



11th



Technical Session 1 Public Transport Options for Small and Medium Cities

Light Rail Transit Project
Rio de Janeiro

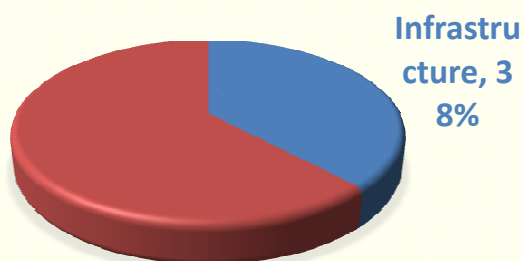
Anie Amicci
Urban Mobility Manager
Brazilian Development Bank (BNDES)



1. Brazilian and German Development Banks 50 year cooperation



- Disbursement 2017: R\$ 70.800 M (US\$ 19.400 M)



- Profit 2017: R\$ 6.200 M (US\$ 1.700 M)



Bank aus Verantwortung

- ›Promotional bank of Germany, Established in 1948
- ›Headquarters: Frankfurt am Main
- ›About 80 offices and representations worldwide
- ›Financing Volume KfW Group: EUR 75.4 billion
- ›Financing Volume KfW Development Bank: EUR 8.2 billion
- ›AAA rated by all Rating Agencies

Implementing Indo-German Financial Cooperation



A history of

60
years

Projects under
implementation

EUR
3.6 bn.

Current annual
commitments

EUR
1.0 bn.

Urban mobility projects with climate impact (↓CO₂)
2015- € 265 M (R\$ 1.000 M)

1. KfW Development Bank: Indo – German cooperation in Urban Mobility



Urban Mobility

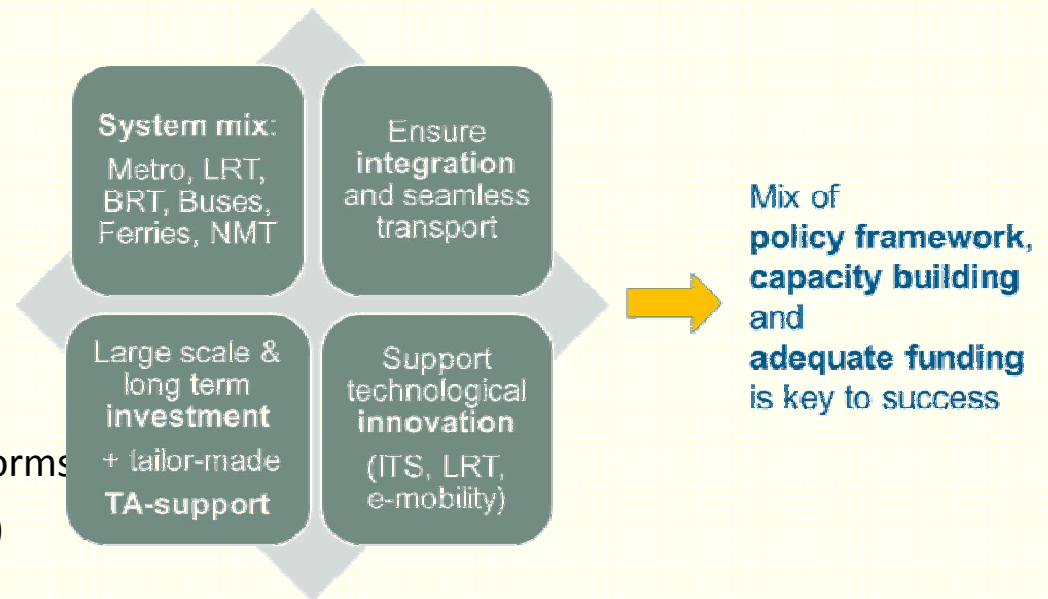
Ongoing projects: € 585 M

- Integrated Water Transport, Kochi (€ 85 M)
- Nagpur Metro Rail (€ 500 M)

Pipeline: ~ € 1,200 M

- NMT & smart streets
- Metro Corridor Accessibility
- Modernization of Bus Systems & Sector Reforms
- Mass Rapid Transit System (Metro, LRT, BRT)
- E-Mobility

