



# 2025 Green Logistics

## Transport, Energy & Environmental Dimensions

Márcio D'Agosto / Brazilian Green Logistic Program (PLVB)  
May 28<sup>th</sup>, 2025



# ABOUT US...



<http://ibts.eco.br>

Non-profit technical institution with the mission of promoting sustainability in mobility and logistics



Marcio D'Agosto

Full Professor at Transportation Engineering Program (PET) at COPPE/UFRJ, Coordinator of the Freight Transportation Laboratory (LTC), President of the Brazilian Institute of Sustainable Transportation (IBTS) and Coordinator of the Green Logistics Brazil Program (PLVB).



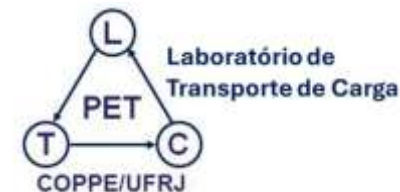
[www.osml.eco.br](http://www.osml.eco.br)



[www.coppe.ufrj.br](http://www.coppe.ufrj.br)



[www.pet.coppe.ufrj.br](http://www.pet.coppe.ufrj.br)



<http://ltc.coppe.ufrj.br>





# ABOUT GREENIG LOGISTICS

## LOGÍSTICA (FLUXO DIRETO E REVERSO) LOGISTICS (DIRECT AND REVERSE FLOW)



- R\$/NS
- \$/LS

## LOGÍSTICA DE BAIXO CARBONO LOW-CARBON LOGISTICS



- CO<sub>2</sub> (GEE)
- CO<sub>2</sub> (GHG)

## LOGÍSTICA VERDE GREEN LOGISTICS



- Outros GEE;
- Poluentes atmosféricos;
- Descarte inadequado de resíduos;
- Utilização inadequada de recursos.
- Other GHGs;
- Air pollutants;
- Inadequate waste disposal;
- Inadequate use of resources.

## LOGÍSTICA SUSTENTÁVEL SUSTAINABLE LOGISTICS



- Geração de emprego;
- Distribuição de renda;
- Qualidade de vida.
- Employment generation;
- Income distribution;
- Quality of life.



🌿 GUIDING QUESTIONS

🌿 MISSION, VISION & VALUE

🌿 FRAMEWORK

🌿 TIMELINE & PRESENT SITUATION

🌿 OUTPUTS

🌿 Services

🌿 Products



# GUIDING QUESTIONS



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

How can I be more efficient even with the infrastructure limitations that the country faces?

Is it possible to reduce costs while protecting the environment and society?



# MISSION, VISION & VALUE



## MISSION

LEADING COMPANIES OPERATING IN DIFFERENT MARKETS AROUND THE WORLD MUST TAKE THE PROTAGONISM IN PROMOTING THE TRANSFORMATION OF LOGISTICS IN THE SEARCH OF EFFICIENCY AND SUSTAINABILITY.

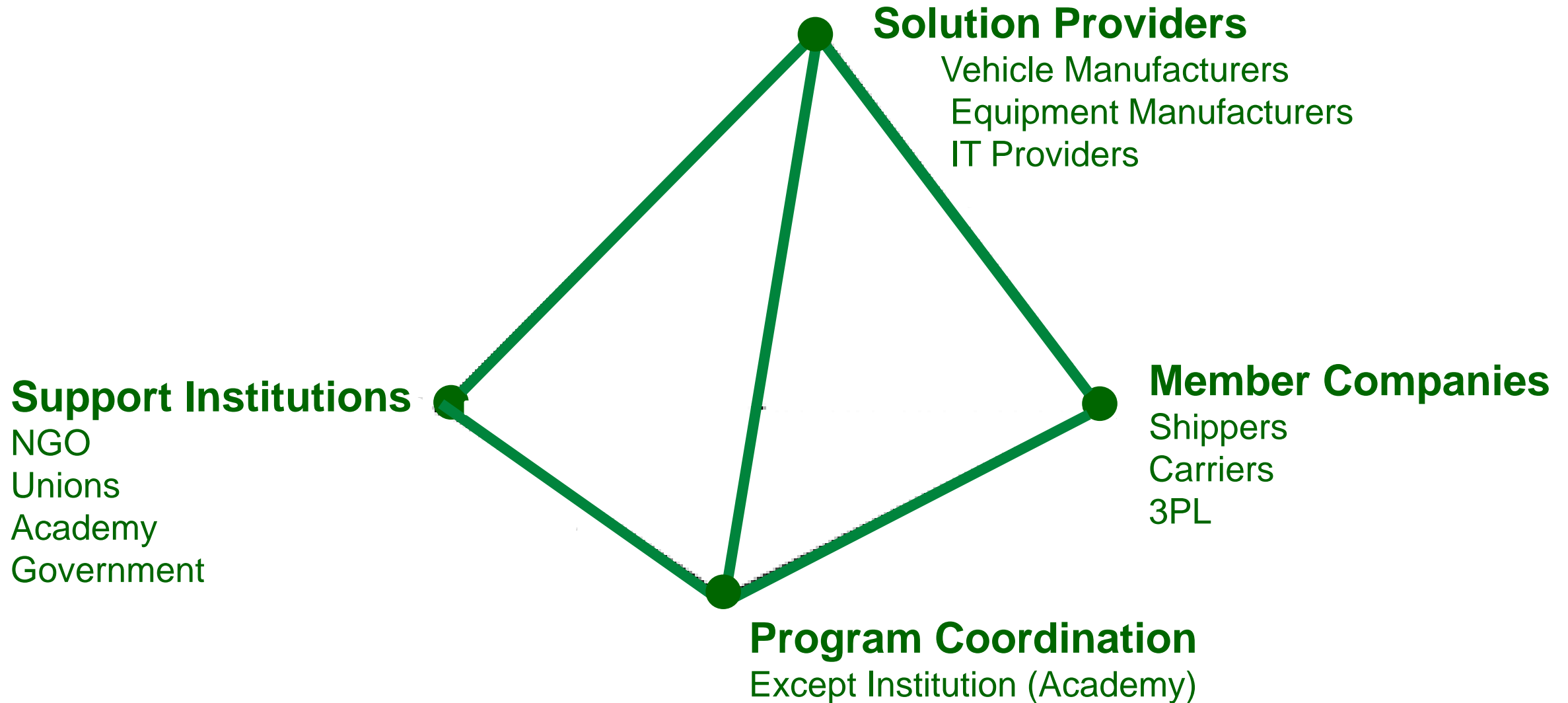


## VISION

PLVB IS THE ONLY BRAZILIAN PROGRAM THAT BRINGS SHIPPERS, CARRIERS & 3PL TOGETHER TO PROMOTE EFFICIENCY AND SUSTAINABILITY IN LOGISTICS!

## VALUE









# TIMELINE & PRESENT SITUATION



MORE THAN 90 COMPANIES... MORE THAN 200 PROFESSIONALS...



