

ZEBRA Partnership

Zero Emission Bus Rapid-Deployment Accelerator

Innovative business models to accelerate e-bus deployments

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C40
CITIES

Supporting Partners



Agenda

Presentation Goal:

Introduce the ZEBRA Partnership and showcase the main business models being adopted in Latin American cities to accelerate e-bus deployments

01. THE ZEBRA PARTNERSHIP

Vision and goals of the “Zero Emission Bus Rapid-deployment Accelerator” (ZEBRA) Partnership in Latin America

02. INNOVATIVE BUSINESS MODELS

How are innovative business models making e-bus a reality in Latin American cities?



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01.

THE ZEBRA PARTNERSHIP

Vision and goals of the “Zero
Emission Bus Rapid-
deployment Accelerator”
(ZEBRA) Partnership in Latin
America





Shift all new bus procurements in leading Latin American cities to zero-emission technologies



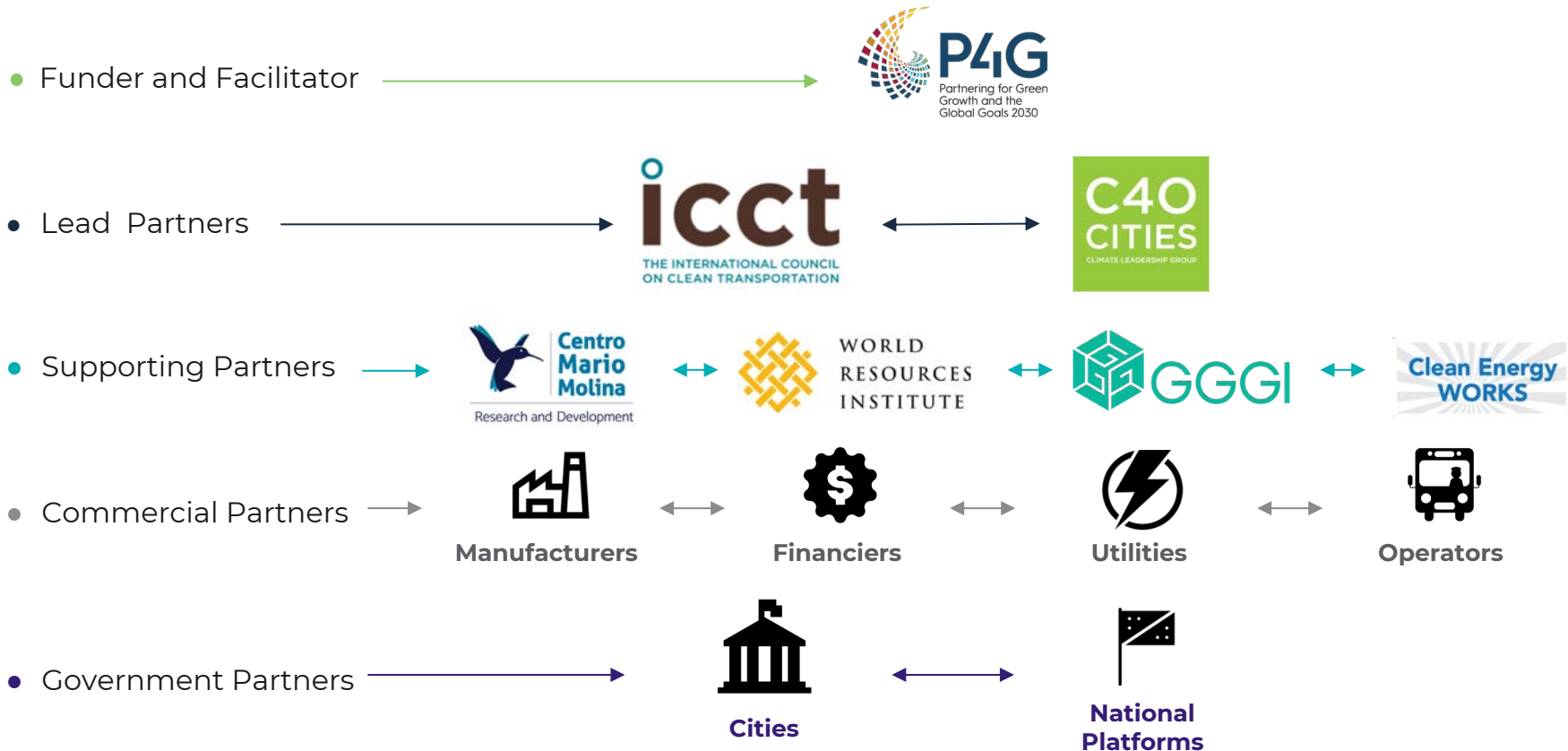
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Overview of Engaged Partners



ZEBRA Summary of Approach

3,600 e-buses in core and catalytic cities, worth 1.6 bi USD of investment



- Guarantee **political commitment** and develop **fleet-wide deployment strategies** in leading Latin American cities (Medellín, Mexico City, Santiago, São Paulo).
- Support the **establishment of a procurement pipeline of over 3,600 e-buses** in the region.

- Increase **market competition** and **product availability**.
- Establish **ZEBRA industry guidelines**.
- Monitor **real world performance** data.
- Engage **utility sector** to ensure charging infrastructure delivery.

- Secure **public commitments from leading investors** to send clear market signal.
- Establish context-specific **financial mechanisms** for zero emission bus assets worth over \$1.6 bi USD.
- Design streamlined process for **mobilisation of project preparation funding**.

- Host **annual showcase event**.
- Facilitate **knowledge transfer across cities**.
- Showcase **e-bus deployments** in the region.
- Deliver **training on best practices** to utilities and financiers.



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Finance

Goals:

- Secure **public commitments** from leading investors to send clear market signal.
- Establish **context-specific financial mechanisms** for zero emission bus assets worth over \$1bi USD.

Activities:

- **Investor Engagement:** Engage investors leading deals in Latin American cities and establish **Investors Working Group**
- Develop **business models** and **guarantees**
- Gather **costs, finance and lease conditions.**
- **Model TCO and IRR** for different options.

