

16th ASEAN PORTS & SHIPPING 2018

Understanding RORO Freight Transportation: Experience & Challenges

Chiefy Adi Kusmargono, S.Psi, M.Sc

Johor, July 3rd – 5th 2018

CHIEFY ADI KUSMARGONO, S.Psi, M.Sc





President Director of PT. Indonesia Kendaraan Terminal, Tbk / IPC Car Terminal (2017-current).

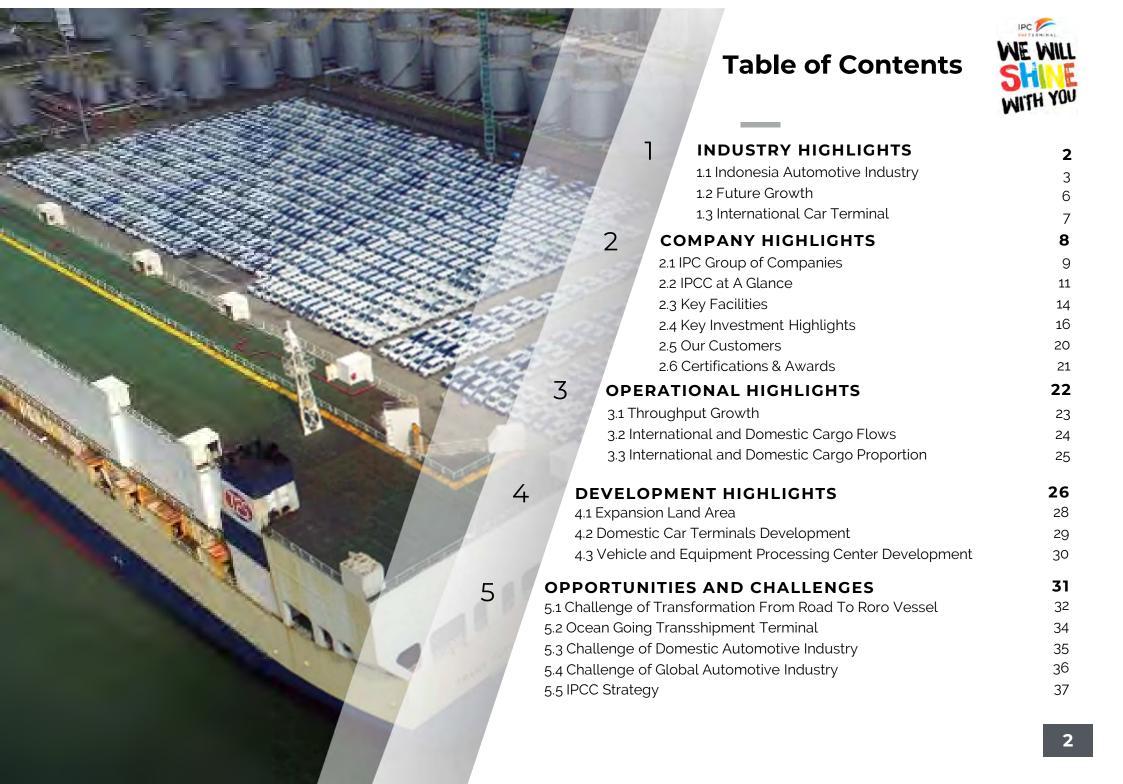
Previous position as General Manager of Banten Port, Main Branches of PT Pelabuhan Indonesia II (Persero) / Indonesia Port Corporation (2014-2017), Permanent Secretary Coordinator of Indonesia Port Corporation I, II, III, and IV (2012-2014). Port experienced 17 years.

Bachelor's Degree in Psychology Gadjah Mada University Yogyakarta (2000), Master of Science in Netherlands Maritime University (2012) majoring in Shipping and Transport.

Certified of Port Expert from Institut Pertanian Bogor, (2014). Certified In Human Capital Management from LM-PPM (2010). Certified Modern Port Management UNCTAD (2010), Certified in Auditor for Human Capital Management from ACA-HCM (2009), Certified in Improving Port Performance I from UNCTAD (2003), Certified in Advanced Port & Logistics Professionals Course (2016, Busan Port International Academy), Certified in Master Class Risk Governance from Enterprise Risk Management Academy (ERMA) (2017).

General Secretary of Indonesia Port Association (ASBUPI), Member of International Association of Ports and Harbours (IAPH), Member of Indonesia Psychologist Association (HIMPSI).

The Most Indonesia Innovative & Inspirative Leader of the Year from Economic Review Magazine (2018), The Best CMO Creative Branding & Marketing - Subsidiary of SOE Companies. The 1st Best Sales & Marketing Director - Sector: Subsidiary of BUMN Company (2017). Silver Winner as Best Leader for Category "Mental Revolution for The Best Working Performance" (2018).





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1. INDUSTRY HIGHLIGHTS

Understanding RORO Freight

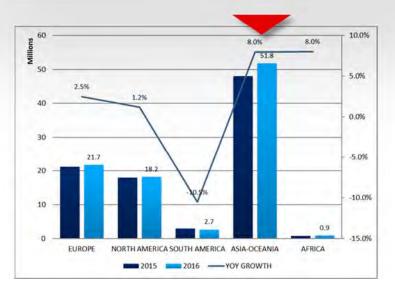
Transportation: Experience & Challenges

IPC CAR TERMINAL

JULY 2018

1.1 INDONESIA AUTOMOTIVE INDUSTRY





Asia-Oceania is the **dominant region** of automotive production, accounting for **54% of global production**.