SETTING - UNDERSTANDING – TRAINING – RECOGNITION – CERTIFICATION– EVOLUTION – REVISION - EXPANDING

2016

2017

2018

2019

2020

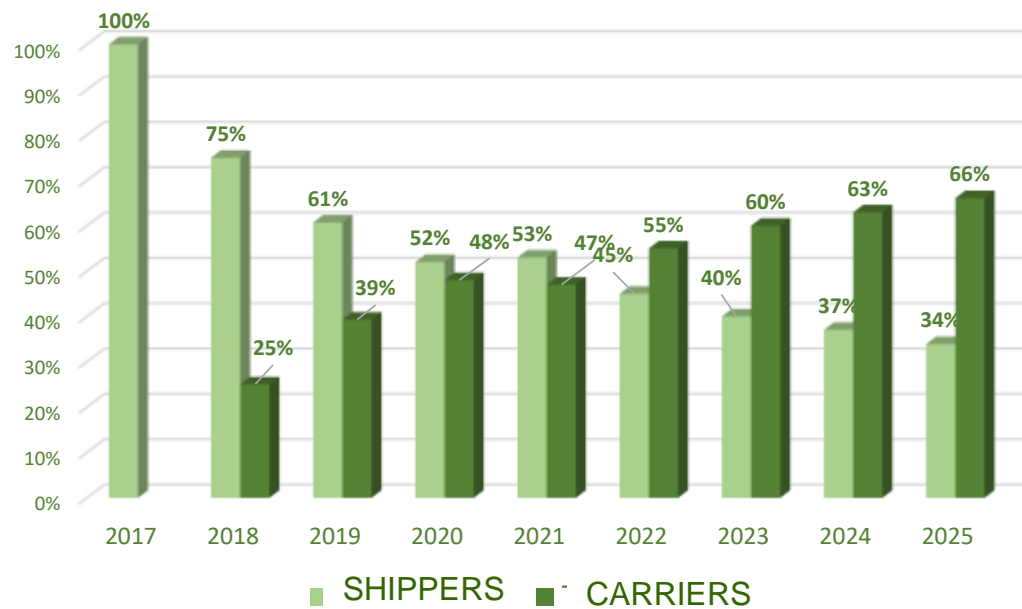
2021

2022

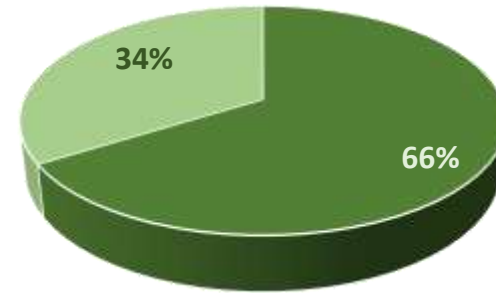
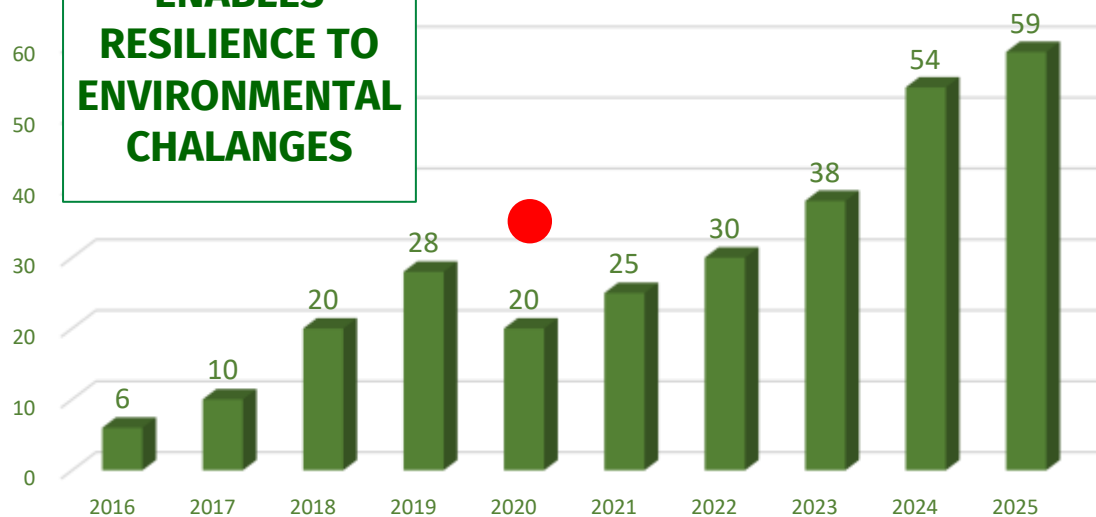
2023/  
2024



# TIMELINE & PRESENT SITUATION

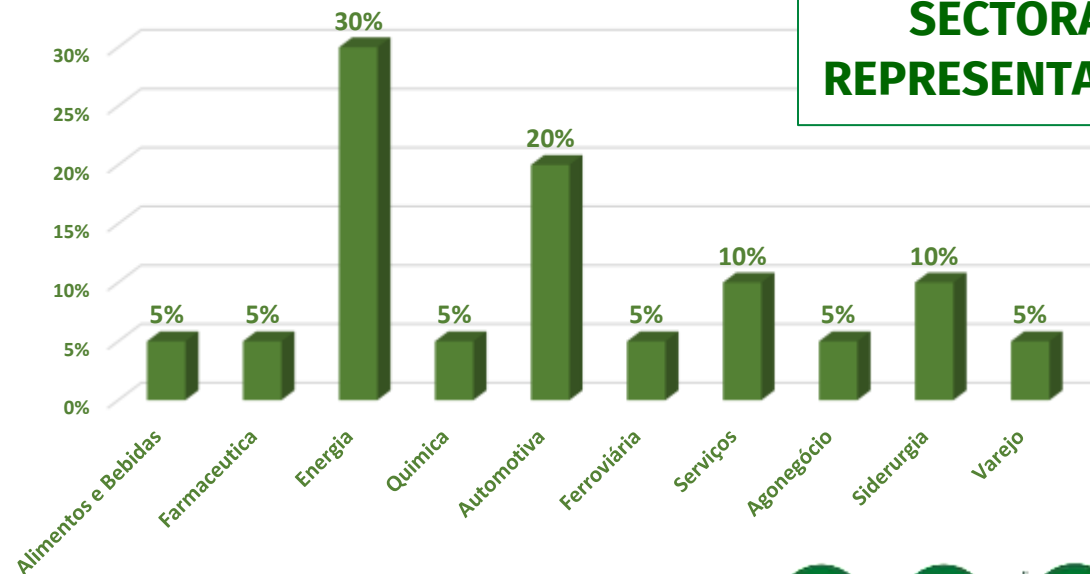


**ENABLES  
RESILIENCE TO  
ENVIRONMENTAL  
CHALLENGES**



**INTEGRATES  
LOGISTICS  
SECTORS**

**PROMOTES  
SECTORAL  
REPRESENTATION!**





# SERVICES



## RECOGNITION & CERTIFICATION



THEMATIC  
WORKSHOPS



REFERENCE  
PUBLICATIONS

THECNICAL  
SUPPORT

TRAINING

INTERNATIONAL  
COVERAGE

*NETWORKING*



WORK MEETINGS









# PRODUCTS – WEBSITE & NETWORK



Dados do canal



Programa de Logística Verde  
Brasil

Canal · 33 seguidores



Seguindo



Encaminhar



Copiar link

Instagram



plvb.ibts

Seguir

Enviar mensagem

63 publicações

154 seguidores

54 seguindo

Programa de Logística Verde Brasil  
Sustentabilidade como valor!  
[www.plvb.org.br](http://www.plvb.org.br) + 1



Percepções P...



Trein. PLVB



4º Workshop



F&FV 2024



Guias



PLVB Logística - 1º

Programa de Logística Verde Brasil

Rio de Janeiro, Rio de Janeiro, Brasil · [Informações de contato](#)

[Sustentabilidade em Logística](#)

