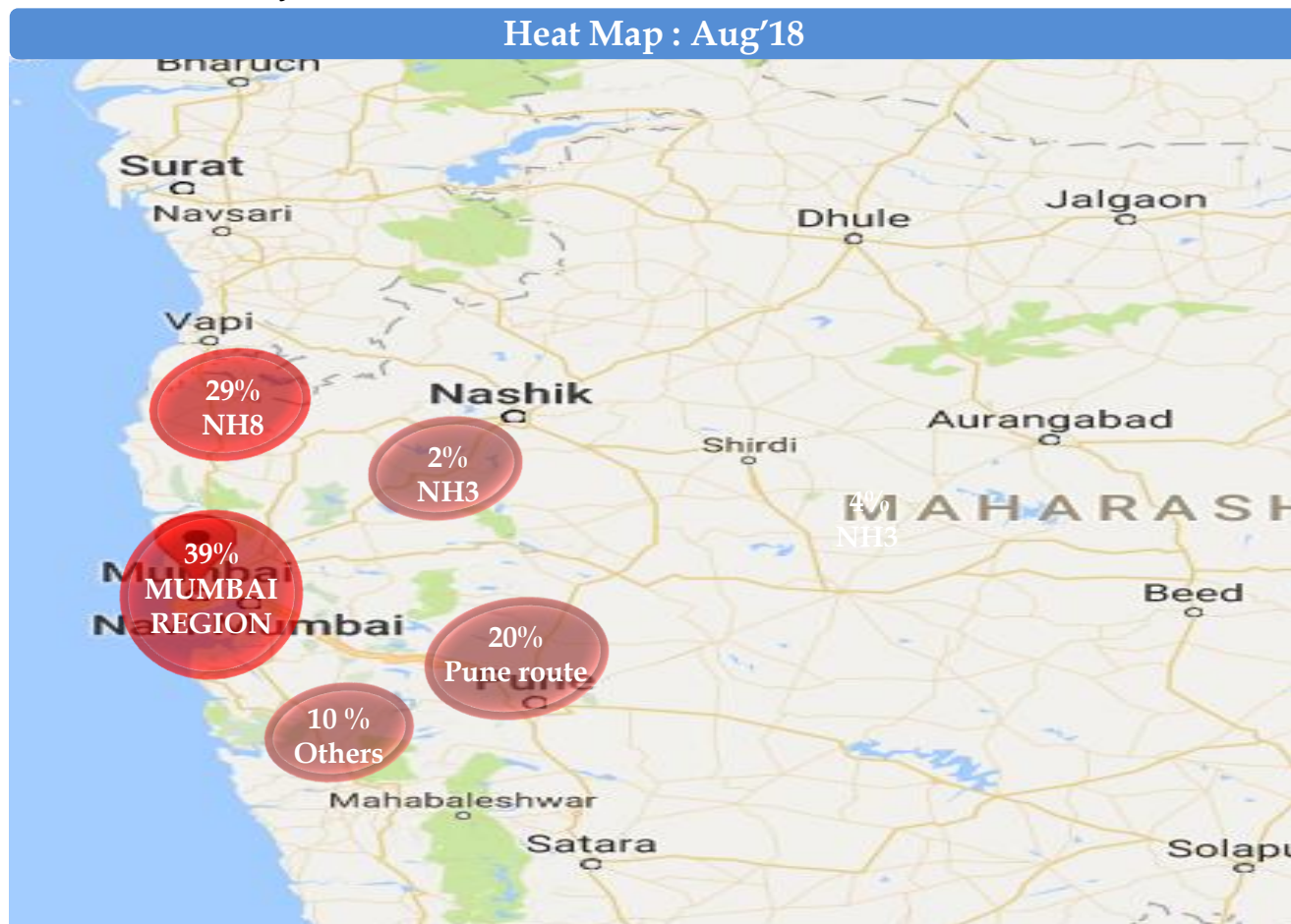
Source
INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION
ECTA
NECTI analysis

https://www.ecta.com/resources/Documents/Best%20Practices%20Guidelines/guideline_for_measuring_and_managing_co2.pdf
https://www.theicct.org/sites/default/files/publications/ICCT_India-HDV-fuel-consumption_policy-update_20171207.pdf

