

Selection of PPI Definition

Port Performance Indicator	PPI Classification			Definition			
	Topic	Perspective	Level	Description	Basic of Computation	Unit type	Unit
Growth in Container throughput	Throughput	Asset	Meso	Total number of containers per year divided by Total number of containers last year	$\frac{N_{c,t,\{s\},\{d\}}}{N_{c,t-1,\{s\},\{d\}}}$	Marginal value	Percentage
20' TEU as a % of Total TEU for year	Throughput	Asset	Meso	Total number of 20ft containers divided by Total number of all containers	$\frac{N_{c_{20},t,\{s\},\{d\}}}{N_{c,t,\{s\},\{d\}}}$	Ratio	Percentage
Container quote	Throughput	Asset	Meso	Total tons of Containers divided by Total tons of Bulk Cargo	$\frac{N_c}{N_c + N_b}$	Ratio	Percentage

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Departure rate	Utilization	Asset	Meso	Total number of departures of ships per day	$SDR_{t,\{d\}}$	Flow	Count
Service rate	Utilization	Asset	Meso	i.e., the number of bulk ships that are serviced -- cargo loaded and/or unloaded -- each day at the port's berths	$SSR_{t,\{d\}}$	Flow	Count
Arrival waiting time to enter the port	Utilization	Asset	Meso	time interval between the point in time when a vehicle arrives at the port's entrance gate and the point in time when it finally enters the entrance gate	$VAW_{\{d\}}$	Stock	Hours
Departure waiting time to depart the port	Utilization	Asset	Meso	time interval between the point in time when the departure process for a vehicle begins and the point in time when it finally leaves the port through the departure gate	$VDW_{\{d\}}$	Stock	Hours

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Ship waiting time for berth	Utilization	Asset	Meso	Total hours vessel waited for berth divided by Total no. of vessels	$TBW_{(d)} = \frac{SAW_{(d)}}{n}$	Stock	Hours
Ship time at berth	Utilization	Asset	Meso	Total hours vessel stay at berth divided by Total no. of vessels	$TB_{(d)} = \frac{SBT_{(d)}}{n}$	Stock	Hours
Dwell time	Utilization	Asset	Meso	Total no. of cargo tons x days in port divided by Total tonnage of cargo handled	$DT_{t,(d)} = \frac{N \cdot SPT_{(d)}}{N}$	Stock	Hours
Port berth reliability	Utilization	Asset	Meso	The average daily percent of time during the year that the port's berth is open to the berthing of ships	$PBR_{(s)}$	Flow	Percentage
Port channel reliability	Utilization	Asset	Meso	The average daily percent of time during the year that the port's channel is open to navigation	$PCR_{(s)}$	Flow	Percentage
Vessel-days	Utilization	Asset	Meso	Number of days per year the port has openend	PVD_t	Flow	Days
Tonnage per vessel day	Efficiency	People & Processes	Micro	Total tonnage of cargo handled divided by Total no. of vessel days	$NVD = \frac{N_{t,(s),(d)}}{PVD_t}$	Flow	Tons