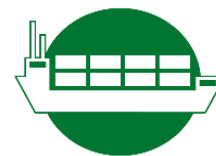




LOGISTICS SUSTAINABILITY FOR A WORLD IN TRANSFORMATION





JOIN US IN OUR PATH!



THE PATH WE WILL FOLLOW



WHO ARE WE?



WHY THE PLVB?



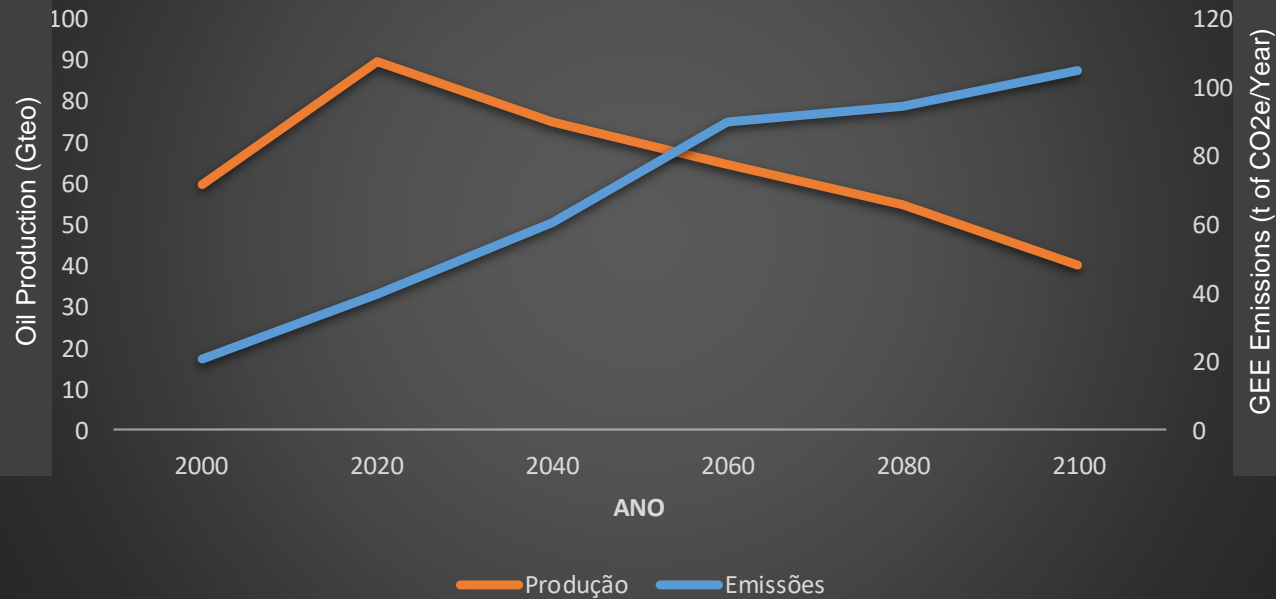
DO YOU KNOW THE PLVB?



THE WORLD IN TRANSFORMATION

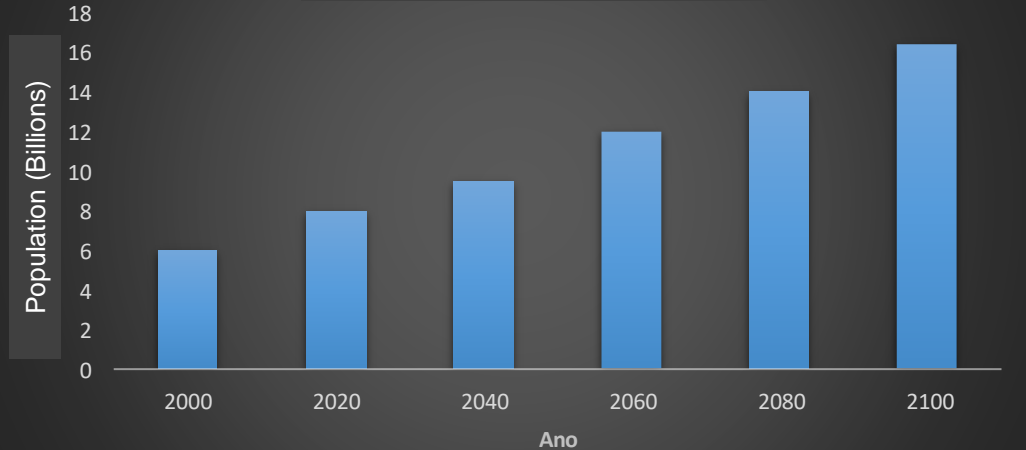
THE WORLD IN TRANSFORMATION

Oil Production and Greenhouse Gases Emissions
(Would)

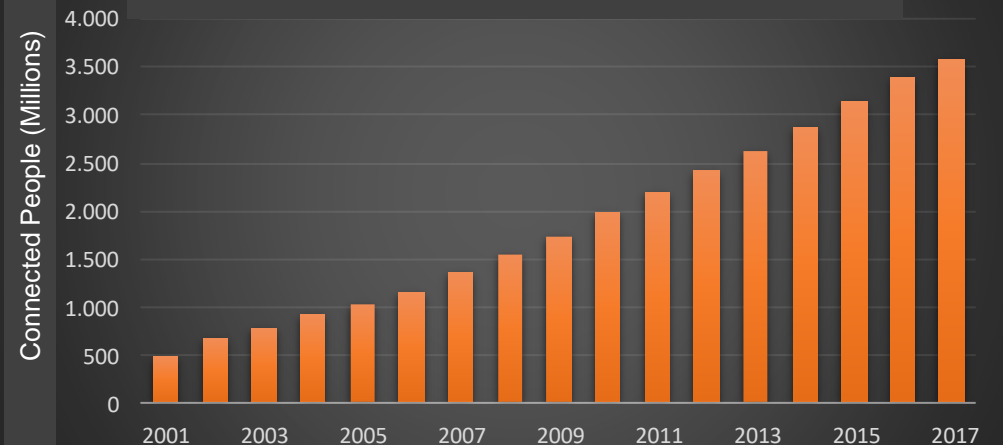


**COST OF ENVIRONMENTAL IMPACTS
11% OF THE GLOBAL GDP IN 2008!**

World Population



Number of Connected People





There is no room to replicate the traditional development model anymore!

Economic growth based on non-renewable energy sources...

There is no room to replicate the traditional development model anymore!



Use of natural resources inefficiently and unsustainably...

China

There is no room to replicate the traditional development model anymore!

THE PLANET HAS LIMITS



Intensive growth of carbon emissions!



Unexpected floods...

USA



Extreme heat waves...

Paris



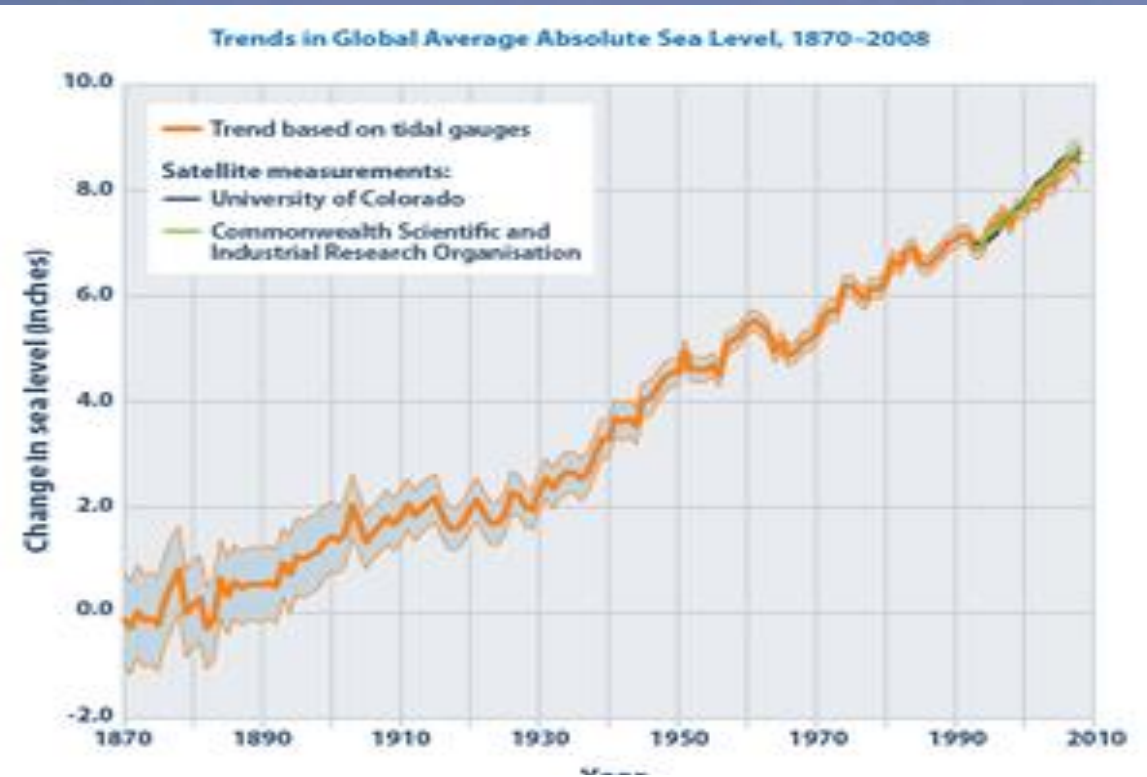
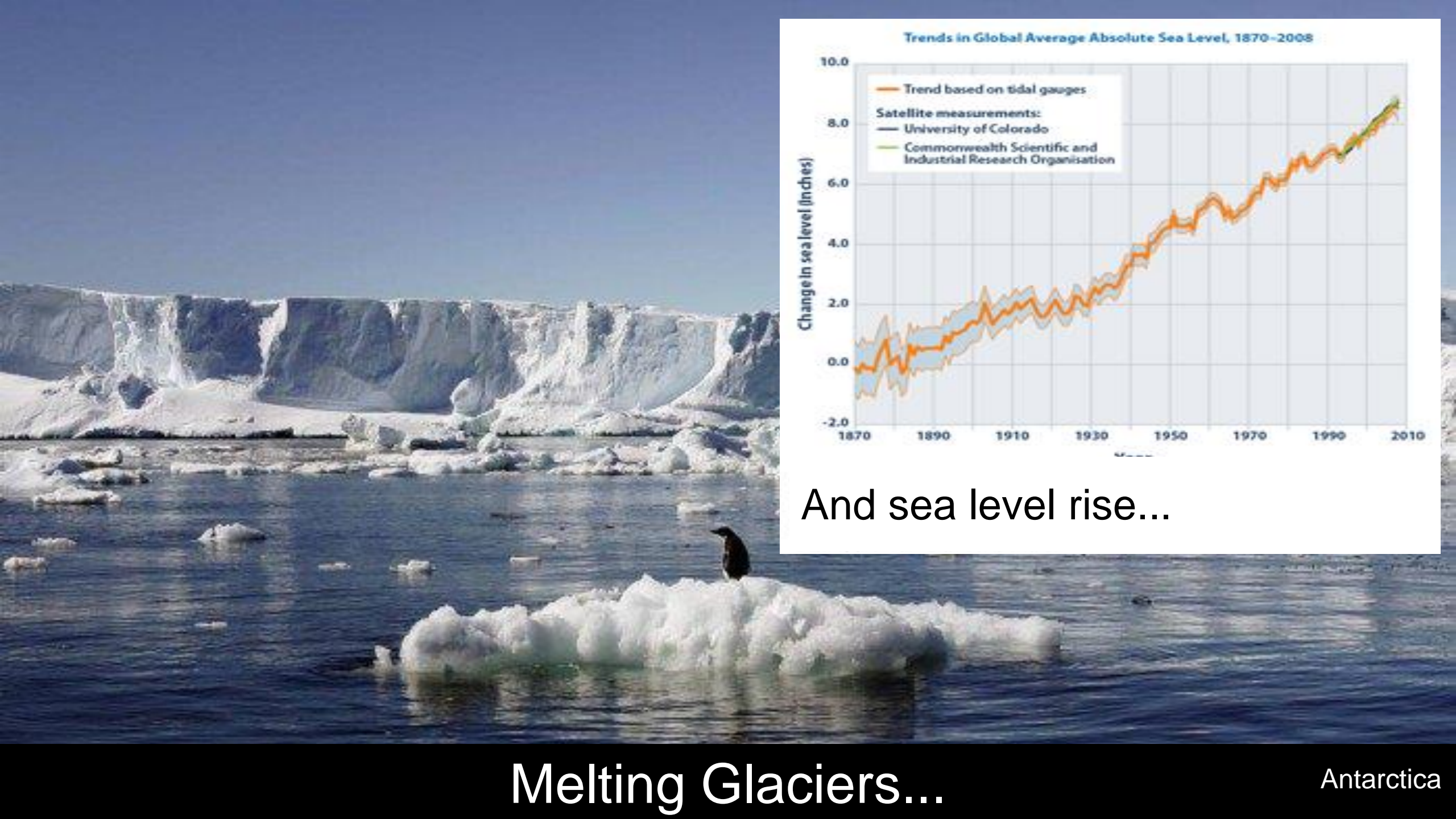
Extreme cold waves...

USA



Drought...

Brazil



And sea level rise...

Melting Glaciers...

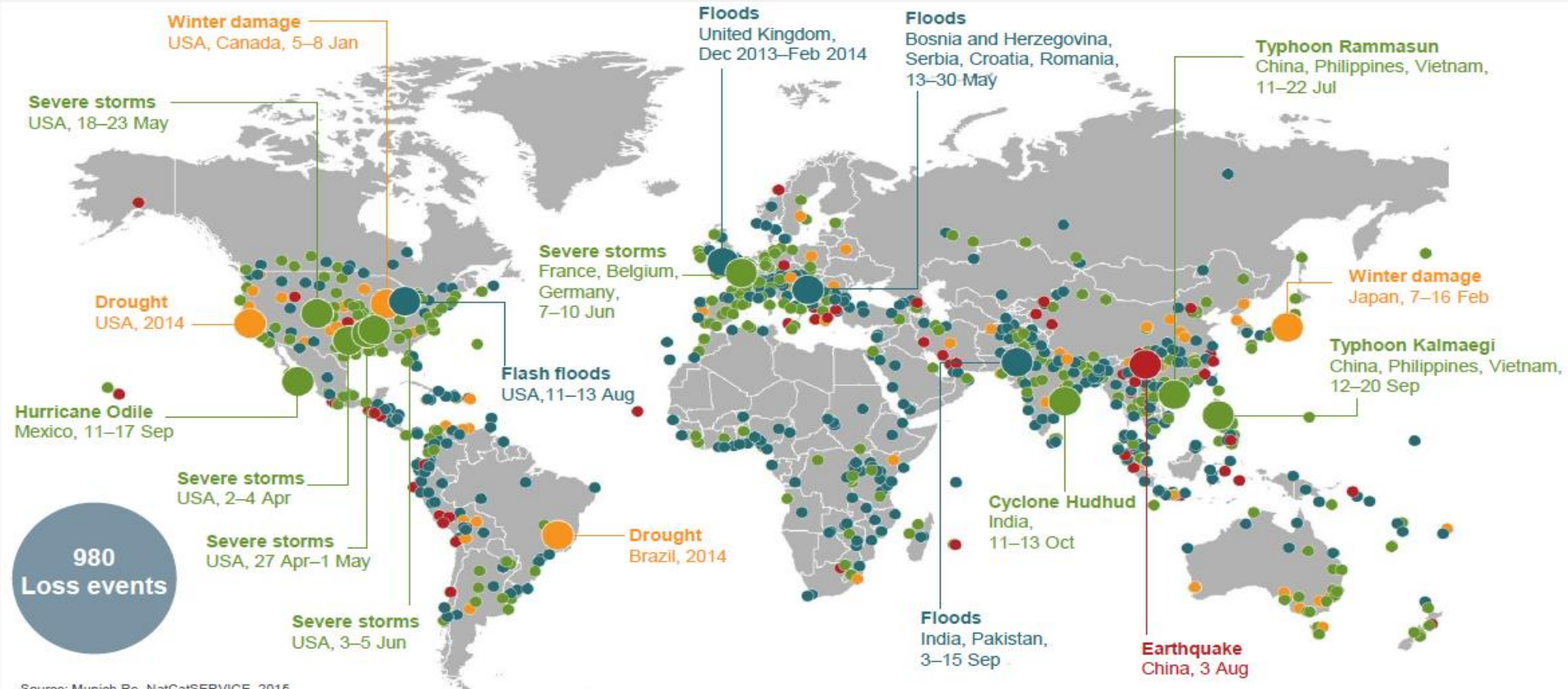
Antarctica



Tension and intolerance!

