Transport Infrastructure Financing and Urban Transformation through Land Value Capture Mechanisms

FORTALEZA’S METRO CASE STUDY

Key Take-Aways From Recent Transit-Oriented Development Projects

TOD CoP Event

November 27th, 2018
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Presentation Outline

1. The city of Fortaleza
2. The uniqueness about this work
3. The Fortaleza case
   Challenges & Opportunities & Methodology & LVC strategy & Results & Lessons
4. Key takeaways for the TOD CoP
5. What can be reused by CoP members
1. The city of Fortaleza

Capital of Ceará state
Area: 320 Km²
Population: 2.6M people
Density: 7645 people/Km²
Within a metro region of 4M people + 18 municipalities
2. The uniqueness about this work: Approach to linking LVC and TOD

COMPONENTS OF URBAN LAND VALUE

- Appropriate valuation by previous owner
- "Effort" by the previous property owner
- Actions by other individuals
- Changes in urban regulations
- Public investment

"THE VIRTUOUS CYCLE"

- REINVESTMENT
- TRANSPORT INFRASTRUCTURE
- BENEFICIARIES
- BENEFITS
- FUNDING FOR INVESTMENT
- RECUPERATION
- BENEFITS ARE MAINTAINED

Source: Furtado (2014)

Curitiba BRT corridor, Brazil
Source: marcioantoniassi.wordpress.com
3. The Fortaleza case study: Challenges

Urban inefficiencies:
Rapid urbanization and dispersed urban growth patterns

Limited budgets:
Dependence on resources by central government

A mismatch:
Urban needs for infrastructure and the Government’s limited capacity to provide them

Insufficient coordination:
Sector X Political levels
3. The Fortaleza case study: Opportunities

WHY SELECTING FORTALEZA?

• Suitable context and scale favor the replication of lessons
• Real challenges + real opportunities
• Technical-institutional context: prior experience + availability of a robust database
• Existing engagement with the World Bank
• Current plans for the expansion of the underground network (still lacking financing)

OPPORTUNITIES TO ACHIEVE WITH THE WORK:

(i) To foster coordinated action between planning and implementation of land use and transport policies and projects; and

(ii) To contribute to the implementation and dissemination of innovative (and alternative) practices to the classical financing of urban development and transport and mobility infrastructure, in this case mainly through Land Value Capture mechanisms.
3. The Fortaleza case study: Methodology

1. **Desk Review**
   - National and International experiences involving LVC

2. **Diagnostic**
   - Real estate and transportation system dynamics
   - Selection and validation of two pilot stations
   - Supply X Demand
   - Regulatory environment
   - Experience in LVC
   - Political-institutional context and vision of the city

3. **LVC + TOD Strategy**
   - Choosing suitable LVC mechanisms
   - Developing the model
   - Running multiple scenarios with the potential revenues

4. **Lessons from the Case & Recommendations**
   - Overall lessons
   - Case-specific recommendations
   - Broad recommendations (by city scale)
3. The Fortaleza case study: Methodology

1. Validating the stations

2. Defining the áreas of influence

- Direct area of influence (AID) - radius 1 km: SUPPLY
- Indirect area of influence (AII): DEMAND

3. Calculating supply and demand (2040)

**Demand**
- Population and housing projections
- Employment projections

**Supply**
- Land inventory

**Supply and demand: Time to meet the demand**

- Demand for residential areas
- Demand for non-residential areas
- Land supply
3. The Fortaleza case study: Methodology

**Papicu**

Total demand = 7,227,485 m²

Land area/Development 302,749 m²

**Parangaba**

Total demand = 4,374,589 m²

Land area/Development 471,430 m²
3. The Fortaleza case study: Methodology

Demand by built area 4,374,589 m²

\[ \frac{\text{Demand}}{\text{Land supply 471,430 m²}} = \frac{4,374,589}{471,430} \]

\[ = 9 \]

The demand is 9x the land supply

**Current**

- Land supply 471,430 m²
- Max FAR value current 2.0

\[ \times \]

\[ \frac{471,430 \times 2.0}{939,571} \]

\[ = 21\% 

Meets 21% of the demand

**Proposal**

- Land supply 471,430 m²
- Max FAR value proposed 4.0

\[ \times \]

\[ \frac{471,430 \times 4.0}{1,879,658} \]

\[ = 43\% 

Meets 43% of the demand
3. The Fortaleza case study: Methodology

- **Demand by built area:** 7,227,485 m²
- **Land supply:** 302,749 m²
- The demand is 24x the land supply

**Current**
- Land supply: 302,749 m²
- Max FAR value current: 2.5 to 3.0
- Potential built supply: 872,779 m²
- Meets 12% of the demand

**Proposal**
- Land supply: 302,749 m²
- Max FAR value proposed: 6.0
- Potential built supply: 1,816,496 m²
- Meets 25% of the demand
3. The Fortaleza case study: LVC Strategy

Selection of LVC mechanisms: From a long list to a short list

Other important considerations:
• Already regulated mechanisms
• Enabling political-institutional context
• Implementable in the short term
• Combination of mechanisms + Avoiding competition