- Please find toll plaza details below

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

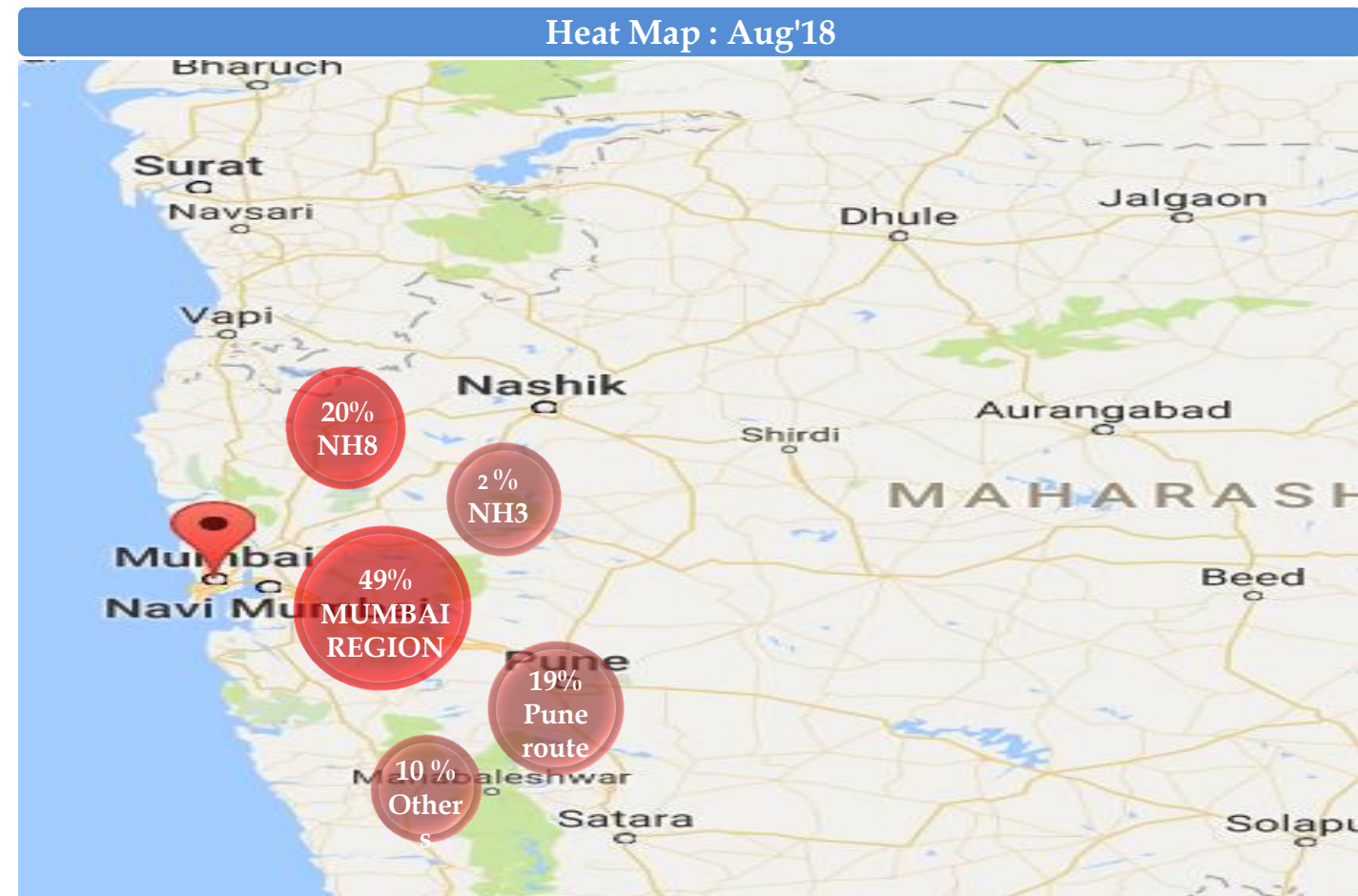
HEAT MAP : JNPCT Port Terminal



Region	July'18	Aug'18
Mumbai region	67%	39%
NH3	1%	2%
Pune	9%	20%
NH8	12%	29%
others	10%	10%