Our approach: Holistic mobility solutions



KfW in India: Urban mobility projects with climate impact (\downarrow CO₂)

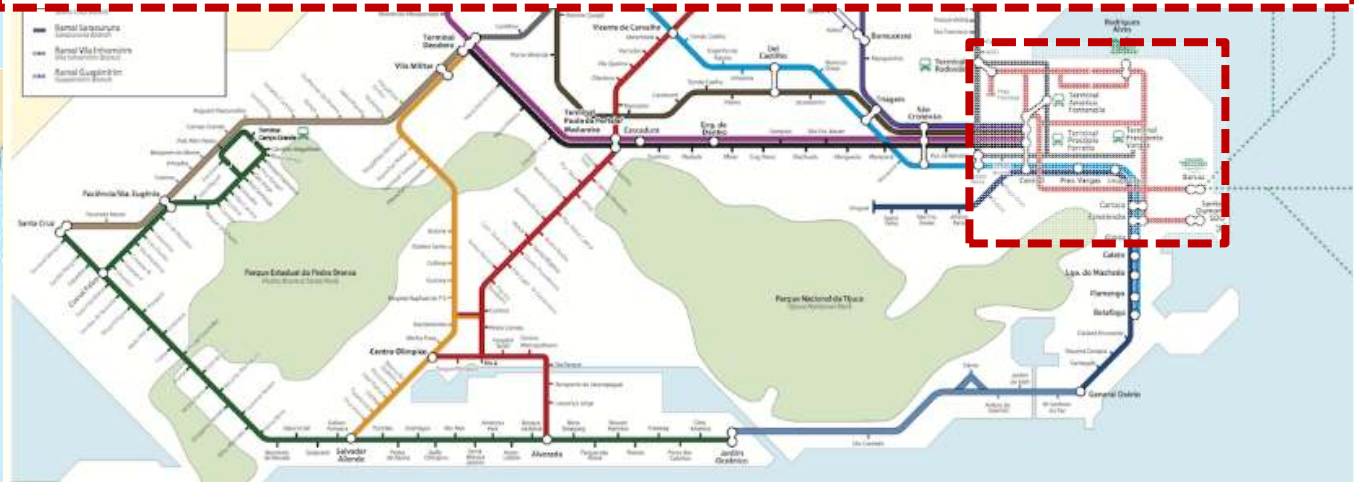
2. Light Rail Transit Project in Rio de Janeiro - the city



2nd largest city
6,8 M inhabitants



- Port & downtown area
- < 33.000 dwellers \simeq 500.000 jobs
- + Urban renovation potential (Porto Maravilha)
- + Modal integration potential
- + Reliability
- + Noise level
- + Zero local emission



2. Light Rail Transit Project in Rio de Janeiro - the Project

- Intermodal integration
- Port area ↔ downtown*
- 12 km tracks (1,3 u.c.)
- 29 stations (3 u.c.)
- 3 lines (1 u.c.)
- No above ground wires/APS*
- Operation at grade*
- Priority in traffic*
- No turnstiles*
- Zero local emissions + GHG ↓



Long distance Bus Station
50.000 pax/day

Ferry Terminal
73.000 pax/day

SDU Airport
9 M pax/year



Local Bus Terminal



Central Station: Metro + Train + Bus
(1.5 M pax/day)

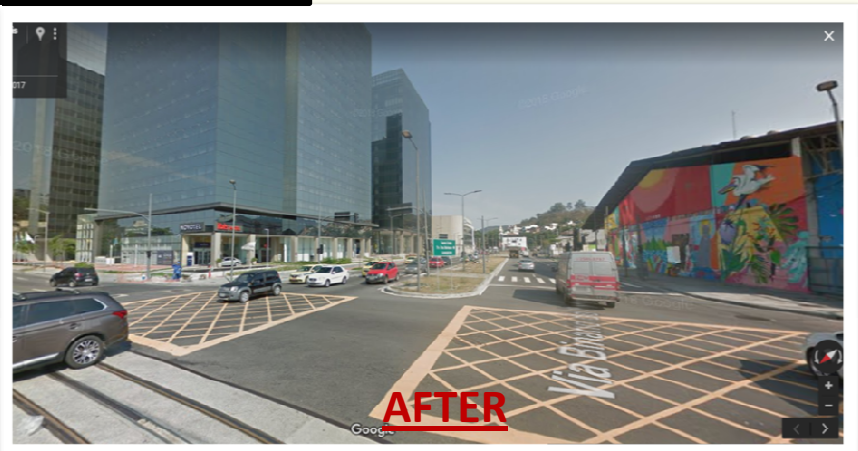


2 metro stations
860.000 pax/day (system)