LVC-generated revenues mechanisms
• Onerous Grant of the Right to Build (OODC)
• Onerous Grant to Land Use Change
• Leasing/renting of public land
• Public private partnership

Complementary mechanisms
• Voluntary Improvements’ Contribution
• Rotary parking fee
• Congestion charge

Other mechanisms for urban management
• Compulsory Parcelling, Building or Use (PEUC) and progressive IPTU over time
• Expropriation by Zones
• Right of Preemption
• Air Rights/asset exploitation
• Special Projects
• Special Areas of Social Interest
3. The Fortaleza case study: LVC Strategy

Found opportunities for:

• An evolution to a **systemic understanding**

• **Strengthening of urban regulations** and reaching a win-win scenario for both public and private sectors

• **Enhancing of existing instruments**, facilitating legal steps for implementation

• **Promoting TOD**
3. The Fortaleza case study: LVC Strategy

There was a clear convergence between the objectives of ZEDUS (Zonas Especiais de Dinamização Urbanística e Socioeconômica), as regulated by the city’s land use plan, and the strategy being pursued by our work to enhance LVC potential.
2.4 LVC strategy for Fortaleza

**N1 – Strategic Development Triangle**
Greater constructive potential offer and population density

**N2 – New ZEDUS**
Intermediate Development priority and DOT-based

**N3 – City**
Lower development priority, more restrictive urban parameters
3. The Fortaleza case study: LVC Strategy

Financial model scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Current Legislation</th>
<th>Reviewed legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base scenario</strong></td>
<td>Current OODC</td>
<td>OODC (increase the maximum FAR value + DOT index inclusion)</td>
</tr>
<tr>
<td></td>
<td>Current OOAU</td>
<td>OOAU</td>
</tr>
<tr>
<td><strong>Intermediate scenario</strong></td>
<td>Reviewed legislation</td>
<td>OODC (increase the maximum FAR value + TOD index inclusion + Update of the cadaster (property tax))</td>
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<td>OOAU</td>
<td>Leasing of public assets</td>
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Developmental assumptions

- **Pessimistic scenario**
  - 30% of demand of Indirect Area of Influence around Papicu been absorbed in the direct area of influence
  - TOD index: 1.1
  - 10% land valuation uplift

- **Optimistic scenario**
  - 50% of demand of Indirect Area of Influence around Papicu been absorbed in the direct area of influence
  - TOD index: 1.4
  - 30% land valuation uplift

Combination of LVC mechanisms
3. The Fortaleza case study: Results of the model

Revenue collection potential by scenario – assuming an optimistic development for 2040

- **Potential revenue capacity increase by 30X**
  - 3,518 milhões Cenário Máximo
  - 1,185 milhões Intermediate Scenario
  - 113 milhões Base Scenario

In 2016 LVC represented 0.28% of the city’s total revenue

**LVC Maximum 2040 x City’s total revenue**
- 2023: 8.78%
- 2027: 17.38%
- 2040: 22.85%

**LVC Maximum 2040 x Investment capacity**
- 2023: 26.45%
- 2027: 49.72%
- 2040: 13.40%

Source: Steer Davies Gleave
The success of LVC associated with TOD depends not only on the technical aspects, but fundamentally on political-institutional engagement.

The revenue provided by LVC mechanisms is not an end in itself, but a means for the feasibility of sustainable and inclusive urban transport and development policies.

Updating property charges and valuation is an important way to strengthen municipal revenues, as it would increase the IPTU’s and OODC’s revenues. The commercial value of the property is an important reference for OODC’s revenue collection.

It is necessary to develop tools appropriate to each context, using other experiences as references, not as models.

To improve the performance of the LVC + TOD policy it is necessary to evaluate the real estate valuation potential that the instruments are able to recover.

Intersectoral and inter-federative arrangements are necessary for the design and implementation of efficient LVC + TOD strategies.

Different locations have different characteristics and different potentials; therefore, they require different and specific approaches.

The combination of LVC mechanisms, taking into account their incidence - flow or real estate inventory - and complementarity tend to potentiate the performance of the LVC + TOD agenda.
4. Main Take-Aways

**LVC is not an end.** It is a means to help cities finance infrastructure at the local and metropolitan level; moreover, **it is a means to help promote more inclusive and sustainable cities!**

**LVC strategies are not of immediate or “one-size-fits-all” nature.** They depend on scale and context, urban and real estate dynamics, technical and institutional capacity in place, political-economy etc. **However, LVC strategies can (and should) be pursued by multiple types of cities, regardless of their different development stages.**

**A combination of multiple LVC instruments is usually the best approach to potenti ate performance.** Also remember that **combining TOD and LVC is a killer.**
5. What can be reused by CoP members

Link to the main docs (Portuguese):
http://pubdocs.worldbank.org/en/99901536152906676/LVC-Estudo-de-case-de-Fortaleza-20180823-R1

Link to the summary (English):

Link to the summary (Portuguese):
Thank you!

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