Support Partners



Capital providers

Asset owners



Virtual event to announce commitments by investors and manufacturers (10/12/2020)
 Registration link: bit.ly/anuncio-zebra



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02.

INNOVATIVE BUSINESS MODELS

How are innovative business models making e-bus a reality in Latin American cities?

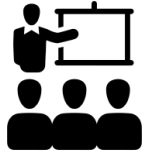


The challenges to e-bus deployment

Traditional transit models present significant risk around E-Bus procurement



High capital costs



Local expertise



Technology risk



Operational risk



Budget for charging infrastructure



Public procurement delays

Electric buses have high upfront costs

Lack of data on E-Bus reliability

Uncertainty around battery life

Municipalities don't always have technical expertise

Uncertainty around range and ability to meet operational requirements

Lengthy public procurement vs aggressive municipal targets

Unclear responsibilities for charging infrastructure



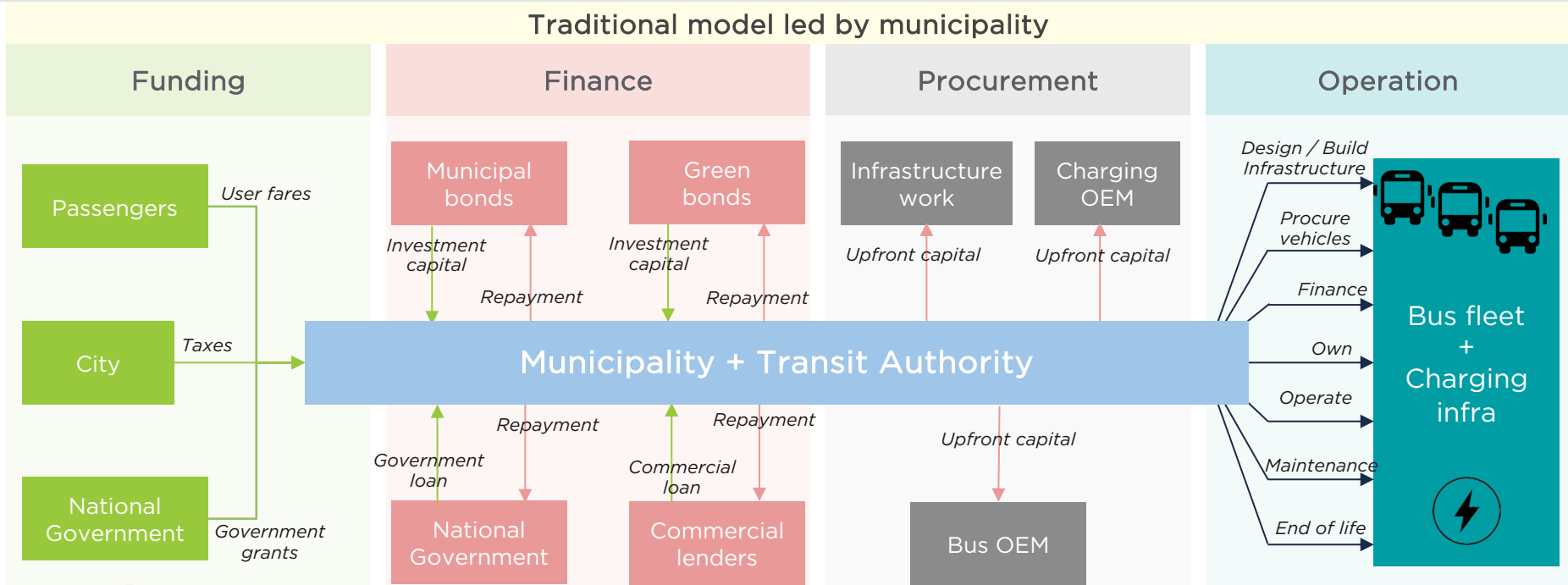
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The challenges to e-bus deployment

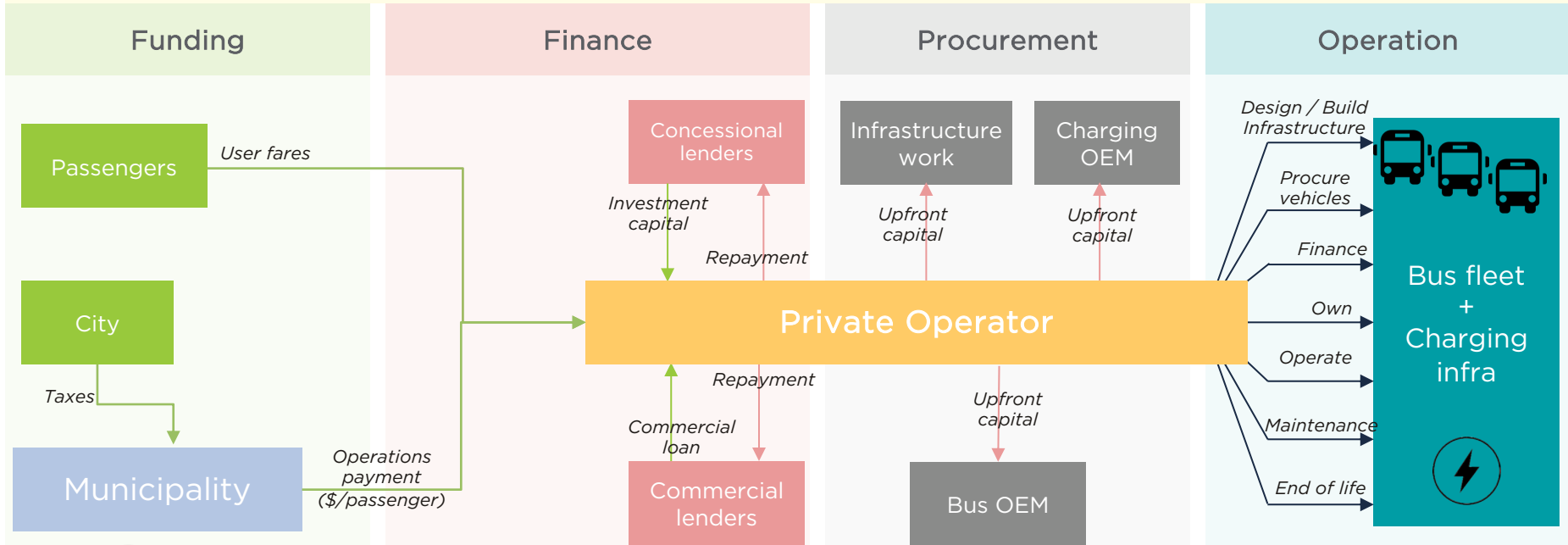
Traditional transit models rely on municipal authorities in all areas