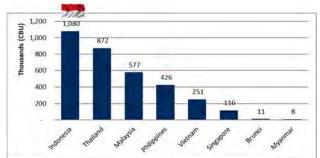
THE WORLD'S C	CAR SALES 2017
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No F	REGIONS/COUNTRIES	2017
1 (CHINA	29,122,531
2 (JSA	17,583,842
3 .	JAPAN	5,238,888
4 1	NDIA	4,017,539
5 (GERMANY	3,811,246
6 ا	JNITED KINGDOM	2,955,182
7 F	FRANCE	2,604,942
8 E	BRAZIL	2,238,915
9	TALY	2,190,403
10 (CANADA	2,077,000
11 5	SOUTH KOREA	1,798,796
12 I	RAN	1,718,565
13 F	RUSSIA	1,602,270
14 N	MEXICO	1,570,764
15 5	SPAIN	1,451,089
16	AUSTRALIA	1,188,677
17 J	NDONESIA	1,060,894
18	TURKEY	980,394
19	ARGENTINA	900,403
20 7	THAILAND	873,506

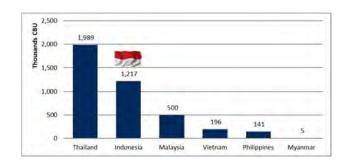
THE WORLD'S CAR PRODUCTION 2017

No	REGIONS/COUNTRIES	2017
1	CHINA	29,015,434
2	USA	11,189,985
3	JAPAN	9,693,746
4	GERMANY	5,645,581
5	INDIA	4,782,896
6	SOUTH KOREA	4,114,913
7	MEXICO	4,068,415
8	SPAIN	2,848,335
9	BRAZIL	2,699,672
10	FRANCE	2,227,000
11	CANADA	2,199,789
12	THAILAND	1,988,823
13	UNITED KINGDOM	1,749,385
14	TURKEY	1,695,731
15	RUSSIA	1,551,293
16	IRAN	1,515,396
17	CZECH REPUBLIC	1,419,993
18	INDONESIA	1,216,615
19	ITALY	1,142,210
20	SLOVAKIA	1,001,520

In terms of automobile sales, Indonesia is the world's 17th largest and the the 1st largest in ASEAN.

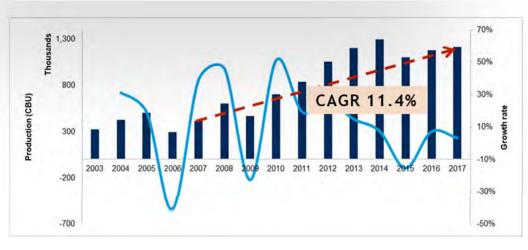


In terms of automobile production, Indonesia is the world's 18th largest and the the 2nd largest in ASEAN.



(Source: OICA, ASEAN Automotive Federation, Drewry)

...INDONESIA AUTOMOTIVE INDUSTRY



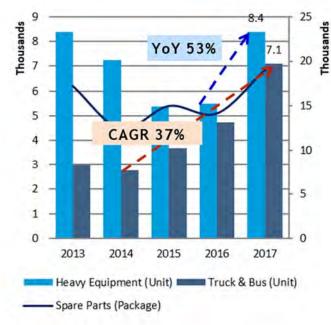
The Indonesian automobile production grew at a CAGR of 11.4% between 2007 and 2017.

(Source: Gaikindo, Drewry)



Indonesian automobile exports have grown from 2007 to 2017, achieving a CAGR of 14.4%.





The positive performance in 2017 was also extended to heavy equipment (53% year-on-year growth), trucks and buses (51% year-on-year growth) and spare parts (35% year-on-year growth).

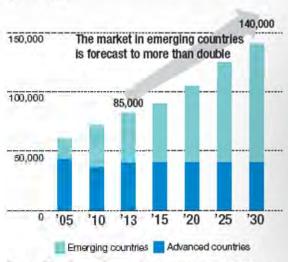
The trucks and buses segment had grown steadily from 2014, registering a CAGR of 37%.

(Source: IPCC, Drewry)

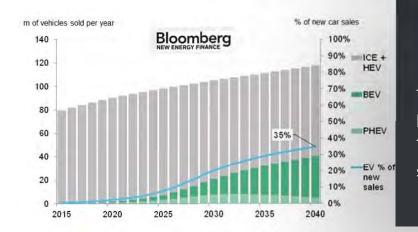
1.2 FUTURE GROWTH



Global Vehicle Sales Trend and Forecast



Source: Data from various statistics compiled by SC-ABeam Automotive Consulting, Data from 2015 onward are forecasts.



VEHICLE SALES IN EMERGING COUNTRIES

Global vehicle sales are projected to rise from around 85 million vehicles in 2013 to roughly 140 million in 2030, driven by growing demand in emerging countries. At the same time, the center of the automobile market is poised to shift from advanced countries to emerging countries, which will account for an estimated 70% of global sales.

ELECTRIC VEHICLES TO BE 35% OF GLOBAL NEW CAR SALES BY 2040

The study, published today, forecasts that sales of electric vehicles will hit **41 million by 2040**, representing **35%** of new light duty vehicle sales. This would be almost 90 times the equivalent figure for 2015, when EV sales are estimated to have been 462,000, some **60% up** on 2014.

1.3 INTERNATIONAL CAR TERMINALS





Based on throughput, IPCC is currently the 3rd largest car terminal in ASEAN behind Asia Automobile Terminal Singapore Pte. Ltd. and Namyong (Laem Chabang)

(Source: PwC)

