

Public Transit Service Quality and Contracting

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Presentation purpose

Better understanding

PT role in societies

PT market organization

PT contract types & Risks

How quality is measured in PT

Contents

Some Worldwide & European PT Statistics

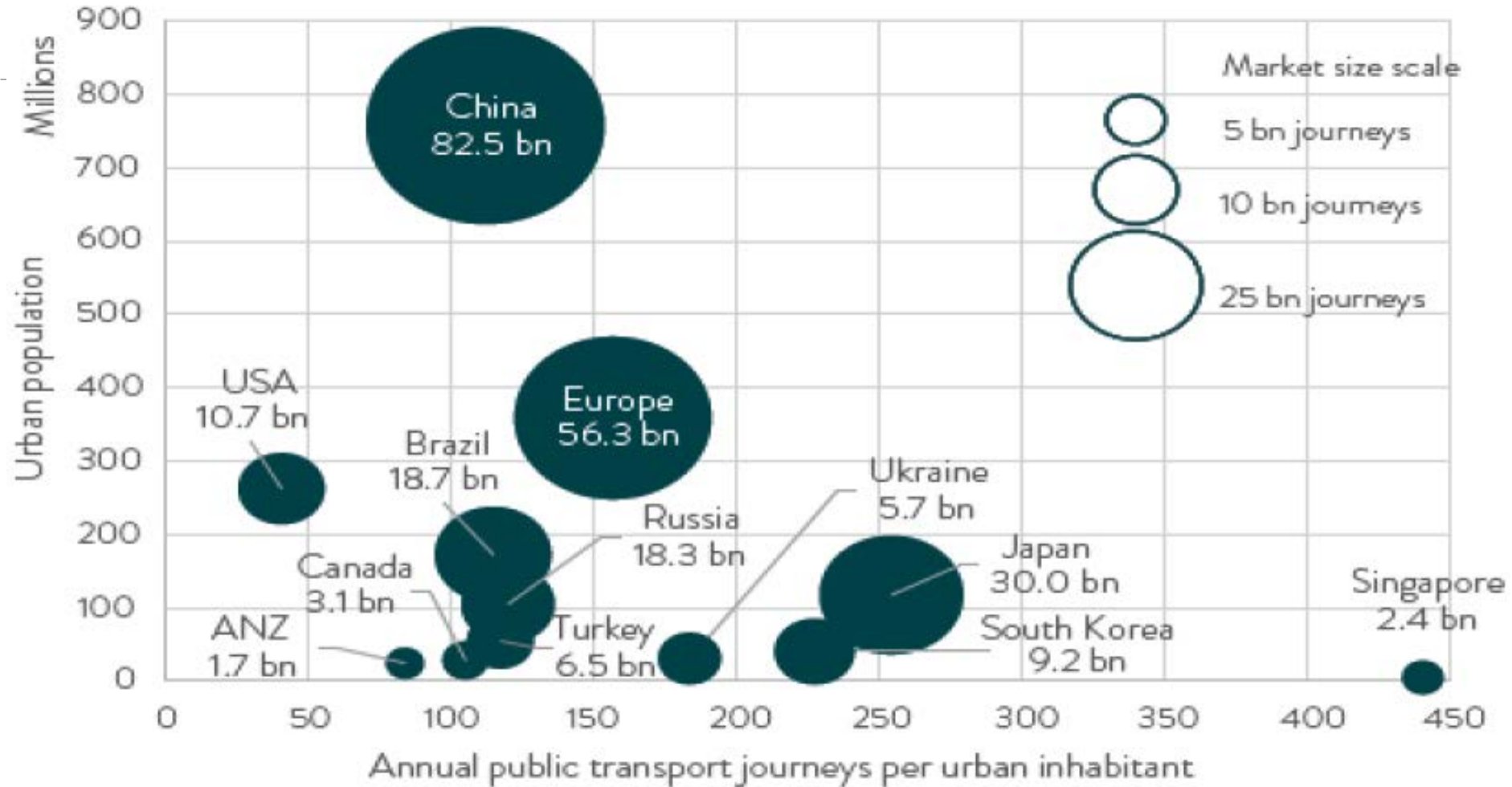
PT Role in Societies – PT Authorities and Operators

PT Market Structures and PT Services Award Types

Quality in PT

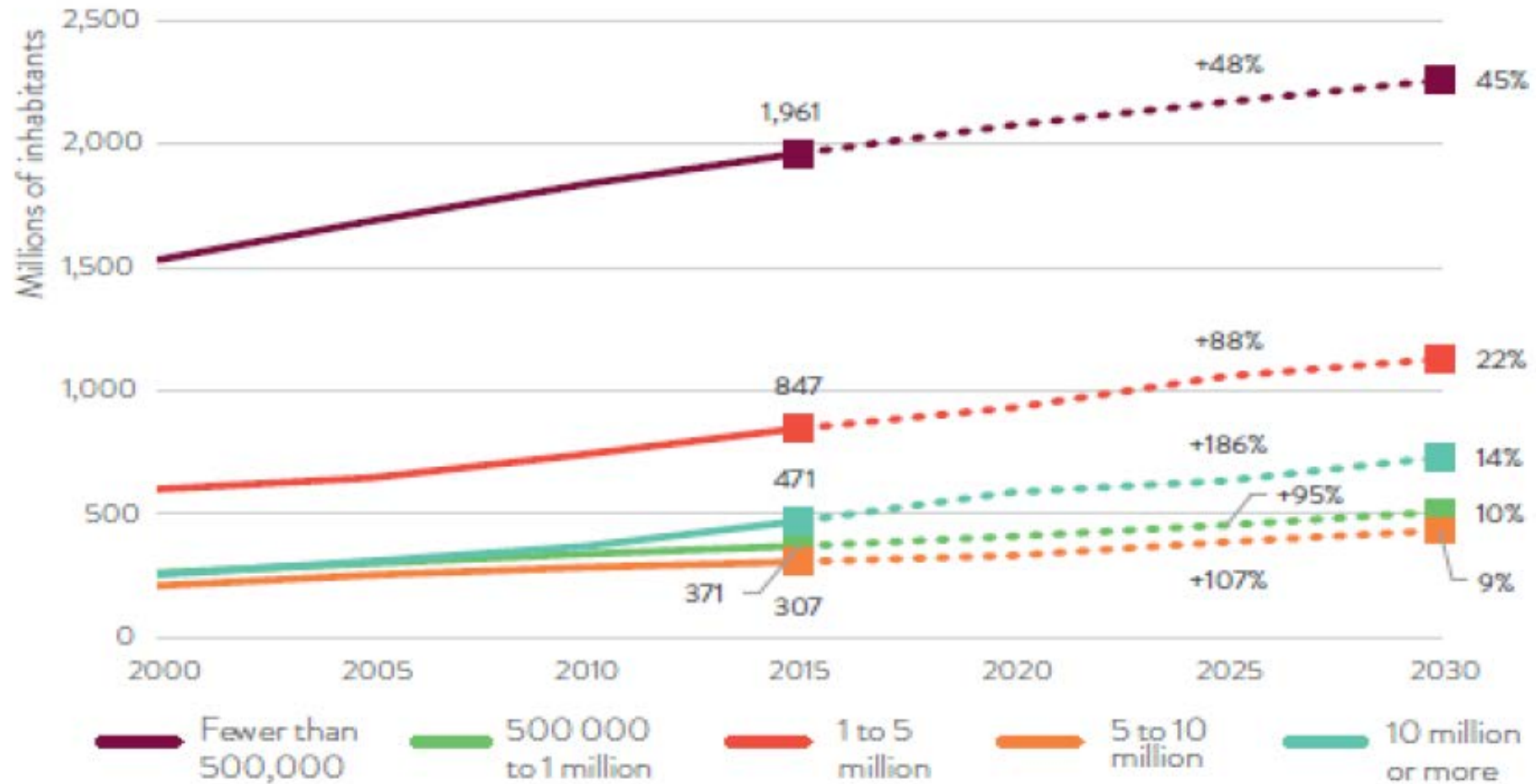
Some Worldwide & European PT Statistics

Average rate of PT usage & urban population sizes



Source: UITP

Urban population per city size since 2000 and projection to 2030



Source: UITP

Metro Lines worldwide (2014)

Region	Ridership (billions)	Number of cities	Number of lines	Infrastructure length (km)
Asia-Pacific	25.9	54	202	5,119
Europe	9.9	46	165	2,820
Latin America	5.3	18	51	858
Eurasia	4.9	16	44	781
North America	3.4	16	76	1,481
MENA	1.9	7	13	298
World total	51.3	157	551	11,357

Source: UITP

Trams & LRT worldwide (2014)

Region	Ridership (millions)	Number of cities	Number of lines	Infrastructure length (km)
Europe	8,825	206	1,277	8,954
Eurasia	3,135	93	744	3,855
Asia-Pacific	720	41	144	1,016
North America	711	36	106	1,525
MENA	324	9	36	226
Latin America	0.6	2	2	20
Africa	n/a	1	2	34
World total	13,716	388	2,311	15,630