The challenges to e-bus deployment

Traditional transit models rely on municipal authorities in all areas

Traditional model led by private operators



Examples of traditional business model for e-buses



Sociedad de Transporte Mendoza



Barbados Transport Board



Metroplús, Medellín



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Unfavorable risk allocation

Traditional transit models concentrate risk on the owner of the fleet

Municipality / Operator

Capital providers

Manufacturers



Over-indebtedness - Strain on capital budgets - Interest payment - Foreign currency

Low risk

Low risk



Lack of fare revenues due to fluctuating passenger demand and taxes

Default (low risk)



Battery life expectancy - Range degradation

Traditional OEM warranties



Ability to meet service requirements - Reliability of equipment - Operational performance

Depends on contract



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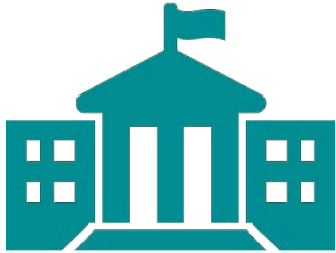
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Unfavorable risk allocation

Municipalities and operators are not well-equipped to manage e-bus risk

Municipality



Over-indebtment

Capital budgets under pressure

Credit rating



Operator



Small size

Governance issues

Lack of transparency

Difficult access to capital



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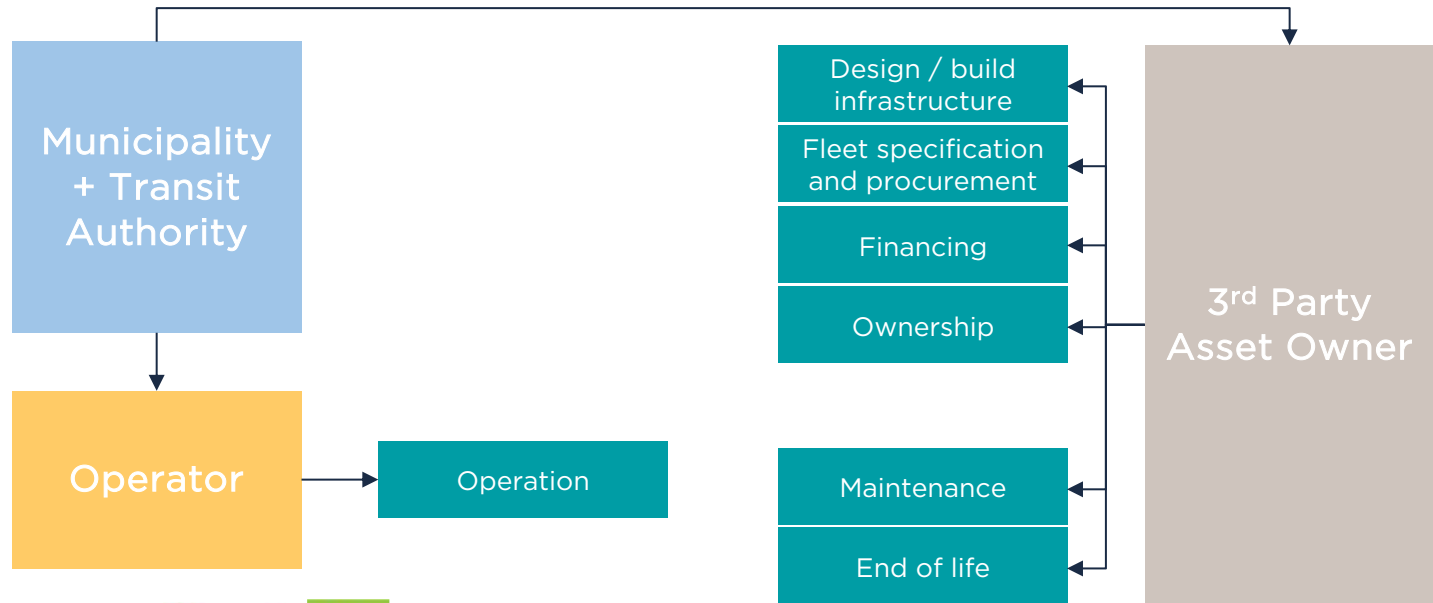
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Proposing alternative transit models

Alternative transit models can involve third parties to share responsibilities

Separating (unbundling) asset ownership from operation



A better allocation of risk

Alternative models can better distribute risk between parties

Municipality / Operator

Asset owner

Manufacturers



Financial

Affordability

Indebtmnt - Municipal credit worthiness - Project bankability - Foreign currency

Low risk



Demand

Lack of fare revenues due to fluctuating passenger demand and taxes

Depends on payment structure



Technology

Low risk

Battery life expectancy - Range degradation

More robust OEM warranties



Availability

Low to medium risk

Ability to meet service requirements - Reliability of equipment - Operational performance