Perimetral flyover/Museums square



Prof. Pereira Reis Ave. (Port area) 2010 - 2017



Utilities & Archeological findings



Car culture

O centro do Rio virou o pesadelo dos motoristas. Como isso aconteceu? [↻ 23](#)

Gustavo Maia
Do UOL, no Rio 03/12/2014 | 12h00

Downtown Rio became a nightmare for drivers. How does that happen?

UOL/2014

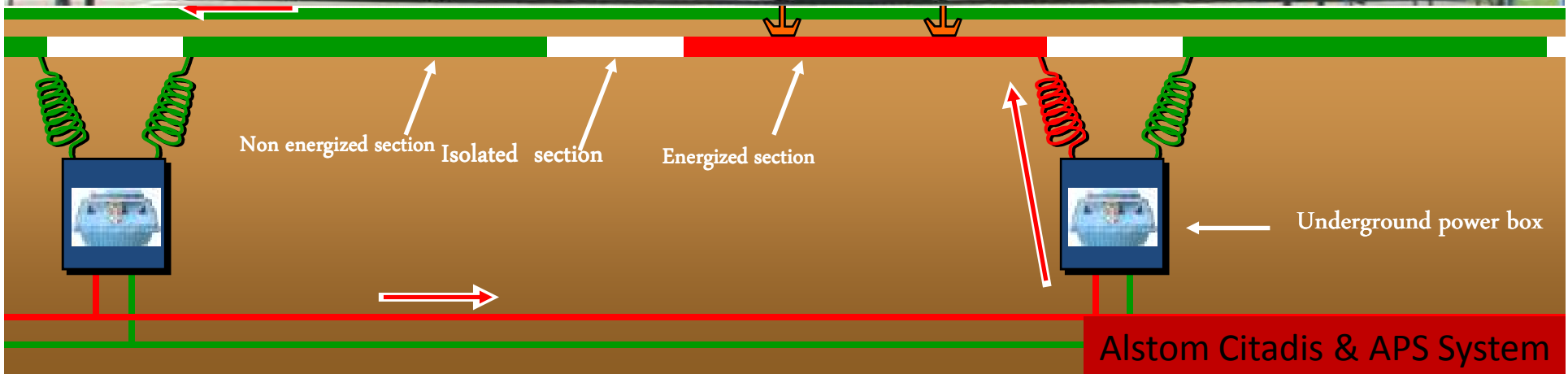


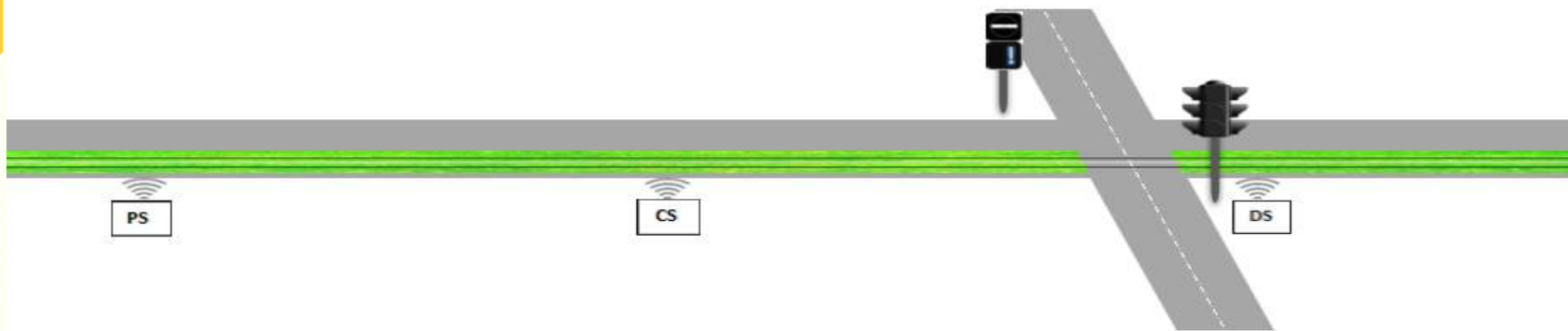


Rio Branco / Almirante Barroso
Downtown / 2017



- 44 m (7 modules)
- 420 pass
- 50 km/h max. speed
- 18 km/h average speed
- APS/ Supercapacitors
- 7 min. headway (3,5 min. Dec/18)
- 6 a.m. to midnight