2.682 seguidores · + de 500 conexões



Programa de Logística Verde  
Brasil



PLVB Videos

@plvbvideos3287 · 40 inscritos · 22 vídeos  
[Saiba mais sobre este canal](#) >

INÍCIO VÍDEOS SHORTS PLAYLIST

Enviados recentemente

Populares



4º Workshop PLVB - Depoimento Scania  
2 visualizações · há 1 mês



LZN Logística - Empresa Membro do PLVB

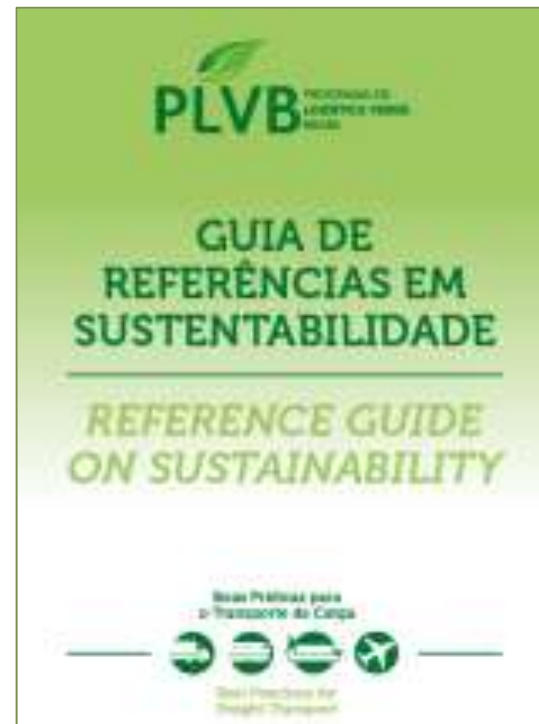




1st STEP

GHG INVENTORY

GHG Inventory  
Training



2nd STEP

BEST PRACTICES

PLVB Training



3rd STEP

COMPENSATION





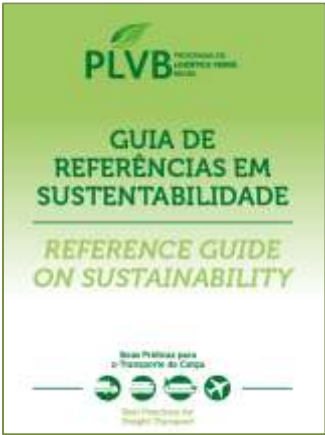
**PARTNERSHIPS  
FOR THE GOALS**



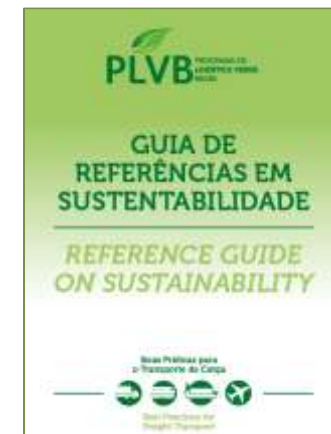
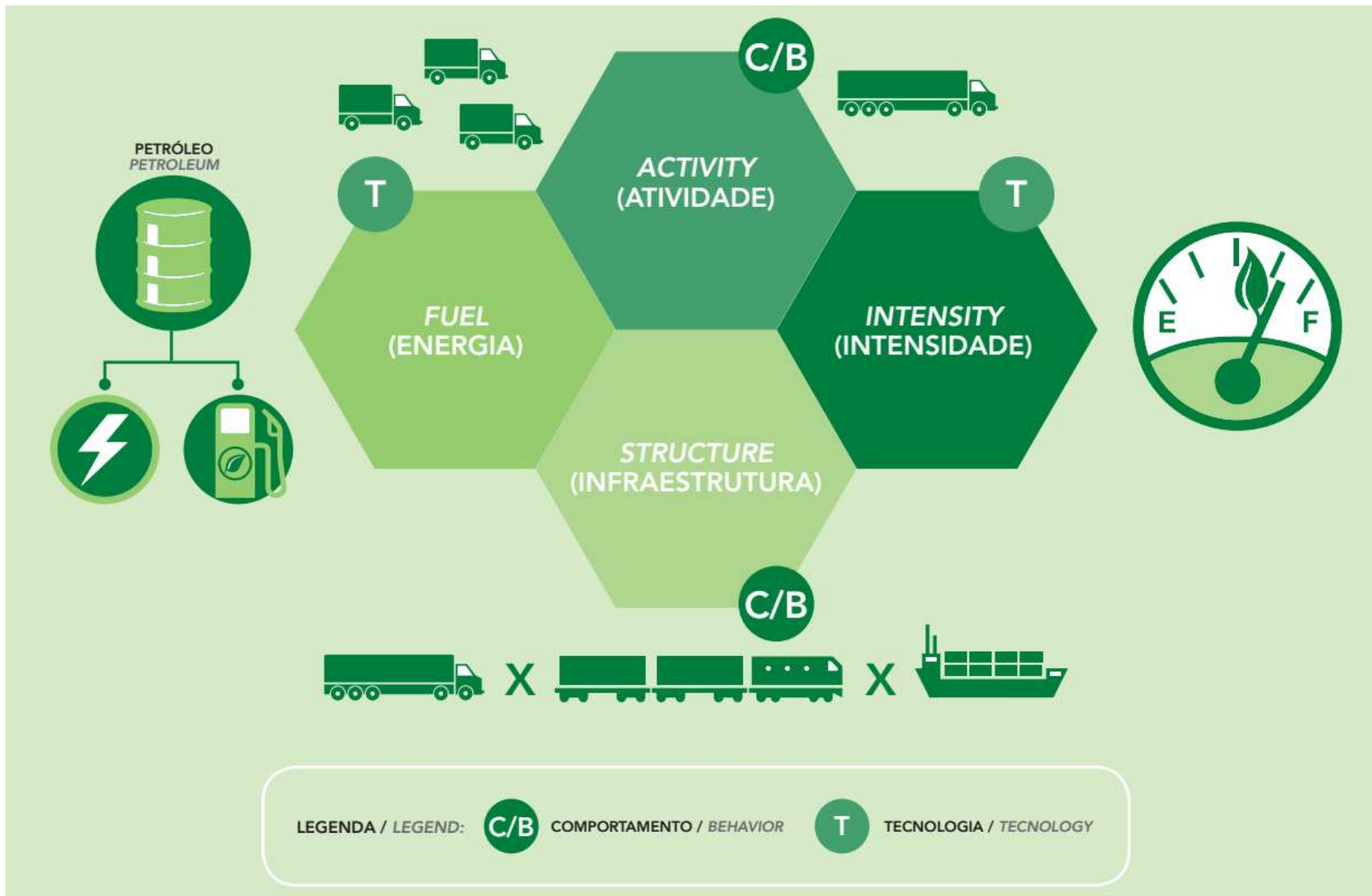
# BEST PRACTICES