Depends on contract



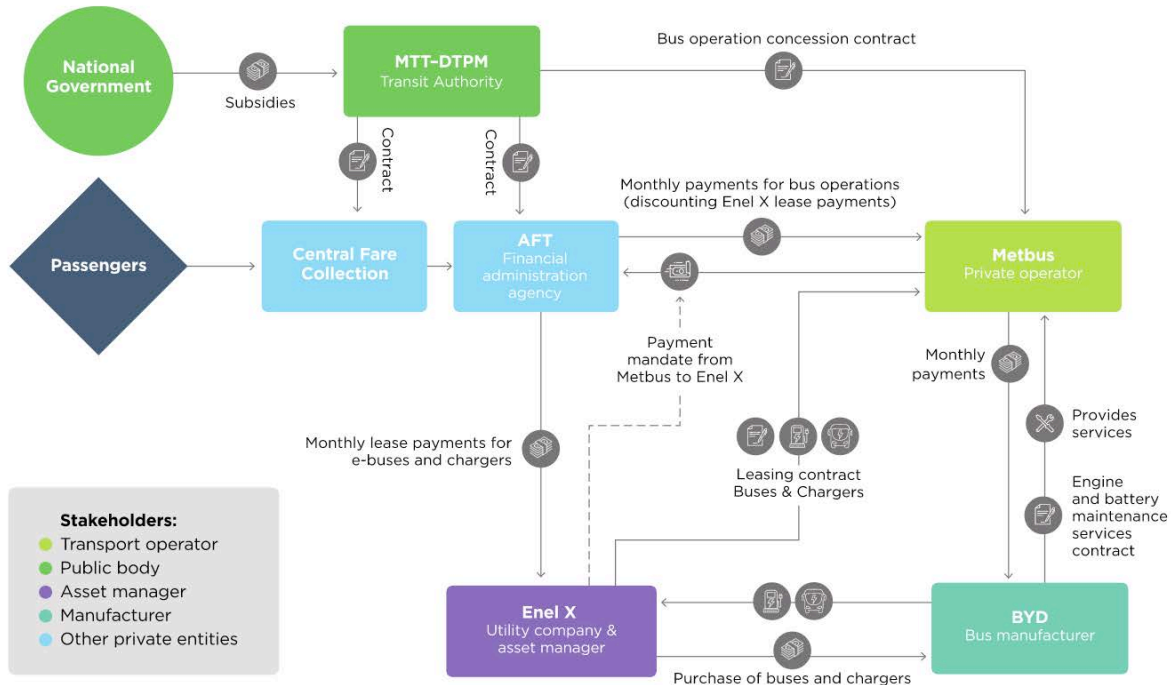
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Separation of asset ownership: Metbus in Santiago