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

HEAT MAP : GTI Port Terminal

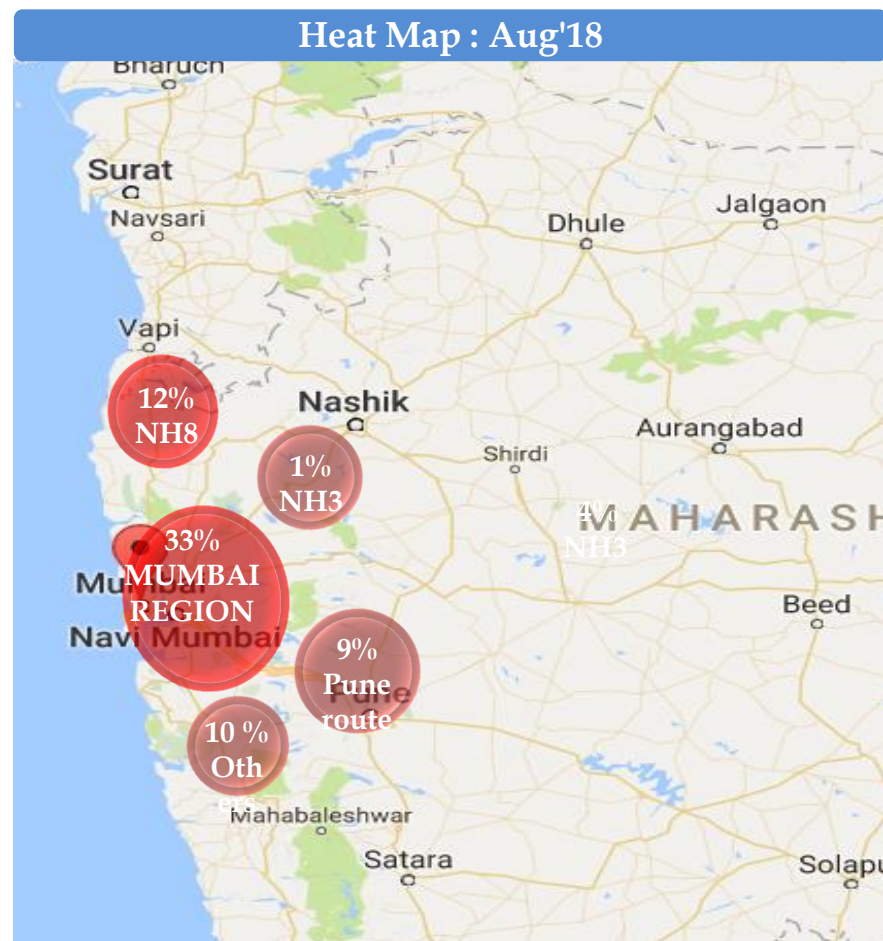


Region	July'18	Aug'18
Mumbai region	67%	49%
NH3	1%	2%
Pune	13%	19%
NH8	9%	20%
others	10%	10%