Source: UITP

BRT & BHLS passengers per day (2016)

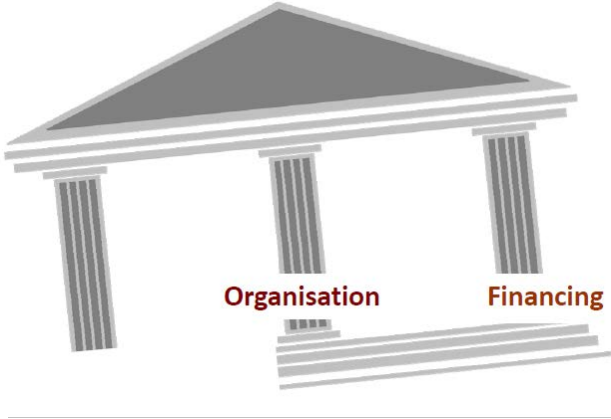
Region	Daily ridership (million)	Number of cities	Length of lines (km)
Latin America	20.3	67	1,795
Asia-Pacific	7.5	44	1,381
Europe	2.1	60	991
MENA	2.1	6	165
North America	1.0	29	933
Africa	0.3	3	83
World total	33.3	206	5,348

Source: UITP

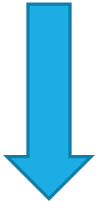
PT Role in Societies - PT Authorities and Operators

The Pillars of a successful PT system [1/2]

- 1 Well regulated environment supported by legislation
- 2 Well organized Public Transport at local and/ regional level
- 3 Well defined Financing schemes



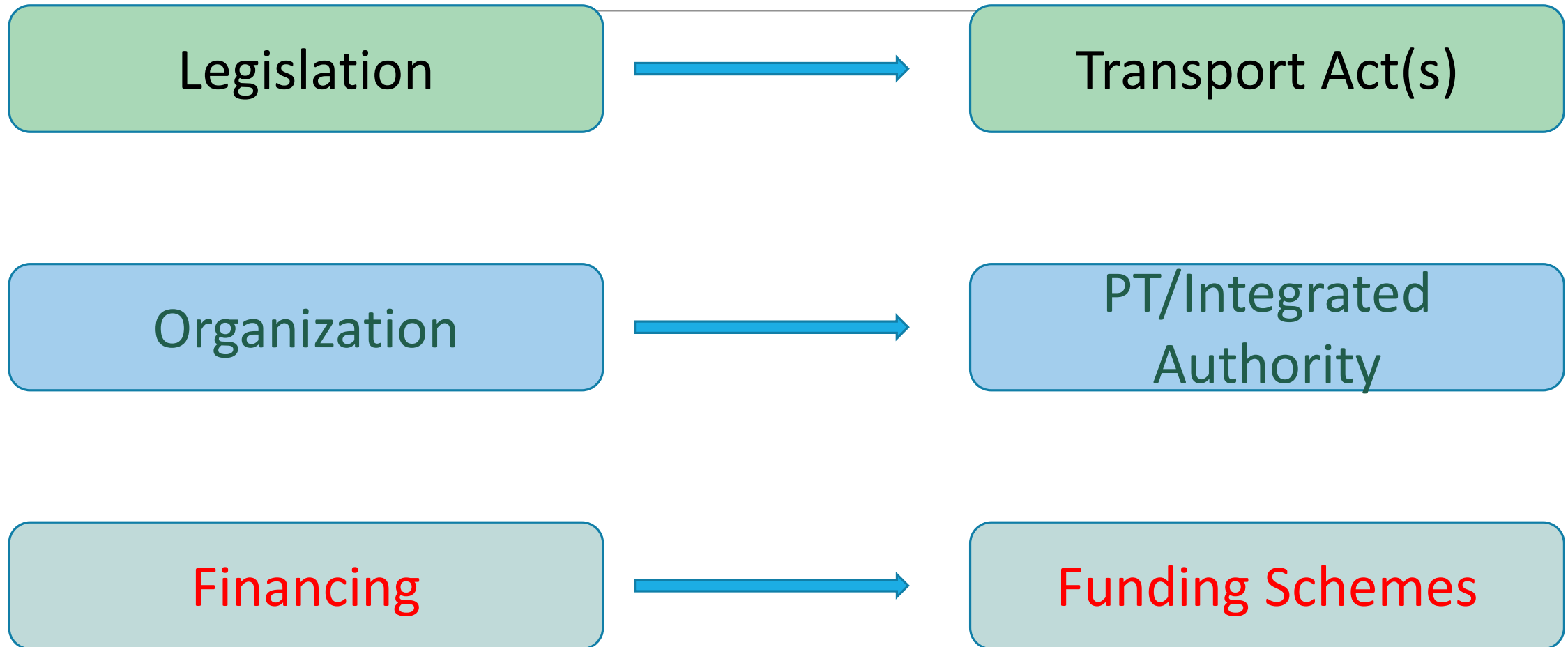
Source: Guido Bruggeman



- 4 Clear services contracts with Public Transit Operators

Political Support

The Pillars of a successful PT system [2/2]



PT as a major transport policy tool

1 Policy Objectives



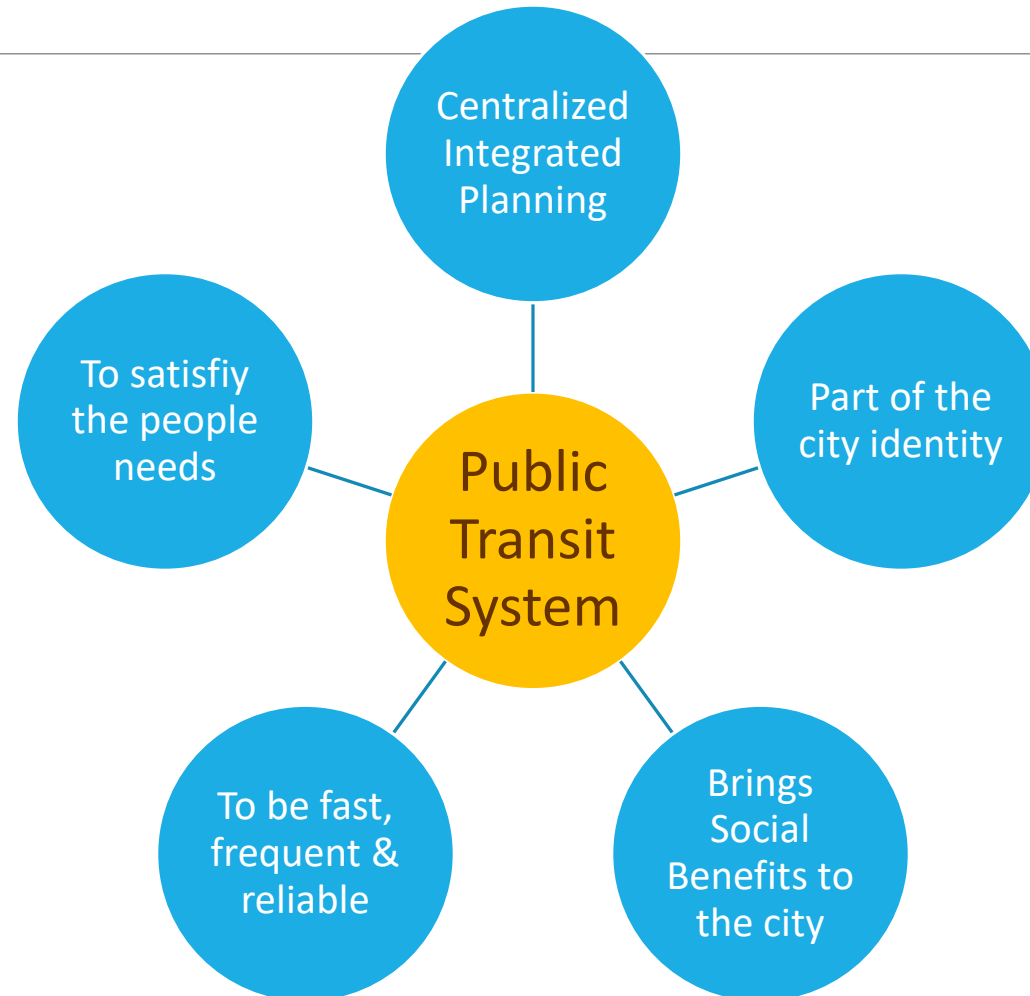
- Promote sustainable development
- Achieve Social Inclusion
- Increase PT share at Regional and Municipal level
- Reduce dependency from private car use
- Improve environmental conditions
- Improve vehicle and pedestrian safety
- Achieve economic growth

- Promotes Sustainable Mobility and non motorized modes
- Serves equally all citizens
- Reduces car use
- Improves environmental conditions
- Reduces external costs
- Creates job positions
- Helps upgrade public space