No	Negara	Nama Pelabuhan	Operator Terminal Kendaraan	Throughput Kendaraan
1	Belgia	Zeebrugge	C.Ro, ICO, Toyota, WWL, PSA Zebrugge	2,776,113
2	Jerman	Bremerhaven	BLG Automobile Logistics	2,068,000
3	Cina	Port of Shanghai	Shanghai Haitong International Automotive Terminal Co., Ltd.	1,522,000
4	Korea Selatan	Pyeongtaek-Dangjin F	PcWWL, Eukor	1,505,780
5	Jerman	Emden	Autoport Emden, EVAG	1,336,700
6	Jepang	Nagoya Port	Sebuah perusahaan manufaktur mobil	1,300,000
	Arab Saudi	Jeddah Islamic Port	United National Marine Projects Co. Ltd	1,122,569
8	UK	Grimsby	C.Ro, BCA, DFDS, GBA, Gefco	1,080,000
9	Singapore	Port of Singapore	Pasir Panjang Automobile Terminal	1,020,000
	Thailand	Laem Chabang (A5)	Namyong	990,000
11	Belgia	Antwerp	ICO, Grimaldi Antwerp Euro Terminal, Salleum Terminals	962,418
-	UK	Southampton	Associated British Ports	901,000
13	Cina	Port of Tianjin	Tianjin Port Ro-Ro Terminal Co., Ltd, Tianjin Global Ro-Ro Terminal Co., Ltd	798,000
	Spanyol	Barcelona	Autoterminal, Setram	778,109
	Spanyol	Valencia	Ford, Valencia Terminal Europa	774,174
	Meksiko	Veracruz	CPV, SSA Mexico	770,729
17	Slovenia	Koper	Luka Koper	749,384
	Amerika	Baltimore	Amports, Ports America, WWL VSA, Ceres	731,750
19	UK	Bristol	BCA, GBA, Gefco, Groupe Cat	719,000
20	Amerika	Jacksonville	Amports, Southeast Toyota, WWL	652,265
	Belanda	Vlissingen	Cobelfret, Verbrugge Terminals	646,230
	UK	London	Forth Ports	637,719
	Amerika	Brunswick	Atlanta Vehicle Processors, IAP, WWL VSA, Amports, Mercedes Benz, BMV	631,713
	Italia	Livorno	Livorno Terminal Marittimo	596,677
	UK	Tyne	Port of Tyne	593,543
	Arab Saudi	King Abdulaziz Port D		576,491
	Indonesia	Tanjung Priok	IPCC	520,863
	Amerika	New York	FAPS, Toyota Logistics Services, BMW	505,151
	Uni Emirat Arab	Jebel Ali	DP World	500,000
	Spanyol	Santander	n/a	490,063
	Cina	Port of Guangzhou	Guangzhou Nansha Port Automotive Terminal Co., Ltd	489,000
	Afrika Selatan		Transnet Port Terminals	480,000
	Jerman	Cuxhaven	BLG Logistics	478,495
34	Cina	Port of Dalian	Dalian Automobile Terminal Co., Ltd	454,000
	Spanyol	Vigo	n/a	451,771
	Argentina	Zarate	n/a	450,000
37	Belanda	Rotterdam	n/a	437,500
38	Italia	Salerno	n/a	400,953
39	Kanada	Vancouver	WWL VSA	393,280
40	Amerika	San Diego	Pasha Automotive Services	390,954



IPCC is the 27th largest car terminal in the world based on throughput, above New York, Rotterdam and Vancouver.

(Source: PwC)



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2. COMPANY HIGHLIGHTS

Understanding RORO Freight

Transportation: Experience & Challenges

IPC CAR TERMINAL

JULY 2018

2.1 IPC GROUP OF COMPANIES

IPCC is 100% owned by Pelindo II (IPC), which is 100% owned by the Government of Indonesia. IPCC is 1 of 17 subsidiaries of IPC.







GOVERNMENT OF REPUBLIC OF INDONESIA

100.00% 👃 PT PELABUHAN INDONESIA II (PERSERO)



PT Indonesia

Kendaraan Terminal

(IPC Car Terminal)

PT Pelabuhan **Tanjung Priok**

(Terminal Operator)



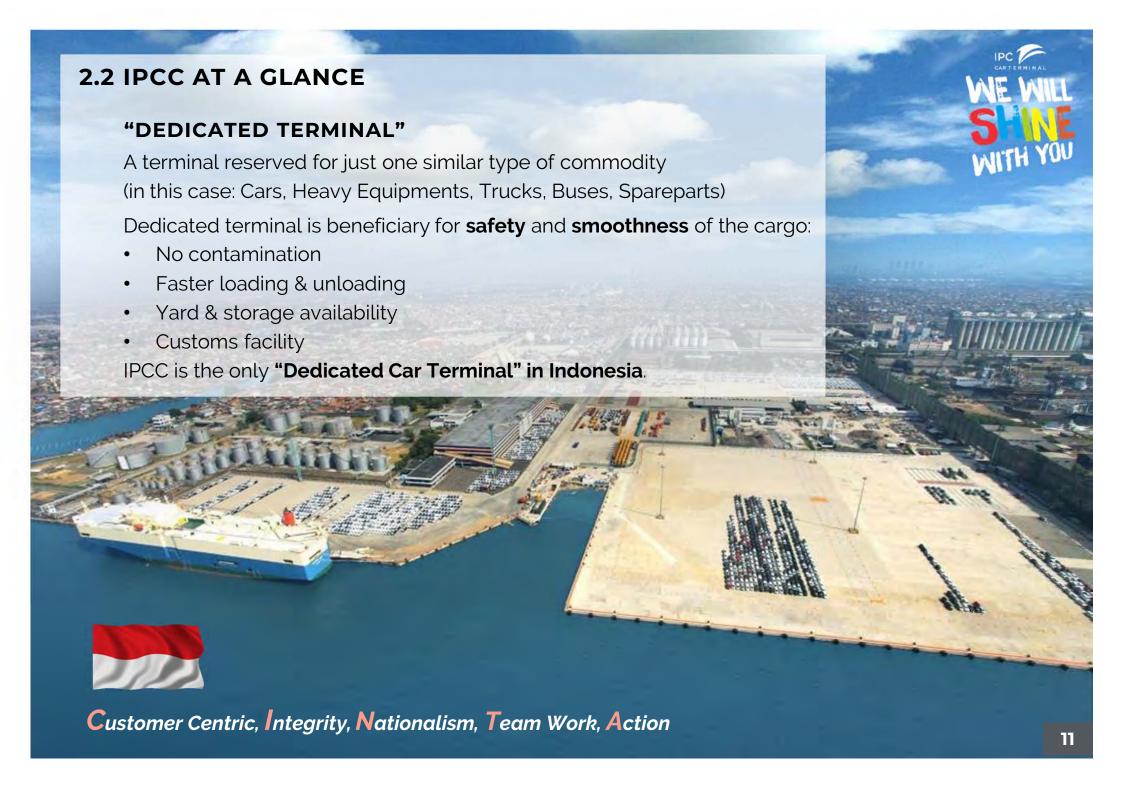


...IPC GROUP OF COMPANIES

IPC is the largest port operator in Indonesia with 12 ports located in the fastest growing areas in Indonesia, including Tanjung Priok that handles around 65% of national container exports & imports.