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

Container movement around JNPT Port terminal region via Truck

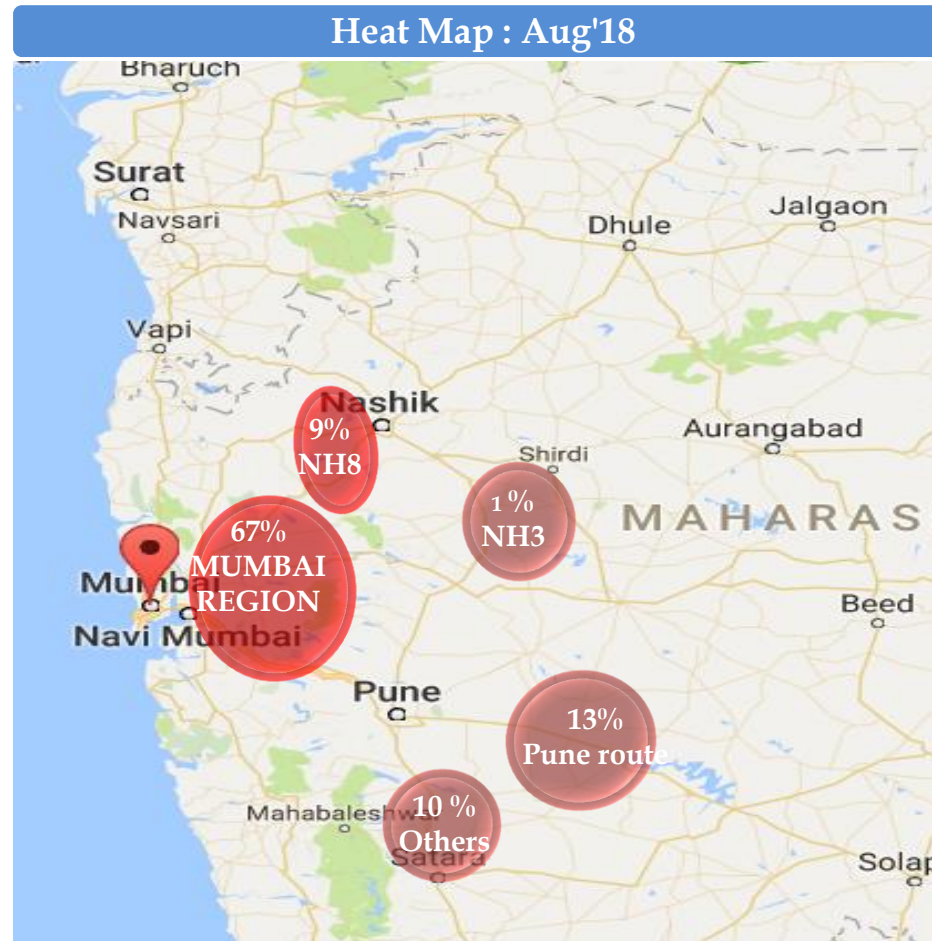
HEAT MAP : NSIGT



Region	July'18	Aug'18
Mumbai region	53%	33%
NH3	3%	3%
Pune	20%	31%
NH8	14%	23%
others	10%	10%