IMPACTS DISTRIBUTION WORLDWIDE

FREQUENCY OF NATURAL LOSS EVENTS (1980 – 2014)



○ **Loss events**

○ **Selection of catastrophes**
Overall losses ≥ US\$ 1,500m

● **Geophysical events**
(Earthquake, tsunami, volcanic activity)

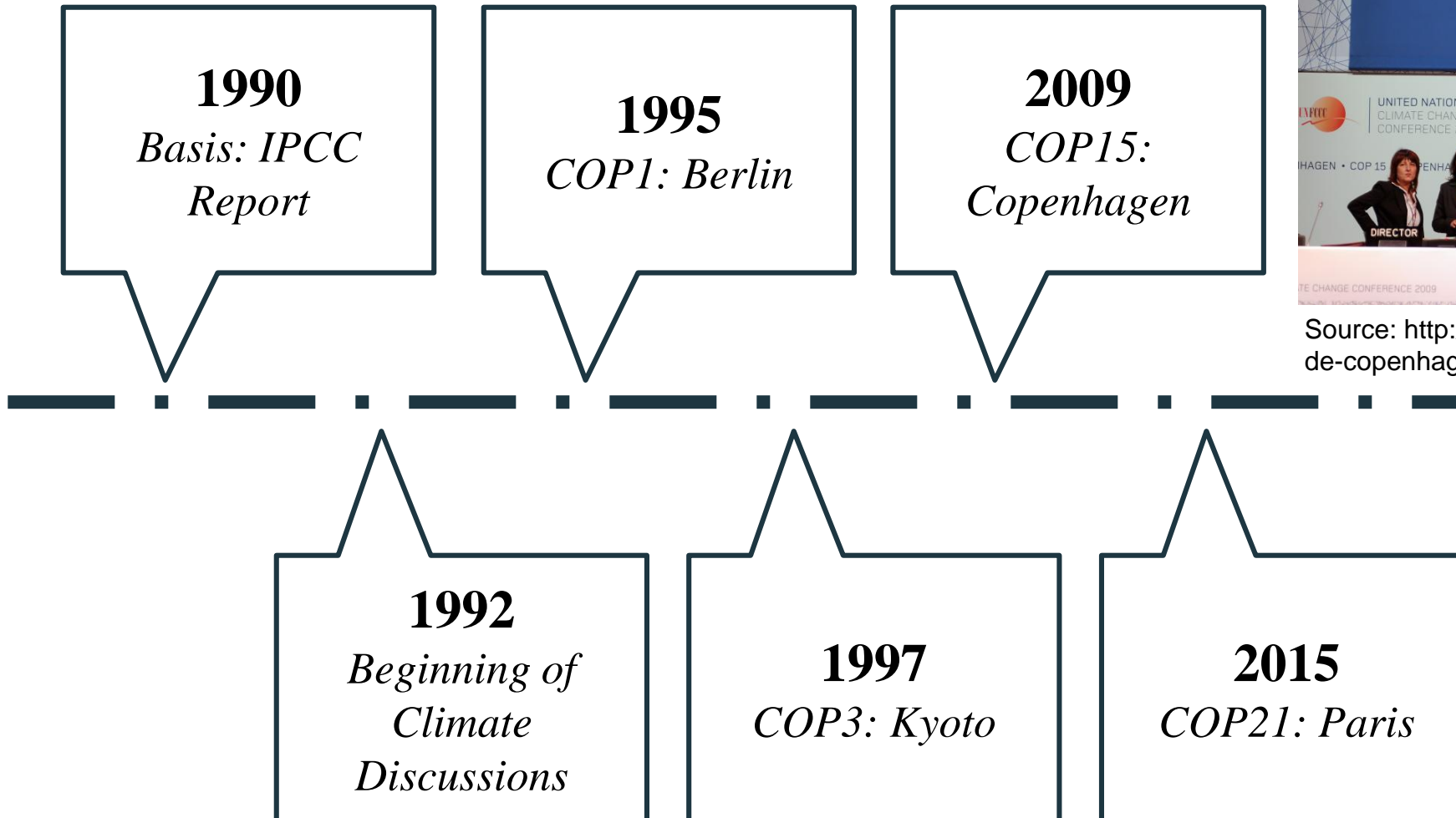
● **Meteorological events**
(Tropical storm, extratropical storm, convective storm, local storm)

● **Hydrological events**
(Flood, mass movement)

● **Climatological events**
(Extreme temperature, drought, wildfire)

CLIMATE CHANGES

UNFCCC – Anthropogenic Climate Change (Politics)
IPCC – Climate Change (Science)



Source: <http://www.sosmatas.com.br/conferencia-de-copenhague-cop-15>

CARBON RESTRICTIONS

- Pricing
- Subsidies
- Standards and Certifications
- Fees

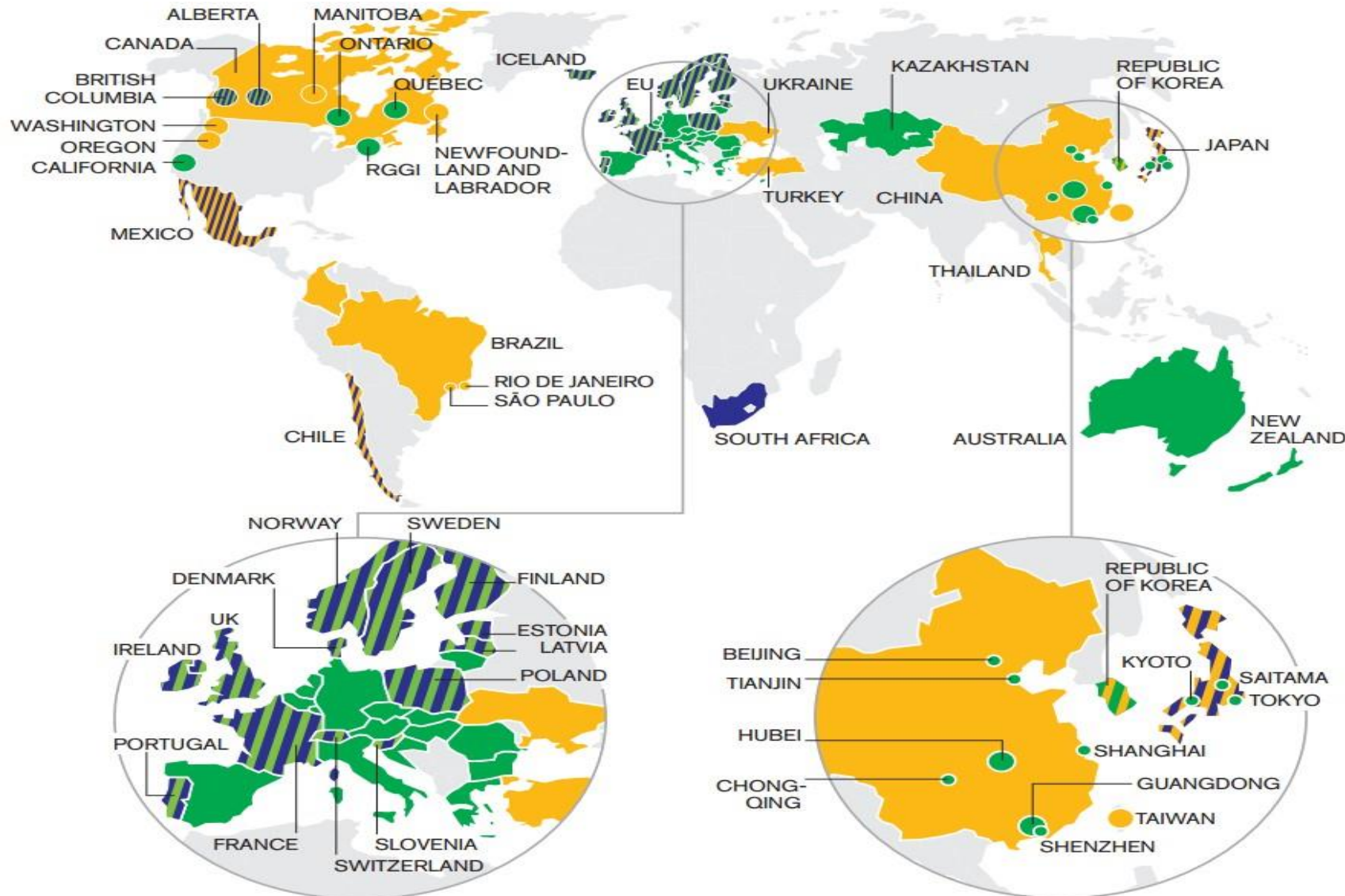
In general, carbon pricing is considered a “logical basis of any clean energy policy”

World Economic Forum (2009)



Argentina has discussed the removal of subsidies to fossils in the scope of G20...

CARBON RESTRICTIONS



7 of the 10 largest world economies have priced carbon!

CARBON RESTRICTIONS

- The carbon pricing is growing in different ways around the world (market or carbon taxes).
- The EU already has a negotiation scheme with China. This market would be individually larger than the EU market.
- The annual value of these initiatives is about 100 billion dollars
- **BRAZIL** participates in the PMR Project (Partnership Market Readiness). This project includes 18 developing countries and 13 donor countries.



Australia



Brazil



Chile



China



Colombia



Mexico



Honduras



Netherlands



Norway



Peru



Costa Rica



Denmark



European Commission



Finland



Germany



South Africa



Spain



Sweden



Switzerland



Thailand



India



Indonesia



Japan



Jordan



Kazakhstan



Tunisia



Turkey



Ukraine



United Kingdom



United States

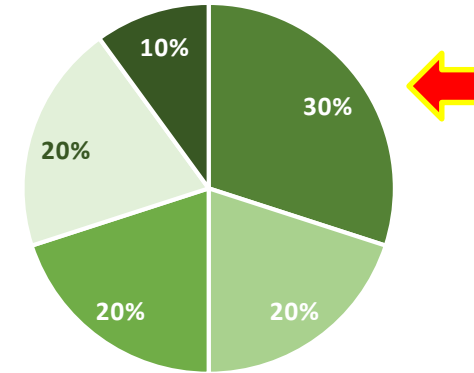
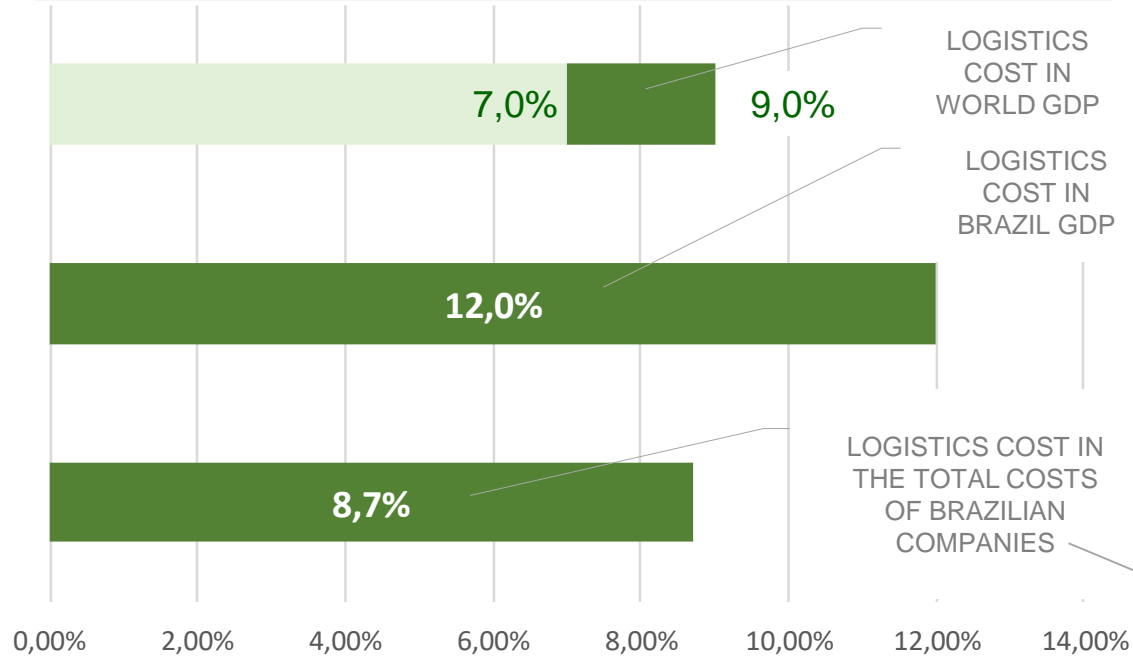


Vietnam

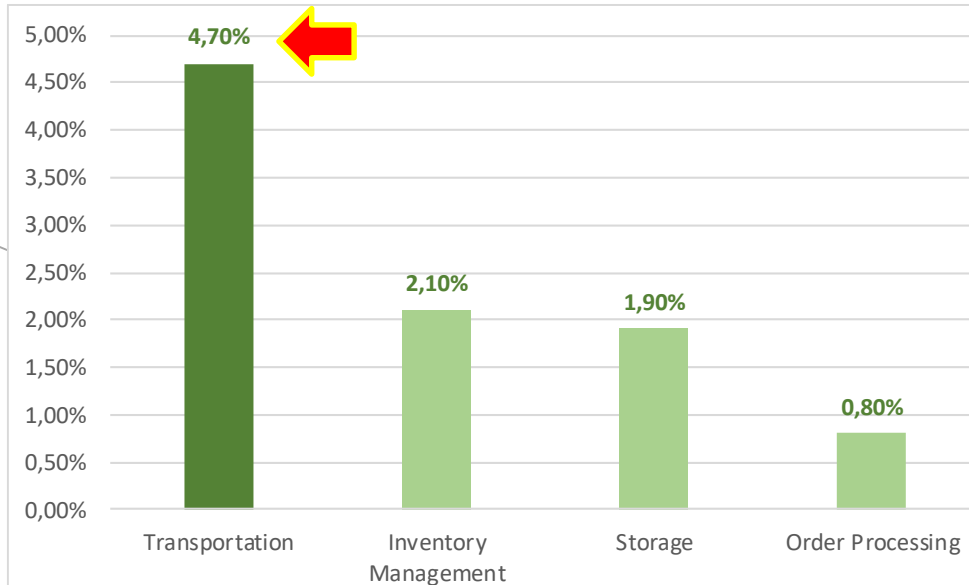
WHAT DOES LOGISTICS HAS TO DO WITH IT?

LOGISTICS NUMBERS

Impact of logistics costs

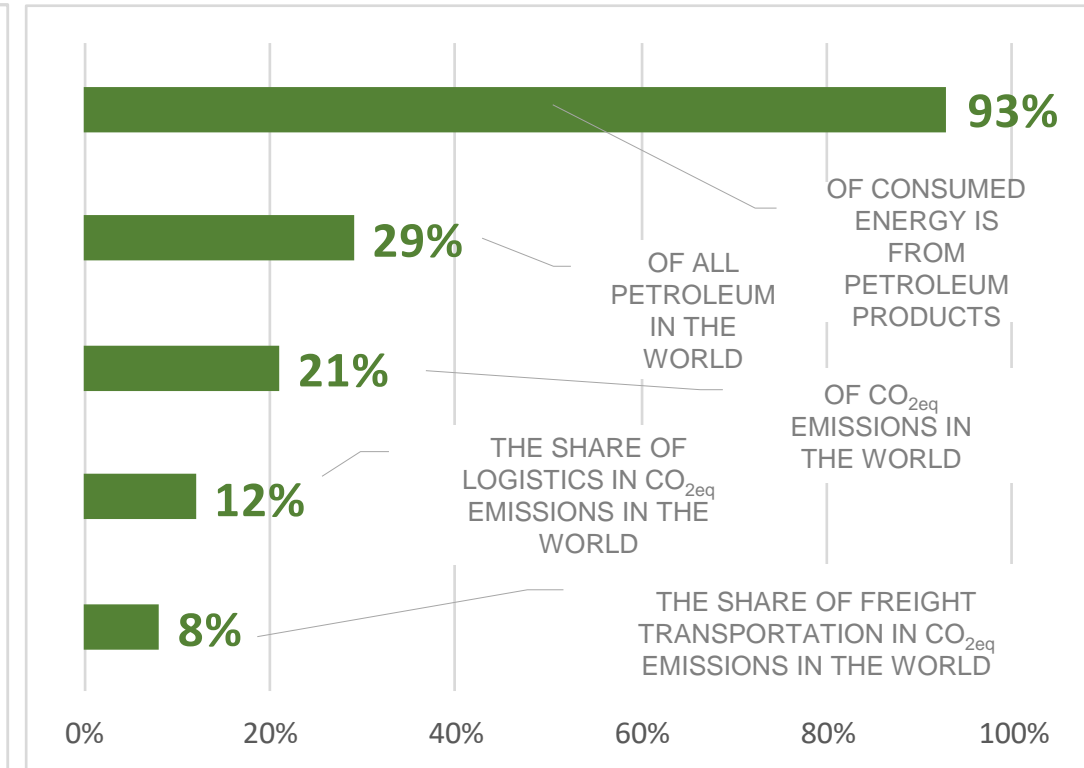
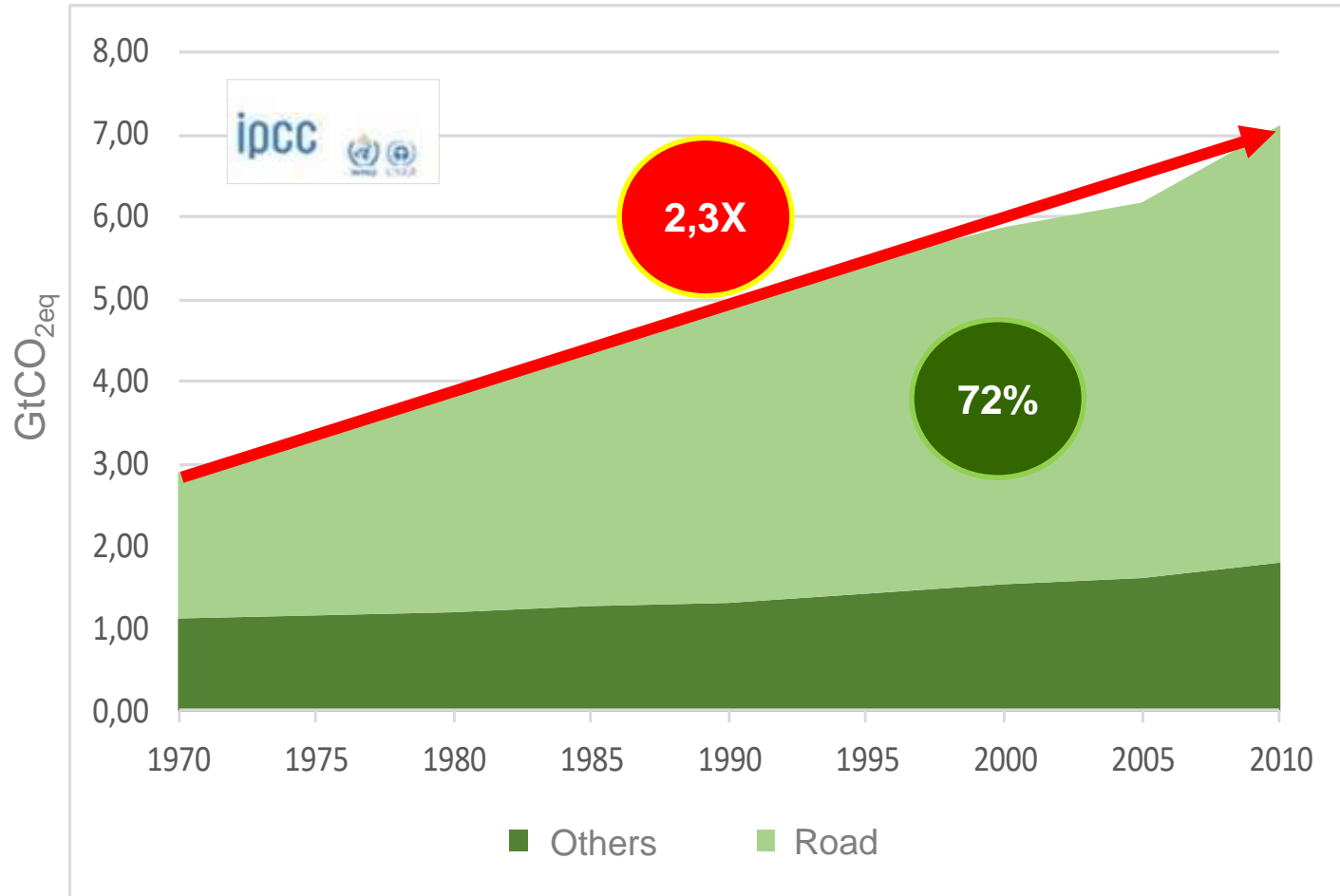


■ Transportation ■ Inventory Management ■ Storage
■ Administration ■ Order Processing