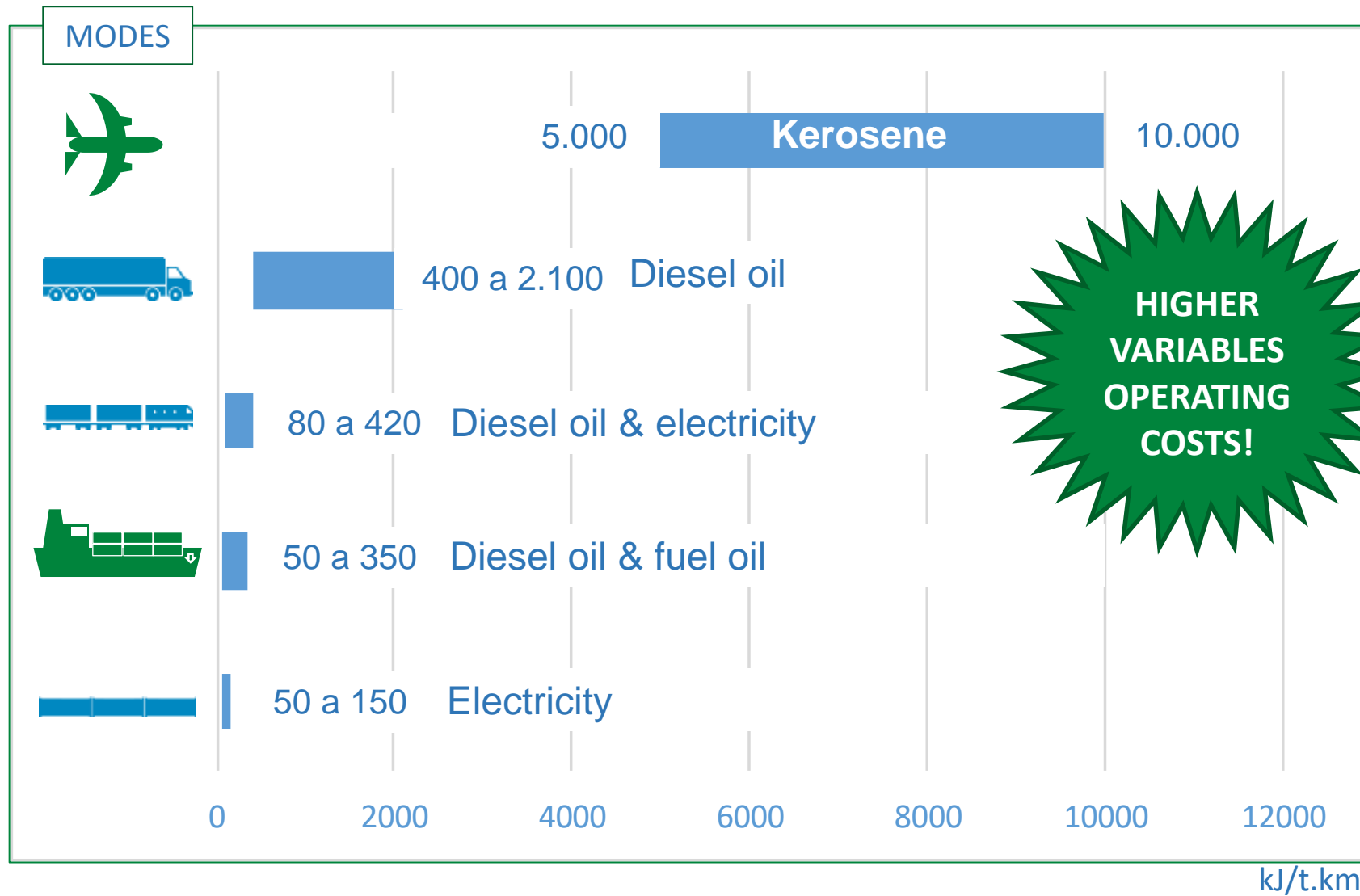


| Linhas de Atuação - ASIF<br><i>Lines of Action - ASIF</i> | Boas Práticas Identificadas<br><i>Best Practices Identified</i>                 | Modo Transporte<br><i>Transport Mode</i> | Cadeia de Logística<br><i>Supply Chain</i>                                  | Operação<br><i>Operation</i>   | Nível de Planejamento Organizacional<br><i>Organizational Planning Level</i> | Investimento Inicial<br><i>Initial Investment</i> | Econômico<br><i>Economic</i> |                              |                                      |                      |                                     |                               | Ambiental<br><i>Environmental</i>               |   |  |
|---|---|--|---|--|--|---|------------------------------|------------------------------|--------------------------------------|----------------------|-------------------------------------|-------------------------------|---|---|--|
|   |   |  |   |  |  |   | Custo<br><i>Cost</i>         | Segurança<br><i>Security</i> | Confiabilidade<br><i>Reliability</i> | Tempo<br><i>Time</i> | Flexibilidade<br><i>Flexibility</i> | Capacidade<br><i>Capacity</i> | Consumo de energia<br><i>Energy consumption</i> | Gases de Efeito Estufa (GEE)<br><i>Greenhouse Gases (GHG)</i> | Poluição Atmosférica<br><i>Air Pollution</i> |
| Atividade<br><i>Activity</i>                              | Treinamento de motoristas (Eco-driving)<br><i>Driver training (Eco-driving)</i> | Rodoviário<br><i>Road</i>                | Suprimento e Distribuição Física<br><i>Supply and Physical Distribution</i> | Coleta, Distribuição e Transferência<br><i>Collection, Distribution and Transfer</i> | Operacional<br><i>Operational</i>  | ↑   | ↓                            | ↑                            | ↑                                    | -                    | -                                   | -                             | ↓   | ↓   | ↓  |

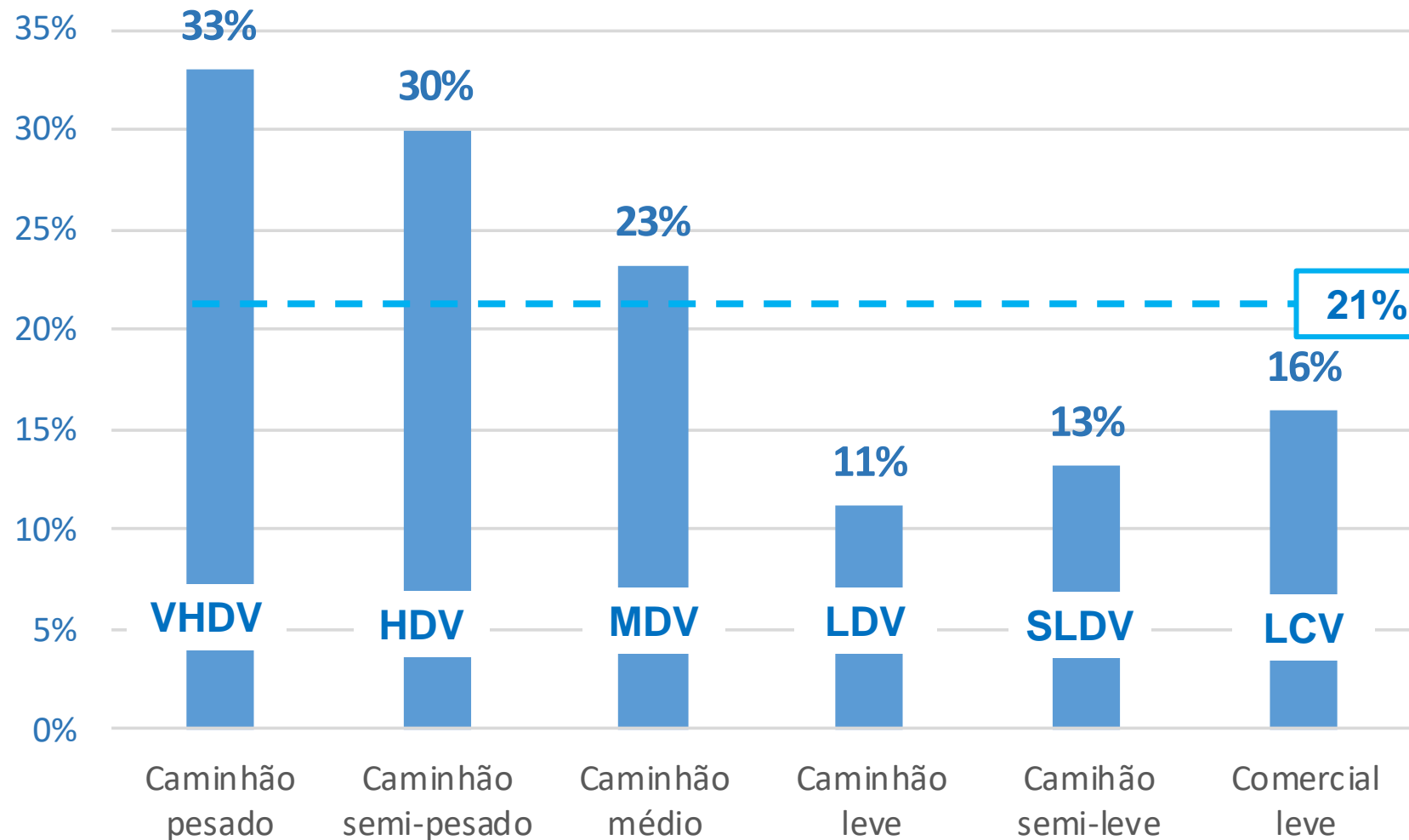








## PESO DO CUSTO DO DIESEL NO CUSTO OPERACIONAL TOTAL



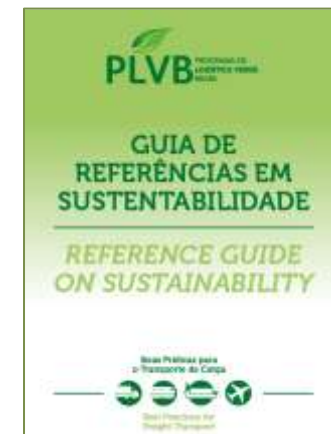
Semi-Light Truck ( $3,5t \leq \text{TGW} < 6t$ )

Light Truck ( $6t \leq \text{TGW} < 10t$ )

MDV ( $10 \leq \text{TGW} < 15t$ )

HDV ( $15 \leq \text{TGW} < 40t$ )

VHDV ( $40 \leq \text{TGW}$ )