Metbus, Santiago



An example being replicated across the region



Transmilenio, Bogotá



Metrobús, Mexico City



MIO, Cali

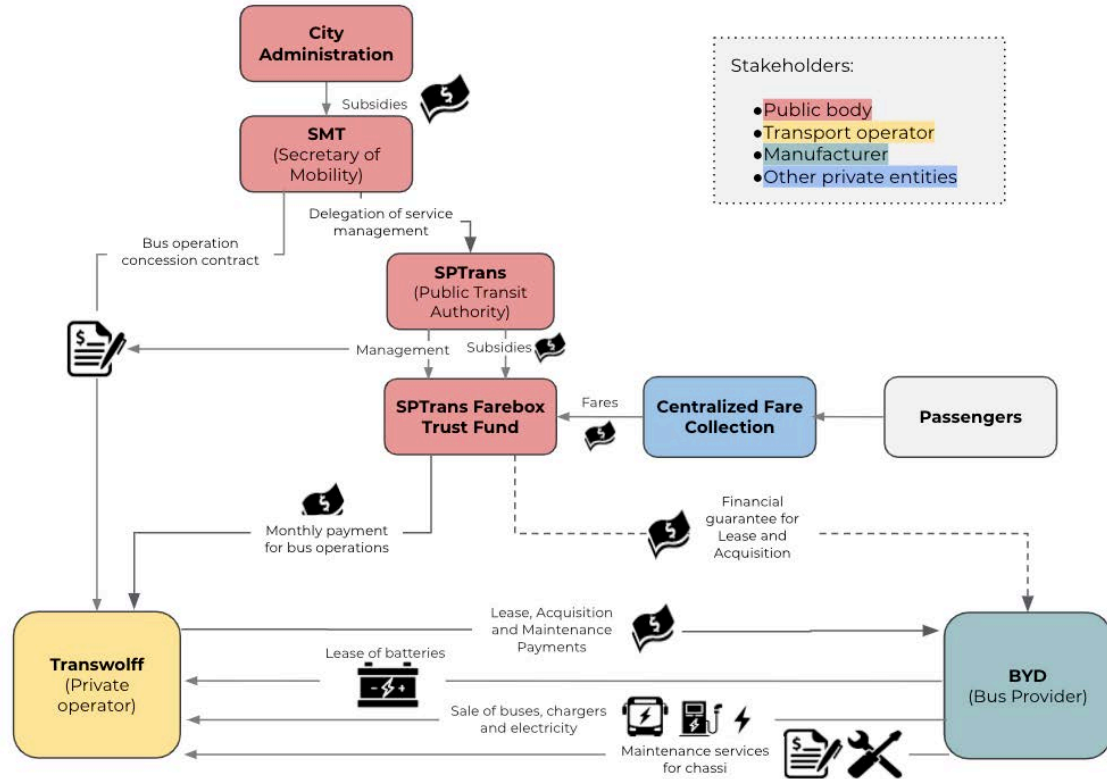


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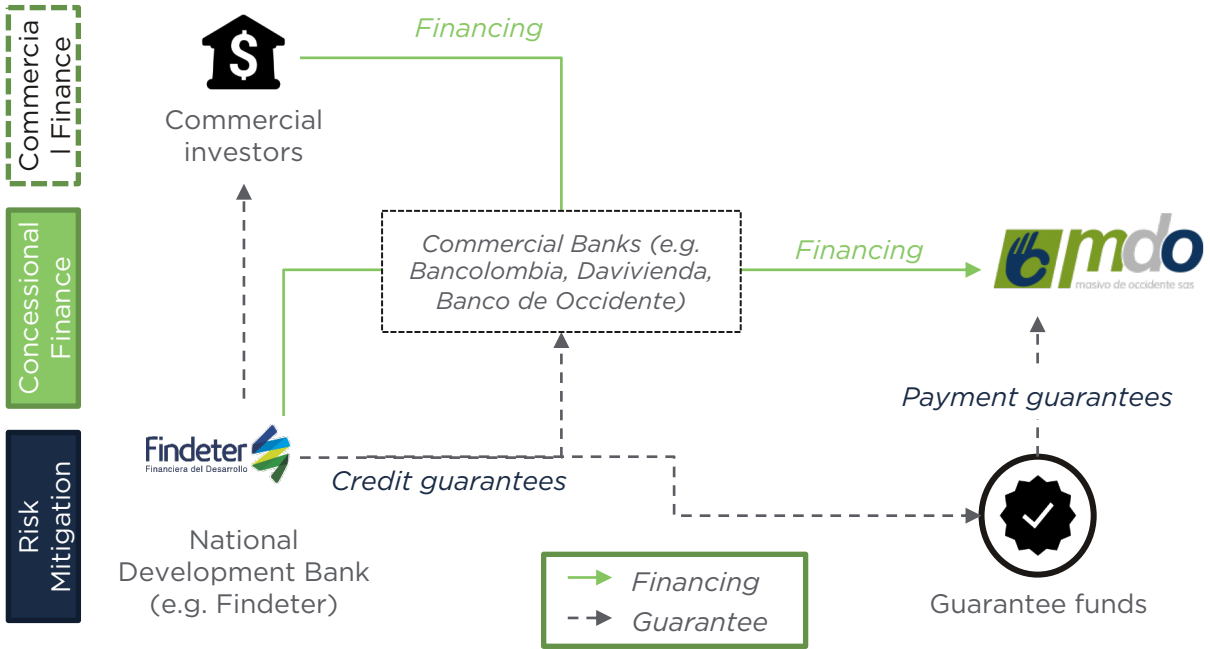
Separation of bus and battery ownership: São Paulo



Transwoff, São Paulo



Concessional finance: Masivo de Occidente in Medellín



Masivo de Occidente, Medellín



Other examples: national subsidies in Uruguay

Proyecto Movés:

- Coordinated effort of several national ministries
- Covering price difference between diesel and electric buses (including chargers)
- To be repaid in 7 years
- Integration with clean energy supply (97% renewables)
- Aiming to fund 100 e-buses (currently 33)
- Funded through GEF



Sistema de Transporte Metropolitano, Montevideo



Key Takeaways and call to action

Alternative transit models can help cities accelerate the transition to e-mobility

- 1 There is more than one way to procure e-bus assets
- 2 Unbundling transit models can help distribute risk
- 3 Municipalities must lead structural and institutional changes

Are there any other business models currently being developed to accelerate e-bus deployments in Latin America?



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E-Bus deployments in Latin America

www.ebusradar.org

A virtual platform to track e-bus fleets in Latin American cities and CO2 emissions saved each year

Results as of September 2020:

- Over **30 Latin American cities**
- Over **1900 e-buses**
- Over **210 CO2 kt saved per year**

Developed in collaboration with: **LABMOB**



UFRJ



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Thank you!

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Funding Agency



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Supporting Partners



03.