2018

Total land area of 31 ha with a capacity of 700,000 vehicles a year.





Car terminal division was spun off as IPC Car Terminal. Total land area became 16.9 ha, with a capacity of 400,000 vehicles a year.



2007

Completed construction of Tanjung Priok Car Terminal. Start Operations as a division of Pelindo II. Total area of 7.38 ha with a capacity of 200,000 vehicles a year.



2006

GOI instructed IPC to develop dedicated terminal to handle vehicles (cars, heavy equipments, trucks, buses and spareparts) in Tanjung Priok.



...IPCC AT A GLANCE

milestones Car Key terminal transformation from a division of IPC became an individual company.

...IPCC AT A GLANCE

Line of Business: Integrated World-Class Car Terminal

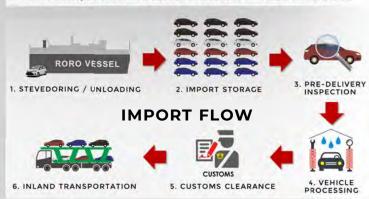






1. TERMINAL HANDLING

Terminal Cargo Handling for Automotive, Heavy Equipments & Spareparts





2. VALUE ADDED SERVICES

Vehicle Processing Service (VPC)
Equipment Processing Service (EPC)
Road Freight Services
Port Stock







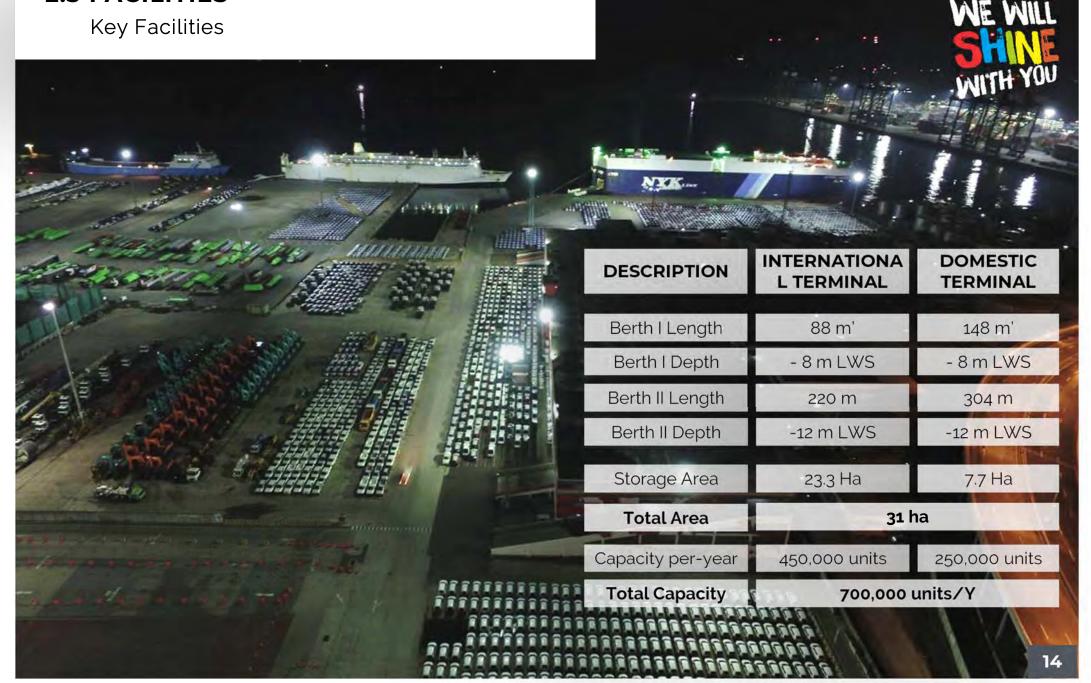
3. SEA TOLL SERVICES

Cargo carried by Trucks (supporting Government Sea Toll Program).





2.3 FACILITIES



...FACILITIES

Supporting Facilities





YARD, BERTH &
RESOURCE
PLANNING SYSTEM



AUTOGATE SYSTEM



LOADING/ UNLOADING AREA CAR CARRIER



INTEGRATED INSPECTION FACILITY



VIN & BARCODE SCANNING



TAXI CARS



DASHBOARD INFORMATION



CONTROL TOWER



SIMULATOR ROOM



CUSTOMER SERVICE CENTER BUILDING

2.4 KEY INVESTMENT HIGHLIGHTS



STRONG SUPPORT & COMMITMENT FROM SHAREHOLDER (IPC)