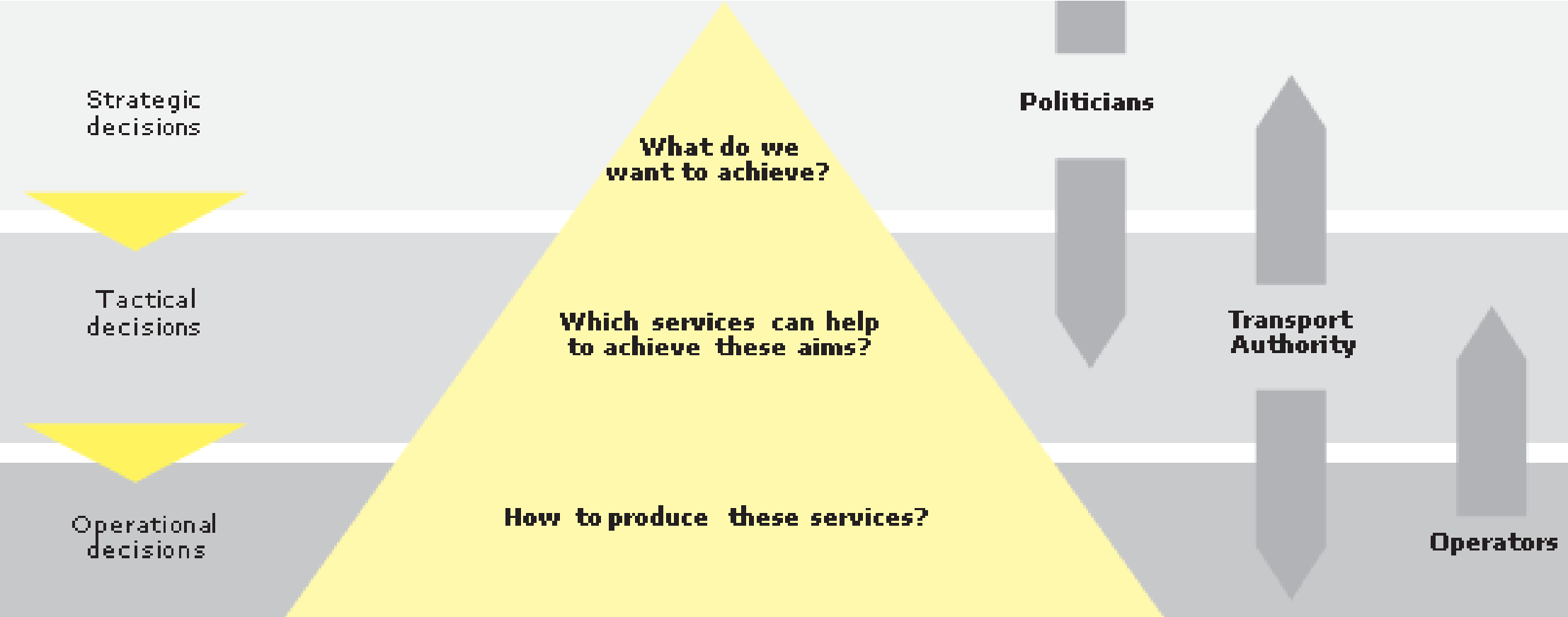
2 Public Transit



Determinants of a good Public Transit System



Classification of Decisions about Public Transit



Source: UITP OAC, Setting Up your Transport Authority, 2009

Role of PT/Integrated Authorities

Strategic and Policy Planning

System Planning

PT Service Planning

Contracting of services

Monitoring, quality control, enforcement

Management of ticketing system and revenue allocation

Financial management

Investment planning

Project development and implementation

Passenger Information and marketing

Example of Responsibility Allocation between Authorities and Operators



Model for a PT Authority



Source: EPTA project

PT costs and Sources of Financing

Operating costs

- Labor cost
- Fuel + energy
- Maintenance
- Outsourcing costs
- Administration

Investment costs

- New Infrastructure
- Infrastructure upgrading
- Rolling Stock
- Buildings and facilities

Financing sources

- Fare Box revenues
- State/Regional/Municipal subsidy/compensation
- Income from investments
- Advertising
- Loans
- Other revenues

A PT Funding Example - London



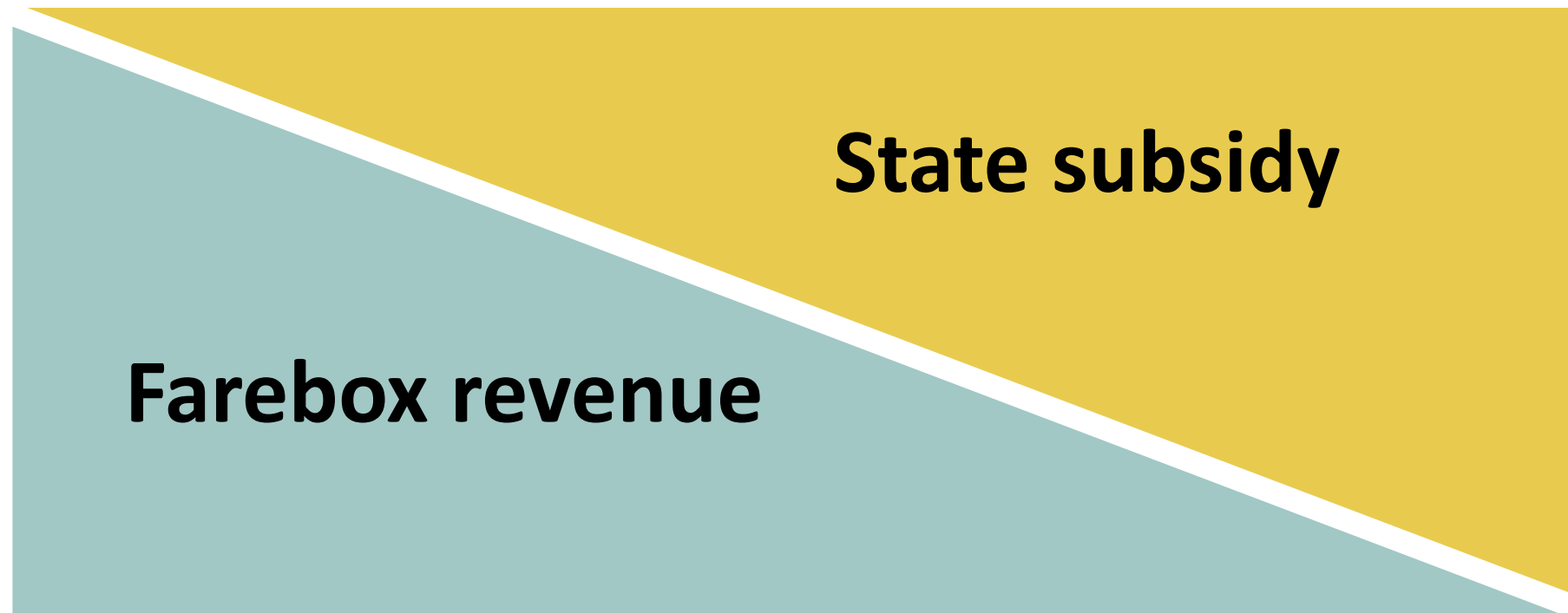
Multiple channels

Transport for London (TfL) is funded from five main sources:

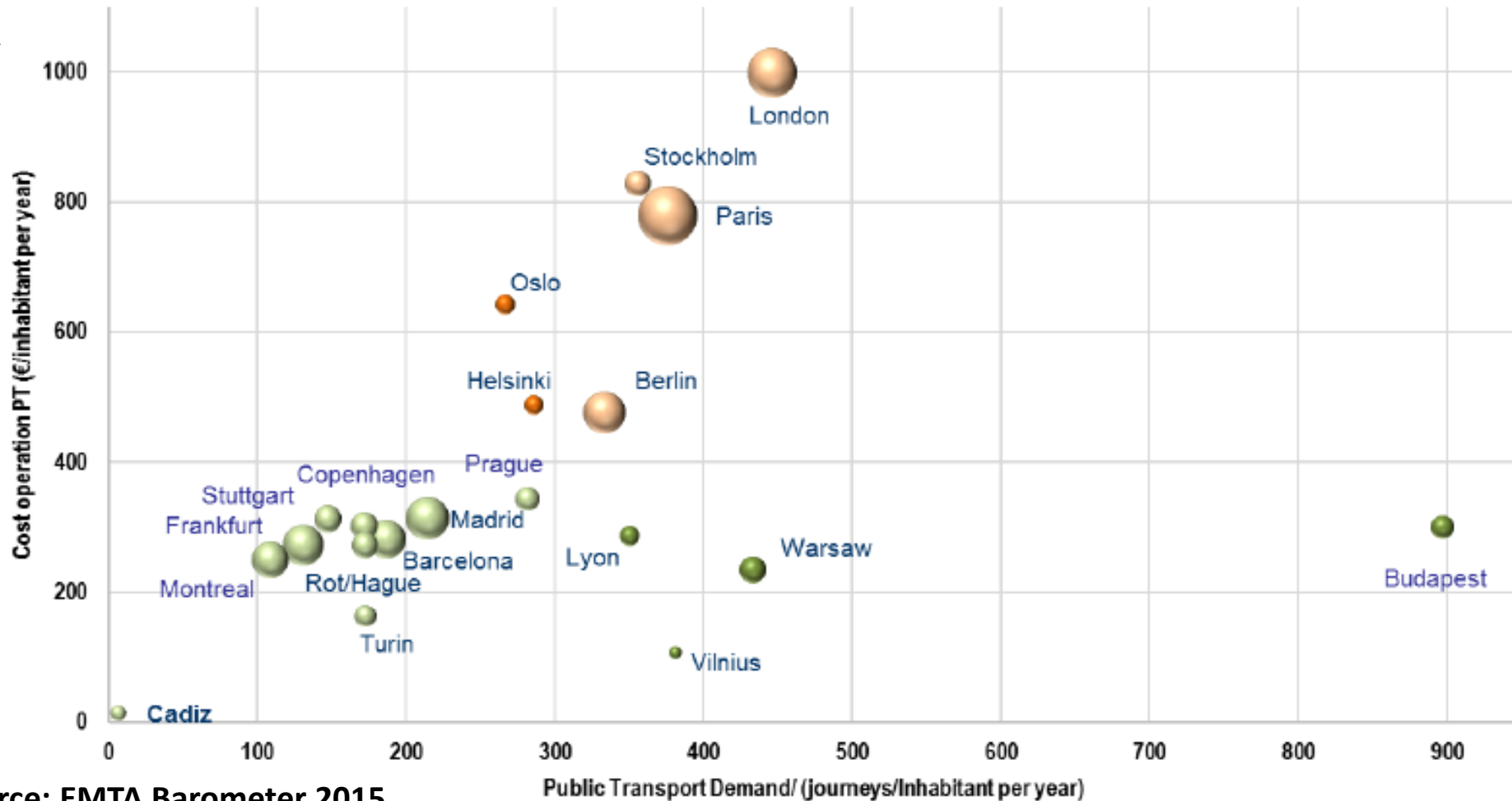
- fares, which represent the largest single source of income
- other revenue, including advertising, property rental, and the Congestion Charge
- grant funding from the Department for Transport (DfT) and Greater London Authority (GLA)
- the Crossrail high frequency, high capacity railway (under construction for London and the South East)
- borrowing and cash movements

In 2015-16, the authority had a budget of £11.5 billion (€13.7bn), 40% of which came from ticketing, the rest from government backing (23%), borrowing (20%), other income (9%), and Crossrail funding (8%).

Farebox revenues versus State subsidy

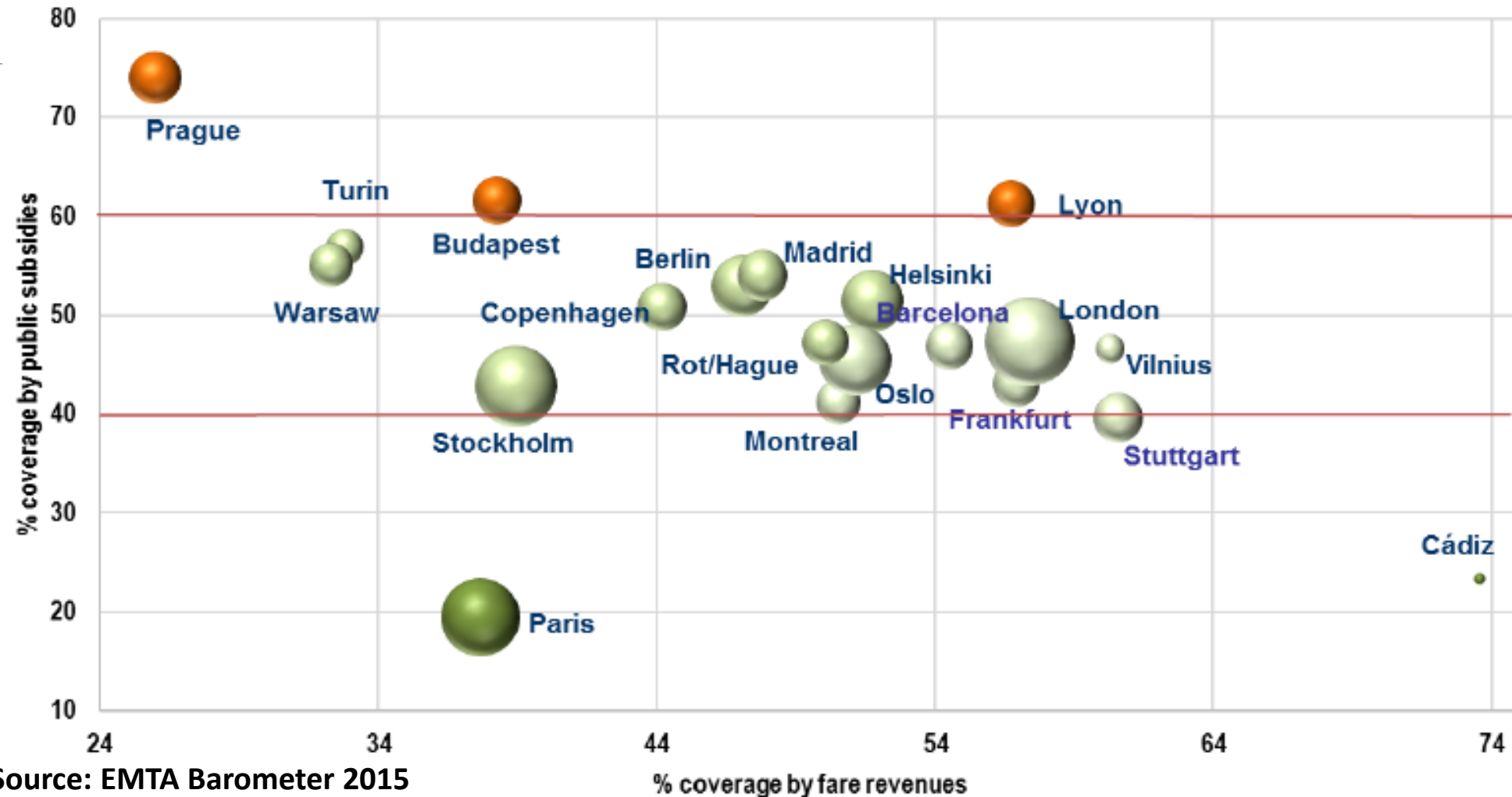


Examples of PT operation cost



Source: EMTA Barometer 2015

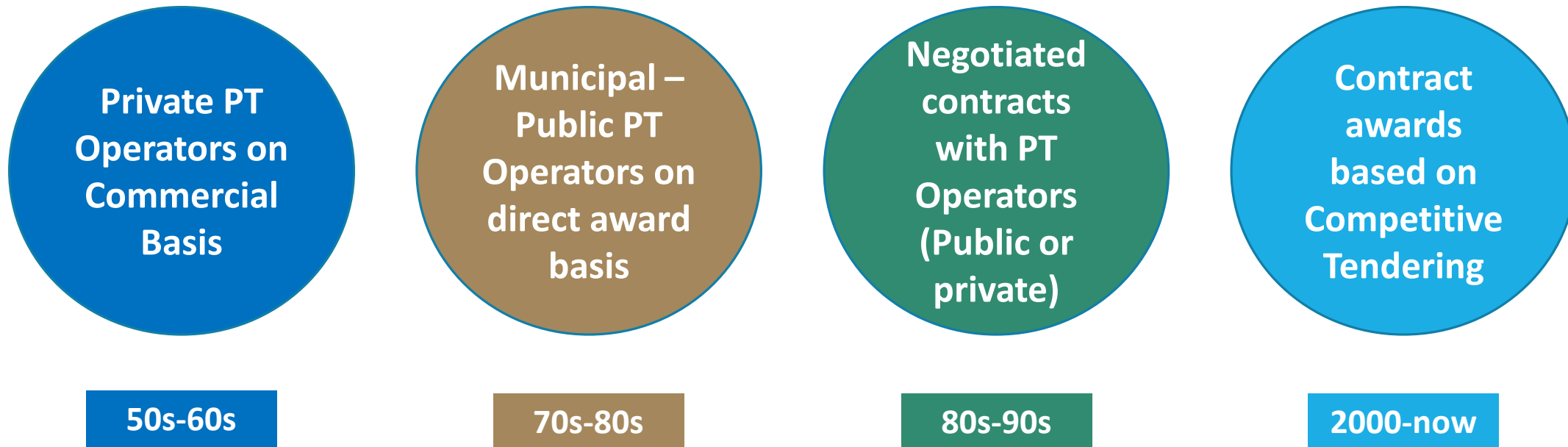
Coverage by Public subsidies VS coverage by fare revenues