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

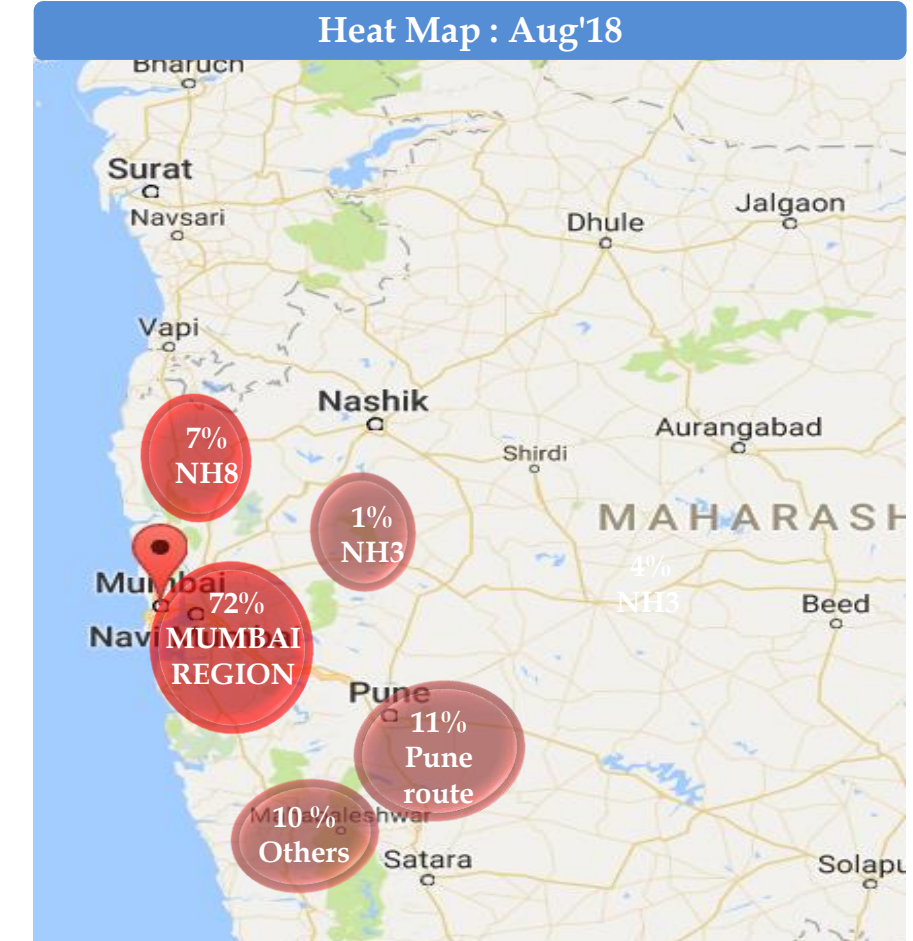
HEAT MAP : NSICT Port Terminal



Region	July'18	Aug'18
Mumbai region	64%	74%
NH3	2%	1%
Pune	13%	6%
NH8	11%	8%
others	10%	10%

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

HEAT MAP : BMCT Port Terminal



Region	July'18	Aug'18
Mumbai region	72%	41%
NH3	1%	3%
Pune	11%	23%
NH8	7%	23%
others	10%	10%

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

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

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

For Aug'18				
CFS Out Port in (Export Cycle in Hrs)				
CFS	JNPCT	GTI	NSICT	NSIGT
CWC LOGISTIC PARK - Opr.Hind Trmnl.	3.8	8.4	5.5	5.2
CWC Dronagiri CFS	1.8	6.0	6.0	4.5
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	1.7	3.5	7.7	6.6
Indev Logistics Pvt. Ltd. CFS	3.3	7.1	-	6.6
PUNJAB CONWARE (PW)	2.8	4.2	5.6	4.8
Transindia Logistics Park Pvt, Ltd CFS	2.7	8.0	6.5	5.1
Apollo Logisolutions Ltd.	5.6	15.2	7.9	9.2
NAVKAR CORPORATION LTD.YARD-III CFS	4.8	13.8	8.0	11.2
Ameya Logistics Pvt. Ltd.	3.0	9.6	4.7	8.1
Ashte Logistics Pvt. Ltd.	4.5	10.6	11.8	5.1
DRONAGIRI RAIL TERMINAL	2.8	6.8	5.2	6.6
Vaishno Logistics Yard CFS	2.6	7.0	-	11.7
NAVKAR CORPORATION LTD.,YARD-II CFS	5.8	11.2	7.6	12.2
Gateway Distriparks Ltd	2.1	8.6	9.3	6.1
All Cargo Logistics Ltd., CFS	4.1	8.7	6.6	6.6
International Cargo Terminal CFS	1.8	6.7	3.3	-
Balmer & Lawrie & Co. Ltd. CFS	2.8	11.7	7.2	22.2
Continental Warehousing (Nhava Sheva) Ltd.	2.2	5.7	4.5	5.2
Seabird Marine Services Pvt Ltd.	1.7	7.7	4.4	6.8
Ocean Gate Container Terminals Pvt. Ltd. CFS	3.3	7.9	9.5	5.1
MAHARASHTRA STATE WARE. CORP. CFS	1.4	5.3	4.0	5.9
International Cargo Terminals & Infrastructure Private Limited-CFS	3.5	8.8	4.1	5.1
APM (Maersk India Pvt. Ltd)CFS	1.6	5.8	3.3	3.8
SBW Logistics CFS , Navi Mumbai	11.2	15.8	-	-

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	Aug'18 (in hrs)
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	2.1
Balmer & Lawrie & Co. Ltd. CFS	3.7
Gateway Distriparks Ltd	3.7
APM (Maersk India Pvt. Ltd)CFS	2.7
Continental Warehousing (Nhava Sheva) Ltd.	2.3
Seabird Marine Services Pvt Ltd.	3.2
JWC Logistics Park Ltd CFS	4.5
Ameya Logistics Pvt. Ltd.	3.8
Ashte Logistics Pvt. Ltd.	6.1
NAVAKAR CORPORATION LTD.,YARD-1 CFS	8.3
Apollo Logisolutions Ltd.	8.6
Ocean Gate Container Terminals Pvt. Ltd. CFS	4.5
Indev Logistics Pvt. Ltd. CFS	5.7
Transindia Logistics Park Pvt, Ltd CFS	3.2
All Cargo Logistics Ltd., CFS	3.0
Vaishno Logistics Yard CFS	3.5
NAVAKAR CORPORATION LTD.,YARD-II CFS	6.7
PUNJAB CONWARE (PW)	3.1
DRONAGIRI RAIL TERMINAL	2.1
MAHARASHTRA STATE WARE. CORP. CFS	3.0
CWC LOGISTIC PARK - Opr.Hind Trmnl.	2.6
NAVAKAR CORPORATION LTD.YARD-III CFS	5.2
International Cargo Terminals & Infrastructure Private Limited-CFS	3.6
Maersk Annex (APM)CFS	3.7
International Cargo Terminal CFS	3.4
SBW Logistics CFS , Navi Mumbai	6.6

