Paratransit in Sub-Saharan African Cities: Improving and Integrating 'Informal' Services

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Introduction

Collapse of formal services

Cities got larger,
Congestion drove up costs, and
Competition by informals reduced passengers

Problems of cities in Sub Saharan Africa are urgent

Poor mobility stifling economic development
Pollution
Public safety

This project involved detailed study of three cities (Cape Town, Dar es Salaam and Nairobi) plus inputs from other cities.

First phase was understanding:

- Business models
- Daily operations
- Public institutions and governance

Second phase will be:

- Advocating for reforms, and
- Technology based on consumer ICT


'amaphela' (Cape Town)

'matatu' (Nairobi)


'molue' (Lagos)

Common features (with notable exceptions):

- direct service networks (minimal pax transfer)
- small fleet owners (but few owner-drivers)
- route associations / cooperatives
- rank/stage ‘fill-and-go’ systems
- cash fare collection
- ‘target system’


Cape Town

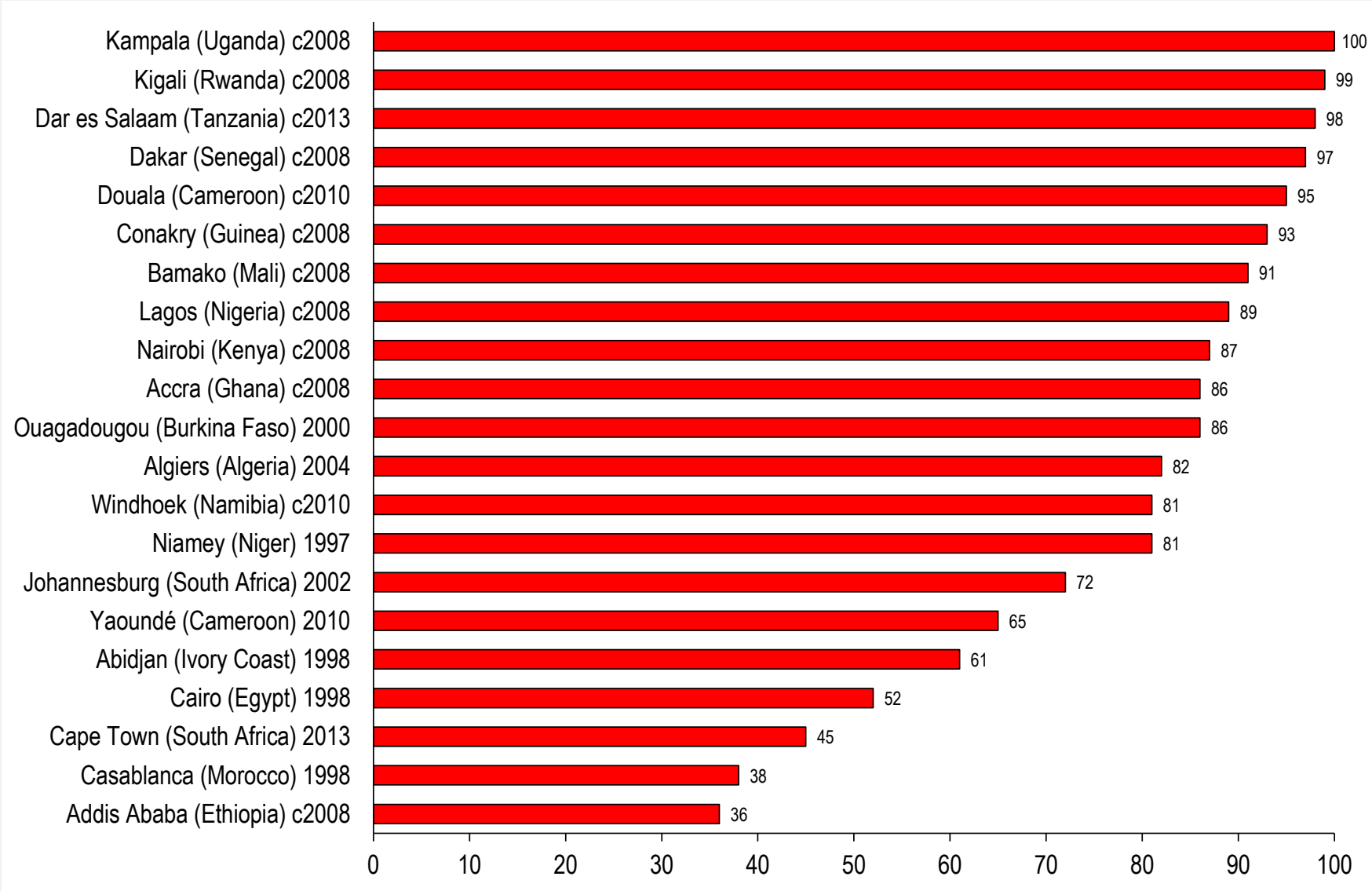
Nairobi


Cape Town (photo credit: Rodger Bosch)

Some differences:

- vehicle size (4 seat sedan vs. 9-16 seat minibuses vs. 17-35 seat midibuses)
- fare setting (government regulation vs. association collusion vs. driver variation)
- business ownership (owner-employee vs. owner-lessee model)
- extent of competition with formal modes

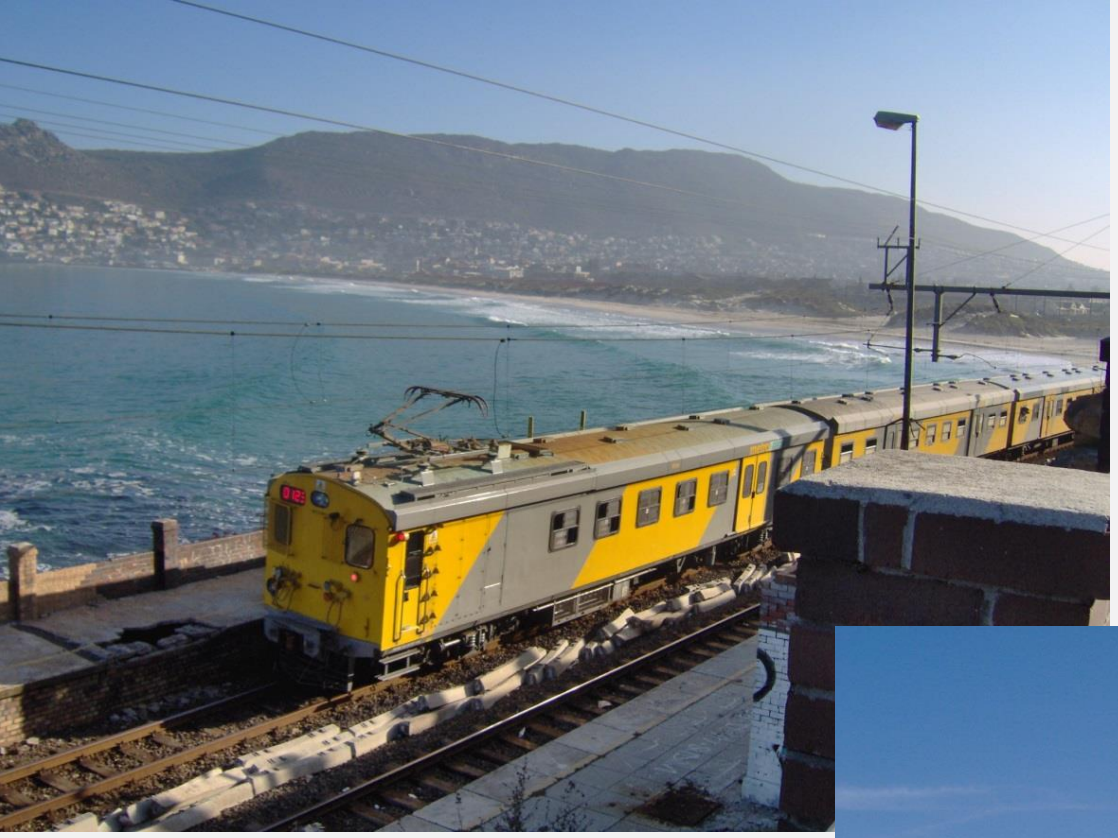
Paratransit's public transport passenger market share in African cities