ANNEX

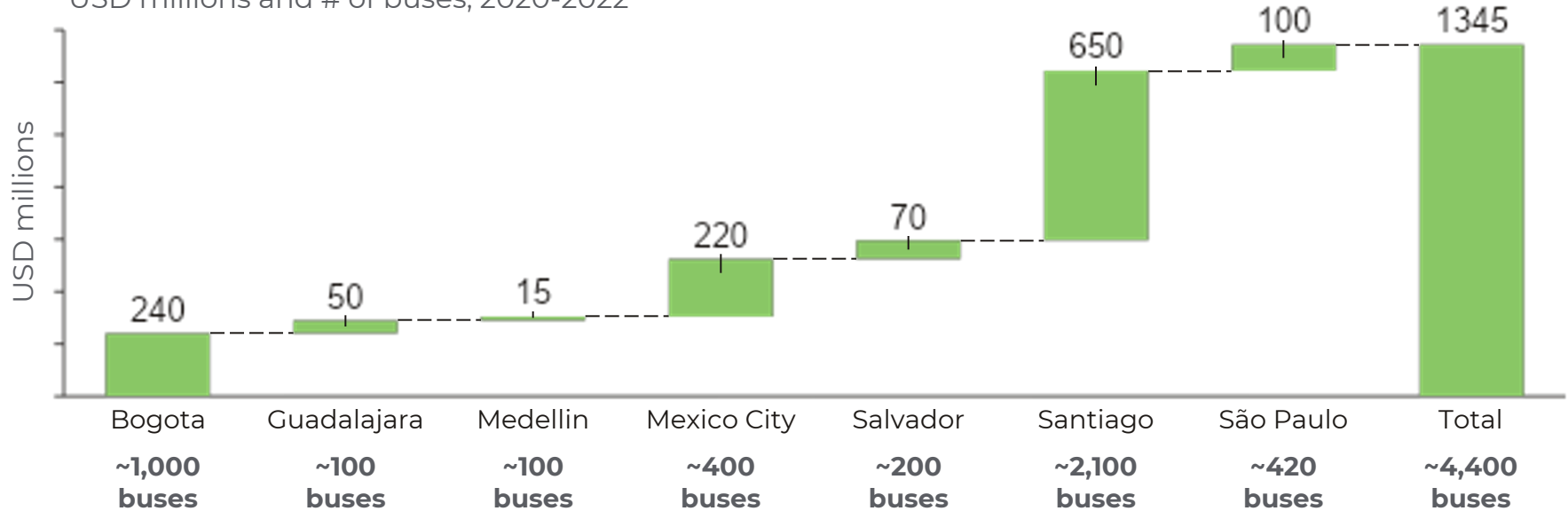


Latin America E-Bus Market

For 2020-2022, the Latin America e-bus market exceeds USD 1 billion

Market potential for select cities in Latin America¹

USD millions and # of buses, 2020-2022



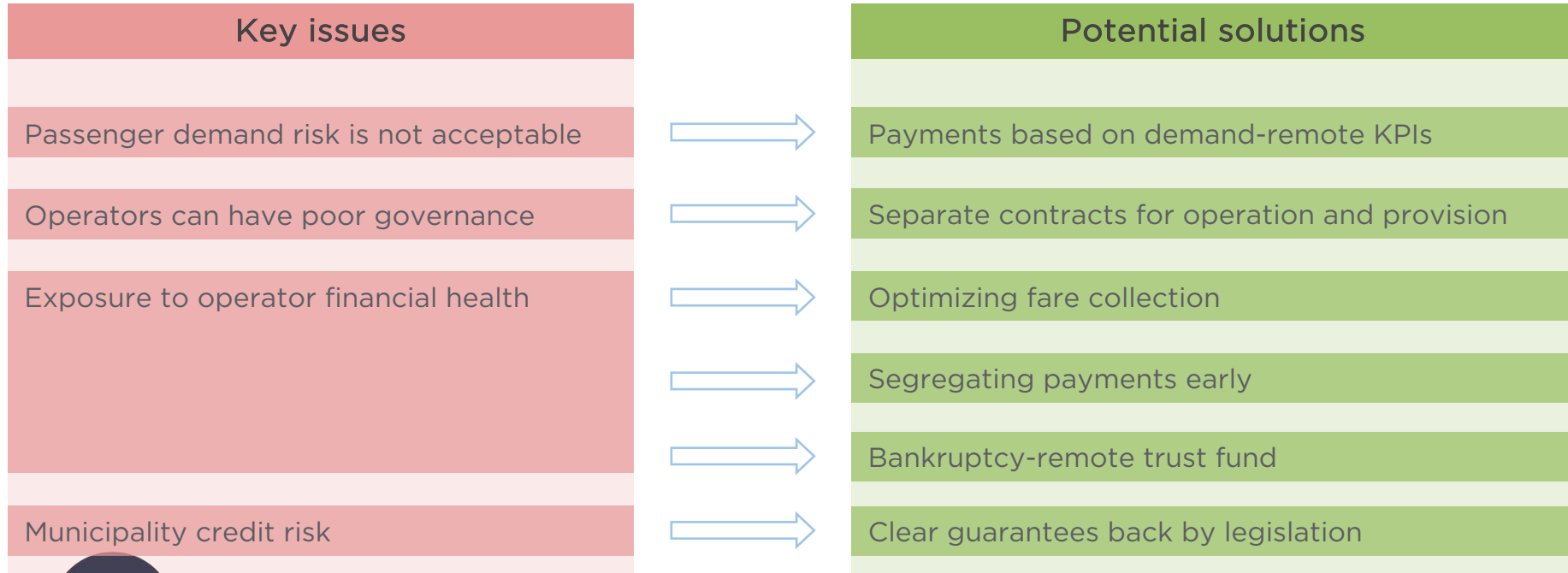
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Notes: 1. Analysis is based on ZEBRA knowledge of upcoming new contracts (e.g., tender processes) and city and operator plans to transition to e-buses within existing contracts. The analysis considers different sizes, models, and prices of buses across cities.

Structuring bankable projects: The role of municipalities

Municipalities have a key role to play to improve bankability



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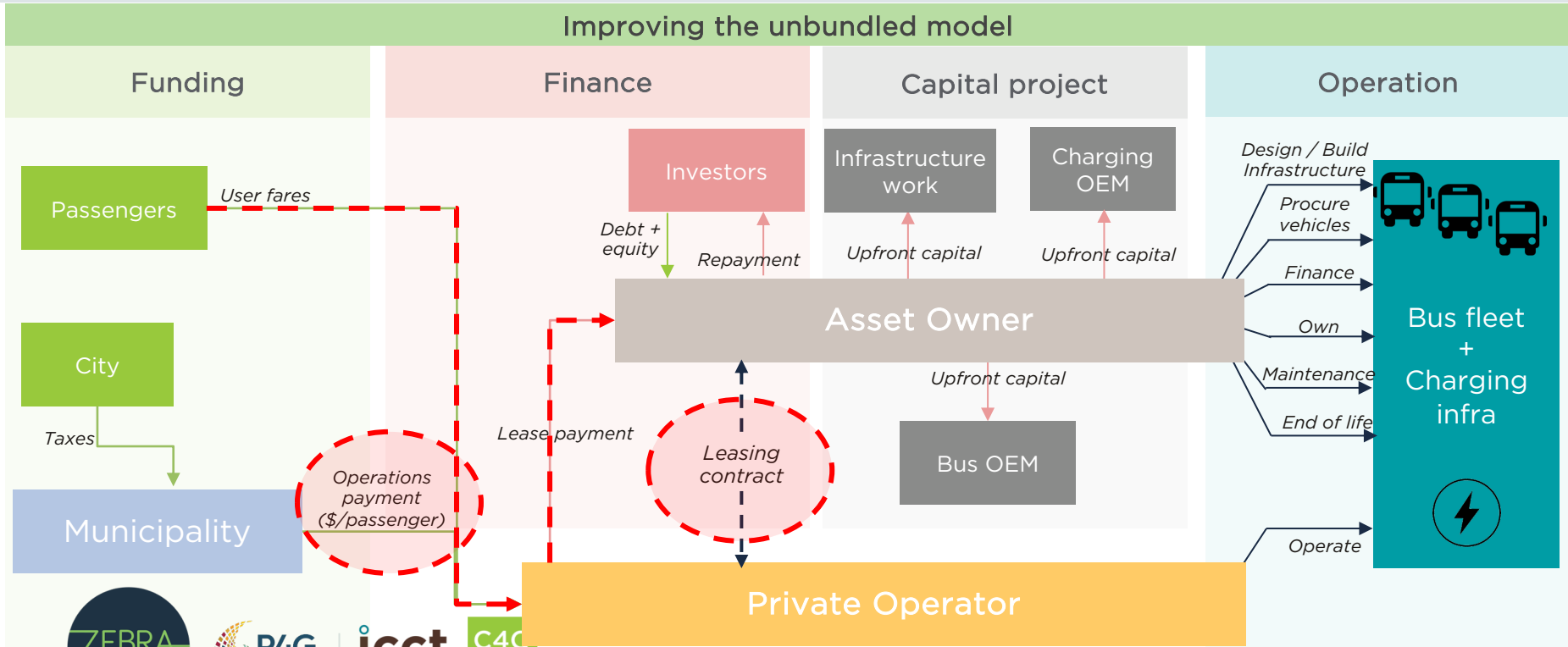