HIGHLY EXPERIENCED MANAGEMENT TEAM

84 YEARS OF COMBINED EXPERIENCE

SECURED LAND CONCESSION & WELL PLANNED EXPANSION

300% AREA IN THE NEXT 5Y

SOLID CLIENT BASE

HIGHLY REPUTATED AUTOMOTIVE AND SHIPPING COMPANIES



FAST-GROWING MARKETS

DOUBLE DIGITS
HISTORICAL GROWTH

THE ONLY DEDICATED CAR TERMINAL IN THE WORLD'S 4TH MOST POPULOUS COUNTRY

Backed Up by The Largest Port Operator in Indonesia





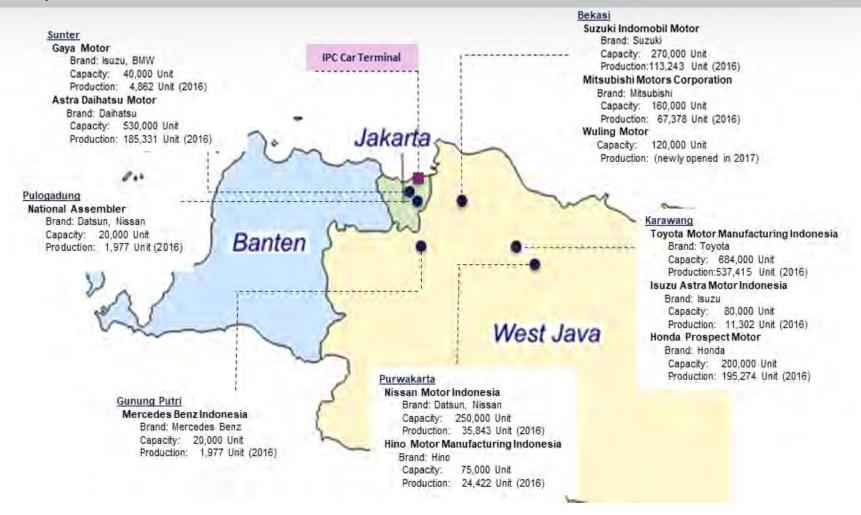
CAPTIVE 100% MARKET: ALL NATIONAL EXPORTS & IMPORTS

Strategic Location Near All Automotive Manufactures in Indonesia



"The automobile terminal market is characterised by concentrated oligopolies or monopolies."

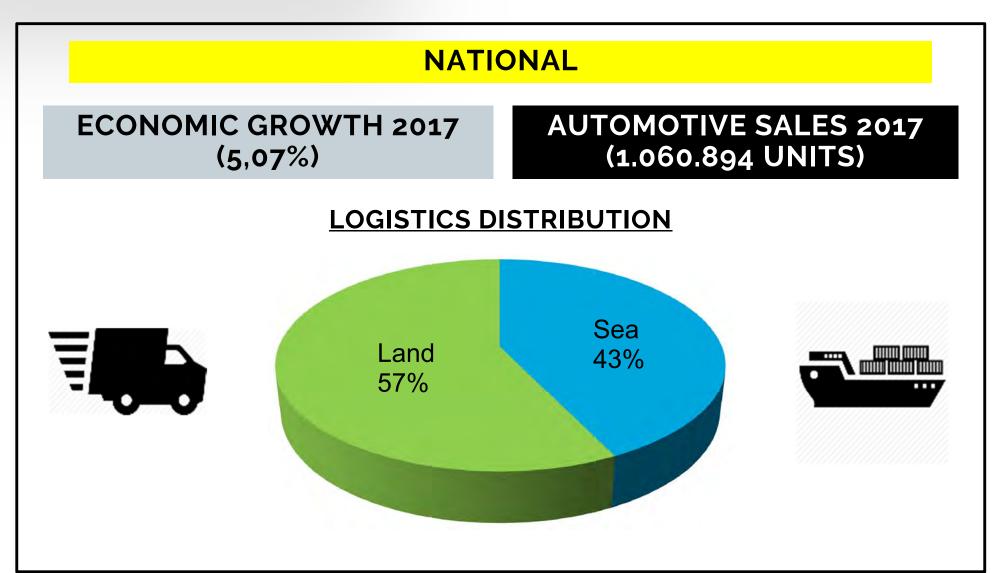
- Drewry, Independent Maritime Advisors



...INDONESIA AUTOMOTIVE INDUSTRY

DOMESTIC MARKET SALES



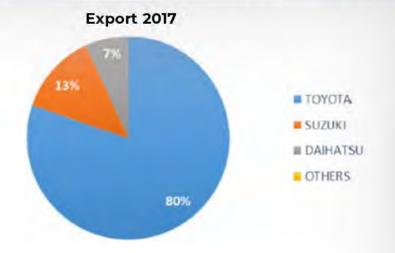


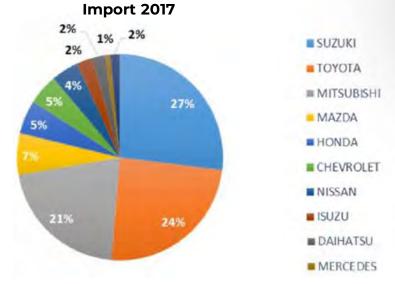
2.5 OUR CUSTOMERS

Car Manufacturer, Shipping Line and Logistic Key Players in the World



AUTOMOBILE MARKET SHARE





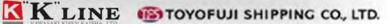
INTERNATIONAL CAR CARRIERS

7 major international PCTC operators currently call on Indonesia, of which 5 are among the top 10 PCTC operators in the world. These players are as follow:

- ✓ NYK
- √ K-Line
- ✓ Toyofuji
- ✓ Eastern Car Liner (ECL)
- ✓ WWL
- ✓ MOL Car Carriers
- ✓ Hoegh Autoliners





