Source: EMTA Barometer 2015

PT Market Structures & PT Services Award Types

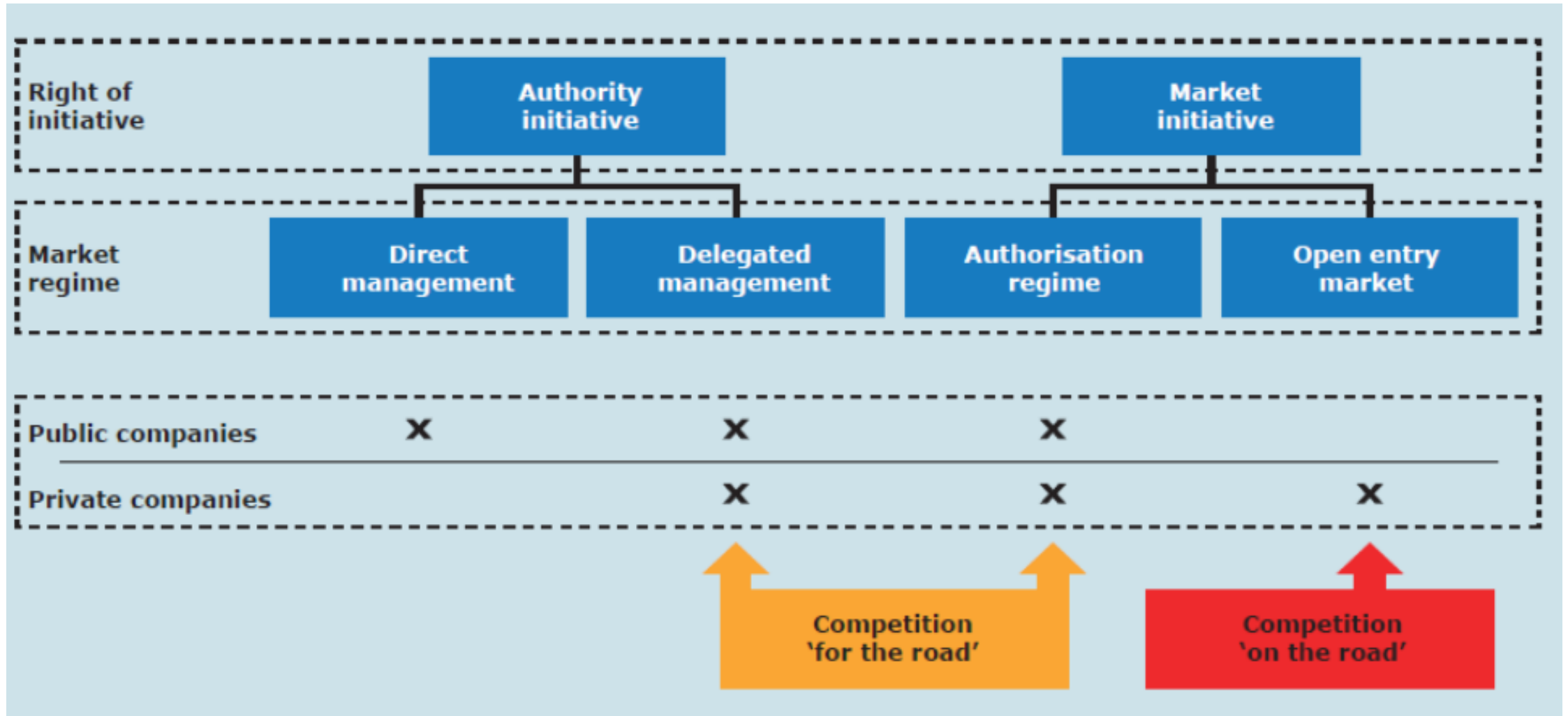
Historical evolution of PT awards



Types of PT service awards

- 1 Direct Award
- 2 Negotiated Contract
- 3 Competitive Tendering
- 4 **Commercial Basis**

Overview of Market Regimes in Public Transport



Types of Public Service Contracts

- 1 Gross Cost Contracts w/o or with Free Inputs
- 2 Management Contracts
- 3 Net Cost Contracts
- 4 Quality Incentive Contracts

Gross Cost Contracts

Operator is paid for the production of services by the competent authority based on an agreed pricing structure

The competent authority decides on the volume and nature of services

The passenger can be viewed as the customer of the competent authority, and the Operators as a sub-contractor of the Authority

Revenues (normally) are collected by Authority

Authority pays the public service operator all the financial costs, plus a reasonable profit

Suitable for urban areas with one or many modes and simple fare structure

The Authority carries the Revenue Risk

Net Cost Contracts

Compensation payments calculated on the basis of net costs, with the public service operator retaining revenues from the sale of tickets

The operator is paid an agreed amount on the basis of the expected difference between the revenue and the total operating costs

Revenues, information and customer relationship is mainly task of the public service operator

The Authority has a societal role such as assuring service quality or providing funds to modify the volume, type or price of services that would otherwise have been provided commercially

Operator to receive reasonable profit, no over-compensation

Protection offered by Authority, e.g. fuel increases, financial crisis

The Operator carries both the Production and Revenue Risk

Gross Cost Contracts with Free Inputs

Competent authorities provide road vehicles free of charge to the operator, either from their own fleet, or by procuring these directly from another party

Competent authorities, or other urban, regional or national authorities, provide capital investment in infrastructure such as bus stops, stations, depots outside the framework for compensation defined in the public service contract

Local and national schemes to provide subsidised energy for public service operations, in the form of diesel fuel for bus services or traction electricity for tram, metro or urban rail services



Quality Incentive Contracts

Contracts with terms to improve performance against pre-defined metrics and influence the behavior of the operator

They work both ways (**bonus-malus system**)

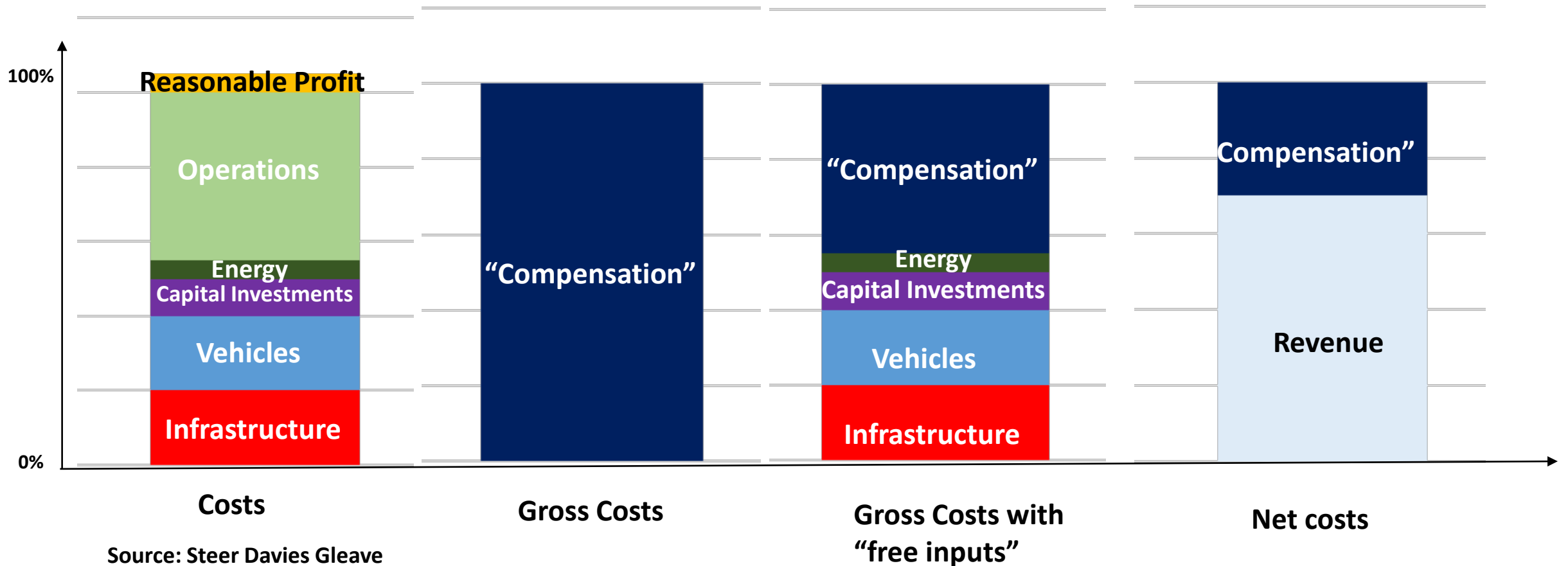
Examples:

- Operational performance metrics such as punctuality, cancellations or frequency
- Passenger satisfaction based on passenger surveys;
- Service quality based on 'mystery shopper' surveys
- Automatically measured availability or capability metrics, (proportion of ticket machines functioning correctly)
- Commercial metrics, (proportion of passengers found to be travelling without a ticket)

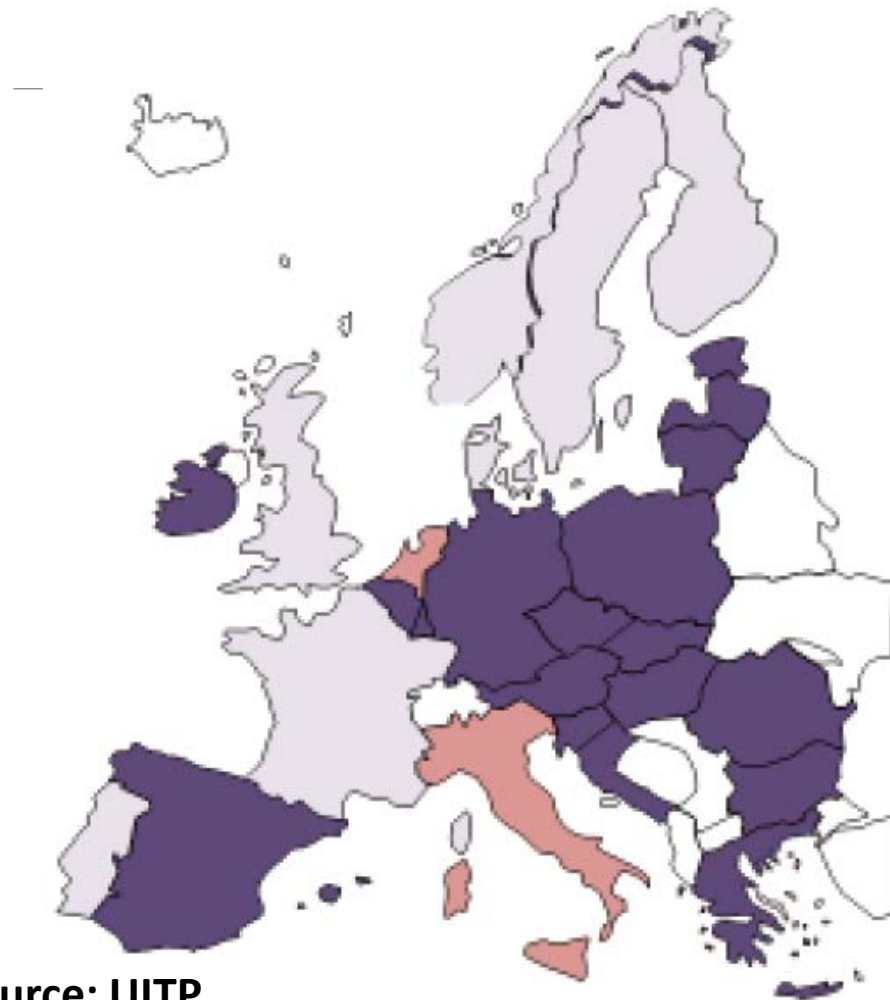
Incentive mechanisms often partly seek to replicate the incentives that would be provided by market forces, if the service was operated in a fully competitive market

Additional payments and penalties may be limited by a cap e.g. 15% and 10%

Contracting and payment model



Overview of contract types in the European Union



Competitive tendering of about 80% of the UPT services

Competitive tendering of about 80% of UPT services

Competitive tendering of about 40 to 65% of the market

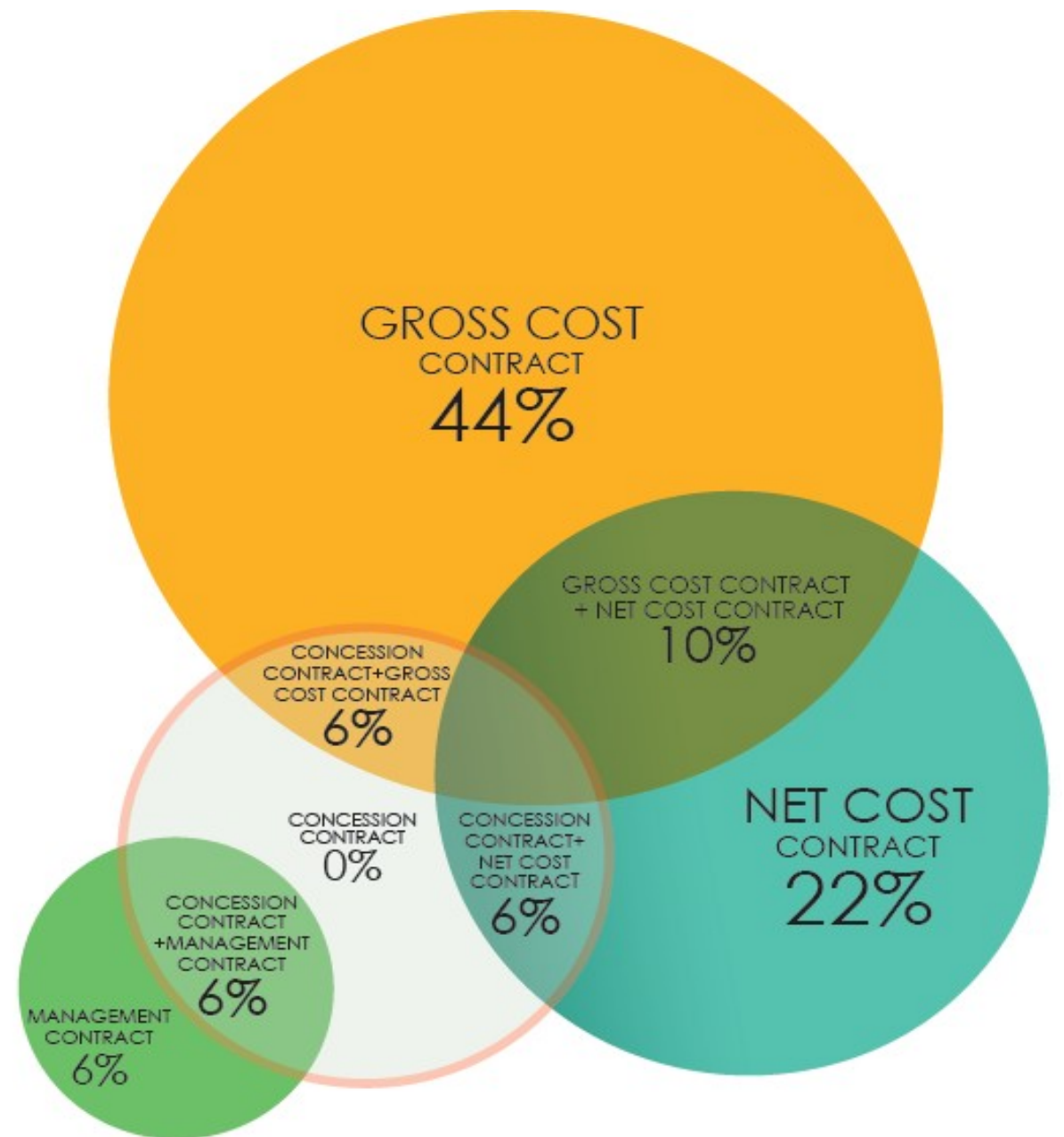
Competitive tendering of about 40-65% of the market

Direct award mainly – marginal use of competitive tendering (less than 30%)

Direct award mainly – marginal use of competitive tendering (less than 30%)

Source: UITP

Allocation of Contract types in UITP Organizing Authorities



Source: UITP/OAC

Example

Singapore New Bus Contracting Regime

Under Singapore's new bus contracting, Government will:

own buses and bus infrastructure and contract out packages of routes for operators to operate based on Gross Cost Contract Model

retains fare revenue

pay the operators a **fee** to operate and maintain the services



Risks in Public Transport Services [1/2]

Production Risk

Production risk is the difference between the real cost to produce and what the operator has agreed to in the public service contract

it should provide the operator with an incentive to ensure cost-effective service provision and/or to maximize revenue, and thus improve the financial performance of the sector

Two production risk types:

- Internal (production process, maintenance, labor cost, etc.)
- External (congestion, energy prices, availability of services from other entities)

Risks in Public Transport Services [2/2]

Revenue Risk

Revenue risk is the difference between the actual and the expected revenues

It is a function of

- demand for transport services,
- attractiveness of the services compared to alternatives,
- applicable fare products and tariffs,
- the effectiveness of the revenue collection mechanisms