PS – Proximity Sensor
CS – Confirmation Sensor
DS – Deliverance Sensor

Priority at traffic signals Security measures





Open stations

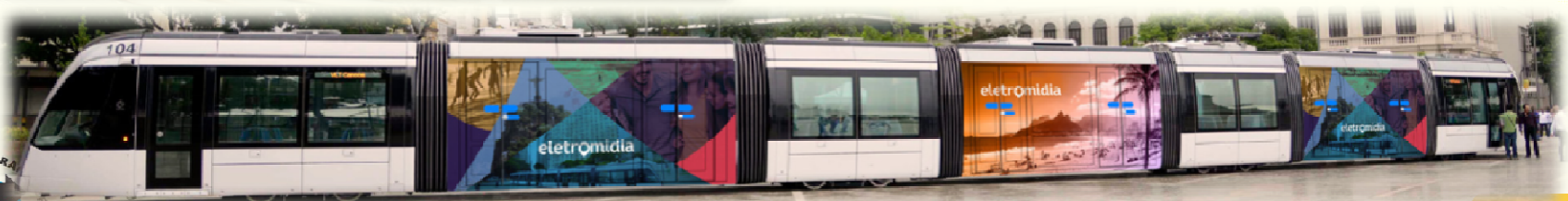


**12% evasion
Penalty Fare
evasion:
R\$ 170 (US\$ 46)**



Real time info

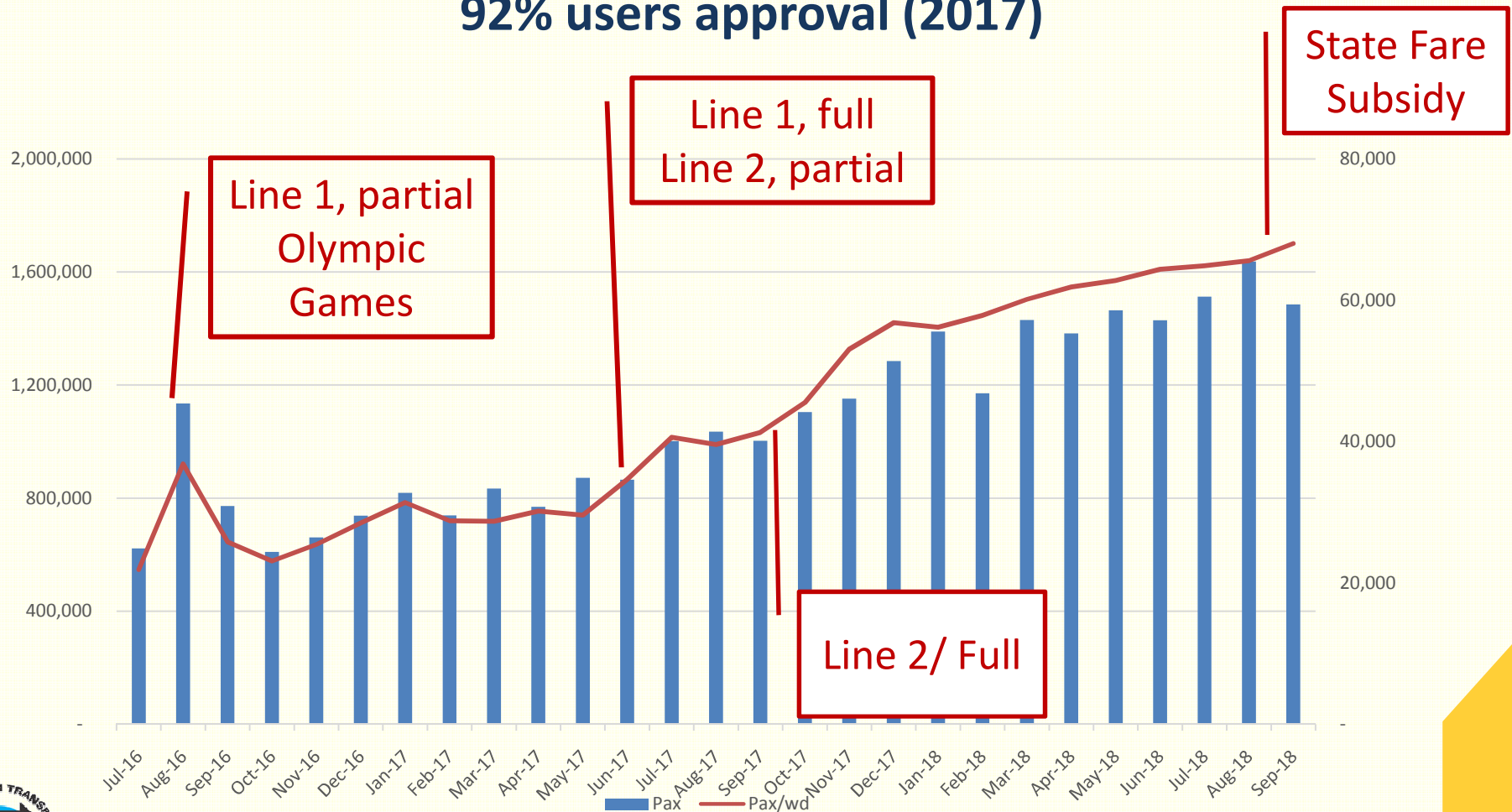
Non fare revenues



68.000 pax/average working day (Sep. 2018)
 300.000 pax/w.d. (expected when fully operational)

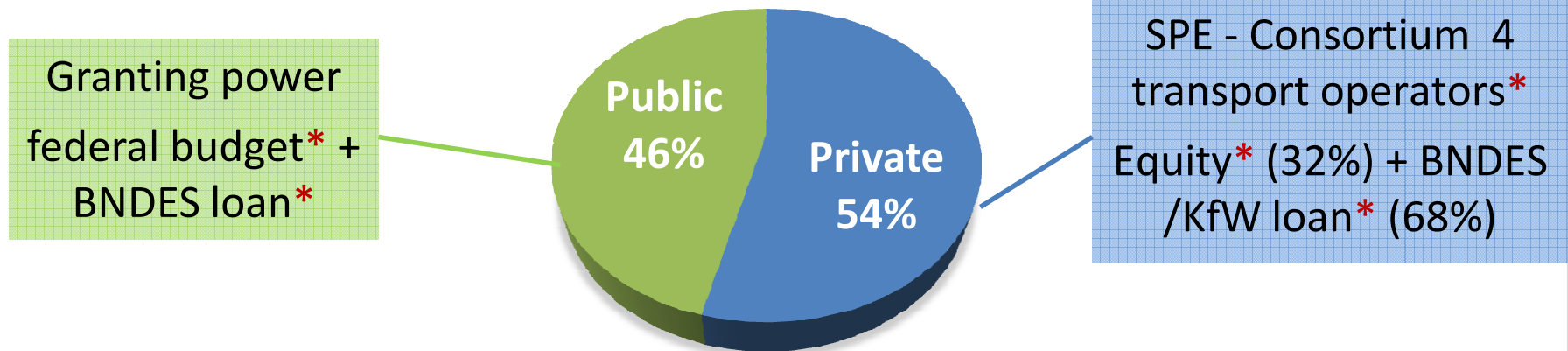
3,8 tons CO₂ avoided (2017)

92% users approval (2017)



3. BNDES and KfW joint financial support

Implementation (R\$ 2.000 M – US\$ 549 M)



Operation

- + Monthly payments/municipality (75%-25% revenues):
fixed + variable (shared demand risk)
- + Fare revenues and non fare revenues (publicity)

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 Urban Mobility India
Conference & Expo 2018



KFW

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