Note:

- Most individual data sources do not specify whether the market share is measured during the peak period or over the entire day, and whether trips for all purposes are included, so comparisons may be inaccurate in some cases.

Behrens *et al* 2015 (forthcoming)



Cape Town also has scheduled modes

Unlike the mini-taxis, they receive an operating subsidy

What are the key problems faced by paratransit users and regulators?

- Un- or under-restricted market entry often leads to **overtrading** and **overloading** on more lucrative routes

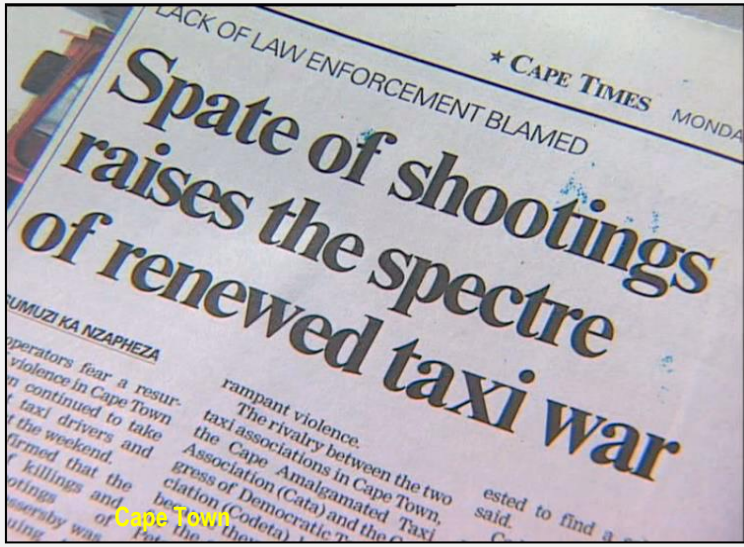
- Route associations often **compete aggressively** (sometimes violently) for control of routes

- '**Target system**' incentivises drivers to compete for pax, leading to speeding, signal jumping, unsafe stopping

- Unreliable operations due to dependence upon running in **congested, mixed traffic**

- Insecure **labour conditions** for drivers and conductors

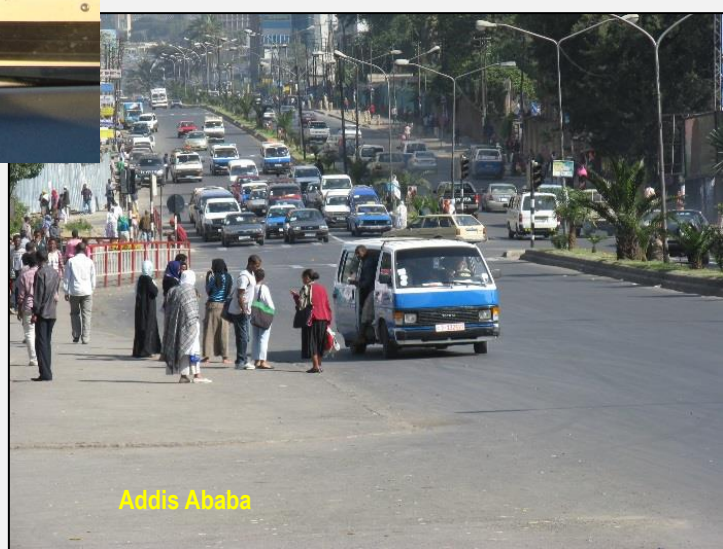
- **Vehicle** poorly maintained and heavy **emitters** of pollutants - **replacement** is seldom planned



Cape Town

Nairobi

- **Boarding and alighting practices** that spill into traffic lanes reduce already **limited road capacities** considerably.