2.6 CERTIFICATIONS & AWARDS







- Prima Utama (Excellent Service) for Public Service in Transportation Sector, Ministry of Transportation, 2014
- Prima Utama (Excellent Service) for Public Service in Transportation Sector, Ministry of Transportation, 2016
- The Best Subsidiary Company of BUMN in Marketing Award 2016
- The Best CEO Marketing Leadership BUMN Award 2016
- The Best Subsidiary, IPC Forum Manajemen 2017
- The Best Innovation Subsidiary of IPC, Anniversary IPC 25th Talkshow 2017 & Appreciation Night
- The Best Customer Satisfaction Index, 2017 of IPC Subsidiary IPC Annual Meeting 2018
- The Best In Indonesia Business and Company Award, World Achievement Association, 2018.
- The Best Trusted Car Terminal Company & Service Excellent of The Year 2017, Indonesia Development Achievement Foundation (IDAF) dan Venna Event Management
- The 1st Best 5 of Sales & Marketing Director Sector : Subsidiary of BUMN Company, 1st Indonesia Sales and Marketing Award, Economic Review
- The Best Sales & Marketing in Sector: Subsidiary Of BUMN Company, 1st Indonesia Sales And Marketing Award, Economic Review
- Gold Winner Brand Strategy of Corporate Branding Subsidiary of SOE's Companies, 5th BUMN Branding & Marketing Award, BUMN Track, 2017
- Gold Winner Brand Communication of Corporate Branding Subsidiary of SOE's Companies, 5th BUMN Branding & Marketing Award, BUMN Track, 2017
- The Best CMO Creative Branding & Marketing Initiative Subsidiary of SOE's Companies, 5th BUMN Branding & Marketing Award, BUMN Track, 2017
- The Best Branding Subsidiary of SOE's Companies, BUMN Track, 2017
- The Most Indonesia Innovative & Inspirative Leader of the Year 2018, 2nd Indonesia Sales and Marketing Award, Economic Review, 2018
- The Best Indonesia Sales & Marketing Award, 2nd Indonesia Sales and Marketing Award, Economic Review, 2018
- The 2nd Best Indonesia Legal Award, 1st Indonesia Legal Award, Economic Review, 2018
- Gold Winner of The Best Indonesia Unite Category, Subsidiary of SOE's Companies, Mental Revolution Award, BUMN Track, 2018
- Silver Winner of The Best Leader of The Work Ethics Category, Subsidiary of SOE's Companies, Mental Revolution Award, BUMN Track, 2018
- Platinum Winner of Human Capital Management System, Subsidiary of SOE's Companies, Economic Review, Indonesia Human Capital Award IV, 2018



ISO 9001:2015 Quality Management Systems

ISO 14001:2015 Environmental Management Systems

18001:2007 Occupational Health And Safety Management Systems

OHSAS

ISPS CODE



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3. OPERATIONAL HIGHLIGHTS

Understanding RORO Freight

Transportation: Experience & Challenges

IPC CAR TERMINAL

JULY 2018

3.1 THROUGHPUT GROWTH



CBU Car Export Throughput



Car export growth in IPCC during 2011-2017: CAGR 13.4%

Sparepart Export Throughput



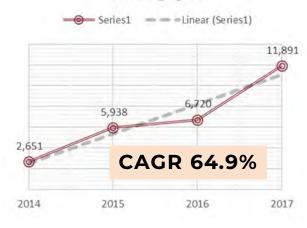
Sparepart export growth in IPCC during 2014-2017: CAGR 42.0%

Heavy Equipment Export Throughput



Heavy equipment export growth in IPCC during 2011-2017: CAGR 18.6%

Heavy Equipment Domestic Throughput



Heavy equipment domestic growth in IPCC during 2014-2017: CAGR 64.9%

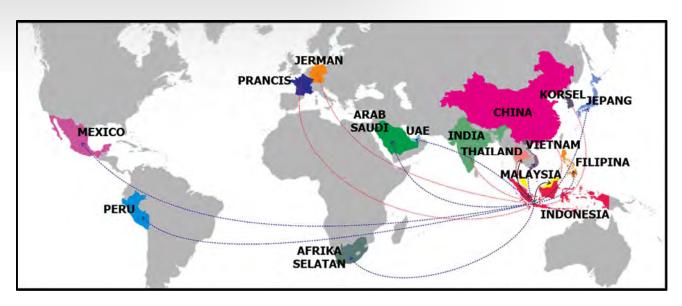
3.2 INTERNATIONAL & DOMESTIC CARGO FLOWS



INTERNATIONAL CARGO FLOWS

EXPORT 2017		
Destination	Share	
Country		
Phillippines	40.6%	
Saudi Arabia	18.9%	
Japan	8.0%	
Vietnam	7.6%	
Mexico	6.9%	
Thailand	6.3%	
UAE	3.8%	
Peru	2.8%	
Malaysia	2.6%	
South Africa	2.5%	

IMPORT 2017		
Origin	Share	
Country	Snare	
Thailand	64.0%	
India	27.2%	
Korea	5.1%	
Malaysia	2.1%	
Germany	0.9%	
China	0.6%	
France	0.1%	



DOMESTIC CARGO FLOWS

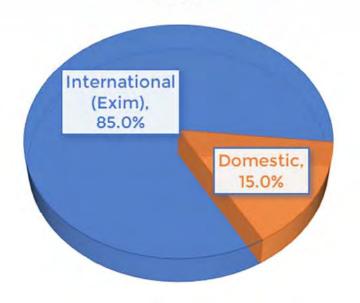
DOMESTIC 2017	
Destination City	Share
Makassar	40%
Batam	16%
Balikpapan	14%
Pakanbaru	12%
Banjarmasin	11%
Tj. Pinang	4%
Medan	3%
Gresik	1%



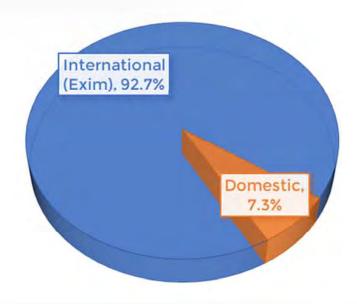
3.3 INTERNATIONAL & DOMESTIC CARGO PROPORTION



INTERNATIONAL VS DOMESTIC THROUGHPUT 2017



INTERNATIONAL VS DOMESTIC INCOME 2017



IPCC's throughput in 2017 consists of 85% international (exports & imports) and 15% domestic.

In terms of financial, IPCC's revenue in 2017 consists of 92.7% international and 7.3% domestic.



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4. DEVELOPMENTS HIGHLIGHTS

Understanding RORO Freight

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IPC CAR TERMINAL

JULY 2018

SECURED LAND CONCESSION & WELL PLANNED EXPANSION

627 ha Area in Tanjung Priok Belongs to IPC, Secured by The Port Act



PORT CONCESSION WITHOUT EXPIRATION

IPC has been granted port concession by the Shipping Act. Currently, IPC concession area in Indonesia is **2,806 ha**, of which **627 ha** is in Tanjung Priok.