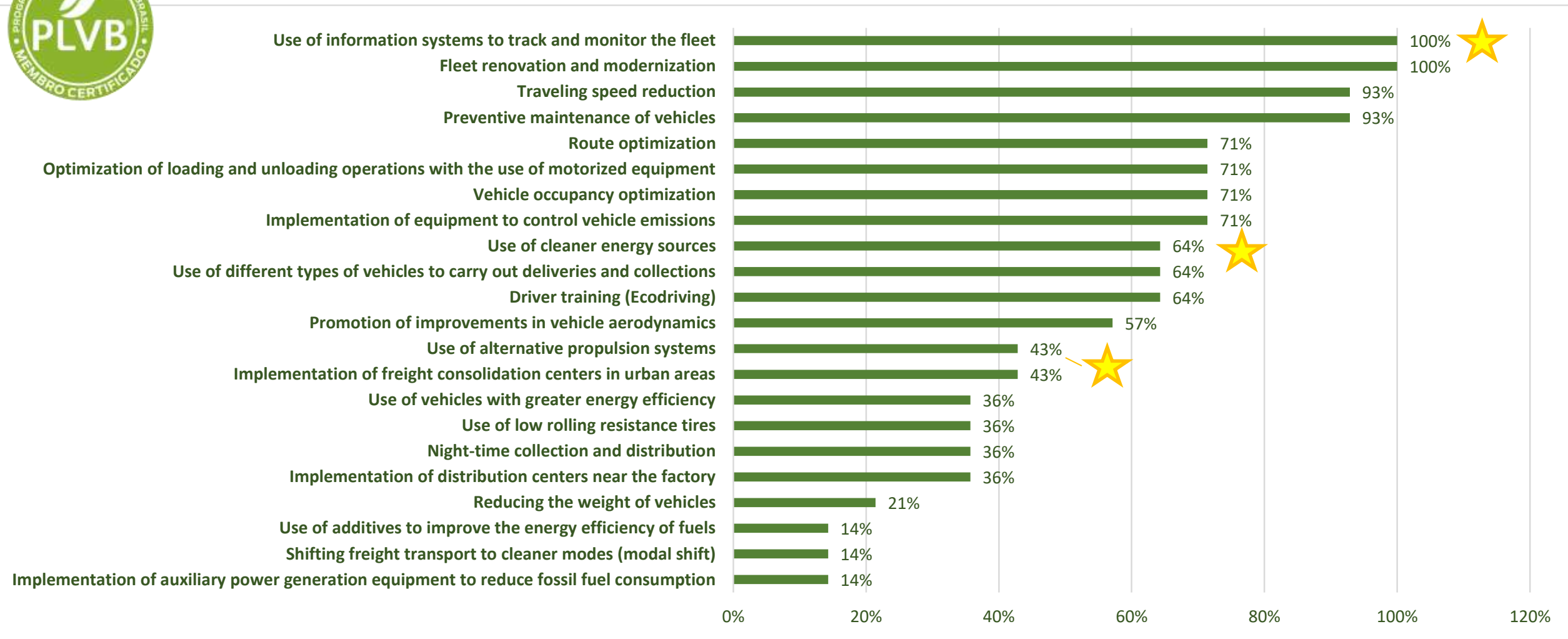




# CONTRIBUTIONS



## Summary of Best Practices & Results (Carriers)







# CONTRIBUTIONS



## Summary of Best Practices & Results (Shippers)

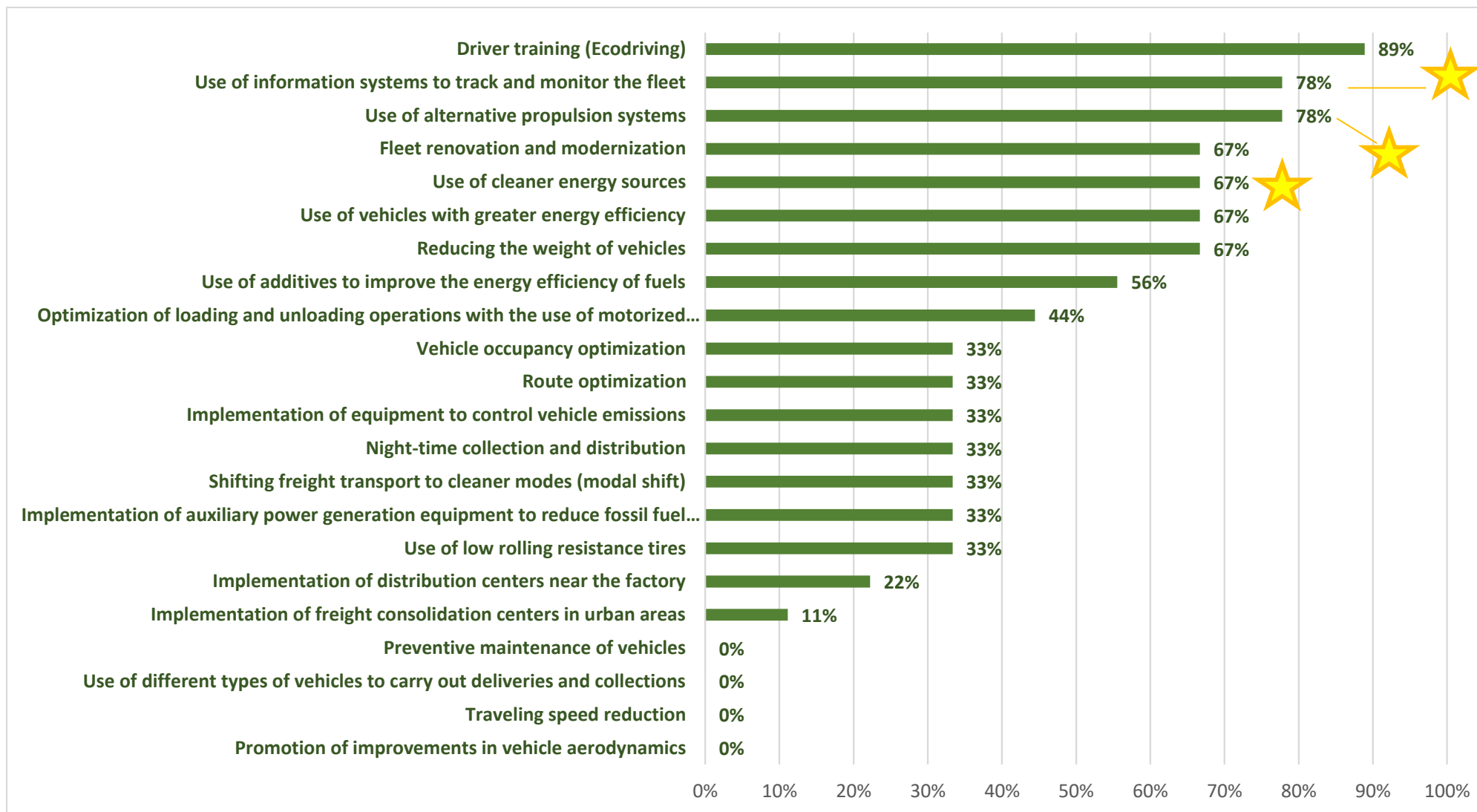


Figura 3: Representação gráfica da matriz de Análise SWOT.  
*Figure 3: Graphical representation of the SWOT Analysis matrix.*





# CASE STUDIES

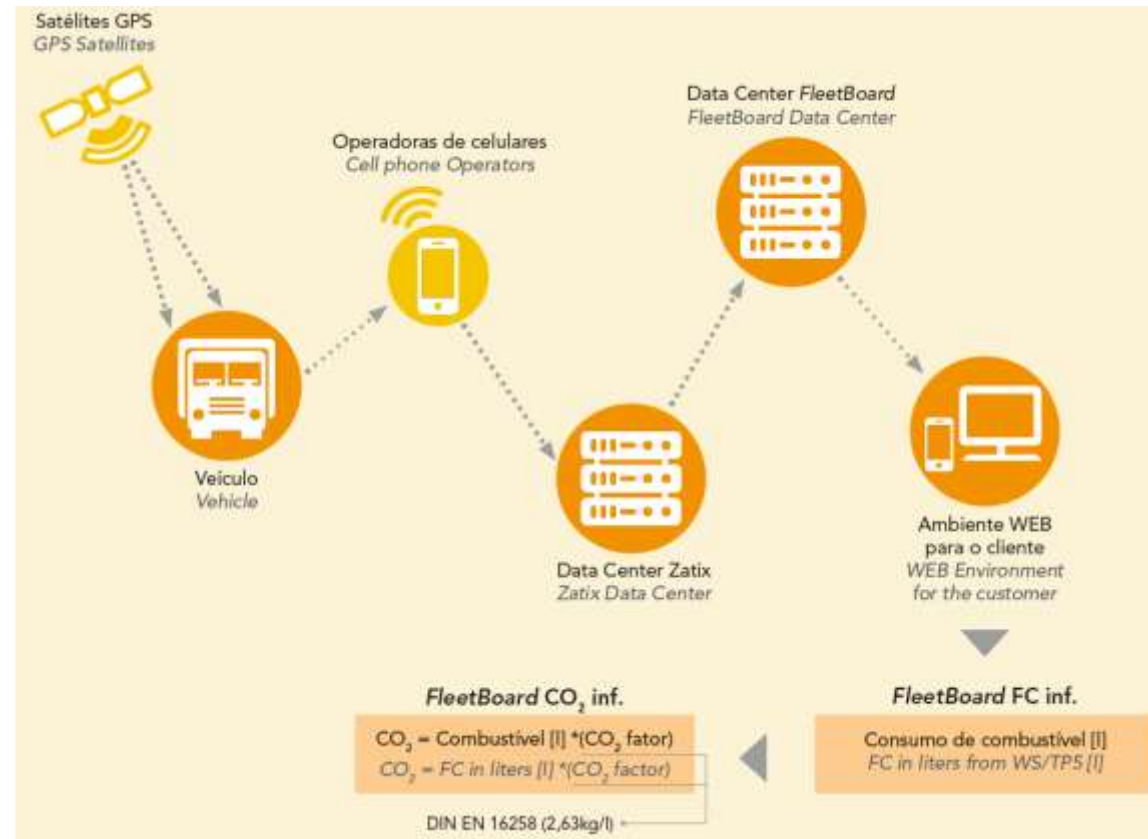


## Example of Best Practices & Results

Use of information systems to track and monitor the fleet (main driver)



|   |
|---|
| Feet renovation and modernization                         |
| Use of information systems to track and monitor the fleet |
| Promotion of improvements in vehicle aerodynamics         |
| Driver training (Eco-driving)                             |