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	Aug'18 (in hrs)
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	1.7
Balmer & Lawrie & Co. Ltd. CFS	3.4
Gateway Distriparks Ltd	3.5
APM (Maersk India Pvt. Ltd)CFS	2.8
Continental Warehousing (Nhava Sheva) Ltd.	2.4
Seabird Marine Services Pvt Ltd.	2.7
JWC Logistics Park Ltd CFS	7.0
Ameya Logistics Pvt. Ltd.	3.9
Ashte Logistics Pvt. Ltd.	4.4
NAVAKAR CORPORATION LTD.,YARD-1 CFS	6.4
Apollo Logisolutions Ltd.	9.2
Ocean Gate Container Terminals Pvt. Ltd. CFS	4.9
Indev Logistics Pvt. Ltd. CFS	5.5
Transindia Logistics Park Pvt, Ltd CFS	3.8
All Cargo Logistics Ltd., CFS	2.9
Vaishno Logistics Yard CFS	3.0
NAVAKAR CORPORATION LTD.,YARD-II CFS	4.8
PUNJAB CONWARE (PW)	3.5
DRONAGIRI RAIL TERMINAL	2.3
MAHARASHTRA STATE WARE. CORP. CFS	2.2
CWC LOGISTIC PARK - Opr.Hind Trmnl.	3.0
NAVAKAR CORPORATION LTD.YARD-III CFS	4.9
International Cargo Terminals & Infrastructure Private Limited-CFS	3.7
Maersk Annex (APM)CFS	4.7
International Cargo Terminal CFS	3.8
SBW Logistics CFS , Navi Mumbai	5.7

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	Aug'18 (in hrs)
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	1.9
Balmer & Lawrie & Co. Ltd. CFS	2.4
Gateway Distriparks Ltd	3.5
APM (Maersk India Pvt. Ltd)CFS	2.0
Continental Warehousing (Nhava Sheva) Ltd.	1.8
Seabird Marine Services Pvt Ltd.	2.2
JWC Logistics Park Ltd CFS	5.2
Ameya Logistics Pvt. Ltd.	3.1
Ashte Logistics Pvt. Ltd.	5.3
NAVAKAR CORPORATION LTD.,YARD-1 CFS	4.7
Apollo Logisolutions Ltd.	12.5
Ocean Gate Container Terminals Pvt. Ltd. CFS	3.9
Indev Logistics Pvt. Ltd. CFS	6.1
Transindia Logistics Park Pvt, Ltd CFS	3.1
All Cargo Logistics Ltd., CFS	2.2
NAVAKAR CORPORATION LTD.,YARD-II CFS	4.7
PUNJAB CONWARE (PW)	2.5
DRONAGIRI RAIL TERMINAL	1.6
MAHARASHTRA STATE WARE. CORP. CFS	11.0
CWC LOGISTIC PARK - Opr.Hind Trmnl.	2.4
NAVAKAR CORPORATION LTD.YARD-III CFS	2.9
International Cargo Terminals & Infrastructure Private Limited-CFS	2.5
Maersk Annex (APM)CFS	3.0
International Cargo Terminal CFS	2.9
SBW Logistics CFS , Navi Mumbai	9.8