According to the Act, port concession that have been granted to IPC has no expiration.



4.1 EXPANSION LAND AREA

Strong Support from IPC: 300% Area Expansion for IPCC in the next 5Y, within IPC territory in Port of Tanjung Priok



TOTAL YARD: $31 \text{ HA } (2018) \rightarrow 89.5 \text{ HA } (2022)$

TOTAL CAPACITY: 700K (2018) → 2,100K (2022)



FUTURE WORLD'S 5TH LARGEST CAR TERMINAL

1. GERMANY (BREMERHAVEN, 240 HA)

2. BELGIUM (ZEEBRUGGE, 159 HA)

3. BELGIUM (ANTWERP, 125 HA)

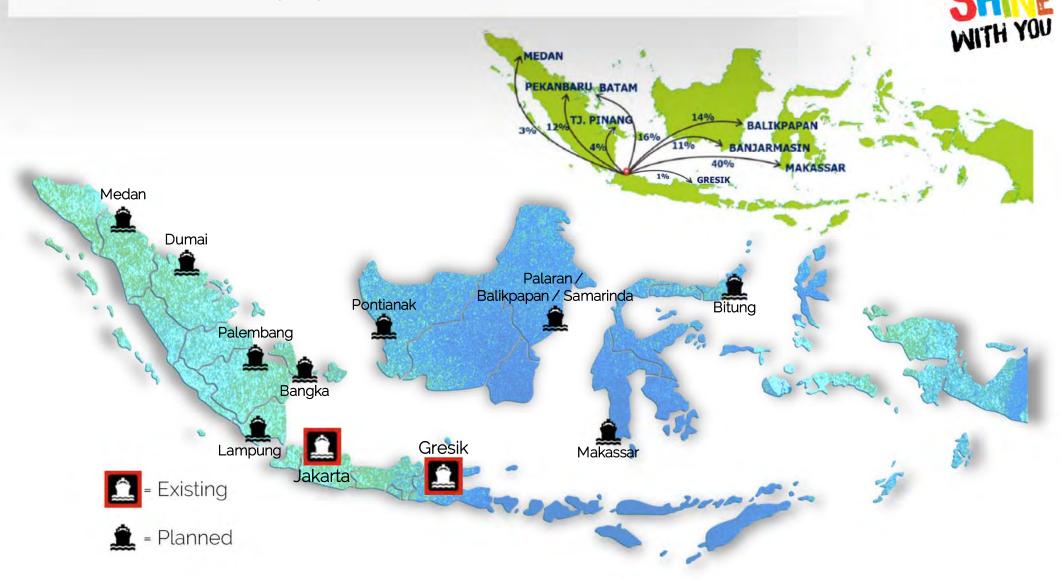
4. FRANCE (LE HAVRE, 100 HA)

5. INDONESIA (IPCC TJ. PRIOK, 89.5 HA)



4.2 DOMESTIC CAR TERMINALS DEVELOPMENT

Based on actual domestic cargo flows, IPCC plans to develop new car terminals in the most prospective areas.



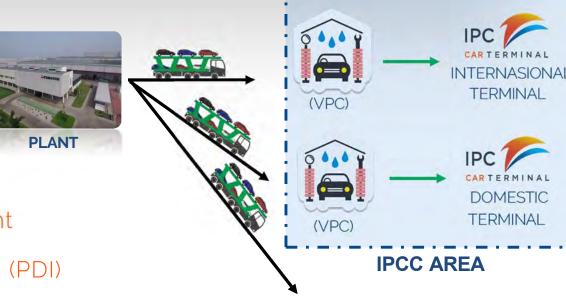
4.3 VEHICLE & EQUIPMENT PROCESSING CENTER DEVELOPMENT

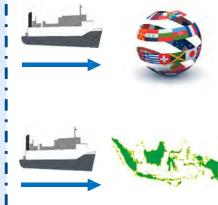
Based on actual demand and Best Practice in Europe Car Terminal (Zeebrugge, Barmerhaven, Rotterdam etc), VPC & EPC play an important role to reduce logistic cost cargo owner through integration services within terminal





- Minor Repair
- Painting
- Engine Repair
- Accessory Fitting
- Washing
- Spare Part Management
- Marking And Labelling
- Pre Delivery Inspection (PDI)
- Port Stock
- Showroom
- Inventory Management























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5. OPPORTUNITIES AND CHALLENGES

Understanding RORO Freight

Transportation: Experience & Challenges

IPC CAR TERMINAL

JULY 2018

5.1 CHALLENGE OF TRANSFORMATION FROM ROAD TO RORO VESSEL



Problem with the competiveness price of vessel fuel and mindset of truck owner



Fact:

- Jakarta To/From Semarang / Surabaya By Road = 12.000 Units Truck Per Day (Red Arrow)
- Merak Port To/From Bakauheni Port By Ferry = 4.000 Units Truck Per Day (Blue Arrow)

Challenges:

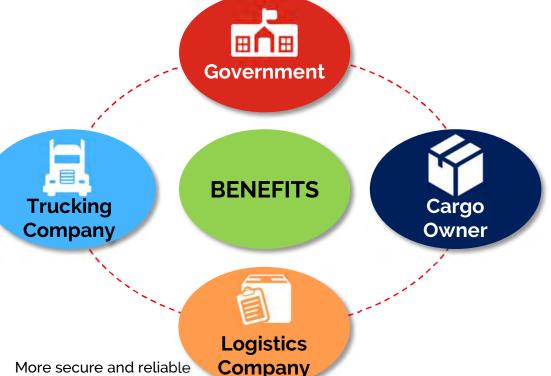
- 30% Total Trucks Moving By Using RoRo Vessel (Yellow Arrow)
- 50% Total Truck Form Ferry Moving To Roro Vessel By Using Route Tanjung Priok-Panjang Port (Brown Arrow)