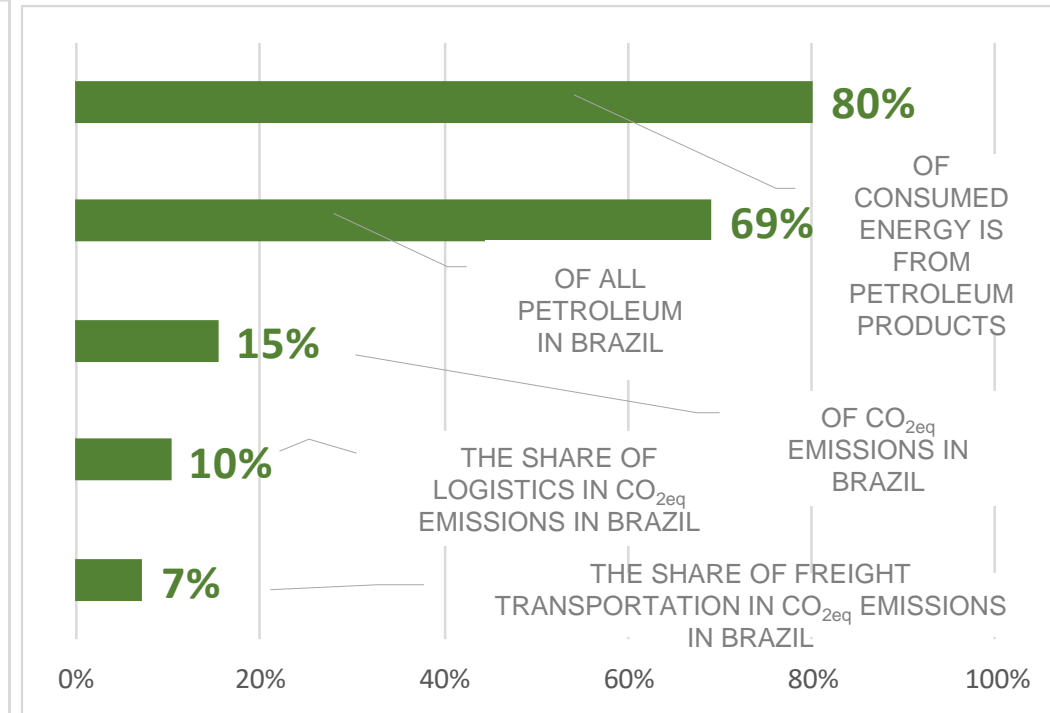
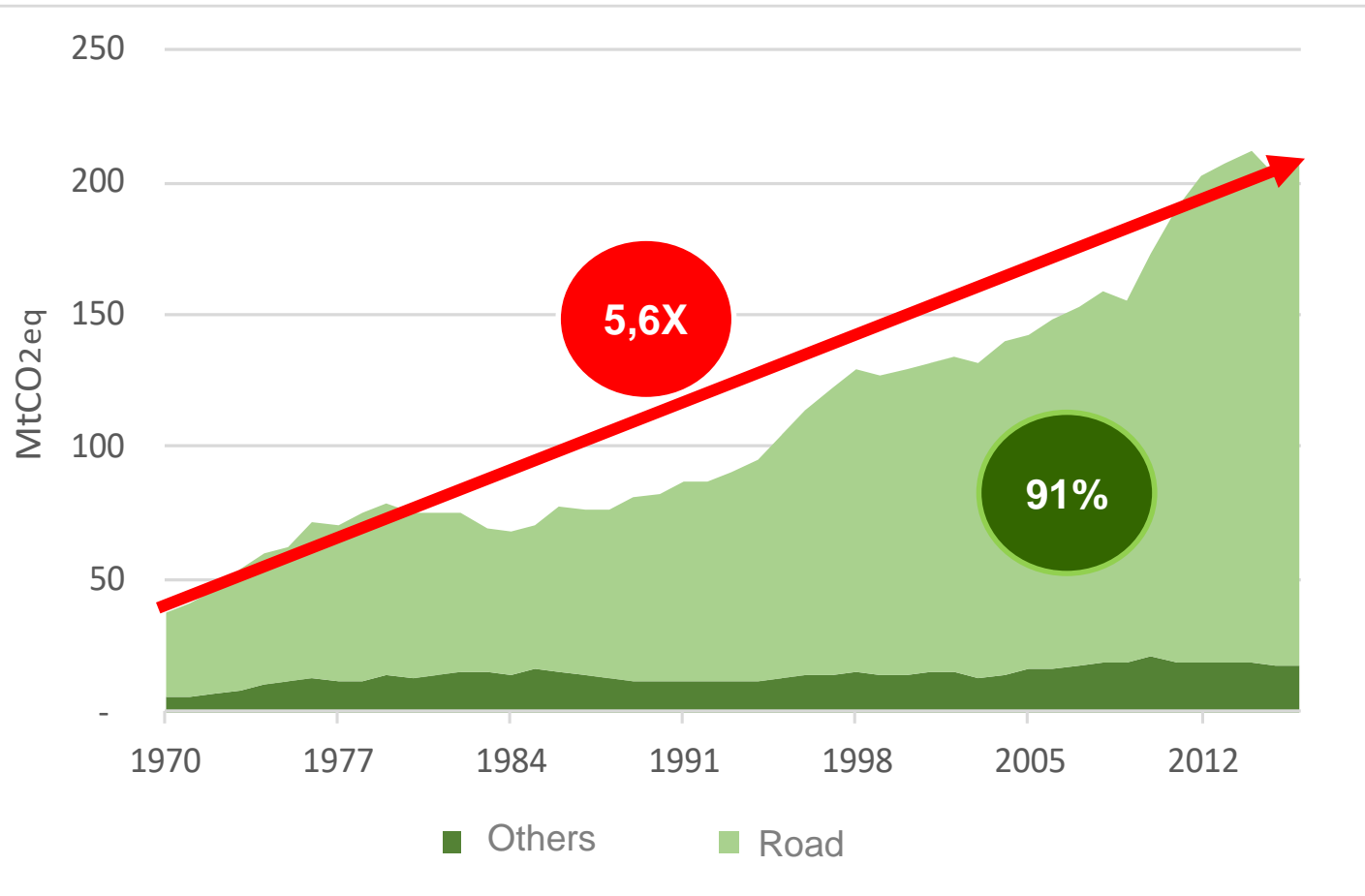
WHAT DOES LOGISTICS HAS TO DO WITH IT?

TRANSPORTATION NUMBERS WORLDWIDE



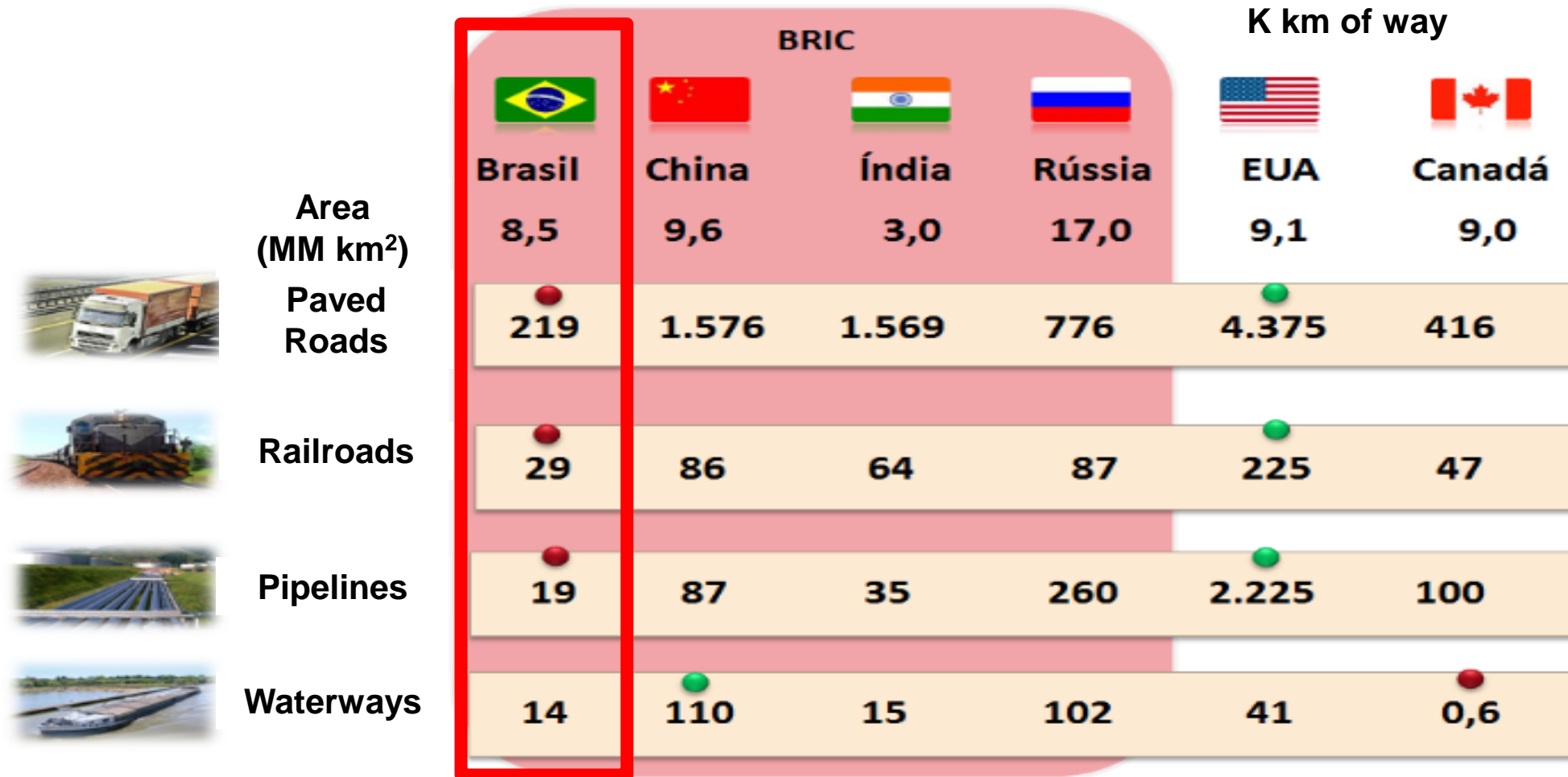
WHAT DOES LOGISTICS HAS TO DO WITH IT?

TRANSPORTATION NUMBERS IN BRAZIL















WHAT DOES LOGISTICS HAS TO DO WITH IT?

Freight transportation infrastructure in Brazil and worldwide



WHAT DOES LOGISTICS HAS TO DO WITH IT?

		Logistics Performance				Infraestrutura				
		2007	2010	2012	2014	2007	2010	2012	2014	
	Alemanha	3°	1°	4°	1°	3°	1°	1°	1°	●
	Holanda	2°	4°	5°	2°	1°	2°	3°	3°	●
	Bélgica	12°	9°	7°	3°	11°	12°	8°	8°	●
	Reino Unido	9°	8°	12°	4°	10°	16°	15°	6°	●
	Cingapura	1°	2°	1°	5°	2°	4°	2°	2°	●
	EUA	14°	15°	9°	9°	7°	7°	4°	5°	●
	Canadá	10°	14°	14°	12°	12°	11°	12°	10°	●
	China	30°	27°	26°	28°	30°	26°	26°	23°	●
	África do Sul	24°	28°	23°	34°	26°	29°	19°	38°	●
	Índia	39°	47°	46°	54°	42°	47°	55°	58°	●
	Brasil	61°	41°	45°	65°	49°	37°	45°	54°	●
	Rússia	99°	94°	95°	90°	93°	83°	96°	77°	●

WHAT DOES LOGISTICS HAS TO DO WITH IT?

Public Investments in Transportation Infrastructure

3rd Trimester 2015
Total Investment

R\$ 3,12 bi

Roads
R\$ 1,94
billions

Railroads
R\$ 0,84
billions

Waterways
R\$ 0,030
billions

Air
R\$ 0,31
billions

3rd Trimester 2016
Total Investment

R\$ 2,28 bi

Roads
R\$ 1,82
billions

Railroads
R\$ 0,19
billions

Waterways
R\$ 0,11
billions

Air
R\$ 0,16
billions

THE TRANSFORMATION HAS BEGUN!

MARKET POWER RELATIONS ARE CHANGING...

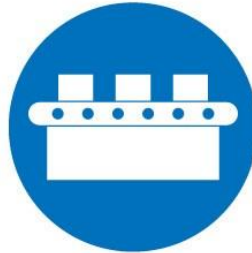


1st revolution



Mechanization, steam
and water power

2nd revolution



Mass production and
electricity

3rd revolution

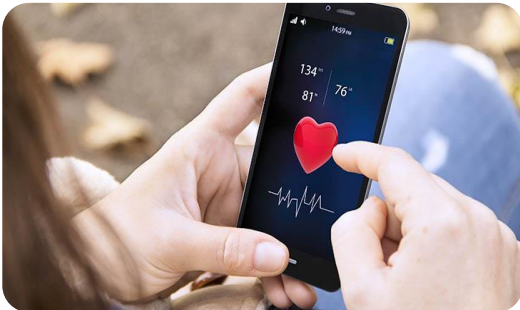
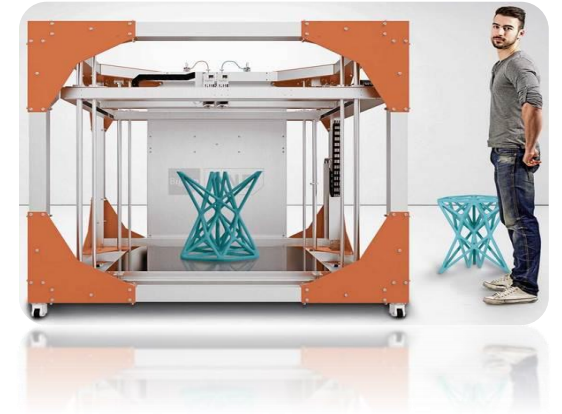


Electronic and IT
systems, automation

4th revolution



Cyber physical
systems

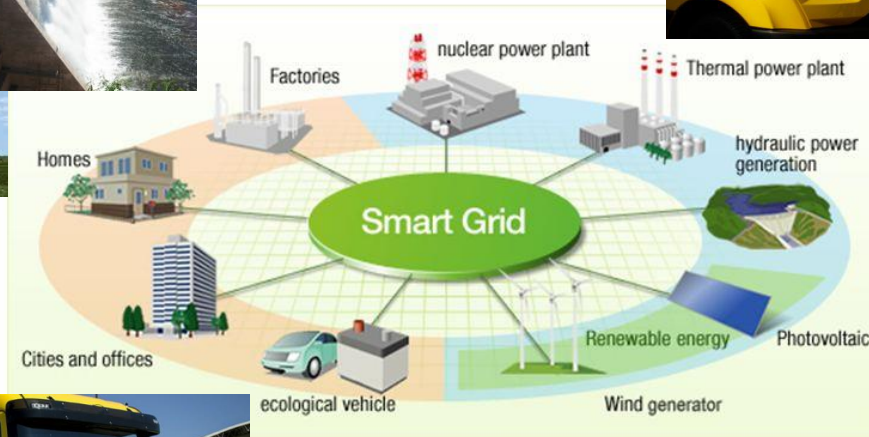


THE TRANSFORMATION HAS BEGUN!

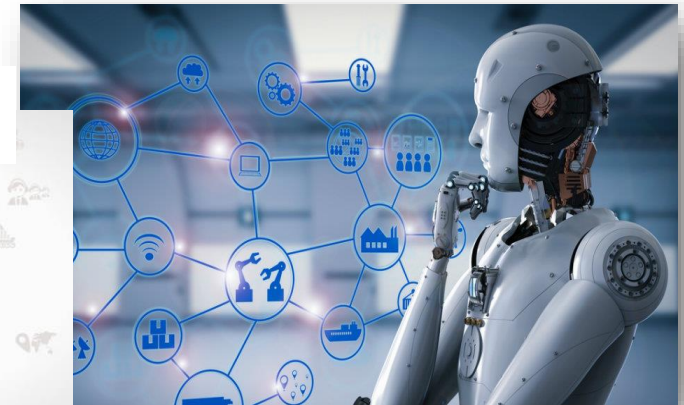
CLEANER ENERGY



ELECTROMOBILITY



DIGITIZATION



AUTOMATION



THE TRANSFORMATION HAS BEGUN!

INNOVATION IN TRANSPORTATION MODES



UBER



UBER

HYPERLOOP
TRANSPORTATION TECHNOLOGIES



THE TRANSFORMATION HAS BEGUN!



NETFLIX

facebook

**BUSINESS
INNOVATION**



UBER



TESLA



THE WORLD IS MORE COMPETITIVE!

New requirements for companies:

- ✓ Annual reports of social responsibility;
- ✓ Environmental licensing;
- ✓ Prohibition of child labor;
- ✓ Compliance rules



RESOLUÇÃO CONAMA nº 237, de 19 de dezembro de 1997
Publicada no DOU nº 247, de 22 de dezembro de 1997, Seção 1, páginas 30841-30843



ADAPTATION TO CHANGES

THE WORLD IS MORE COMPETITIVE!

CERTIFICATION STANDARDS HAVE TRANSFORMATION POTENTIAL





**NEW
PARADIGM
AREAD**

HOW CAN PLVB HELP?



BUILDING THE WAY FOR SUSTAINABLE LOGISTICS

DO YOU KNOW THE PLVB? (MOVIE)

Have you ever heard about us?



LEADING COMPANIES OPERATE IN DIFFERENT
MARKETS WORLDWIDE MUST TAKE A **LEAD ROLE**
IN PROMOTING THE TRANSFORMATION OF
LOGISTICS TOWARDS EFFICIENCY AND
SUSTAINABILITY.

Could my company be efficient while multiplying
social and environmental benefits?



How could I be more efficient despite the
infrastructure constraints that the country
faces?



It is possible to reduce costs at the same time I
protect the environment and society?