Dar es Salaam

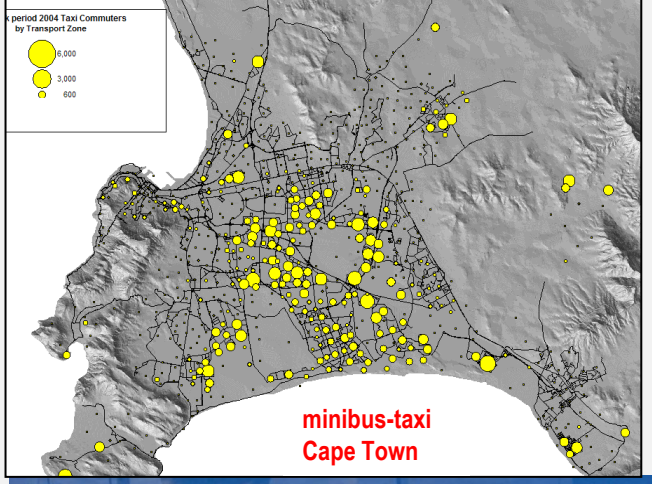
- **Compliance** with most regulations is usually weak

- Riders must pay **two full fares** for any **interchange**

Claremont station, Cape Town – 1 percent transfer rate to regional railway

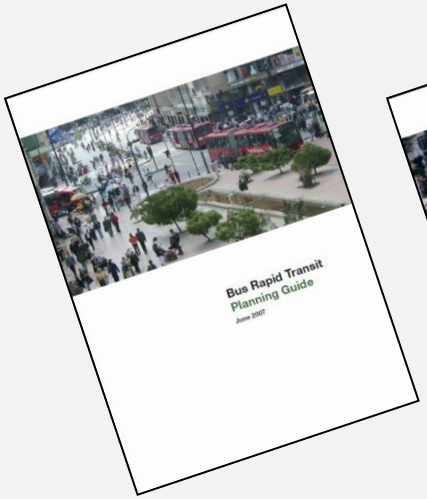
What opportunities do paratransit operations offer?

- Paratransit operators are quick to **respond** to new demands, can penetrate many and diverse markets
- This demand-responsiveness, service innovation and coverage is achieved **free of subsidization**
- Paratransit offers an important **source of income** to a segment of the population
- Smaller paratransit vehicles can **maneuver** in streets that larger buses cannot.



What policy responses and interventions are underway to mitigate paratransit problems?

- (With some exceptions) standard or full specification BRT is being promoted on the continent as a public transport solution …



Call for papers

2nd CONGRESS AND EXHIBITION OF AFRICAN PUBLIC TRANSPORT

BRT, the miracle solution to mobility problems in African Cities?

07 to 11 October 2012, Johannesburg, South Africa

Gold: 85 points or above

Silver: 70–84 points

Bronze: 50–69 points

- A number of Sub-Saharan African **city governments** have embarked upon the initial phases of BRT.
- BRT already exists in some cities.
- BRT infrastructure **construction** underway in others.
- BRT system **planning** is underway in others.
- In some, if not most, cases, these BRT services are intended to **replace** paratransit services, including the feeder services.

“Hybridity” as a realistic solution

Definition: **Hybrid Service** is either

1) two services peacefully co-exist, mostly because they target different ridership, or

2) an integrated service, typically trunk-feeder, perhaps having a combined fare.

Path dependencies and constraints:

1) Business owners themselves

2) Institutional capacity lacking

3) Insufficient success in early phases

Issues with Integration

Service coordination
Informals withdraw service or wait for full vehicles

Formal operators
Threat to informals' livelihood.