..... BENEFITS OF RORO SERVICES

National Interests (inter-island connectivity and short-sea shippping), accelerate logistics activities and reducing the burden of land transportation



- Supporting inter-island connectivity (Java island and other islands)
- 2. Reducing government road maintenance, repairing, and fuel budget
- 3. Avoiding major accidents due to overloaded trucks causing congestion
- 4. Eco-Friendly / Go Green
- 5. Lower costs needed for infrastructure expansion
- Avoiding congestion resulting in high operational costs
- 2. Avoiding illegal charges on the road
- 3. Reducing truck fuel consumption
- Minimize risk of road accidents
- Reducing truck maintenance cost (e.g. spareparts, tire)
- Improve driver's productivity and effectiveness



- Cheaper logistics cost than using land transportation
- 2. More secure and reliable
- Fastest lead time with regular service, creating efficiency through effective management
- Suitable and efficient for any type of cargo

- 2. Ensure timeliness
- 3. Efficient supply chain management that encourages effective inventory management
- 4. Suitable and efficient for any type of cargo

5.2 OCEAN GOING TRANSHIPMENT TERMINAL

Based on actual international cargo flows to Australia and Middle East, IPCC plans to develop transshipment terminal to reduce the shipping line cost



IPCC FOR RELAY TRANSHIPMENT FOR SOUTH ASIA AND OCEANIA



Potential transshipment to IPCC achieved by capturing market share of cargo from India and Japan for destination of Australia and New Zealand. Cargo from India under the brand TATA, SUZUKI and MAHINDRA and cargo from Japan has high demand in Australia and New Zealand.

Shipping line which serving the existing routes are MOL, NYK and K-Line transit at Singapore. With Indonesia strategic position, the growth of export cargo and the increased capacity of ships berthing and IPCC's land development, IPCC is very interesting to be relay transshipment between India and Japan to Australia and New Zealand or vice versa.

Shipping line from Japan to Australia could berthing in Jakarta and return to Japan, does not need to Australia, but the cargos can be transported by ship from India to Australia, so the ship operating costs could be reduced.

IPCC FOR HUB TRANSHIPMENT FOR MIDDLE EAST MARKET



With the hub and spoke transshipment patterns, IPCC can take advantage by serving Middle East market, such as Saudi Arabia, Oman, Bahrain, Yemen, UAE and Iraq.

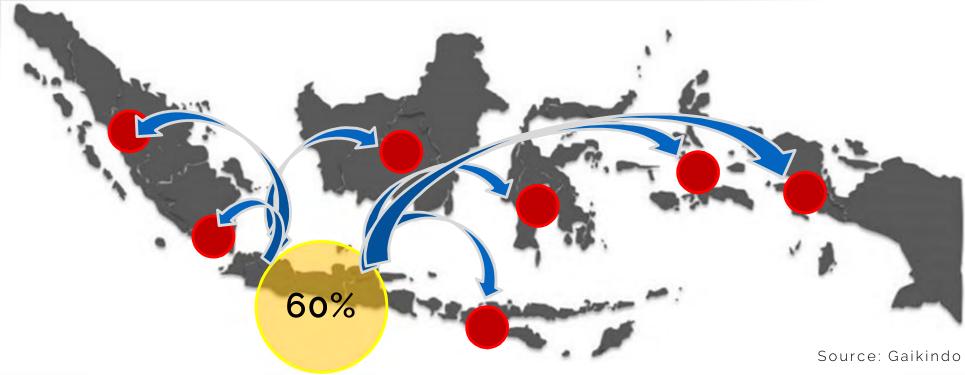
With the increasing volume of Indonesian exports and become the majority in the shipment of cargo, especially cargo from Toyota, Daihatsu and Suzuki for the purposes of the Middle East by mother vessel, there will be possibilities that lower export volume such as from Thailand, Australia, Taiwan, or Japan can be consolidated in Indonesia using feeder vessel by IPCC's transshipment terminal.

5.3 CHALLENGE OF DOMESTIC AUTOMOTIVE INDUSTRY

Problem with the development regional equity



MARKET OF DOMESTIC



The problem of domestic market is because <u>the infrastructure development haven't equally</u> <u>distributed</u>. Currently, 60% of indonesia's automotive market are centered at Java Island. So this is the reason for IPCC to take into action to build and operater car terminal outside Java

5.4 CHALLENGE OF GLOBAL AUTOMOTIVE INDUSTRY



CHALLENGES

1

ENERGY AND ENVIRONMENT ISSUE

2

TECHNOLOGY AND VEHICLE SAFETY ISSUE

3

FREE TRADE AREA ISSUE Many country in the world are concern about the energy and environment issues with CO2 tax and café rule implemented

→VEHICLE TECHNOLOGY TRANSFORMATION IS NEEDED TO ADJUST WITH THE GLOBAL CHANGE. (DRIVETRAIN, ENGINE, ENGINEERING QUALITY, ETC.)

Safety requirement for global & ASEAN are getting more strict (a high safety technology is needed)

→ INCREASE THE VEHICLE SAFETY TO COMPETE WITH GLOBAL VEHICLE (EXPORT COMPETITION)

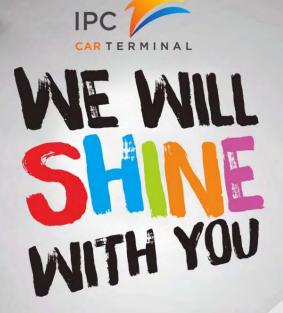
Vehicle competition increased because the addition on choice of vehicle overtime (with lower import cost)

→ A NEW CBU MODEL RELEASED (COMPETE WITH NATIONAL PRODUCT)

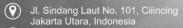
5.5 IPCC STRATEGY

To support the increase of export cargo and government sea toll (Tol Laut) program









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