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	Aug'18 (in hrs)
Jawaharlal Nehru Port CFS (Speedy Multimode Ltd CFS)	3.8
Balmer & Lawrie & Co. Ltd. CFS	2.0
Gateway Distriparks Ltd	3.8
APM (Maersk India Pvt. Ltd)CFS	2.1
Continental Warehousing (Nhava Sheva) Ltd.	1.8
Seabird Marine Services Pvt Ltd.	2.4
JWC Logistics Park Ltd CFS	4.3
Ameya Logistics Pvt. Ltd.	2.9
Ashte Logistics Pvt. Ltd.	5.1
NAVAKAR CORPORATION LTD.,YARD-1 CFS	3.3
Apollo Logisolutions Ltd.	7.5
Ocean Gate Container Terminals Pvt. Ltd. CFS	4.9
Indev Logistics Pvt. Ltd. CFS	5.7
Transindia Logistics Park Pvt, Ltd CFS	3.3
All Cargo Logistics Ltd., CFS	2.2
Vaishno Logistics Yard CFS	4.1
NAVAKAR CORPORATION LTD.,YARD-II CFS	7.9
PUNJAB CONWARE (PW)	2.7
DRONAGIRI RAIL TERMINAL	3.5
MAHARASHTRA STATE WARE. CORP. CFS	17.7
CWC LOGISTIC PARK - Opr.Hind Trmnl.	2.4
NAVAKAR CORPORATION LTD.YARD-III CFS	3.5
International Cargo Terminals & Infrastructure Private Limited-CFS	4.1
Maersk Annex (APM)CFS	3.2
International Cargo Terminal CFS	2.8
SBW Logistics CFS , Navi Mumbai	7.5

Base on container movement from port to CFS in Mumbai region, 31 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 Aug'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	2.1	3.5
Cluster 2	6	13	3.6	8.4
Cluster 3	6	11	3.0	6.0
Cluster 4	1	13	3.5	7.0
Cluster 5	2	25	4.5	4.0
Cluster 6	6	25	6.4	10.9
Cluster 7	4	12	3.1	8.3
Cluster 8	1	34	6.6	15.8

CFS Cluster : JNPCT Terminal

JNPCT terminal for month of Aug'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	1.7	1.7
Cluster 2	6	13	3.5	2.1
Cluster 3	6	11	2.3	1.8
Cluster 4	1	13	3.0	2.6
Cluster 5	2	25	6.0	1.6
Cluster 6	6	25	5.2	4.8
Cluster 7	4	12	3.3	2.8
Cluster 8	1	34	5.7	11.2

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**

Base on container movement from port to CFS in Mumbai region, 31 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 : NSICT Terminal






GTI terminal for month of Aug'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	1.9	7.7
Cluster 2	6	13	2.5	4.8
Cluster 3	6	11	0.8	5.2
Cluster 4	1	13	0.0	0.0
Cluster 5	2	25	4.5	4.7
Cluster 6	6	25	5.0	7.9
Cluster 7	4	12	2.6	5.6
Cluster 8	1	34	9.8	0.0