Other Risks

Financial risks linked to

- interest rates
- currency exchange rates
- availability of capital

Environmental risks

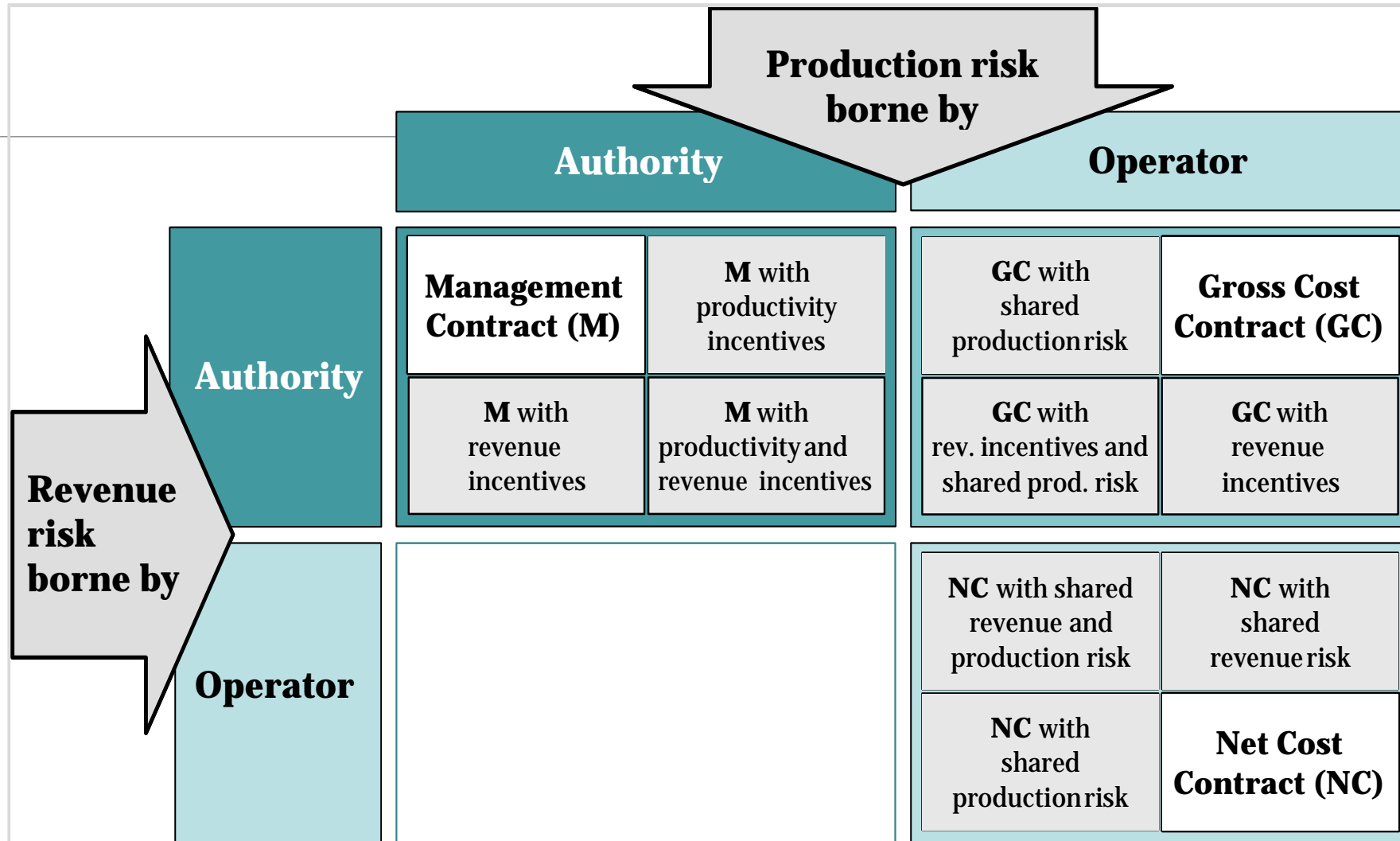
- associated with meeting the fleet environmental standards

Planning risk, related to changes affecting

- **Demand, in terms of volume, location, patterns, introduction of new transport mode, and respectively**
- **supply and revenues**

The assignment of planning risk is normally directly linked to whether contracts are gross or net cost

Risk Allocation Overview



Source: Contracting in urban public transport, 2007

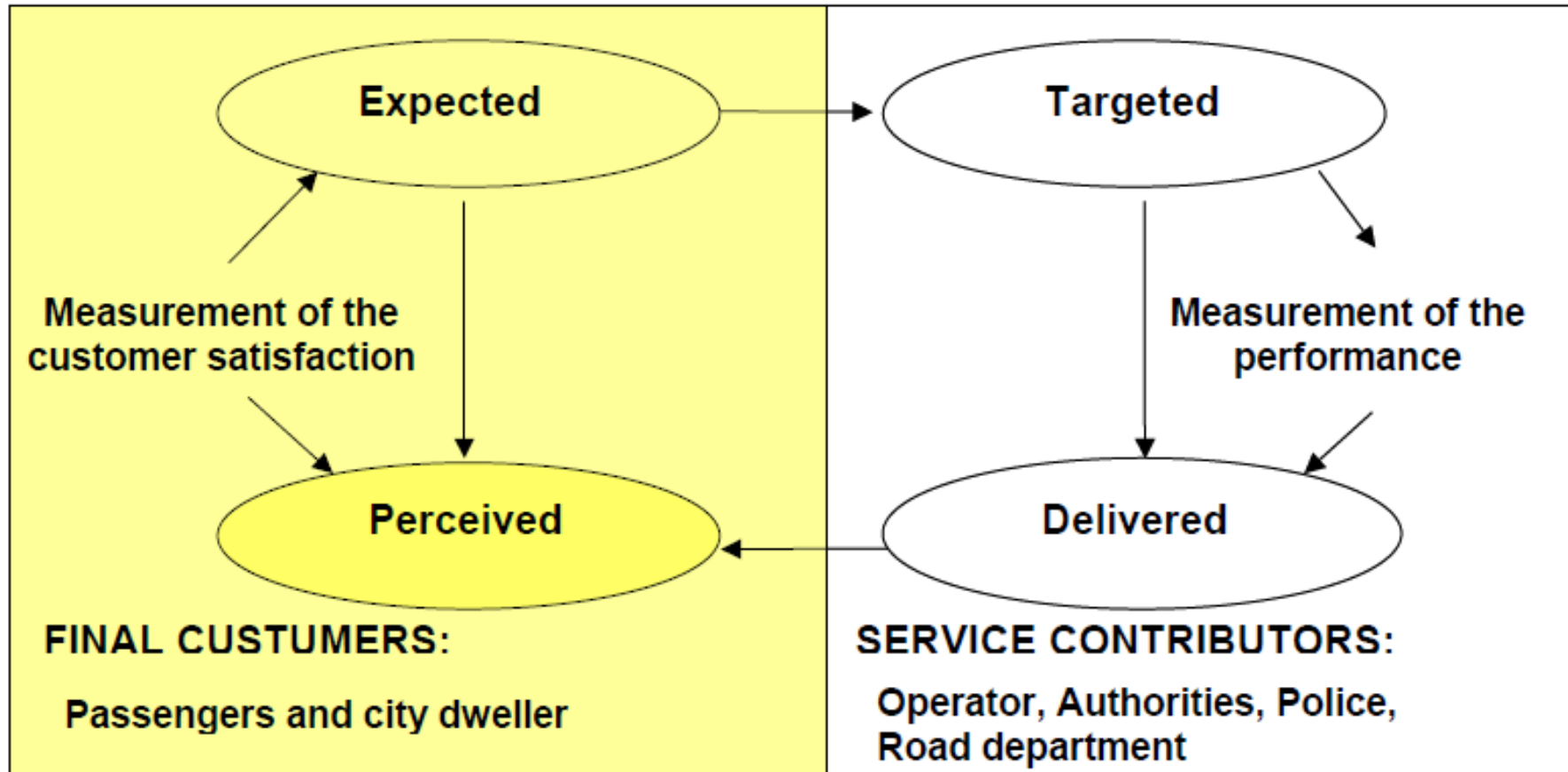
QUALITY IN PT

Quality in Public Transport



CEN 13816

The Public Transport Quality loop



CEN 13816

Measurement of Quality

- 1 Performance Measurements (Data collection & Surveys)
- 2 Mystery Shopper Surveys
- 3 Customer Satisfaction Surveys

Performance Measurements & Customer Surveys

Quality attributes

- Availability
- Accessibility
- Trip duration
- Customer Service
- Safety and Security
- Information Provision
- Comfort
- Impacts on Environment