Extent:  
6 months operation

Savings:  
21% improvement  
In fuel economy  
and CO<sub>2</sub> emissions

1<sup>st</sup> Edition



# CASE STUDIES



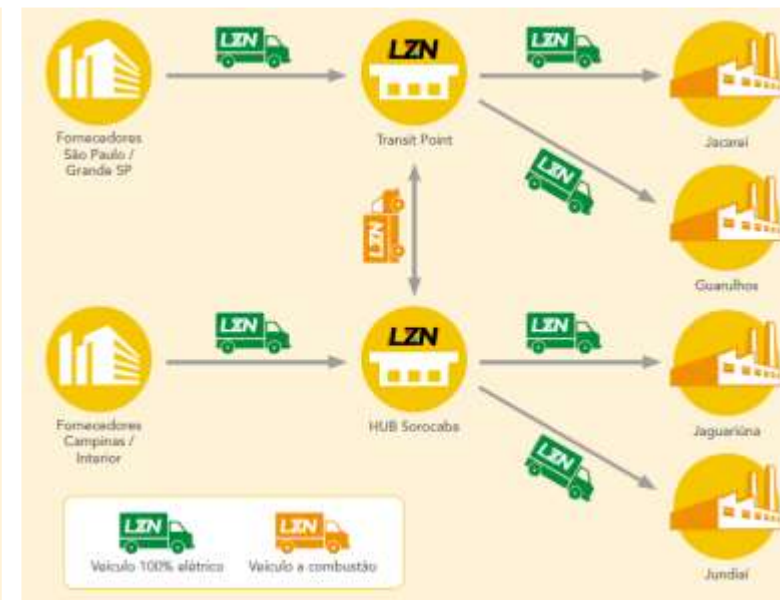
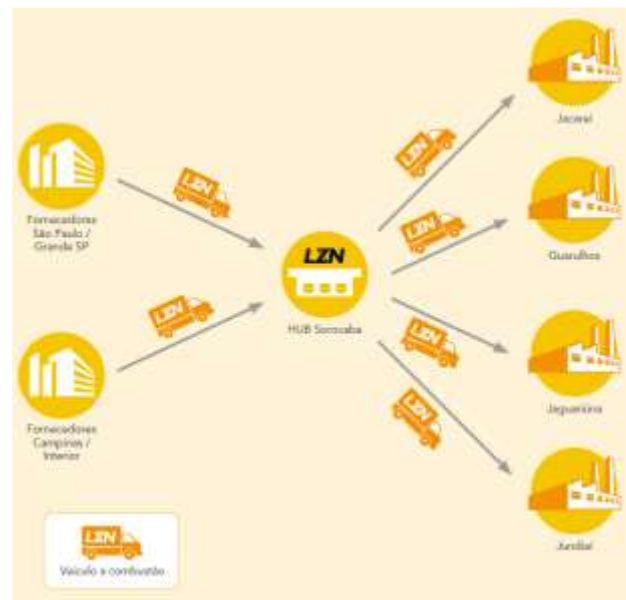
## Example of Best Practices & Results

Use of alternative propulsion systems and cleaner energy sources (main driver)

**LZN** logística



|  |
|--|
| Implementation of freight consolidation centers in urban areas |
| Use of alternative propulsion systems                          |
| Use of cleaner energy sources                                  |



Savings:  
195,000 km/year  
120 tCO<sub>2</sub>/year  
51% CO<sub>2</sub> emission

**2<sup>nd</sup> Edition**



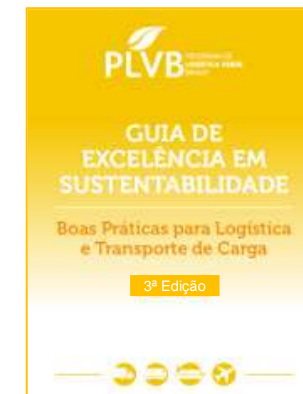


# CASE STUDIES



## Example of Best Practices & Results (Carriers) Use of cleaner energy sources

**3<sup>rd</sup> Edition**



Mileage:  
617.516 km/year  
1.350 round trips

Bled:  
30% Biomethane  
70% Methane

Savings:  
34,90% CO<sub>2</sub> emissions  
19,44% Costs



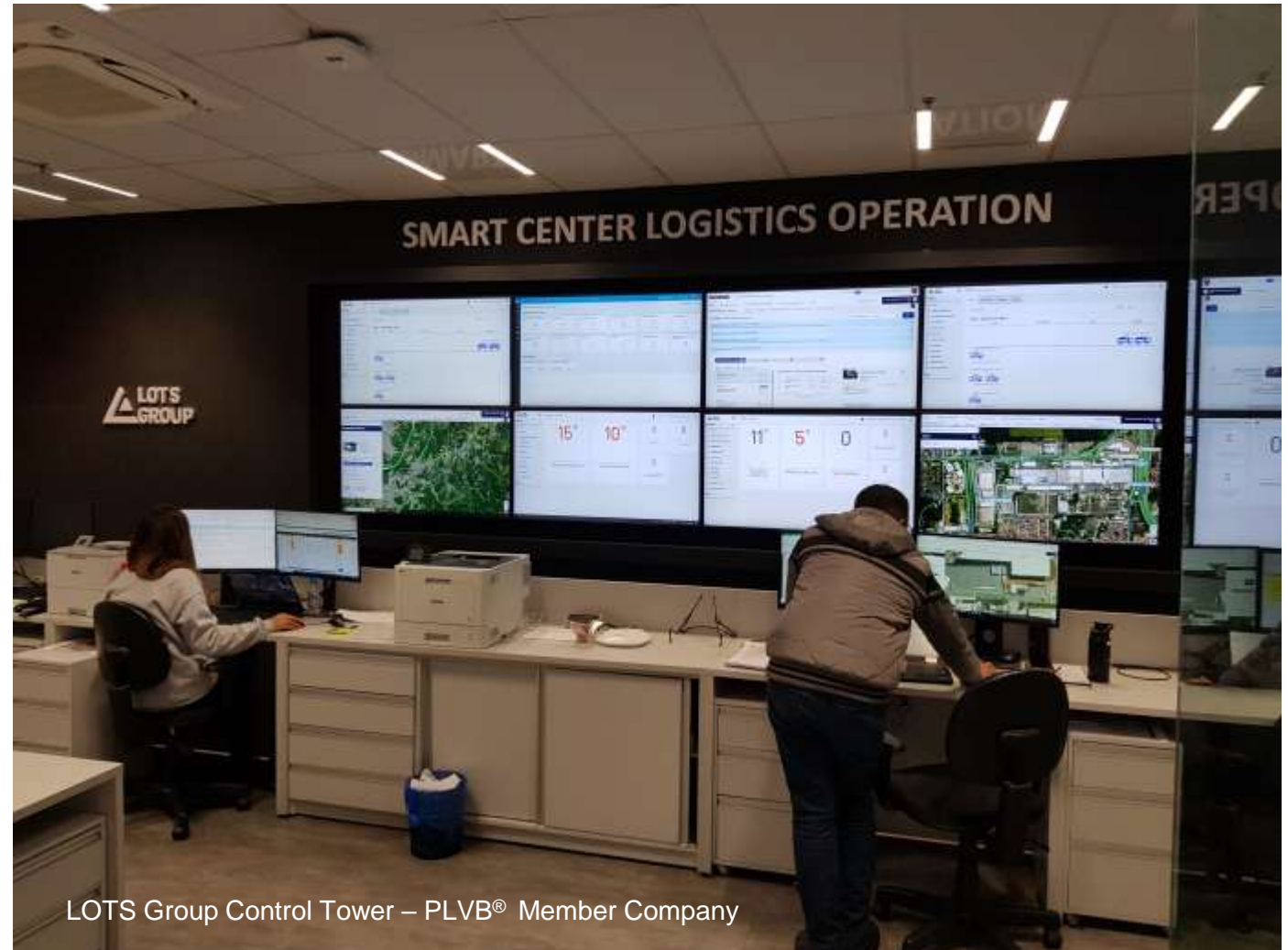
# CONTRIBUTIONS



## Summary of Best Practices & Results – Next Steps



Aline Portugal is one of the Best drivers at LOT's Group.