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Structuring bankable projects: The role of municipalities

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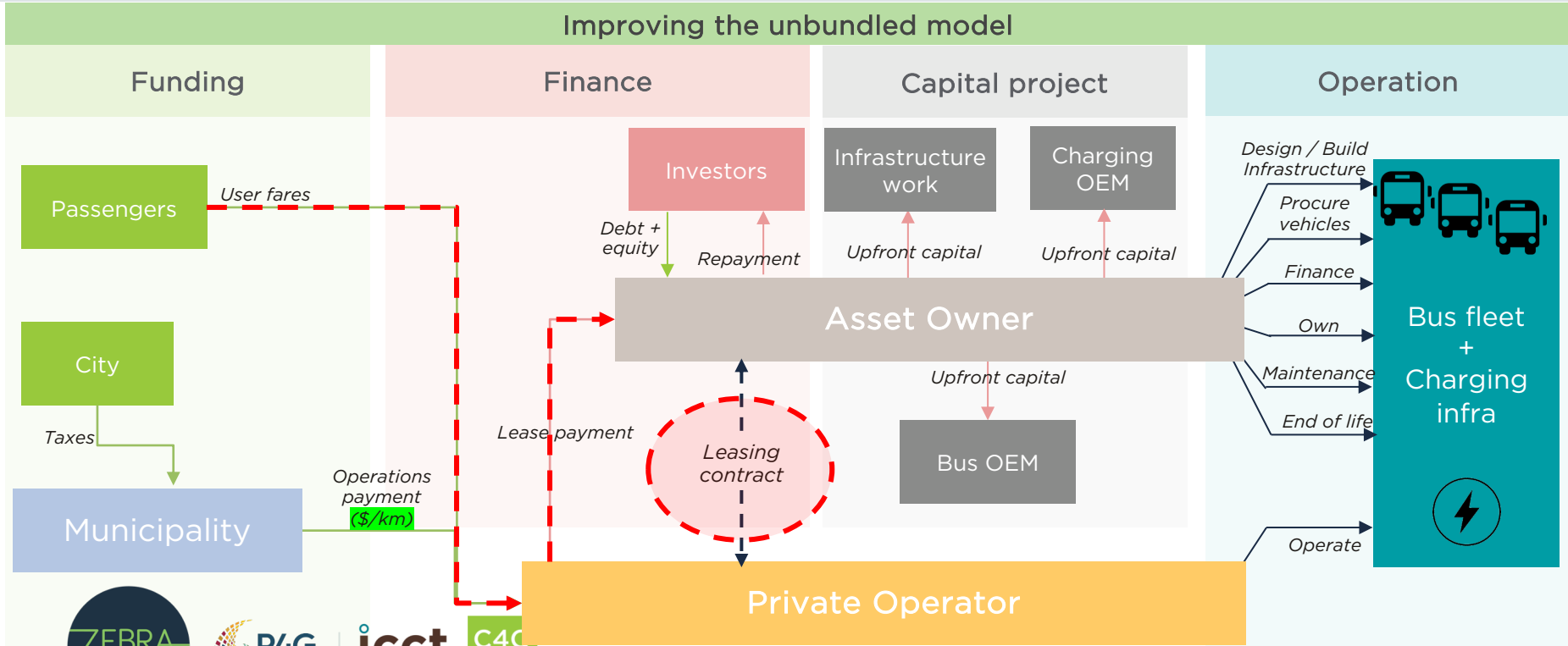


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Structuring bankable projects: The role of municipalities