Keeping out of sight and out of mind
Avoiding corruption and harassment
Financially unrealistic standards
Cash fares

Cape Town (photo credit: Rodger Bosch)

Legacy of distrust with government
Corrupt enforcement
Monitoring technologies for criminal sanctions

Surrender of planning authority to unqualified institutions
Forecasting and capacity planning,
Revenue distribution

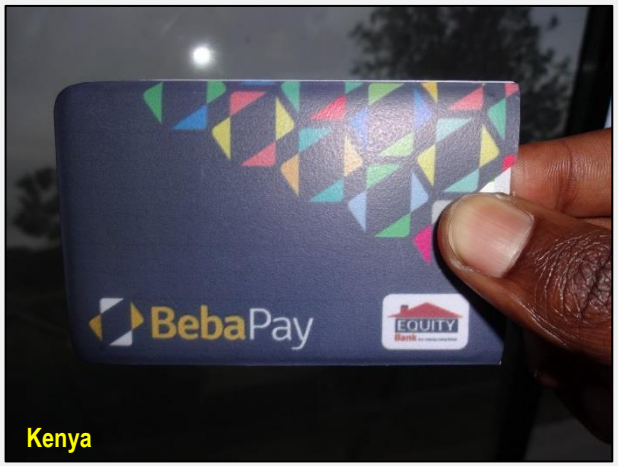
Availability and use of capital investment funds
Queue bypasses, PT signal priority, shelters, etc.
Bus lanes take time politically.

Tentative recommendations for a reform program

Business development	Operating environment	Vehicle fleet	Operations
• Business consolidation • Business skills training • Business diversification • Bulk purchasing discounts	• Rank/terminus provision including wayfinding signage • Road space prioritization • Embayments	• Vehicle renewal incentives • Cooperative loans including vehicle purchase and repairs	• Driver training • Salaried drivers • Consolidated driver recruitment/mgmnt • Consolidate vehicle mgmnt/tracking using consumer ICT • Speed governors • Real-time pass info using phone and stationary signs, on-vehicle signage • Cashless ticketing

Quality-of-service improvement (from a business development, not a punitive regulation, perspective)

- cashless **fare collection**
- **passenger-side** subsidies
- speed **governors**
- vehicle **tracking** (real time and planning benefits)



Are there lessons from the experience of intercity matatu SACCOs in Kenya?

… with respect to:

- alternatives to the '**target system**'
- ceded vehicle **fleet management**
- bulk purchasing and (larger) vehicle **finance**
- some operators have **an appetite for adopting new practices and technologies**

Githurai

Nairobi

Murang'a

Entrepreneurial opportunities and **additional income streams**

Subsidies
Redistribution of existing subsidies (SA)
Incentives for feeder services