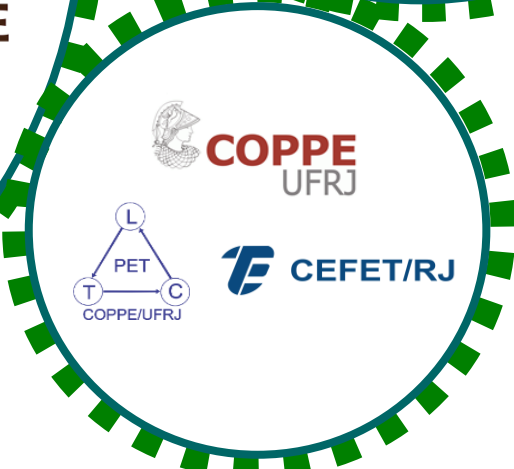
Member Companies



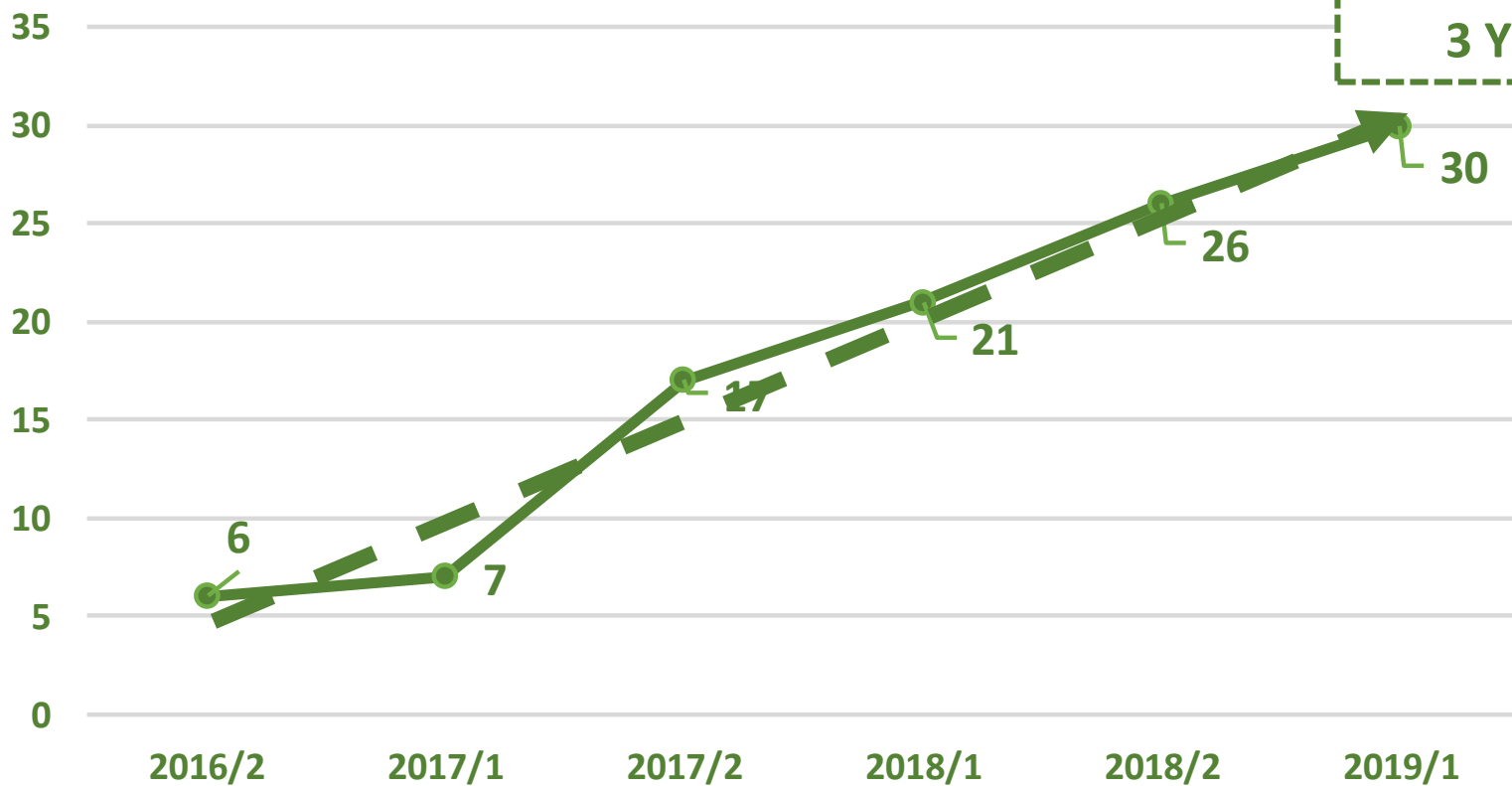
Support Institutions



Technical Coordination



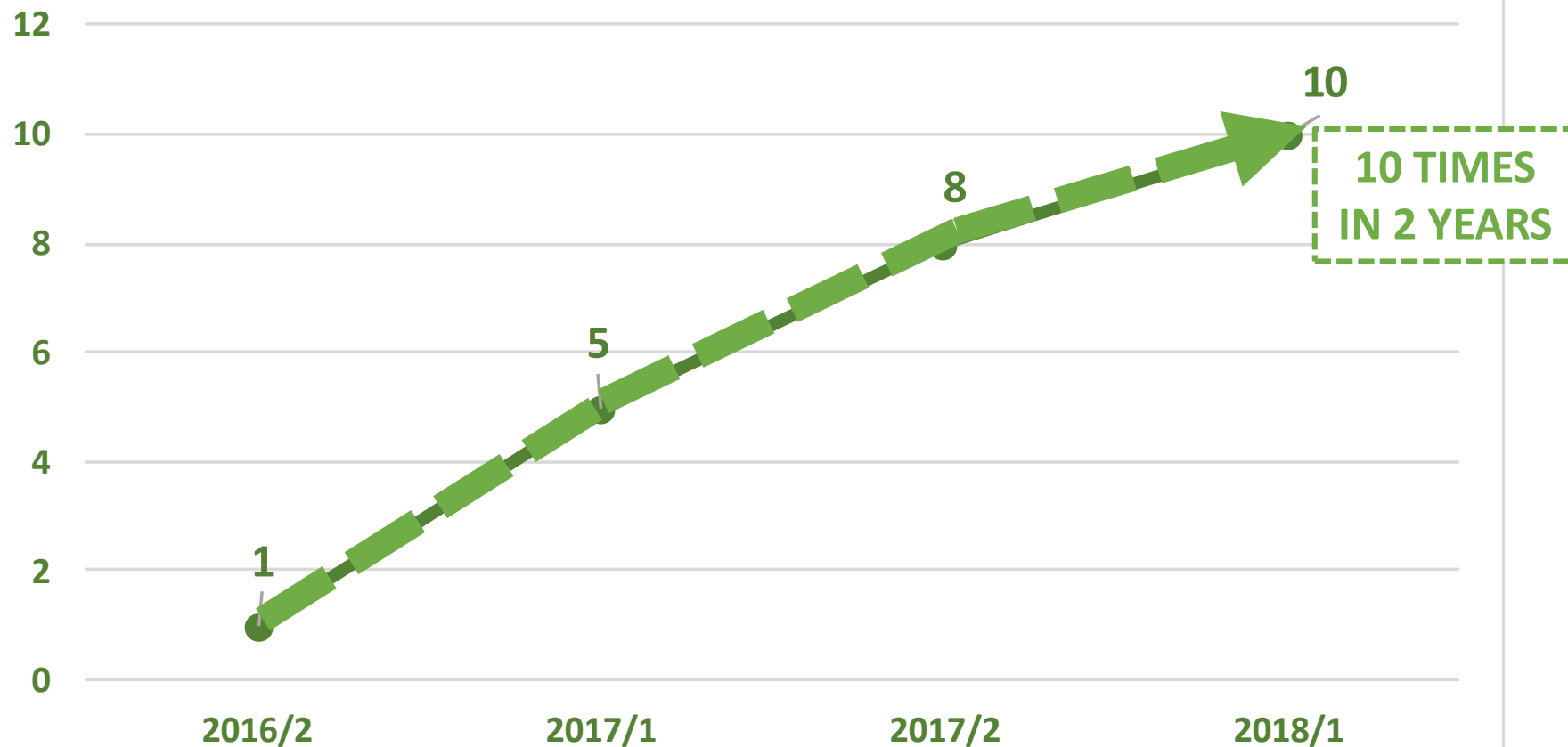
MEMBER COMPANIES - EVOLUTION



BEGINNING
OF PLVB



SUPPORT INSTITUTIONS - EVOLUTION



BEGINNING
OF PLVB



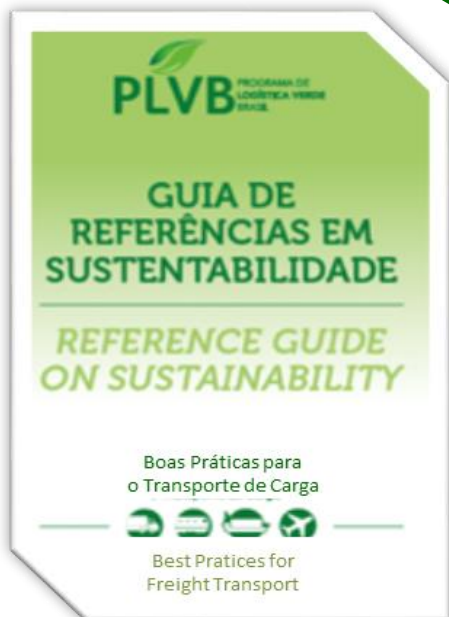
TOOL BOX



RECOGNITION SYSTEM

PERPETUATION

2017 ✓



22 BEST PRACTICES

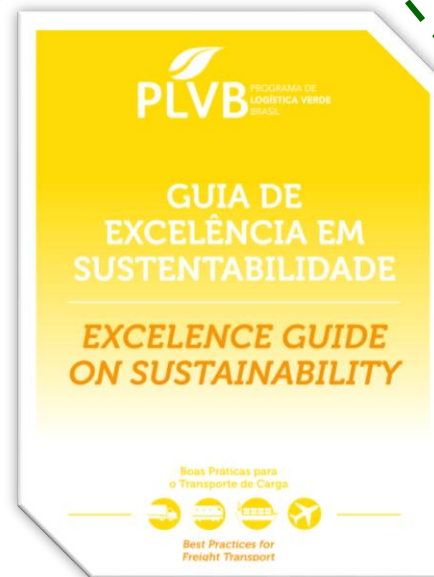


TRAINING PROGRAM



2018 ✓

2019 ✓



APPLICATION!



2020



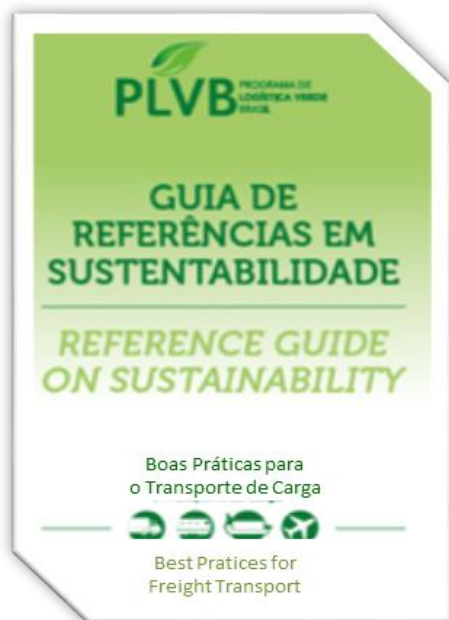
REFERENCE GUIDE

LOCATION: São Paulo

DATE: May 31st, 2017

PARTICIPATION: 250 ATTENDEES FROM 150 COMPANIES

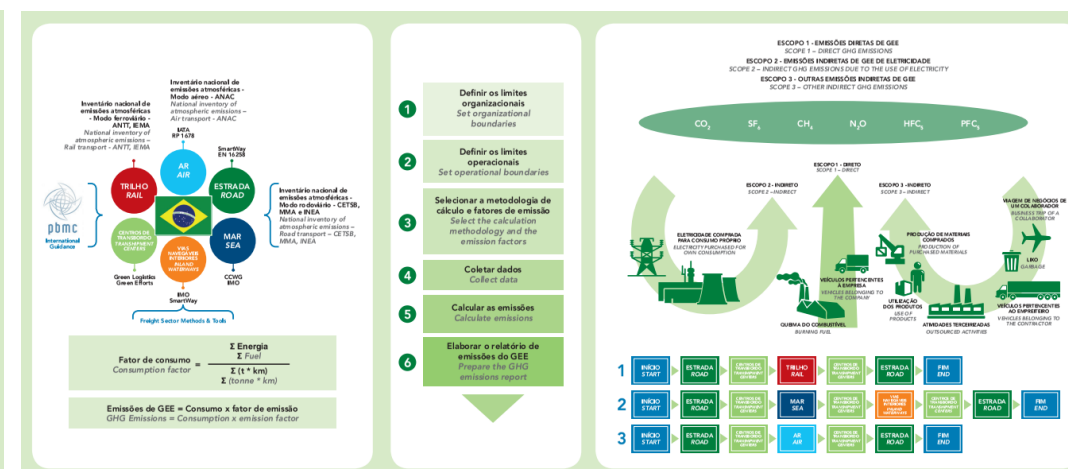
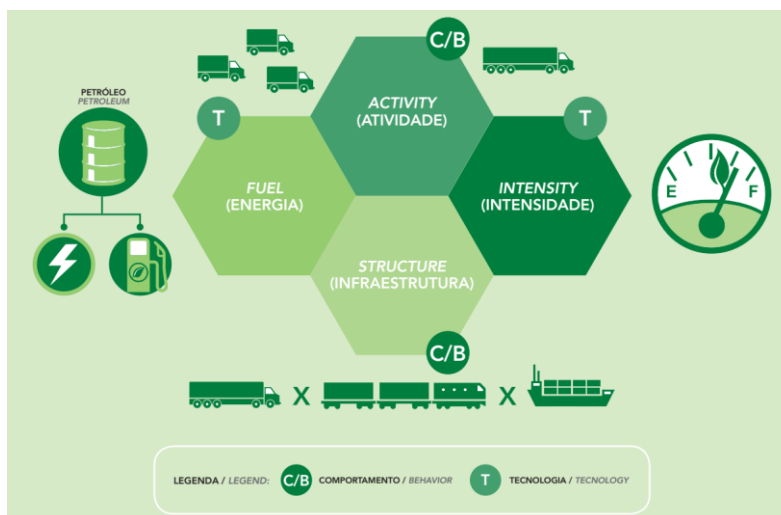
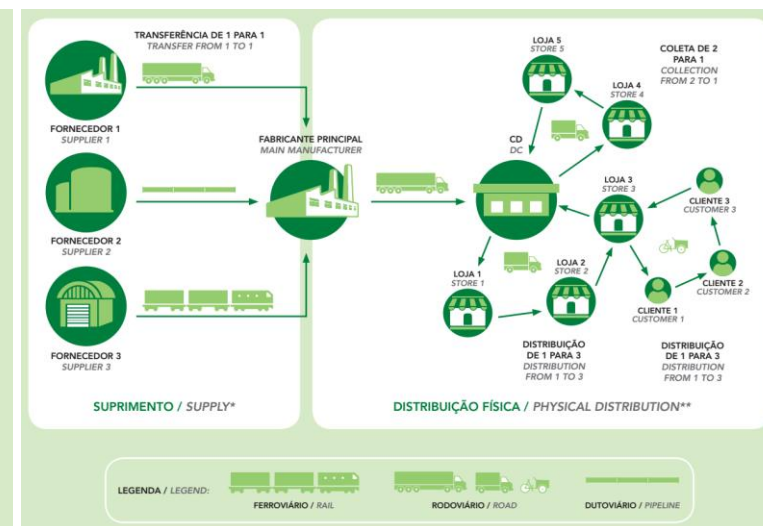
2017



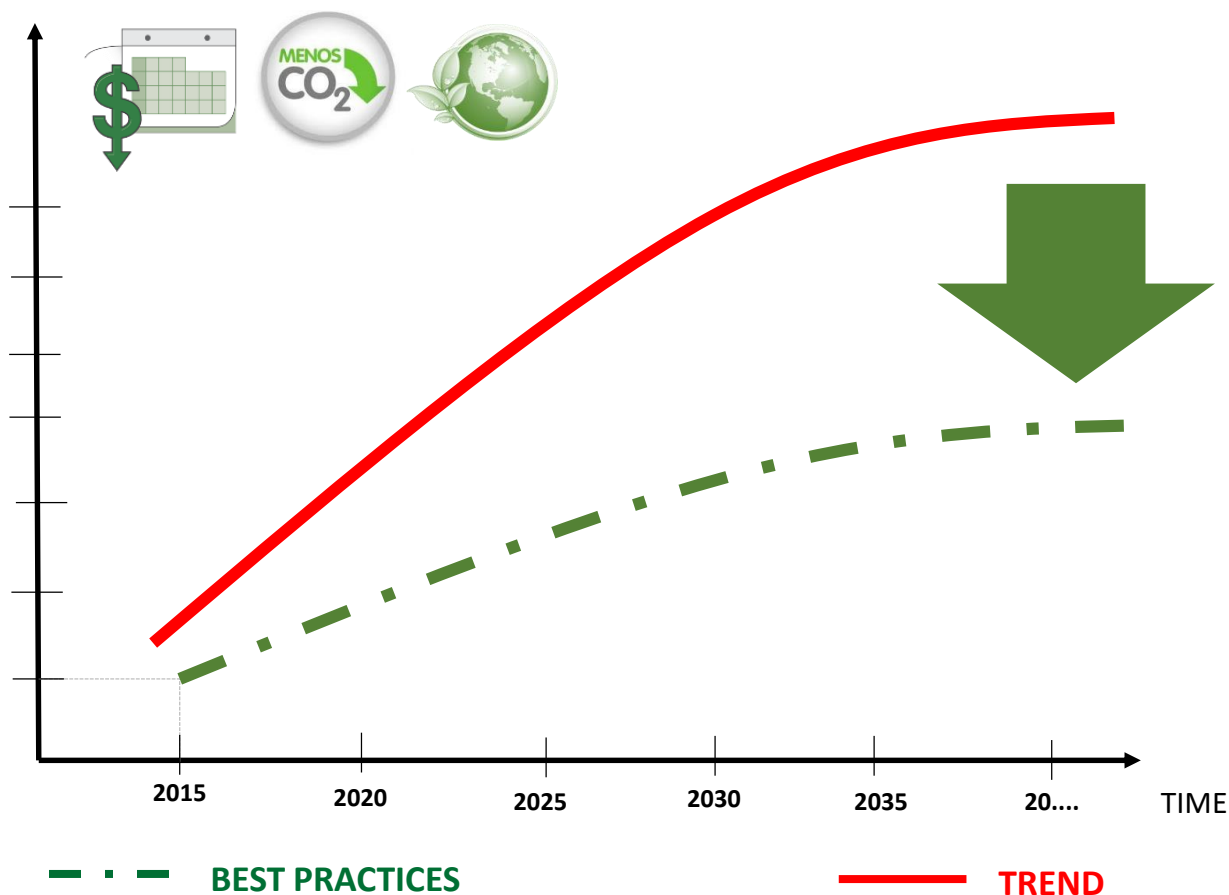
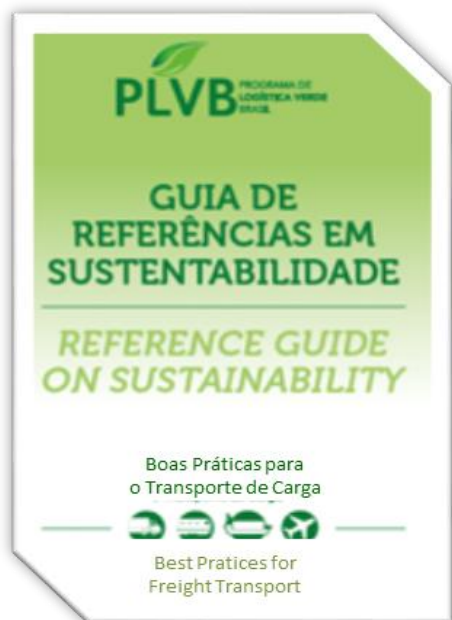
THE BRAZILIAN GREEN LOGISTICS PROGRAM LAUNCHES THE REFERENCE GUIDE ON SUSTAINABILITY