LOT's Group Control Tower – PLVB® Member Company





## **Strong conceptual & technical base (academy)**

Trustable information.



## **Decoding to the member company language**

Match expectations and use what is given.



## **Conquer adhesions (tetrahedron)**

Sharing roles.



## **Progressive evolution**

Step by step action plan.



# ENERGETIC & TECHNOLOGICAL TRANSITION





## ALREADY BEING USED



MHDV

Mandatory (regulated by the government since 2005)

Blend of 14% in volume in low-Sulphur diesel (fossil) S10 B14  
S10 B15 in 2026.

BIODIESEL



CNG



BIOMETHANE

LDV & MHDV

Compressed Natural Gas (CNG) - 90% methane

Biomethane – 95% methane from biogas

2005 to 2010: introduction – since 2011: growth



ETHANOL

LDV & MDV

Mandatory (regulated by the government since 1970)

Blend of 27% in volume in gasoline (fossil)

Use in flexible-fuel vehicles

## TO BE INTRODUCED



HVO

MHDV (Drop-in)

Infrastructure set-up

Middle term (5 to 10 years)



Synfuel

MHDV (Drop-in)

Research stage

Long term (10 to 20 years)



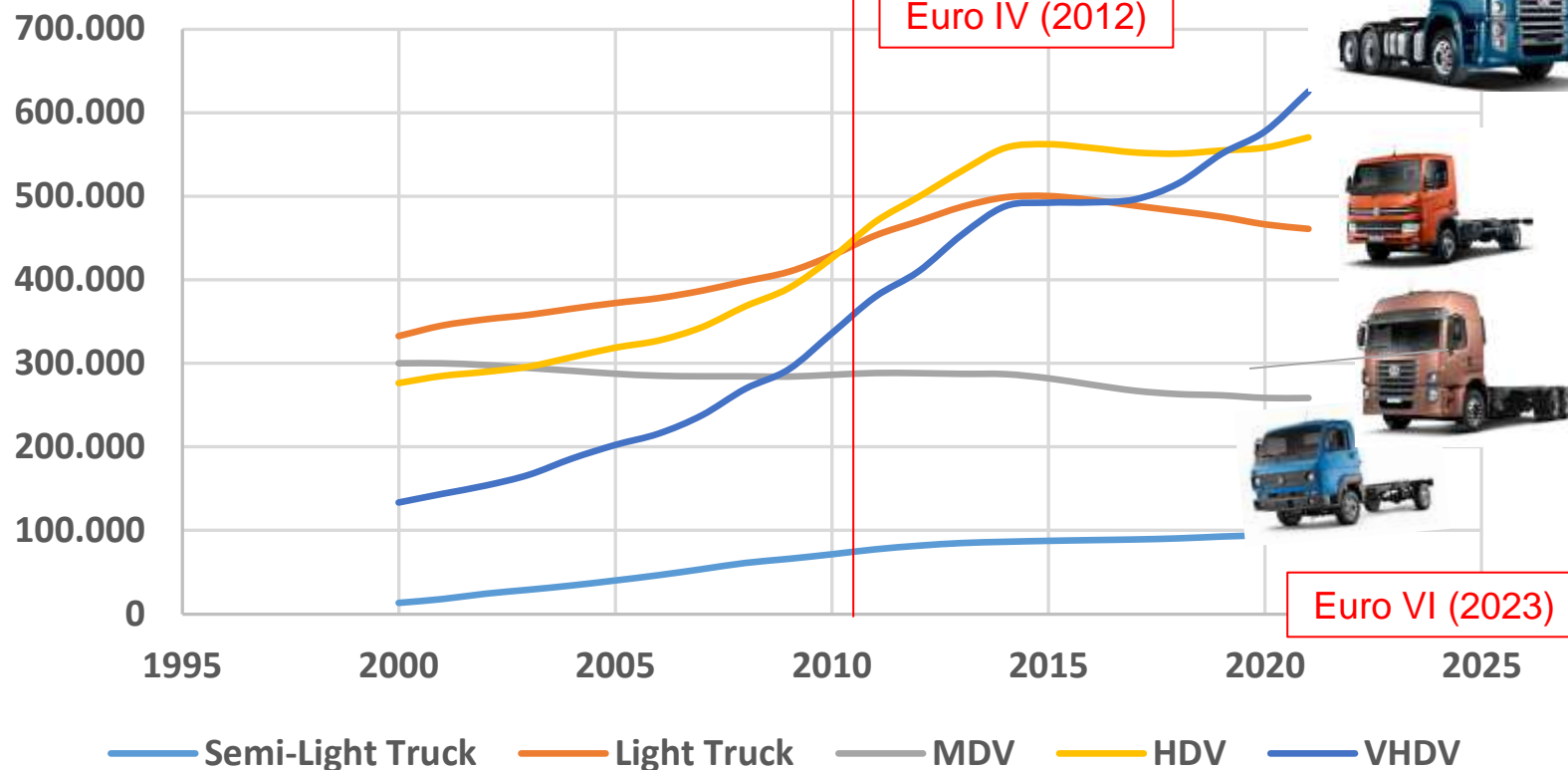
H2V

MHDV

Research stage

Long term (20 to 30 years)

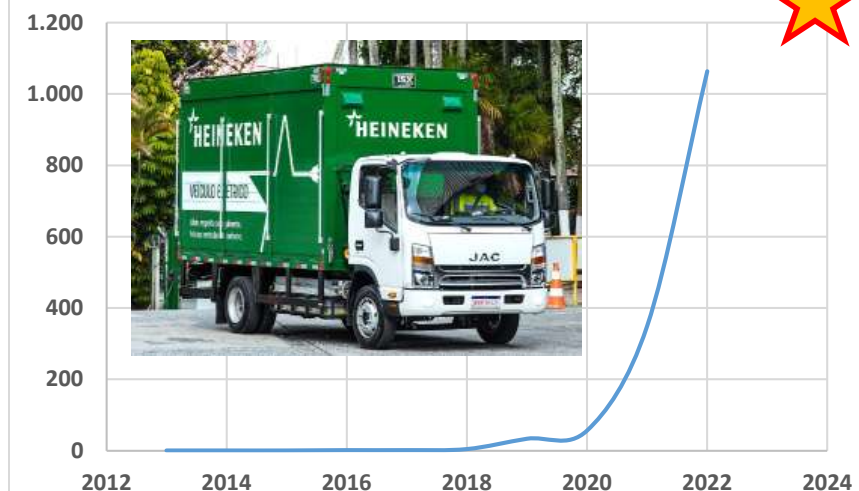
## Truck Fleet Evolution (Diesel S10 B12)



## CNG & Biomethane HDV



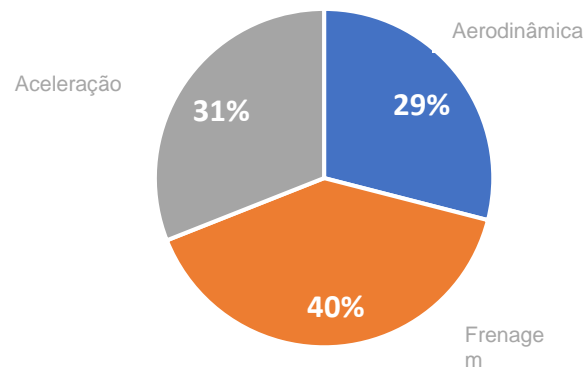
## Eletric Light Trucks



|  |
|--|
| Semi-Light Truck ( $3,5t \leq \text{TGW} < 6t$ ) |
| Light Truck ( $6t \leq \text{TGW} < 10t$ )       |
| MDV ( $10 \leq \text{TGW} < 15t$ )               |
| HDV ( $15 \leq \text{TGW} < 40t$ )               |
| VHDV ( $40 \leq \text{TGW}$ )                    |



## URBAN FREIGHT TRANSPORT



STOP & GO OPERATION – ROUTES UP TO 250 km/day

Semi light trucks fleet increased 40% in 25 years

IMPROVE ENERGY SECURITY  
REDUCE ATMOSPHERIC POLLUTION IN CITIES



# BEV TRUCKS, WHERE TO USE IT?



Distribuição de bebidas



Coleta de lixo



Distribuição de comidas



Entrega e encomendas



Varejo



e objetos de valor





BIODIESEL

- ✔ S10 B14 is blended at fuel suppliers.
- ✔ Distribution all over the country
- ✔ Biodiesel (FAME) produced from soy bean oil (most of it), cotton oil and beef tallow.