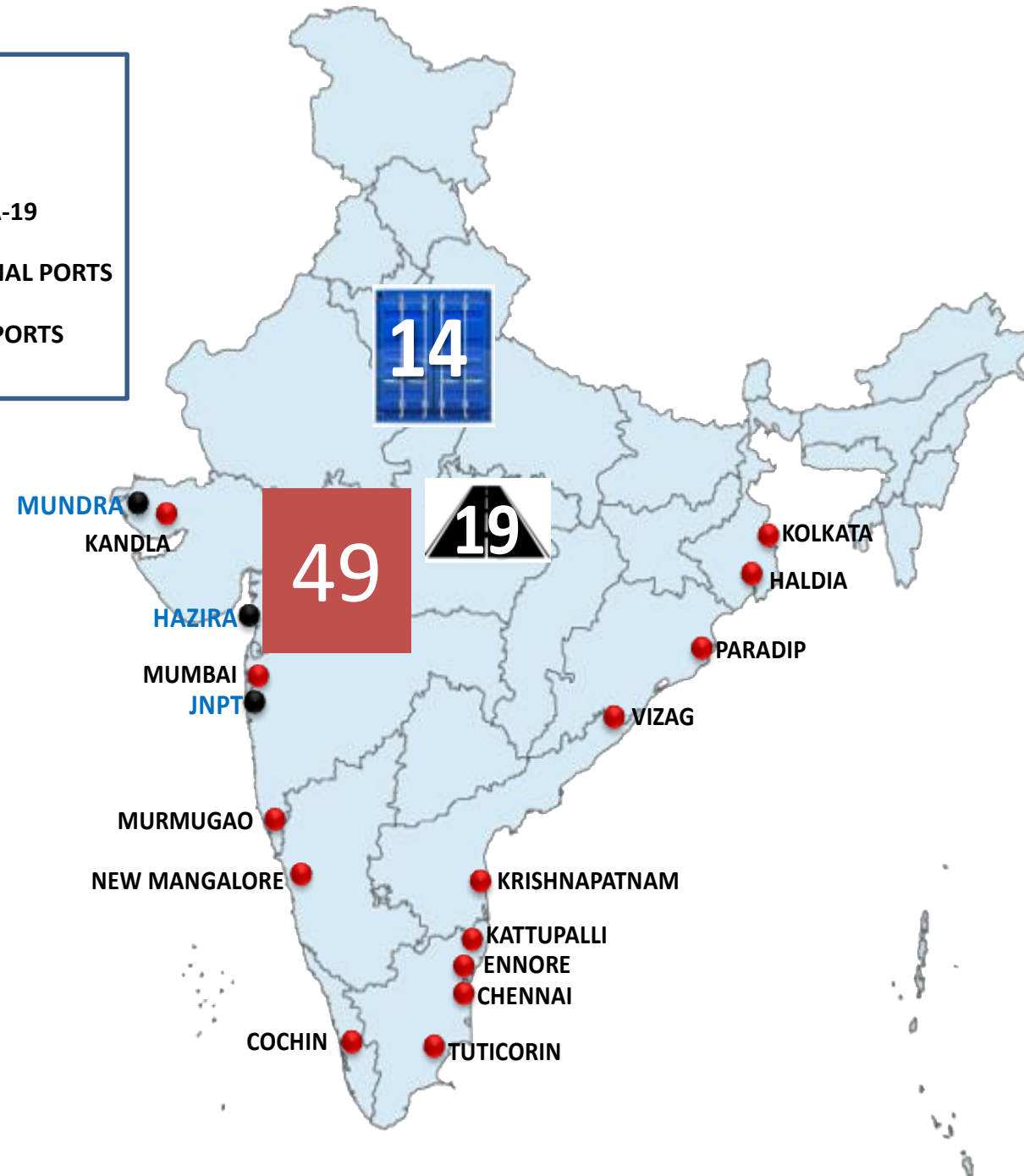
CFS Cluster : NSIGT Terminal

JNPCT terminal for month of Aug'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	3.8	6.61
Cluster 2	6	13	2.8	6.61
Cluster 3	6	11	2.7	5.9
Cluster 4	1	13	4.1	11.7
Cluster 5	2	25	4.6	2.6
Cluster 6	6	25	5.4	7.9
Cluster 7	4	12	2.6	5.9
Cluster 8	1	34	7.5	0.0

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**

LDB Operations Snapshot

-  ICD- 14
-  CFS-49
-  TOLL PLAZA-19
-  OPERATIONAL PORTS
-  PLANNED PORTS



Below mentioned are all the CFS in the respective Clusters :

<p style="text-align: center;">Cluster 1 (JNPT Area)</p> <ul style="list-style-type: none"> Speedy Multimode CFS, JNPT 	<p style="text-align: center;">Cluster 3 Sonari area, JNPT road</p> <ul style="list-style-type: none"> 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 	<p style="text-align: center;">Cluster 6 (Salva apta rd area, Bangalore highway)</p> <ul style="list-style-type: none"> 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
<p style="text-align: center;">Cluster 2 (Bhendkhal area, Khopate road)</p> <ul style="list-style-type: none"> 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 	<p style="text-align: center;">Cluster 4 (Chirle area, JNPT road)</p> <ul style="list-style-type: none"> Vaishno Logistics CFS, Navi Mumbai 	<p style="text-align: center;">Cluster 7 (Patilpada area, Khopate JNPT road)</p> <ul style="list-style-type: none"> All Cargo Logistics CFS, Navi Mumbai Transindia Logistics Park, Navi Mumbai Ameya Logistics CFS, Navi Mumbai Continental Warehousing CFS, Navi Mumbai
	<p style="text-align: center;">Cluster 5 (Plaspa area, Coachi kanyakumari Highway)</p> <ul style="list-style-type: none"> JWC Logistics Park CFS Ocean Gate CFS, Panvel 	
	<p style="text-align: center;">Cluster 8 SBW</p>	



THANK YOU