2017



2017



22 BEST PRACTICES

INCREASED EFFICIENCY
BETTER PERFORMANCE

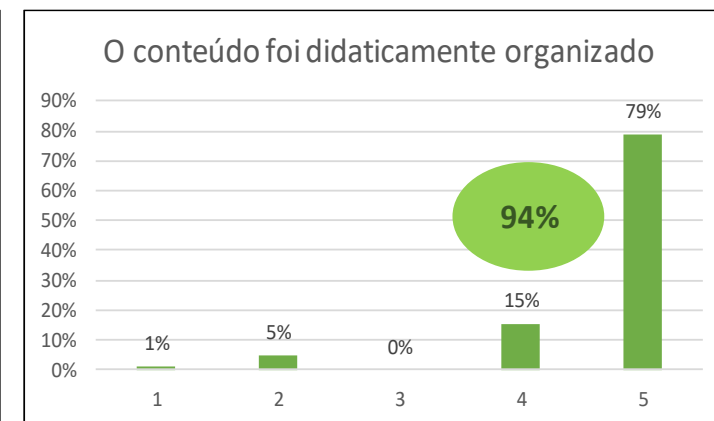
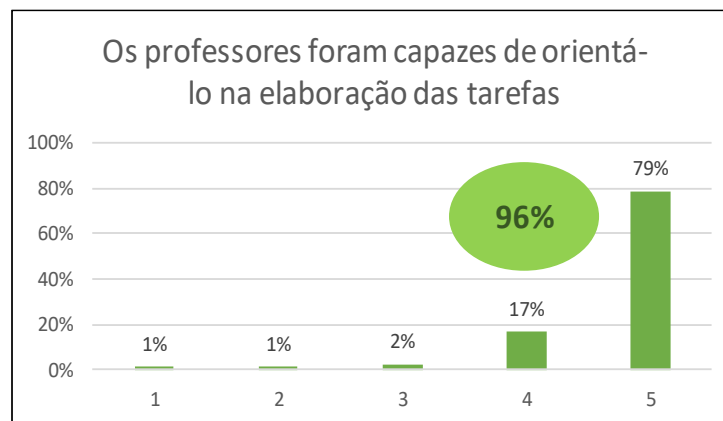
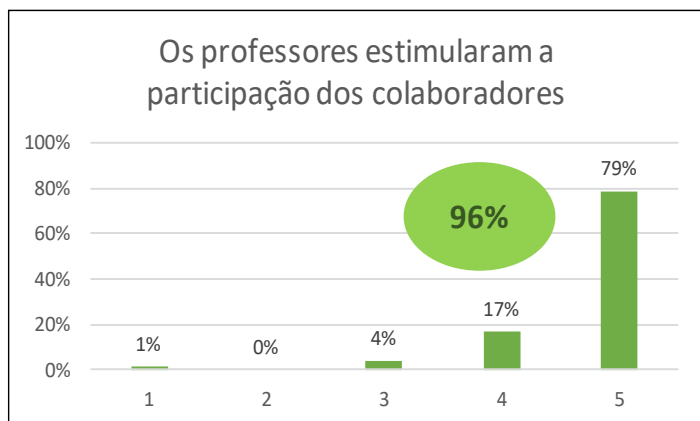
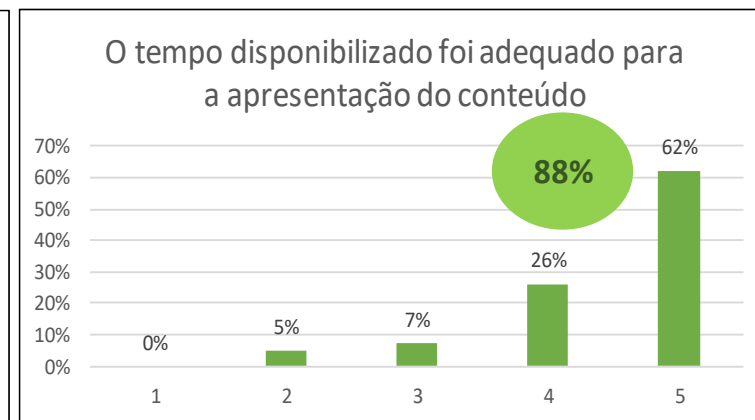
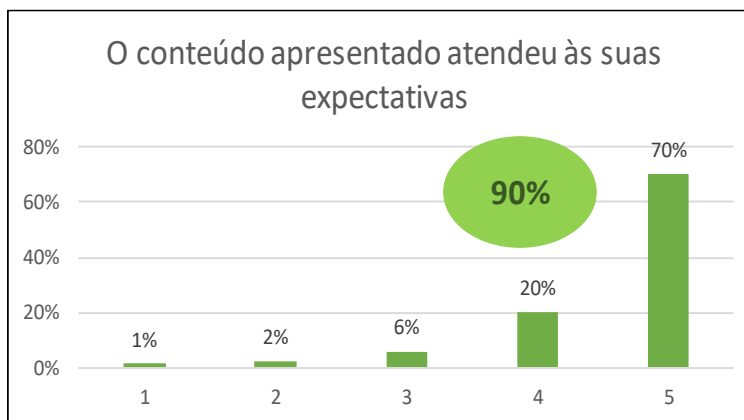
COST REDUCTION
IMPACTS REDUCTION



64% of member companies trained in a year
166 employees trained
93% satisfied or very satisfied*



TRAINING PROGRAM



*57% of survey responses





**TRAINING
PROGRAM**



APPLICATION HANDBOOK

LOCATION: São Paulo

DATE: JULY 4th, 2018

PARTICIPATION: 236 attendees from 120 companies
More than 2,000 views



2018

THE BRAZILIAN GREEN LOGISTICS PROGRAM LAUNCHES THE APPLICATION MANUAL





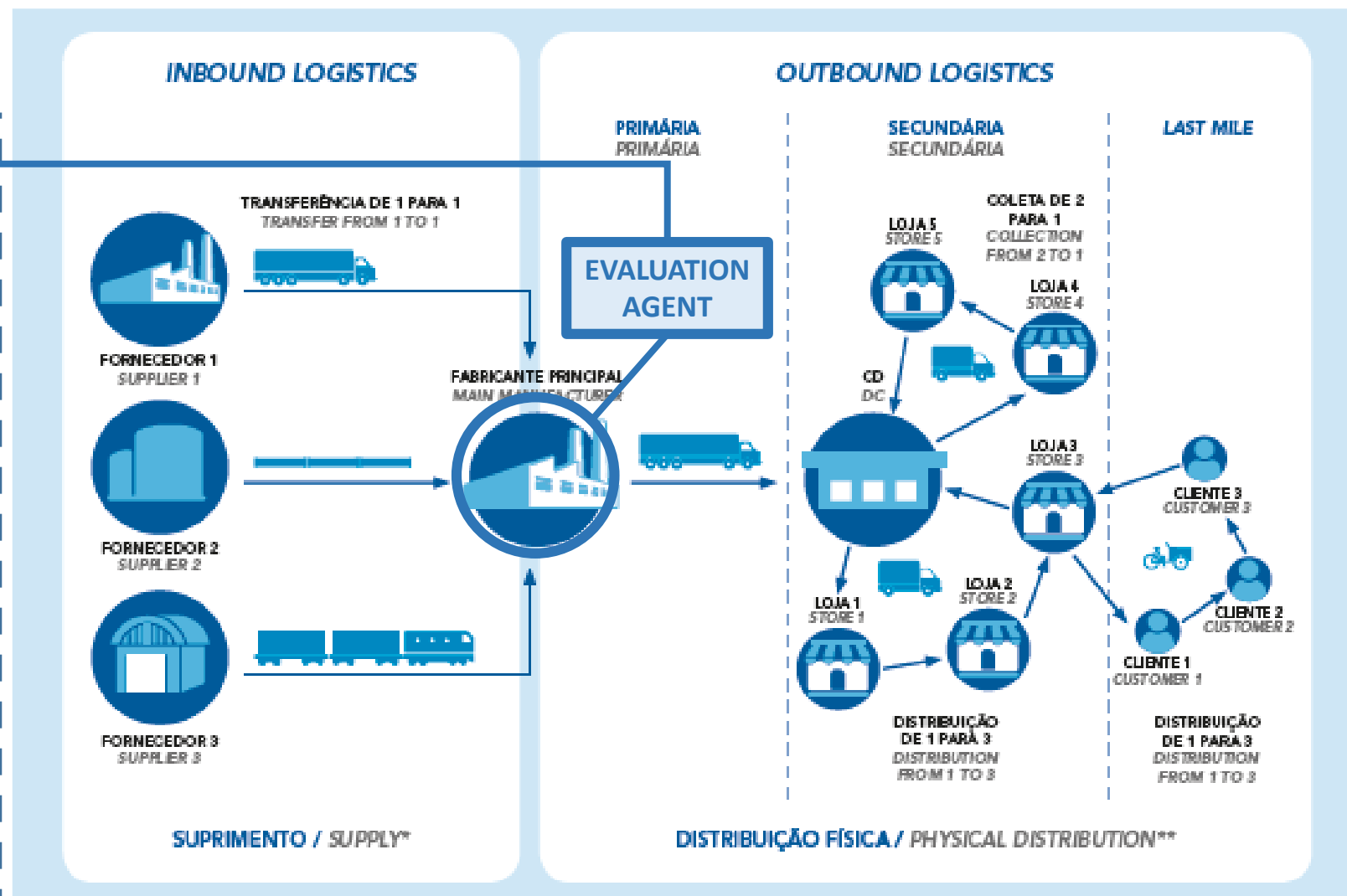
2018



SELF EVALUATION - KNOW YOURSELF!



2018



BUILD A REFERENCE - BASELINE

TRANSFER



Dist: 3.200 km
Route: 1 (one way)
Ret: empty
Heavy Truck
Year: 2015
Model: 2015
Tec: P7
TGW:28 t
C: 16 t
U: 90 % (14,4 t)
P: 2.3 km/l
F: B10 (S10)

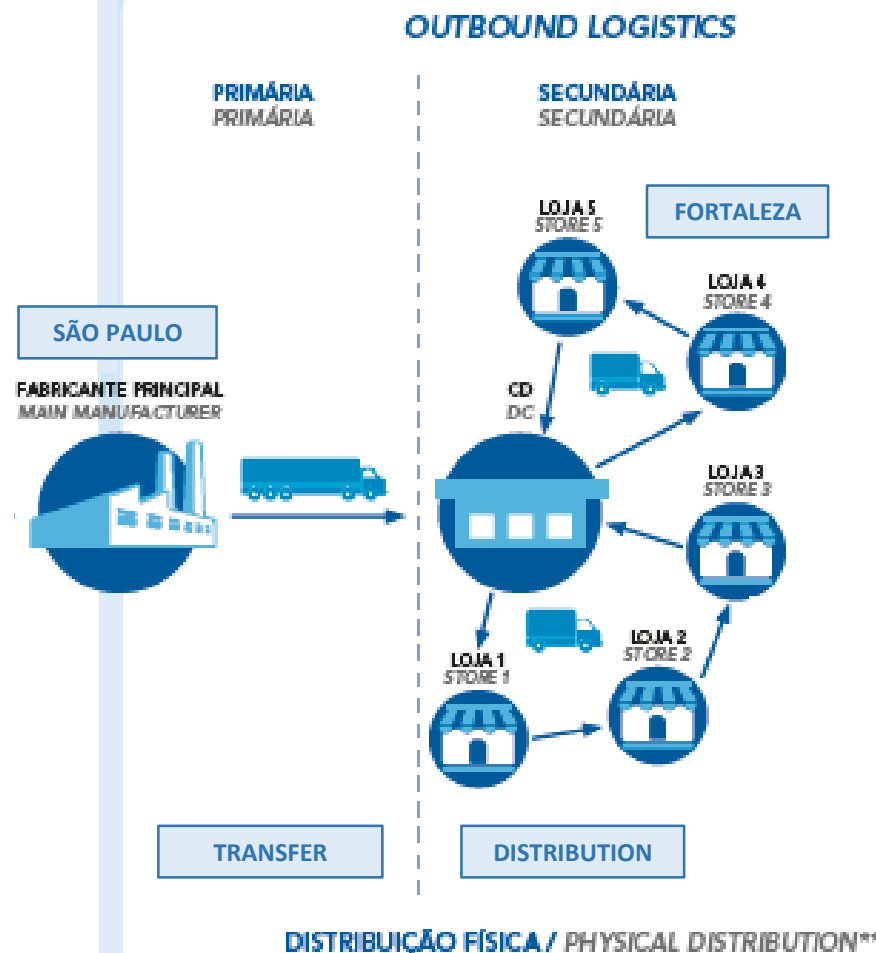
DISTRIBUTION



Dist: 35 km
Route: 2
Ret: empty
Medium Truck
Year: 2017
Model: 2017
Tec: P7
TGW:14.5 t
C: 8.5 t
U: 85 % (7.2 t)
P: 3.8 km/l
F: B10 (S10)

HANDLING

GLP Forklift Truck



Caption:

Dist – distance [km]; Ret – return; Tec - technology; PBT – total gross weight[t]; C – capacity [t]; U – use [% of C]; R – performance [km/l]; F – fuel; B10 – blend of 90% diesel and 10% biodiesel; S10 – diesel with 10 ppm of sulfur



2018

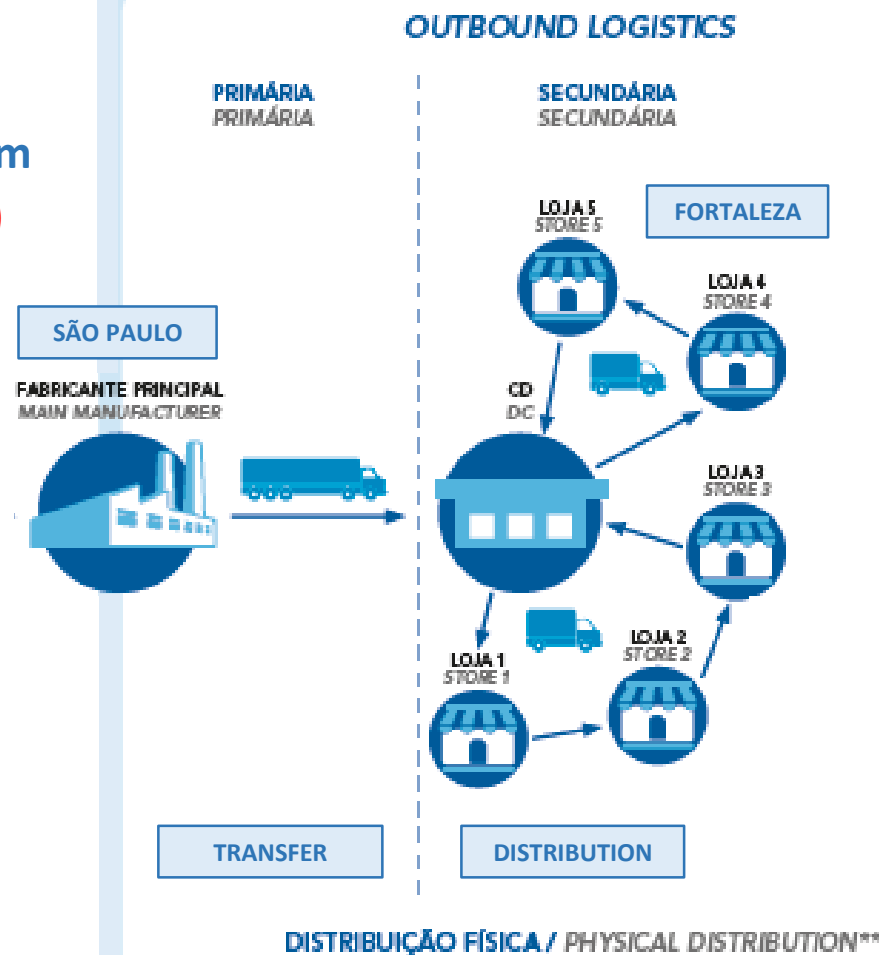
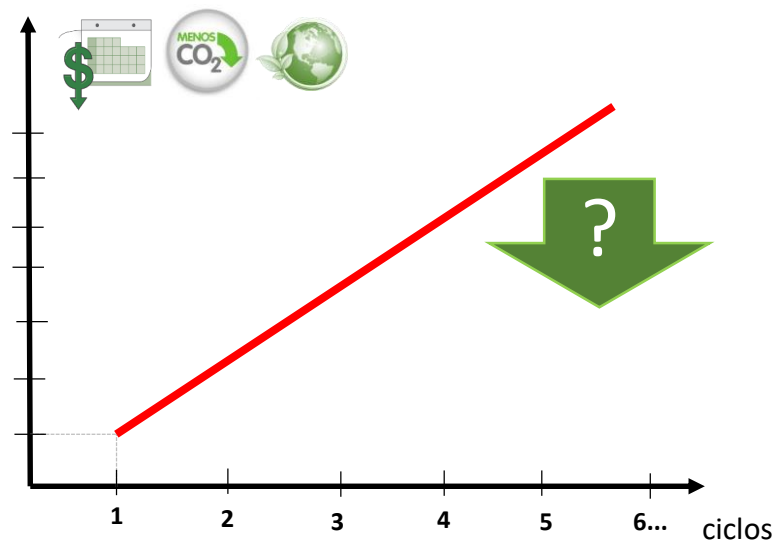
BUILD A REFERENCE - BASELINE

RESULTS - BASELINE

1,269 l of diesel
141 l of biodiesel
2.6 kg of GLP

1.2 t Petroleum
(8.3% of load)

3.4 t CO_{2eq} * **(23.4% of load)**



NOTES: * Net emission of CO_{2eq} (not including biodiesel)