CNG



BIOMETHANE

- ✔ CNG distributed mostly near the coast (Southeast and South Regions)
- ✔ CNG high flow refueling dispenser at “gas stations” – refueling in less than 20 min (very few).
- ✔ Biomethane from landfills, sewage treatment station & biomass (agriculture and livestock).



## **Long haul (1,000 to 2,000): S10 B15 + HVO**

Most start HVO production infrastructure



## **CNG & Biomethane (FTL, 200 to 500 km/trip)**

Most consider high flow refueling dispenser



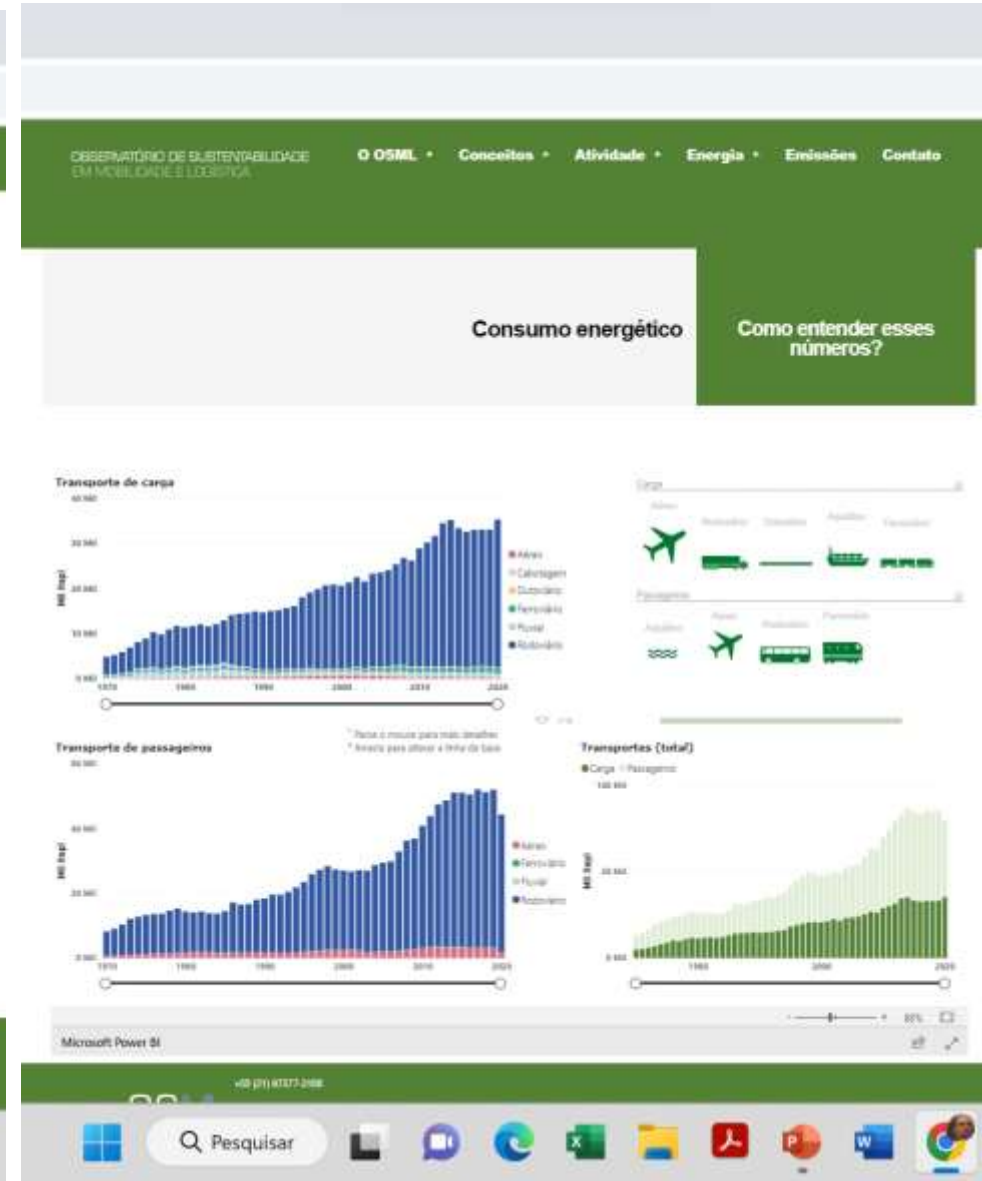
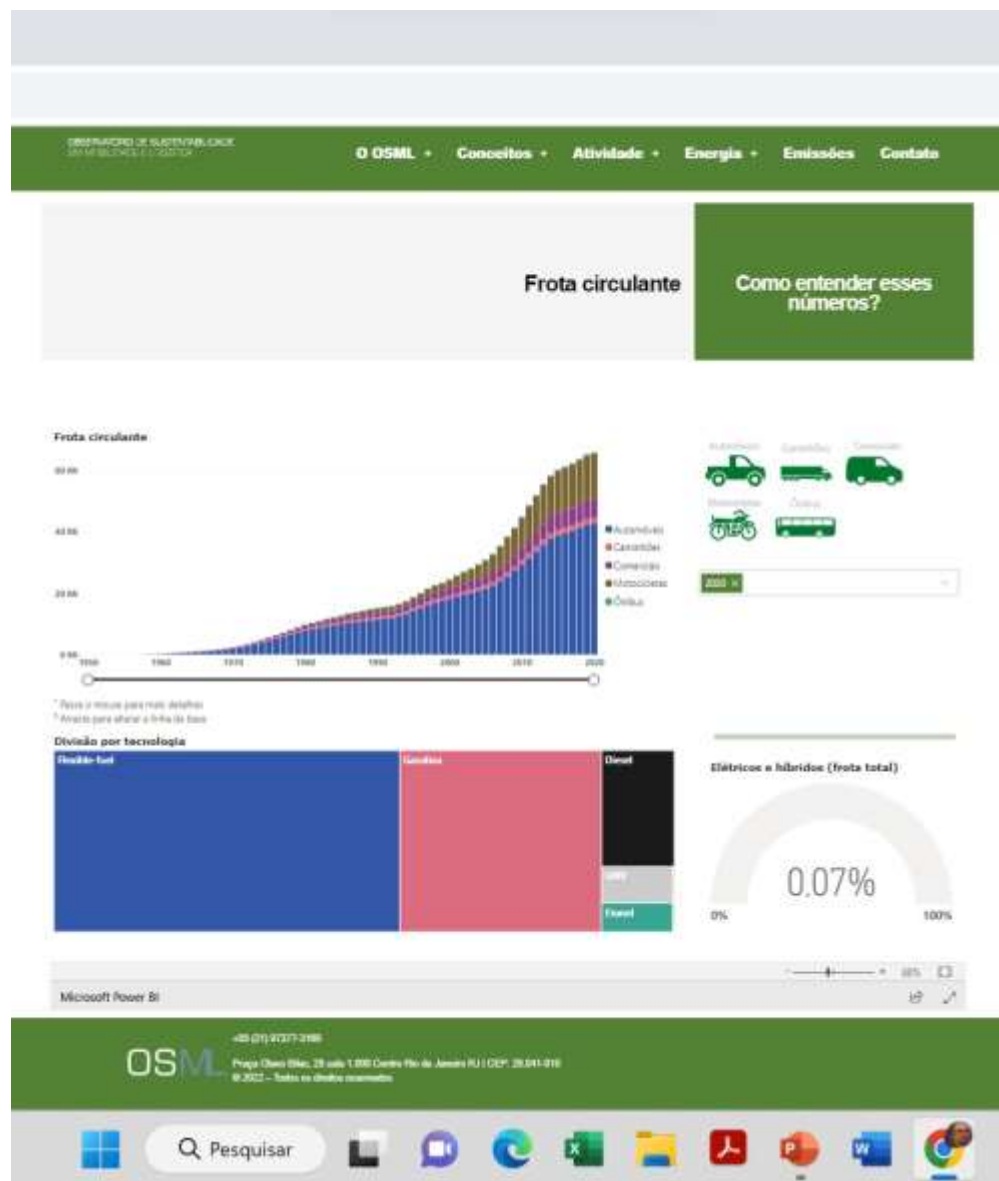
## **Electric trucks (LTL, urban freight transport)**

“Sun to Wheel” solution



## **Synfuel & H2V – to be developed**

Step by step action plan.





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