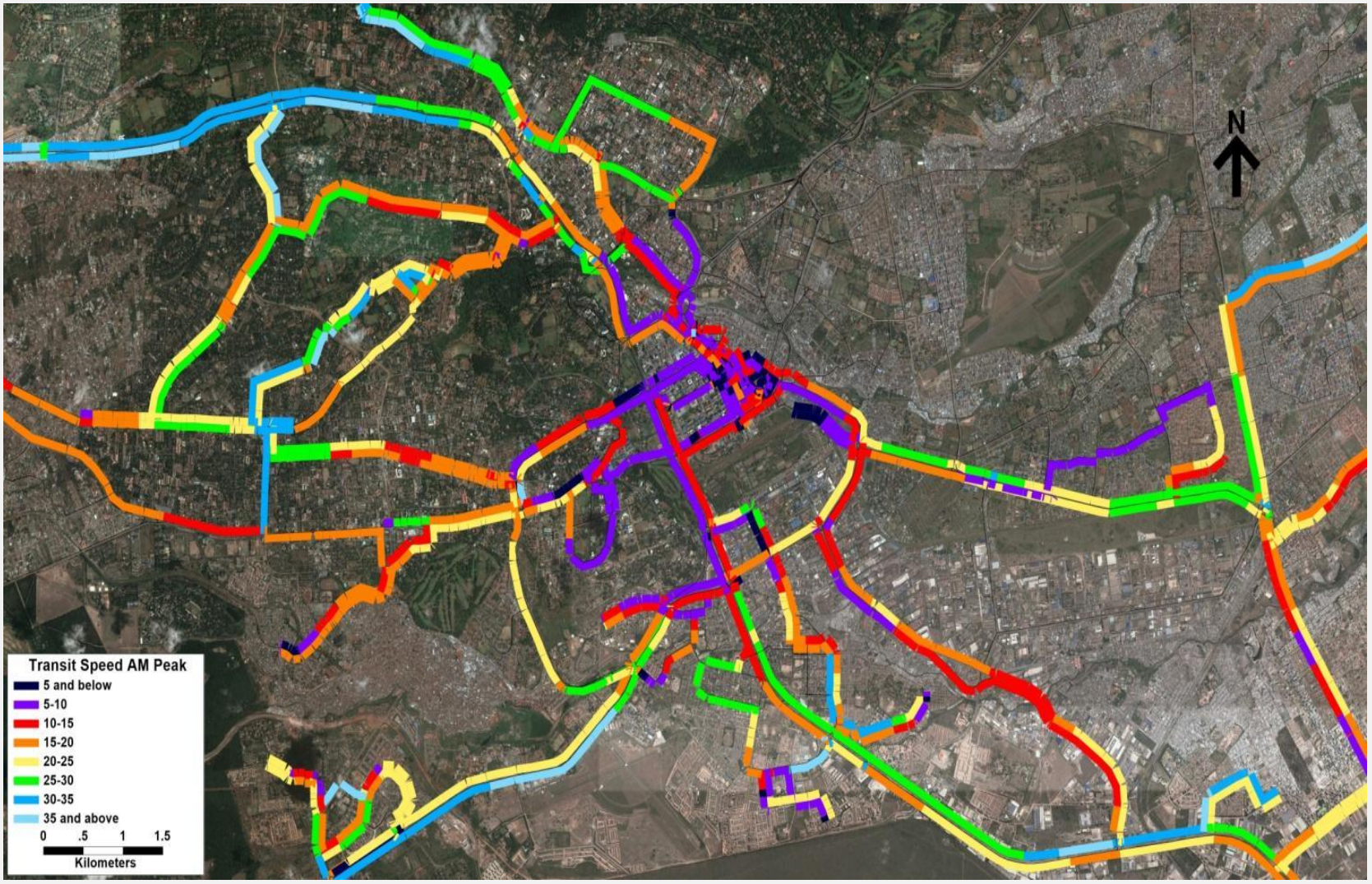
Diversification and purchase of assets
School and up-market tourist trips
Business admin. education

Minibus taxi loyalty program; maximizing buying power
SANTACO has 130,000 members
Ex: 18 associations buy from one gas station

Outdoor and mobile advertizing
Already widespread

Cape Town (photo credit: Rodger Bosch

An unprecedented insight into routes and travel speeds using smartphones



Morning peak hour mean matatu speeds from Nairobi BRT study

Source: University of Nairobi, Columbia University and Massaschusetts Institute of Technology, 2013

Research proposal – smartphone apps to speed up some of the reforms

CAD/AVL from the richer countries is far too expensive.

Operational improvements

- control center
- terminal management
- bus lane and queue jump enforcement
- traffic signal control

Passenger experience improvements

- passenger information system
- onboard wifi
- covert alarms

Archived data will help both city and firm-level planning

- matching of supply with demand
- prioritization of limited investments
- pollution hotspot monitoring,
- etc.

Conclusions

Limits to the effectiveness of entrepenuerial and organizational solutions.

There is no substitute for capital investments.

But, there are definitely things one can do.

Thank you for your time

Acknowledgements

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