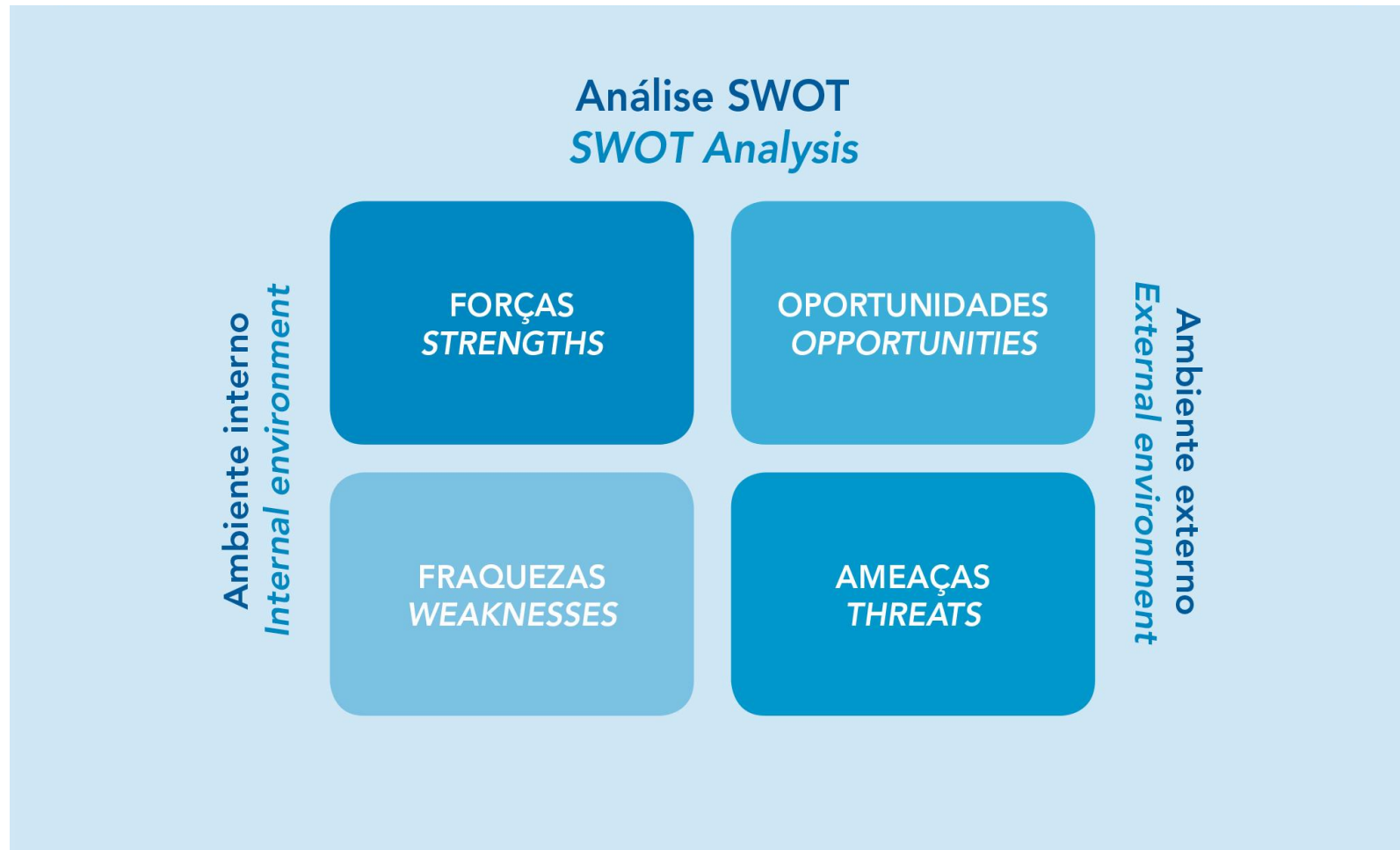


2018

CHOOSE A BEST PRACTICE – CONTINUOUS EVOLUTION



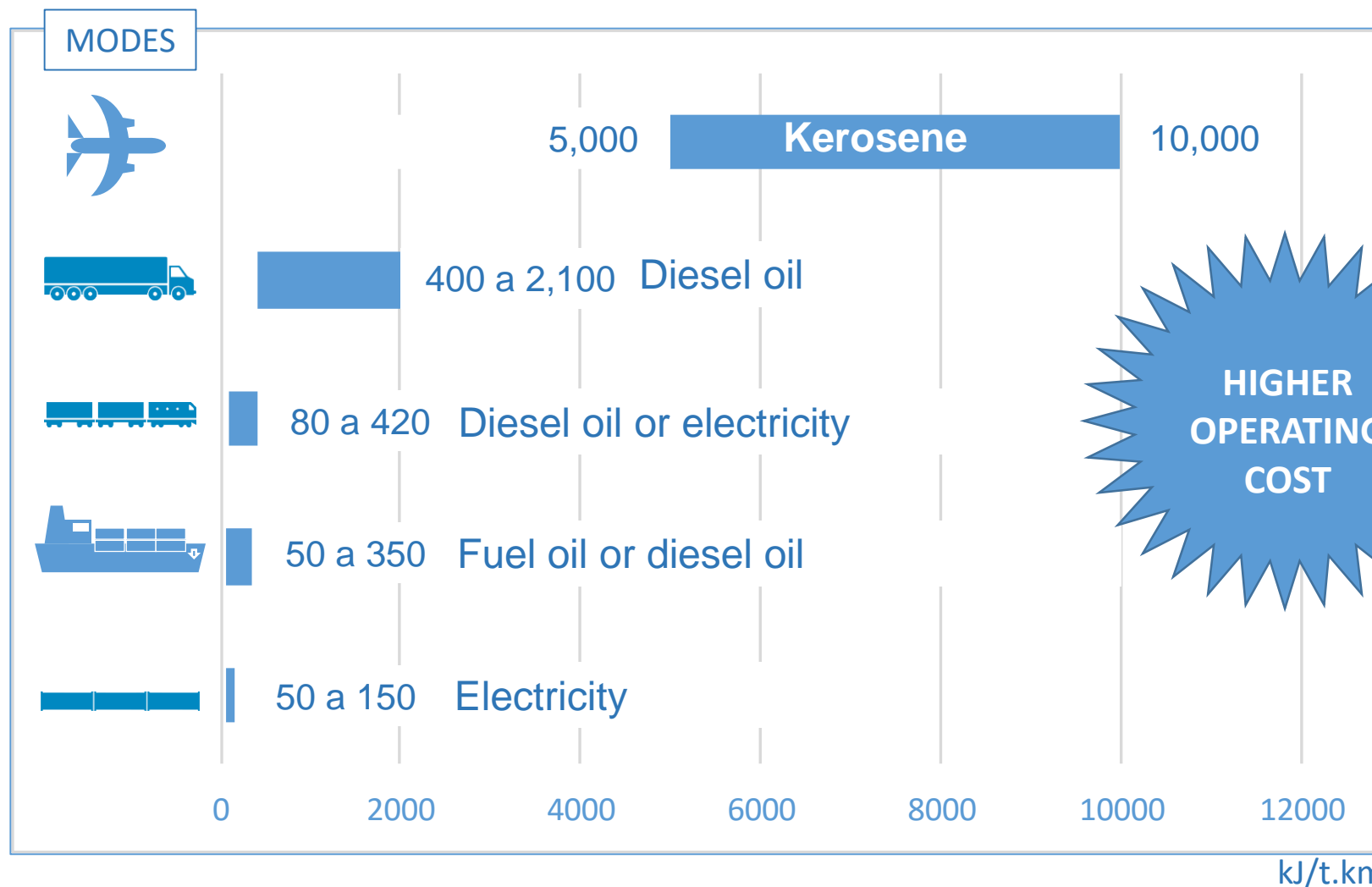
2018



CHOOSE A BEST PRACTICE – CONTINUOUS EVOLUTION



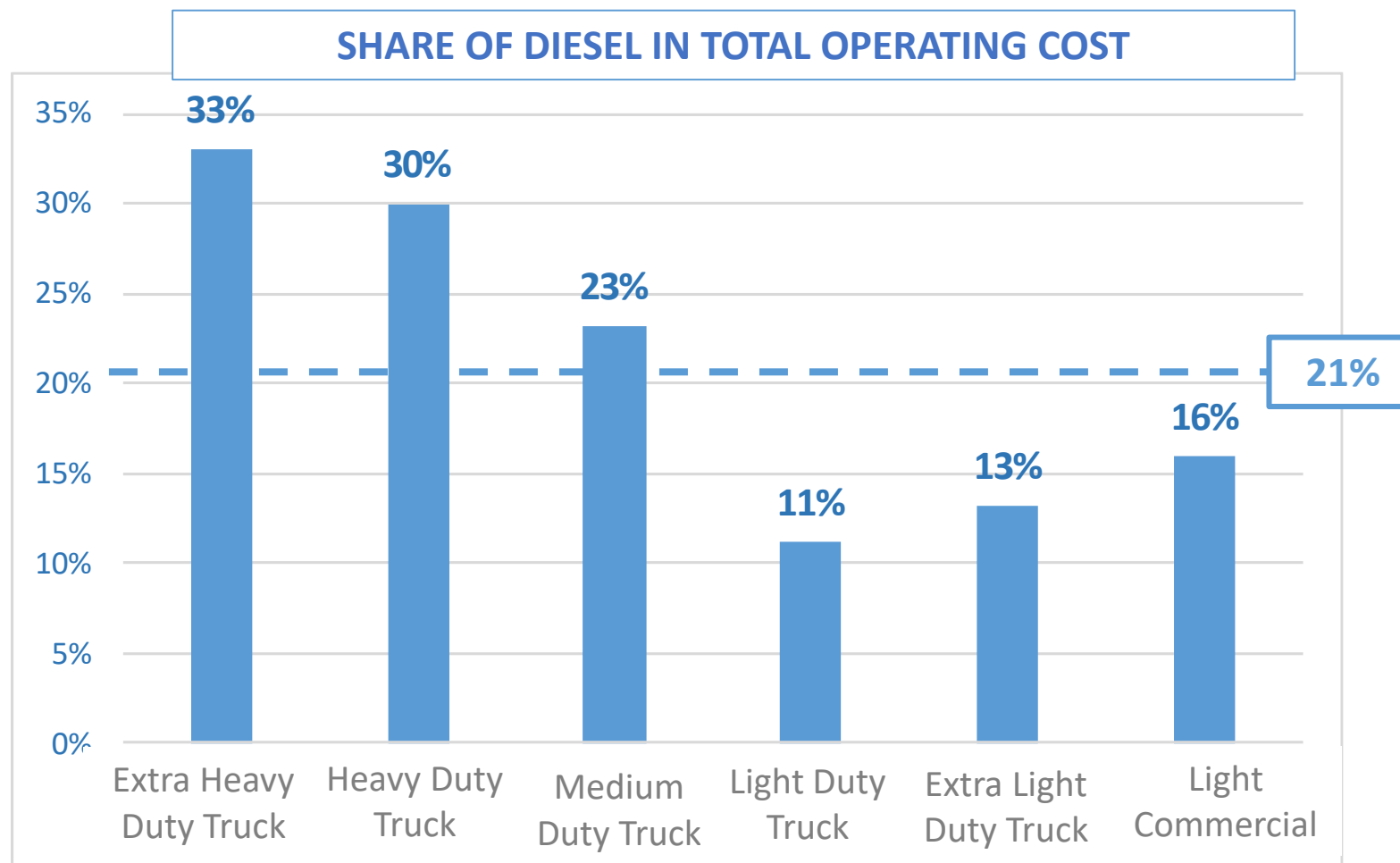
2018



CHOOSE A BEST PRACTICE – CONTINUOUS EVOLUTION



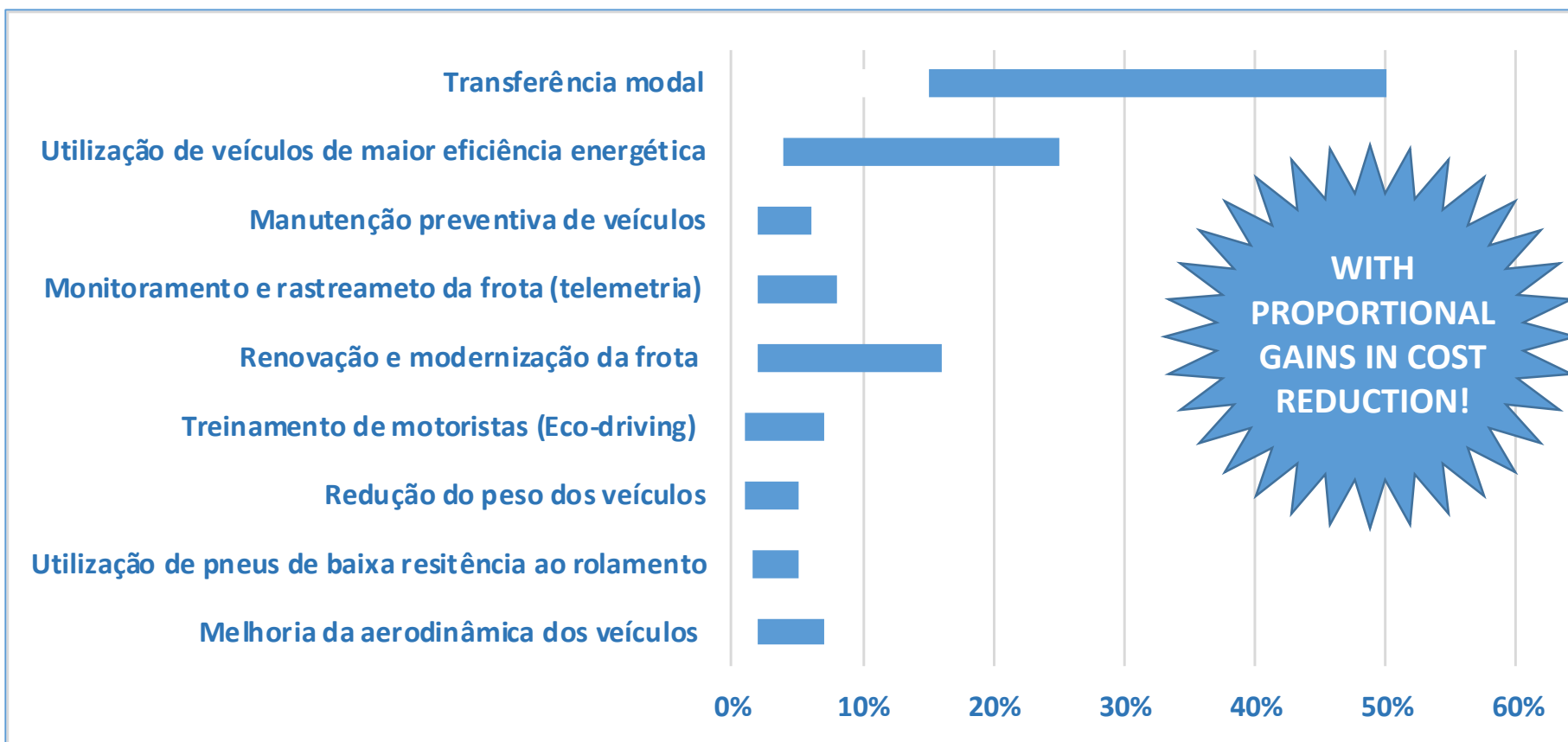
2018



CHOOSE A BEST PRACTICE – CONTINUOUS EVOLUTION



2018



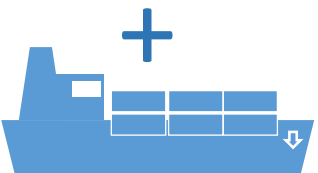
CHOOSE A BEST PRACTICE – CONTINUOUS EVOLUTION

BEST PRACTICE: Transfer of freight transportation to cleaner modes (modal transfer)

TRANSFER



Dist: 216 km



Dist: 3,150 km

Routes: 1 (one-way)

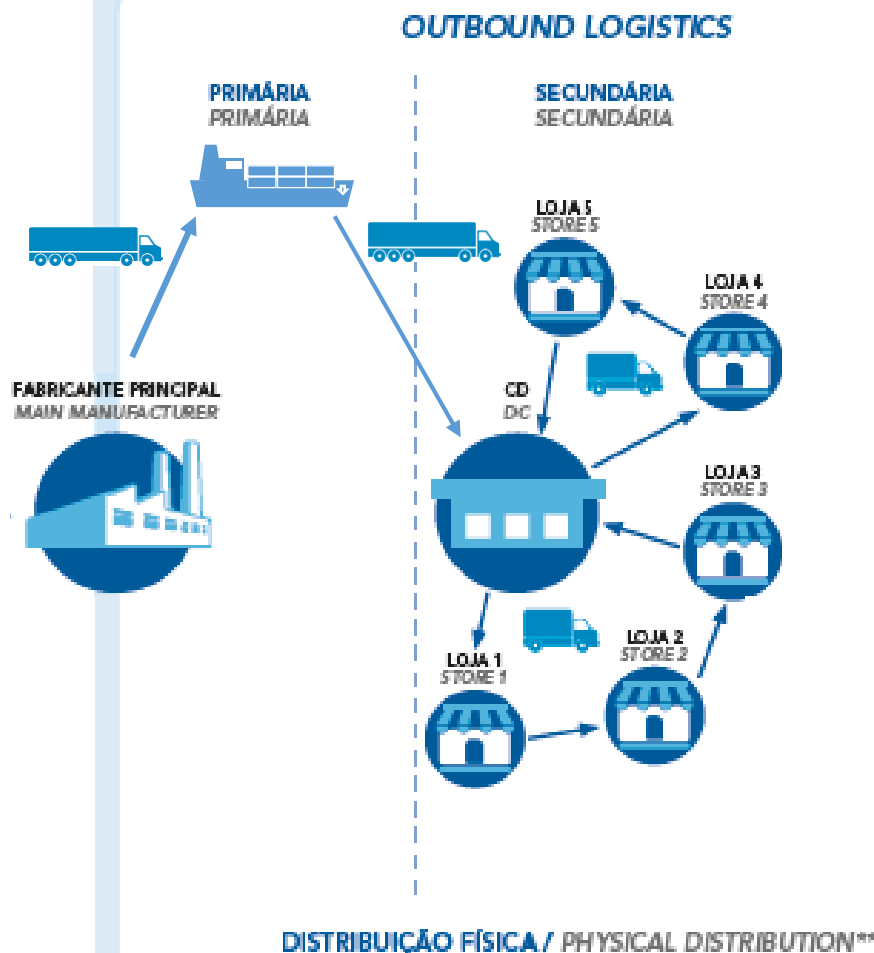
P: 0.007 l/t.km

F: Fuel Oil (bunker)

MOVEMENT

GLP Forklift Truck
Diesel Reach Staker
Diesel Platform Truck

DISTRIBUTION



2018

Caption:

Dist – distance [km]; P – performance [km/l]; F - fuel



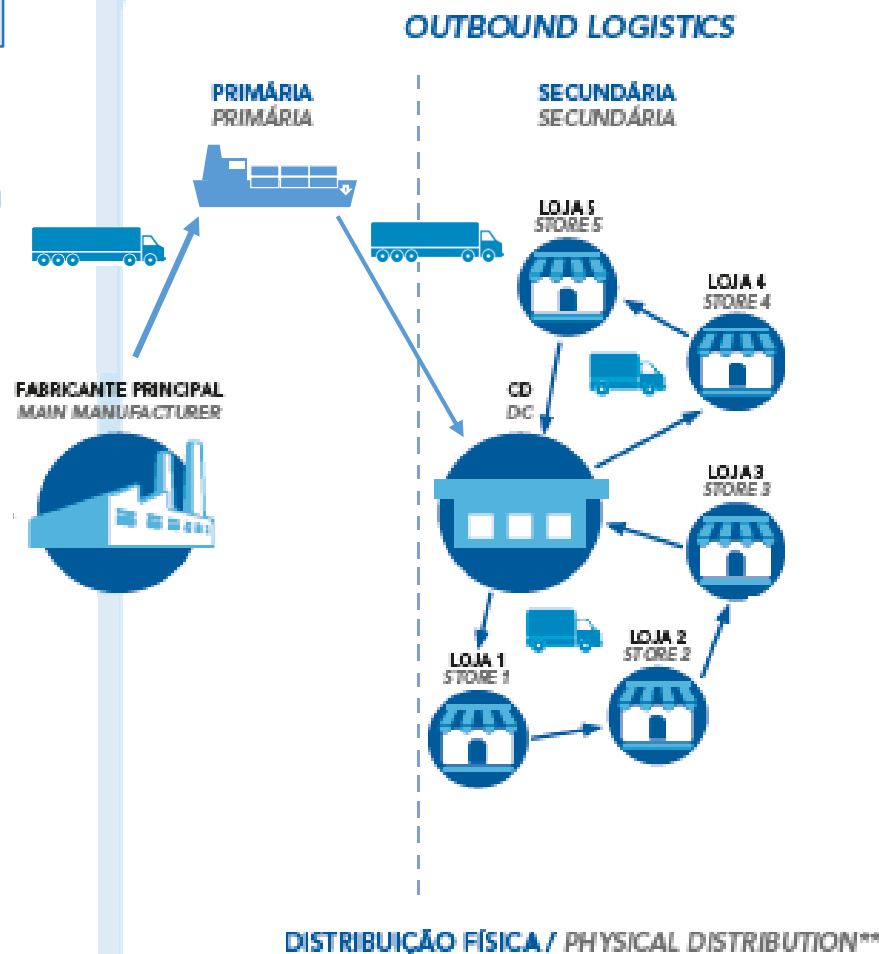
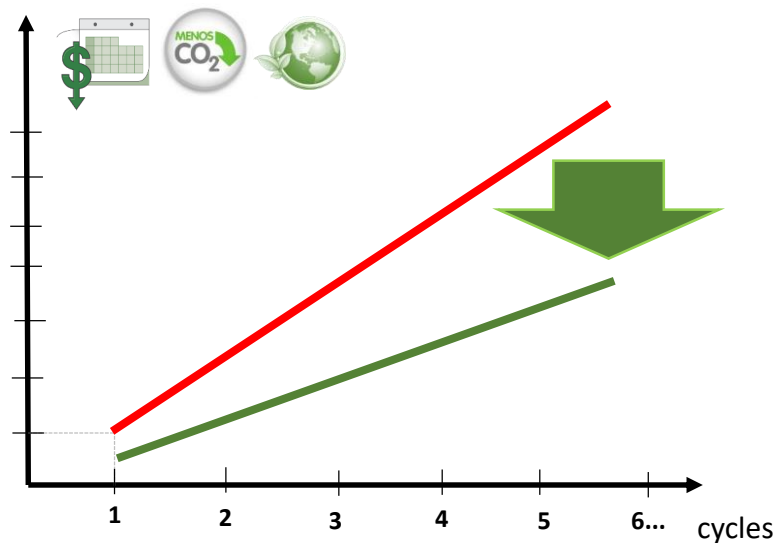
CHOOSE A BEST PRACTICE – CONTINUOUS EVOLUTION

RESULTS – BEST PRACTICE

174 l of diesel
20 l of biodiesel
406 l of bunker
6 kg of GLP
88 kWh electricity

0.6 t of petroleum
(-50%)

1.8 t CO_{2eq} * **(-47%)**



2018



CHOOSE A BEST PRACTICE – CONTINUOUS EVOLUTION

- Implementation of auxiliary power generation equipment to reduce fossil fuel consumption
- Night collection and distribution
- Reduction of travel speed
- Vehicle occupancy optimization
- Drivers training
- Use of higher energy-efficiency vehicles
- Use of alternative propulsion systems
- Use of low rolling resistance tires
- Fleet renewal and modernization
- Reduction of vehicle weight
- Promotion of vehicles aerodynamics
- Preventive maintenance of vehicles
- Use of cleaner energy sources
- Use of additives to improve energy efficiency of fuels
- Implementation of emission control equipment in vehicles

**80% OF BEST
PRACTICES REDUCE
COSTS**



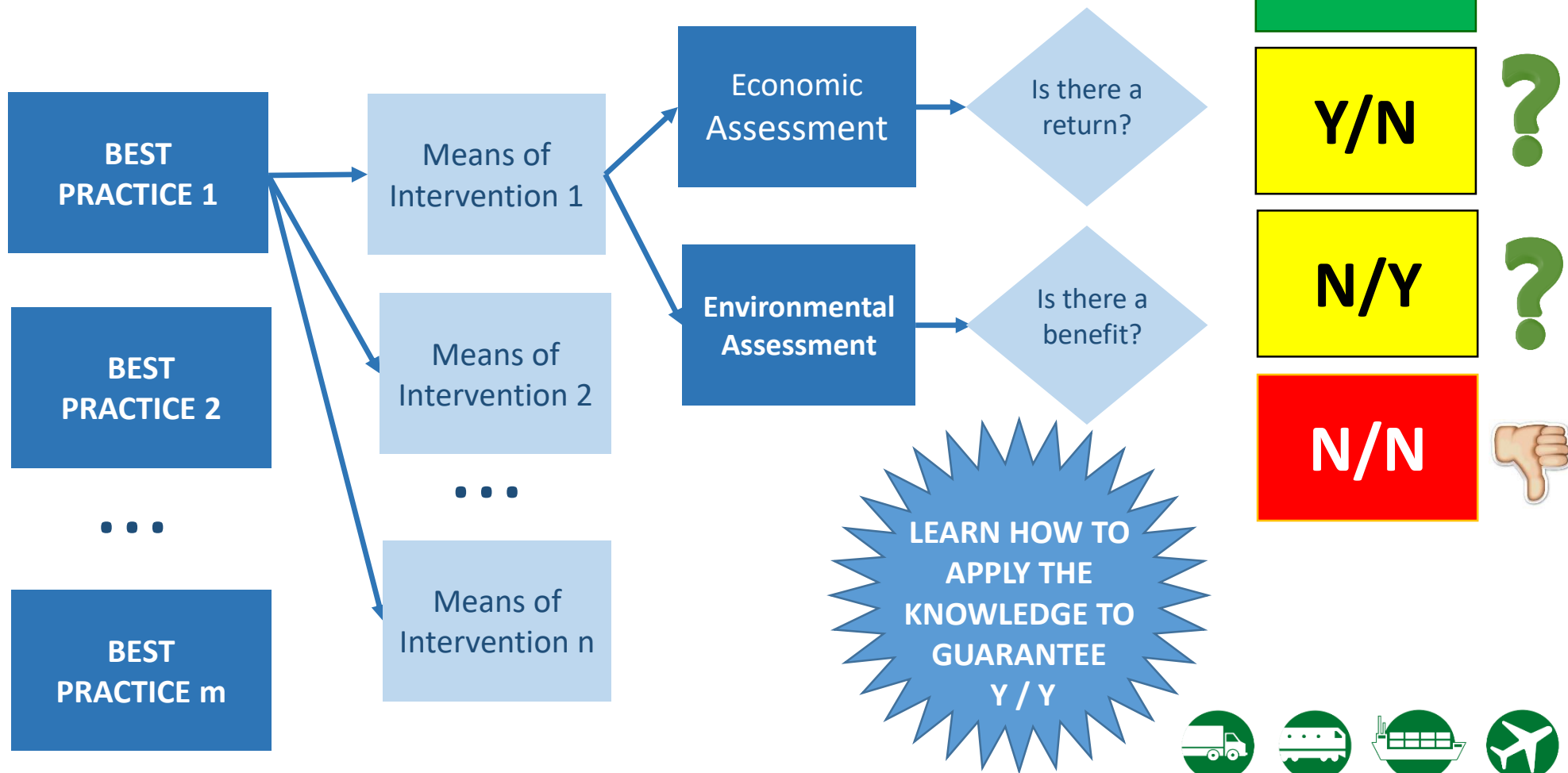
2018



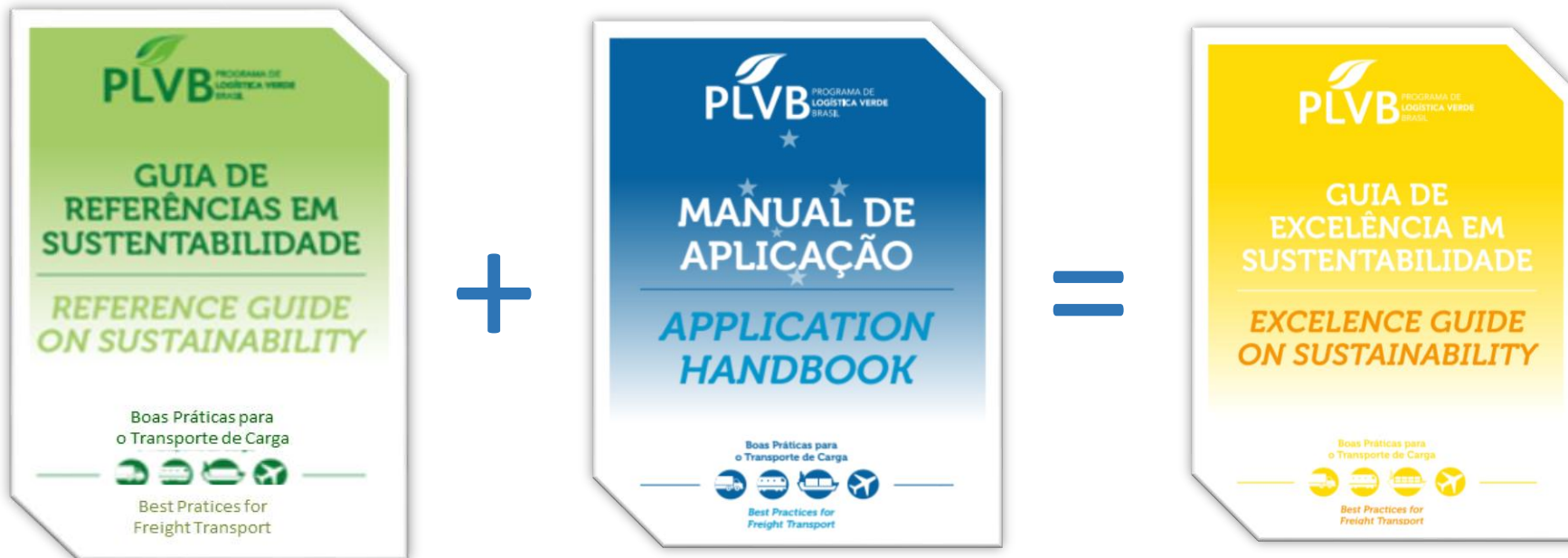
CHOOSE A BEST PRACTICE – CONTINUOUS EVOLUTION

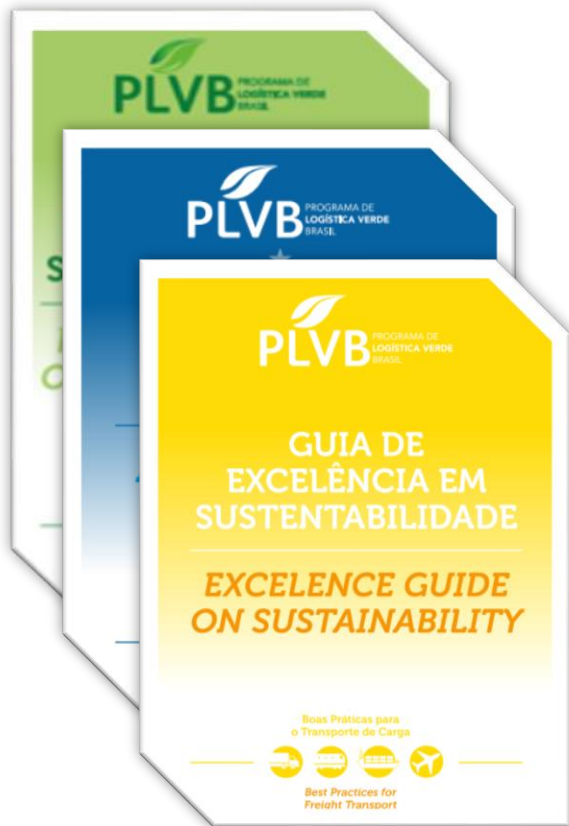


2018

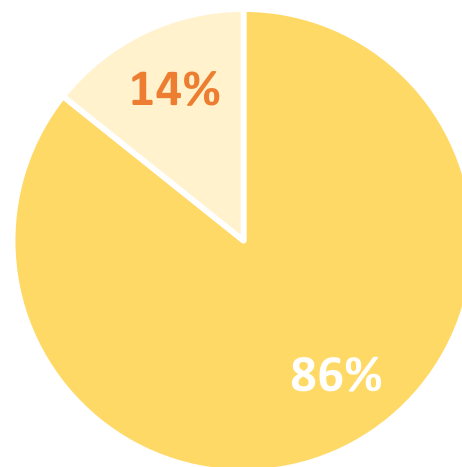


RESULTS REPORTING – EXCELLENCE GUIDE



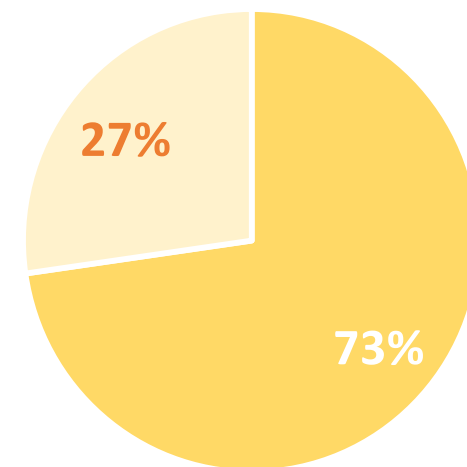


ADHESION OF MEMBER COMPANIES



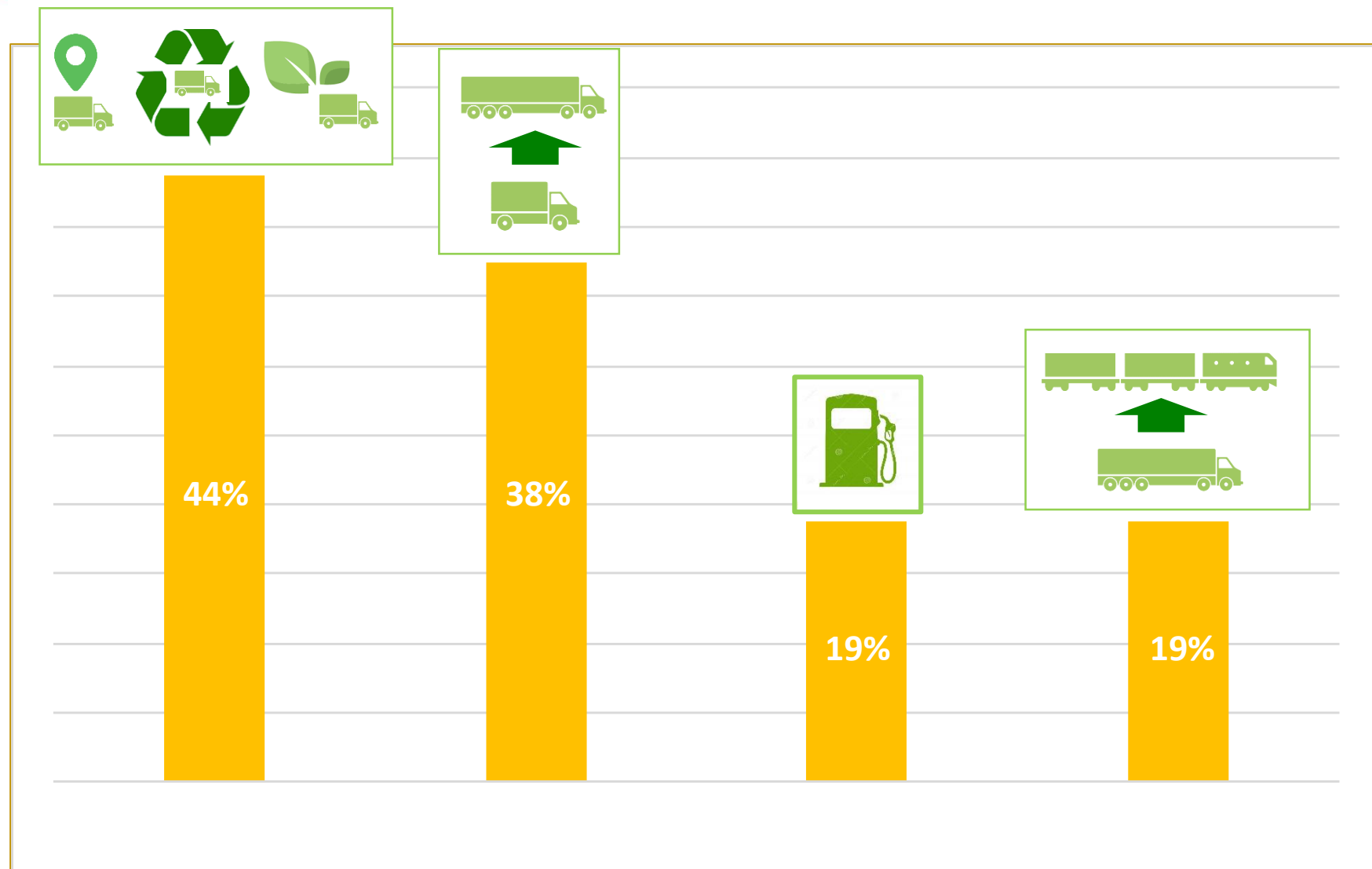
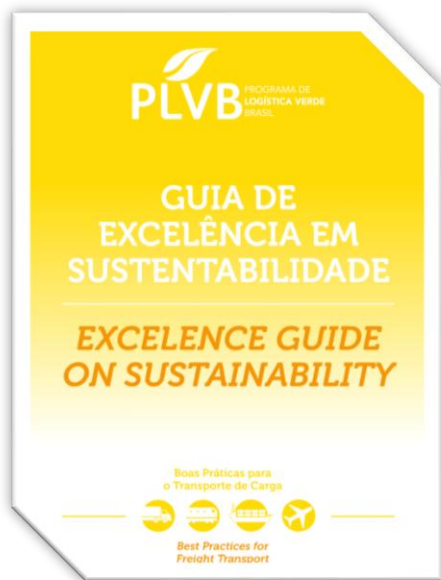
■ Reported ■ Not yet reported