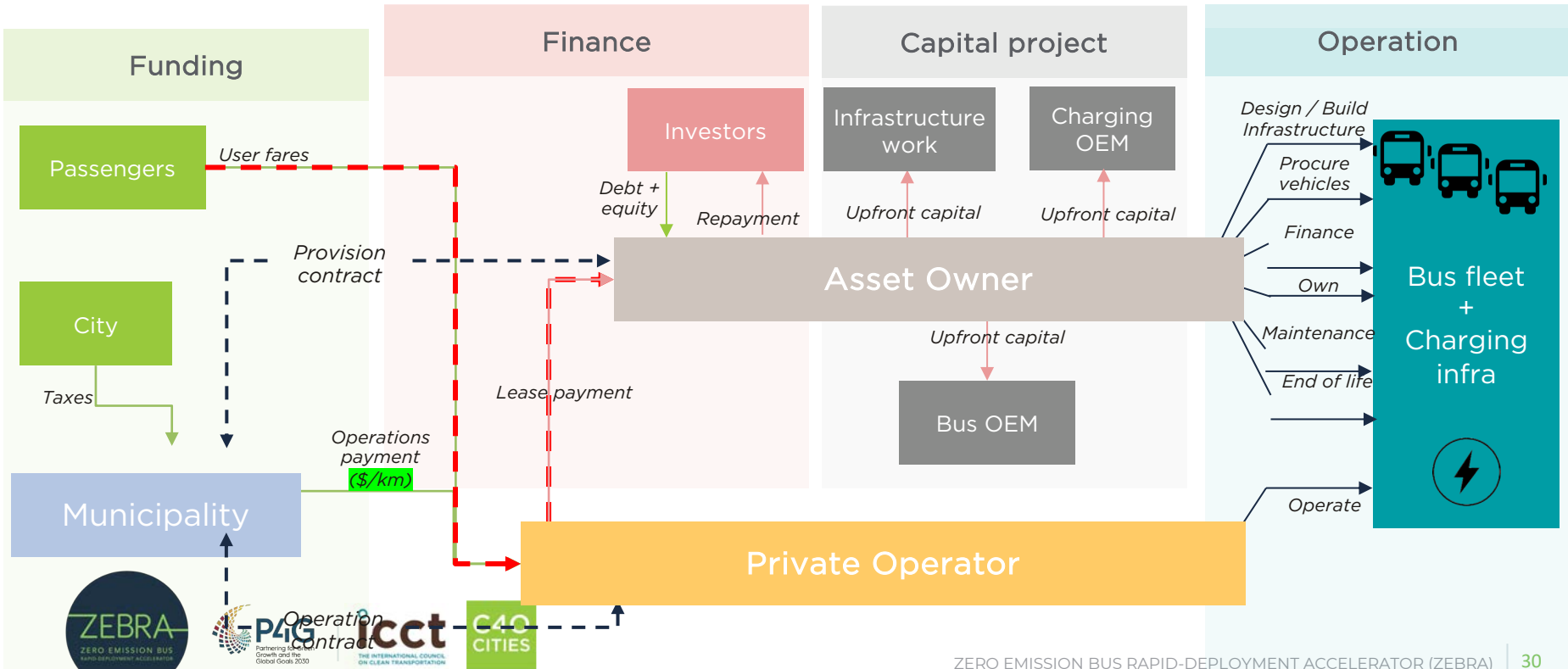
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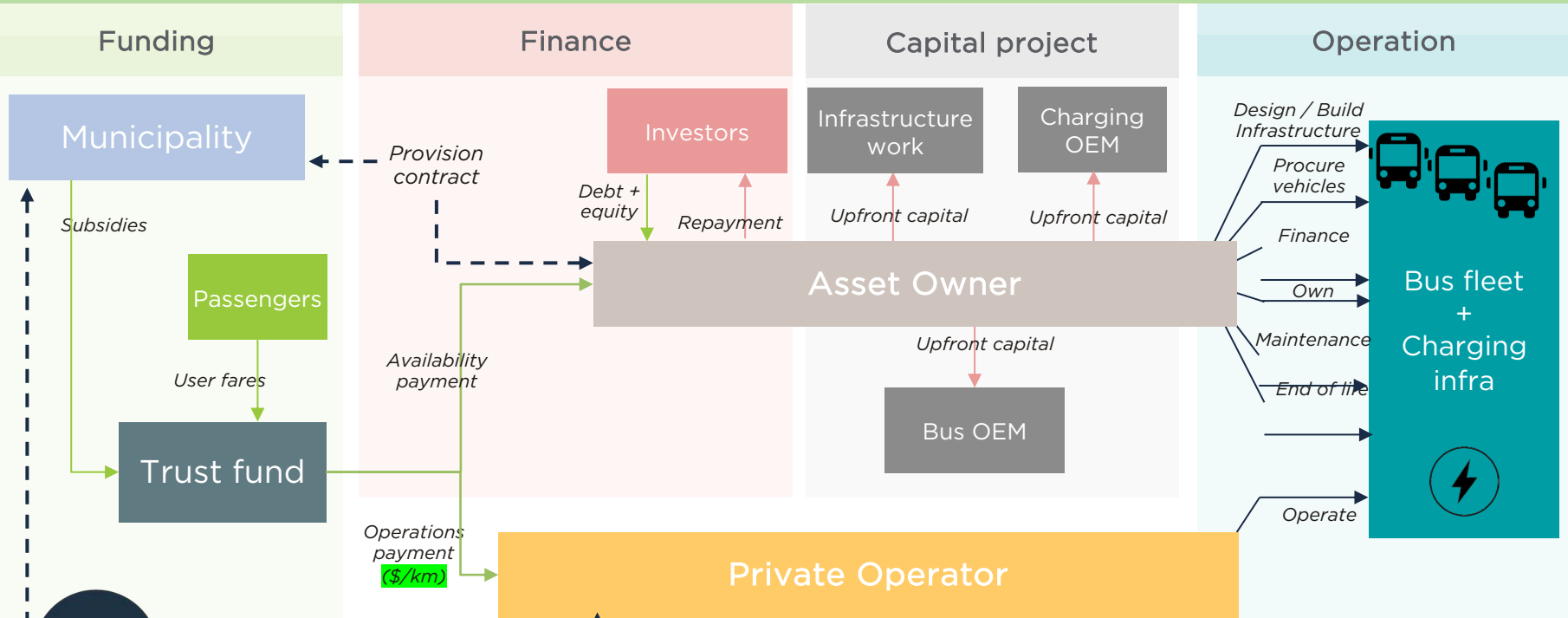
Improving the unbundled model



Structuring bankable projects: The role of municipalities

Municipalities have a key role to play to improve bankability

Improving the unbundled model



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Partners Strengthening the cohort of Supporting Partners

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Provides global network of innovators, investors, and others seeking breakthroughs in green economic growth, supported national platforms that secure political commitment to local projects. **Funds and facilitates ZEBRA to accomplish its mission.**

Implementing Partners



Has ~15 years of experience and technical expertise focused on improving the environmental and energy performance of the transportation sector, including public transport. **Leads the Technical aspects of ZEBRA.**



Has long-standing relationships and support from 96 cities committed to tackling climate change—and helped spark the current transition towards e-buses in Latin America. **Leads the Finance and Political aspects of ZEBRA.**

Supporting Partners



Has ~40 years of in viable climate solutions, including recent electric bus projects across Latin American cities. **Will support to channel investments from development financiers under a project-based approach.**



Brings finance expertise to supports sustainable investment in its member countries. **Will support the design of a streamlined process for project preparation advisory services and the mobilisation of GCF finance.**



Works to develop local capacities in Latin America to address air pollution and climate change and provides technical support to countries, such as Chile. **Supports the work in Santiago, Chile and brings technical expertise to other cities.**



Accelerates investments in cost-effective distributed energy solutions to open the clean energy economy. **Will support engagement of utilities through the development of alternative financing under a PAYS model.**