Linked to service standards

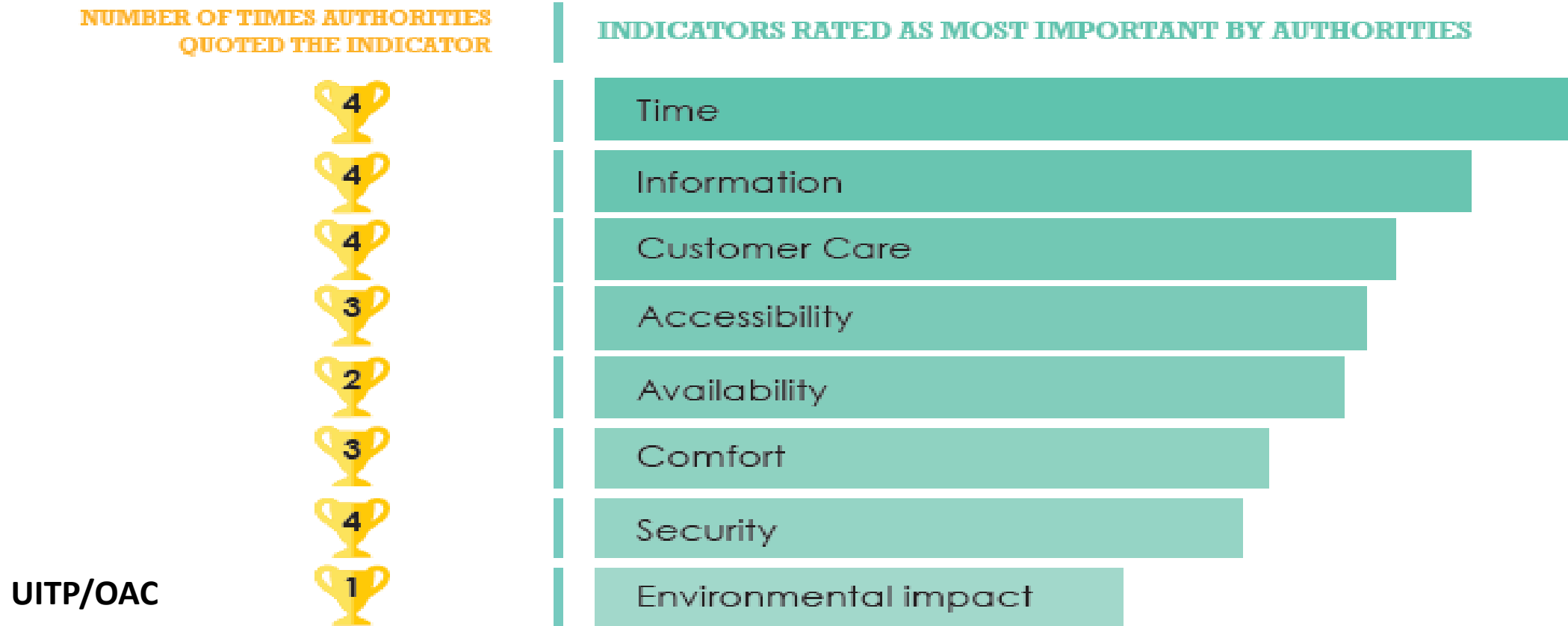
Comparison between targeted, delivered and perceived

Rated on a Likert scale by PT customer samples

➤ Importance

➤ Satisfaction score

Quality Indicators Linked to the Implemented Bonus/Malus System



Customer Satisfaction Index

$$CSI = \frac{\sum_{j=1}^n \sum_{i=1}^{10} W_{ji} * X_{ji}}{n * \sum_{i=1}^{10} W_{j1}}$$

Where:

- n sample size
- i the rated quality attribute
- j the respondent from the sample
- X_{ji} the score assigned by respondent j on quality attribute i
- W_{ji} the weight corresponding to quality attribute i according to the importance given by the respondent j

Example of quality attributes in CSI

From Athens Urban Transport System

Quality Attribute	Weight Factor (%)
Schedule Reliability	10% (*)
Service Frequency	10%
Road Safety Feeling	10%
Security Feeling	10%
Information provision	10%
Vehicle Cleanliness	10%
PT Staff behavior to customers	10%
Vehicle/Terminal/Shelter Cleanliness	10%
Vehicle functions (heating – air conditioning)	10%
Daily service hours	10%
TOTAL	100%

* Indicative values

The way forward

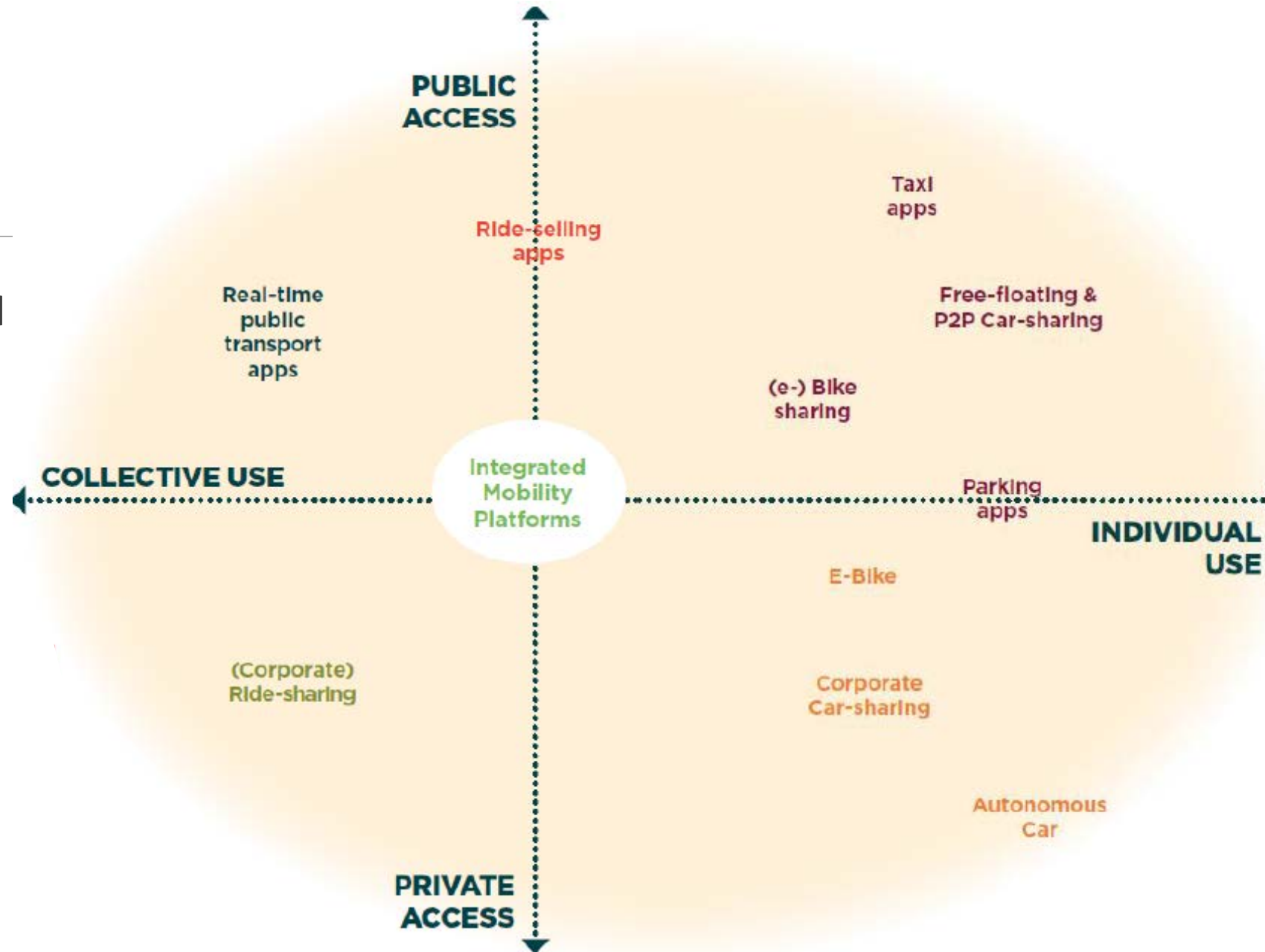
PT contracts around the globe

<p>Europe</p> <p>It is becoming increasingly common practice to have a contract in place in the case of a direct award procedure. Particularly when the transport operator is receiving financial support in the form of subsidies or compensation for the services provided.</p>	<p>North America and Australia</p> <p>Contracts between competent authorities and publicly owned transport operators usually exist, also because the latter obtain financial support from government.</p>
<p>Former Soviet Union and the Indian sub-continent</p> <p>Publicly owned transport operators still have a majority of the market, but almost none of them operate under Public Service Contracts.</p>	<p>Central and South America, South East Asia</p> <p>Publicly owned operators are uncommon, except for metro operations. An exception is China, and the city of Bangkok, where state-owned buses are operated by Bangkok Mass Transit Authority (BMTA).</p>

Source: UITP

New mobility Services

- ❑ Sharing Economy, MaaS, High Tech applications and Innovations, AV, etc. create a new and fast changing scene
- ❑ In this scene, PT should have the central role
- ❑ PT Authorities need to become the central players and offer the services demanded by users, effectively, efficiently and at an affordable cost



Thank you