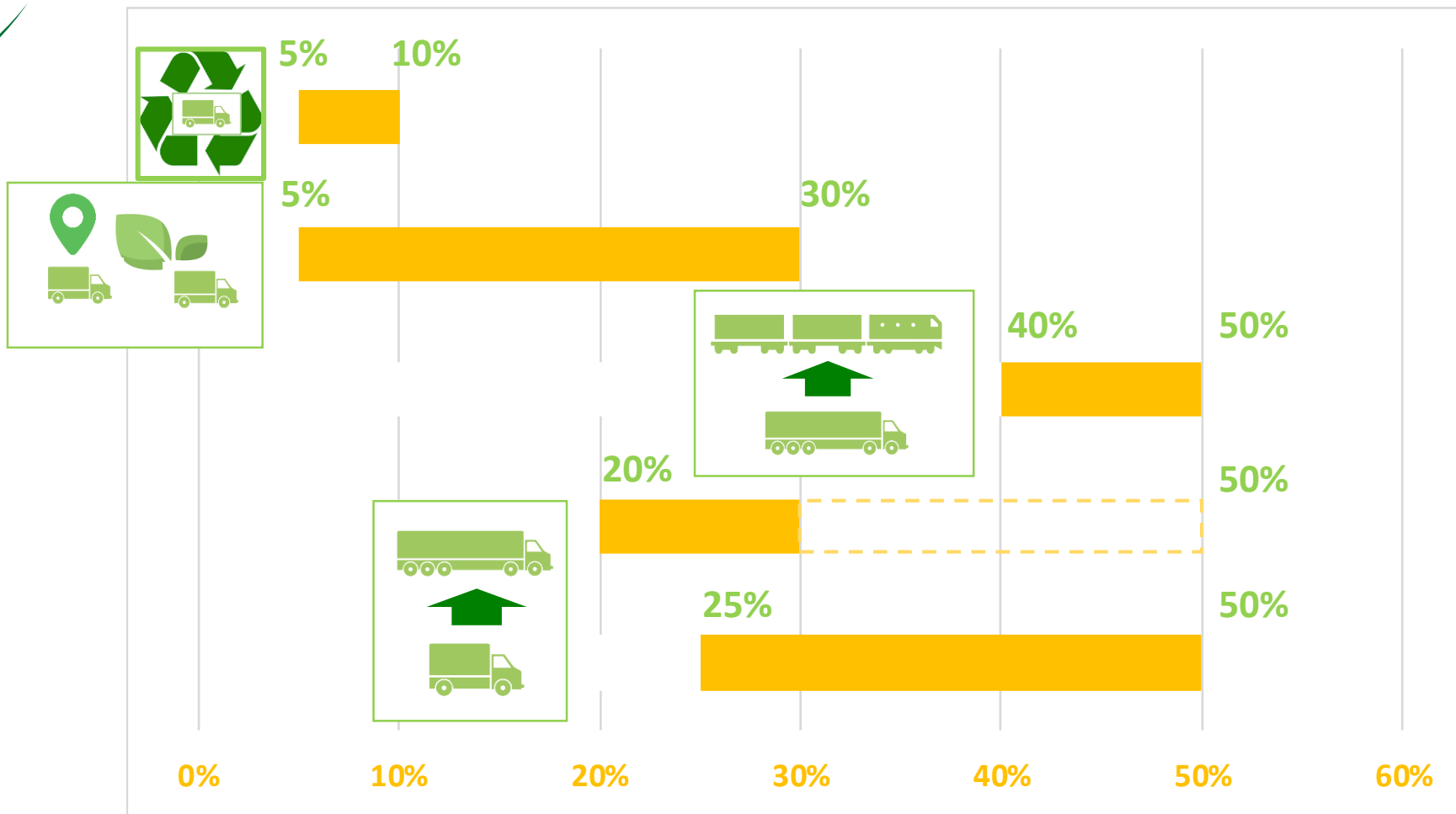
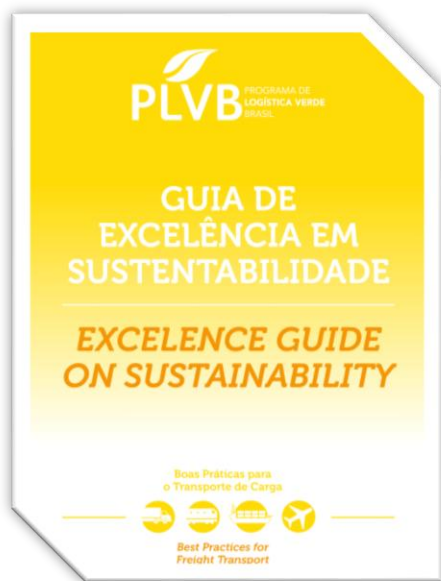
ADHERENCE TO BEST PRACTICES

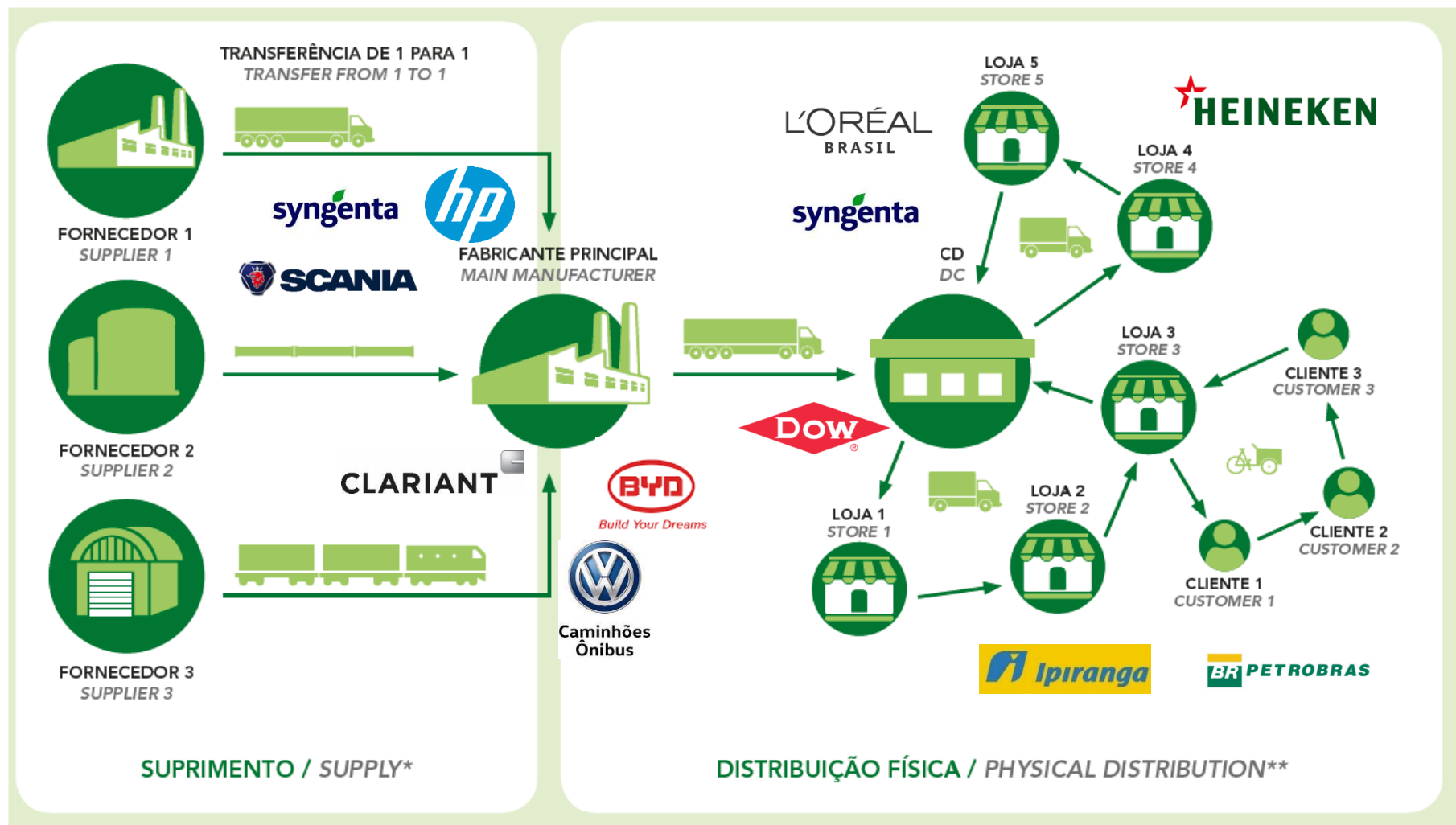
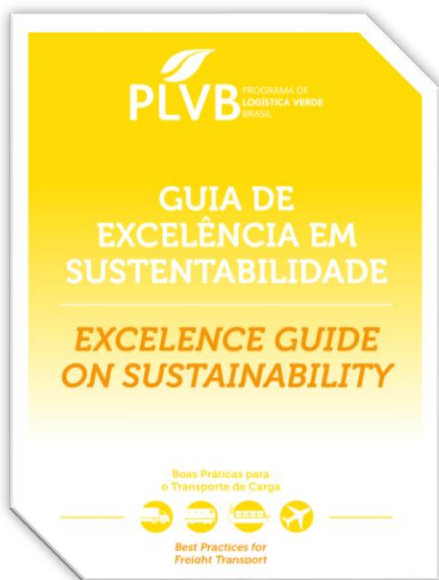


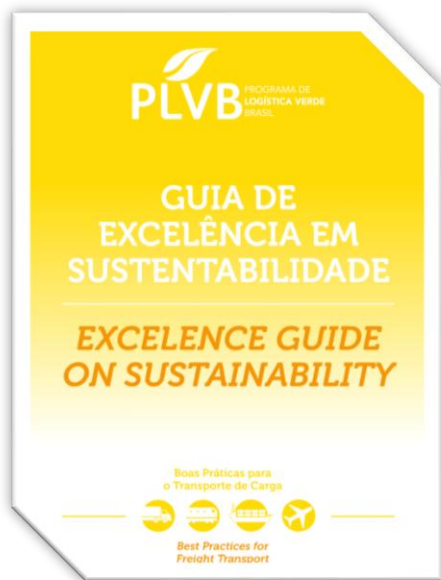
■ Best practices adopted ■ Best practices not adopted







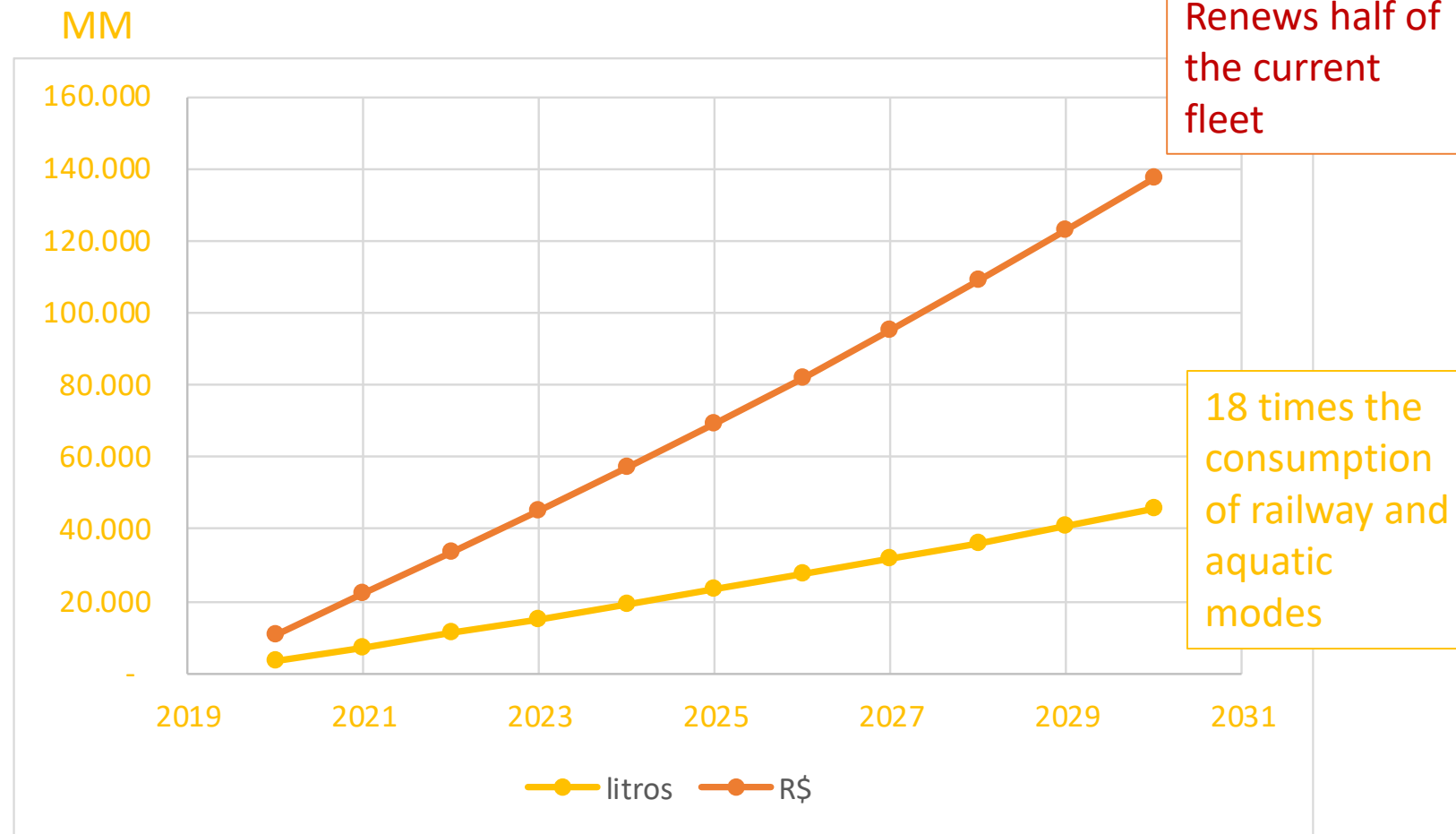


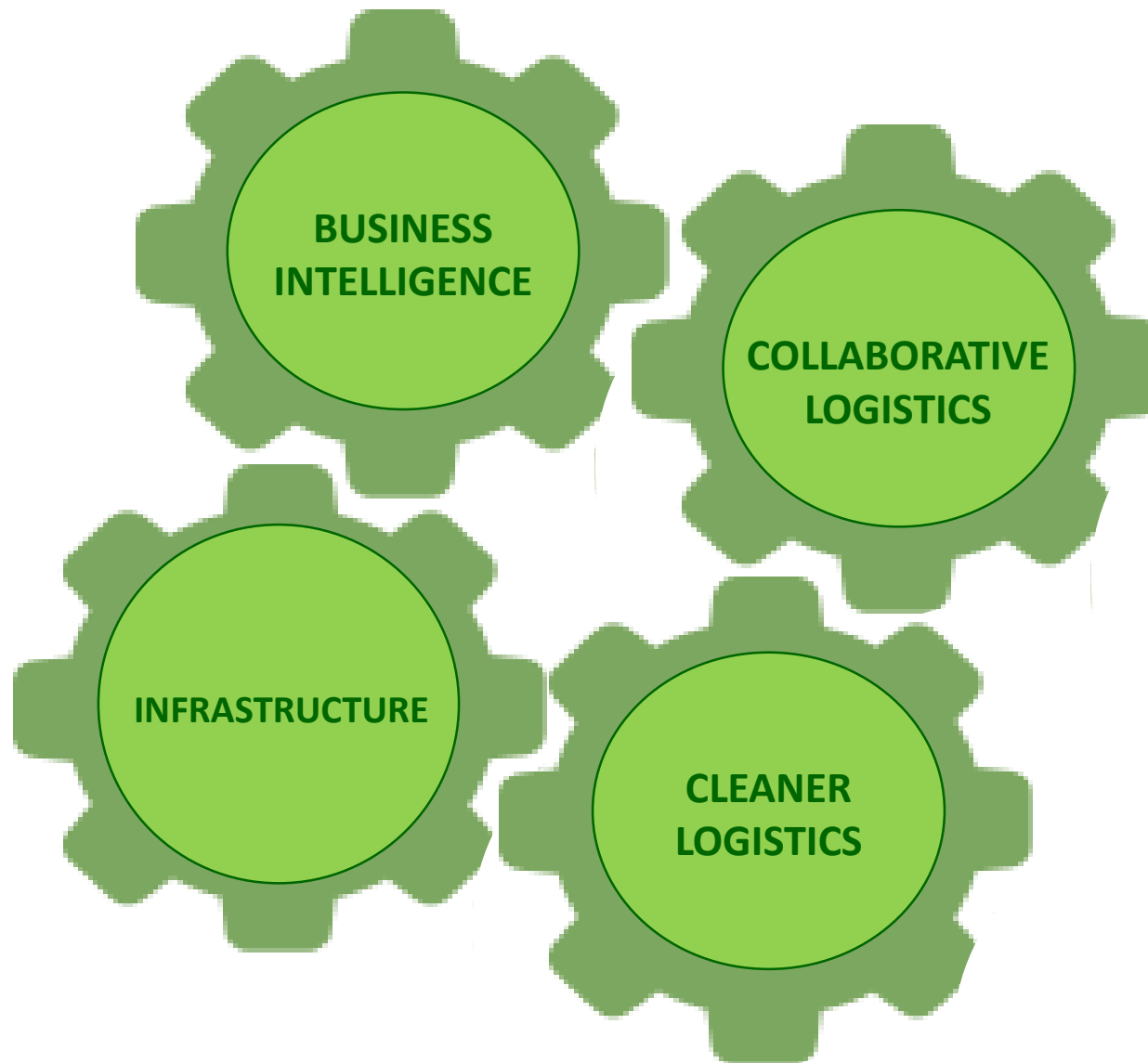


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semi-heavy
fleet
+
Heavy Fleet



17.5%
efficiency
improvement







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Creation
Recognition system for
the Green Seal in
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PROGRAMA DE
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