



# How can taxis provide subsidized transport in small towns and rural areas?

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# Background

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- ▶ March 2011: Paris workshop on Taxis and Hire Cars with Driver in small towns & rural areas.
  - ▶ Institute for the City on the Move (IVM) and the Taxi Research Network
  - ▶ 15 experts from Ireland, the UK, the Netherlands, Sweden, Norway, Denmark, and France.
  - ▶ Three main findings:
    - ▶ (i) the issues generally discussed about taxicab regulations are irrelevant in rural contexts,
    - ▶ (ii) subsidized transport services constitute the major part of rural taxis' turnover
    - ▶ (iii) insuring competition in the tendering process for these services is a very complex task that needs to be researched.
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# Outline

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- ▶ Growing needs and mounting costs
- ▶ Analytical framework
- ▶ Our sample of country case studies
  - ▶ France
  - ▶ The Netherlands
  - ▶ Sweden & Denmark
- ▶ Aggregating DRT markets without excluding smaller taxi companies
- ▶ The Regiotaxi system in the Netherlands
- ▶ The “Planet” system in Scandinavia
- ▶ Conclusion



# Growing needs and mounting costs

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- ▶ Urban sprawl
- ▶ Greying of the suburbs and of the countryside
- ▶ Growing awareness for the needs for social inclusion of the handicapped
- ▶ Rationalization of public services like healthcare and schools
  - ▶ centralization of services to achieve economies of scale



# Analytical framework

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- ▶ **A variety of transport needs**
  - ▶ Seated patients (~ Medicaid)
  - ▶ Handicapped or impaired people transport (~ ADA paratransit service)
  - ▶ Transport for the elderly
  - ▶ Public transport complement
  - ▶ School transport & special education transport;
  - ▶ Transport to promote job access for the unemployed.
- ▶ **Many different clients**
  - ▶ National or local health services
  - ▶ County & Municipal governments and Public transport operators.
- ▶ **Competing suppliers**
  - ▶ Metered taxis;
  - ▶ Private hire vehicles (cars and vans) (~liveries);
  - ▶ Ambulances;
  - ▶ Bus or Coach operators.



# Our sample of country case studies

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## ► Table I – Size effects of municipal boundaries

Country	Number of communes	Average population	Mean area km <sup>2</sup>	Average population density
Denmark	98	55.200	440	126
Netherlands	467	34.900	89	392
Sweden	290	31.100	1.522	20
Sweden *	186	32.700	438	75
France	36.565	1.600	15	108

Note : \* Sweden, excluding the 104 communes with more than 1000 km<sup>2</sup> area



# Our sample of country case studies

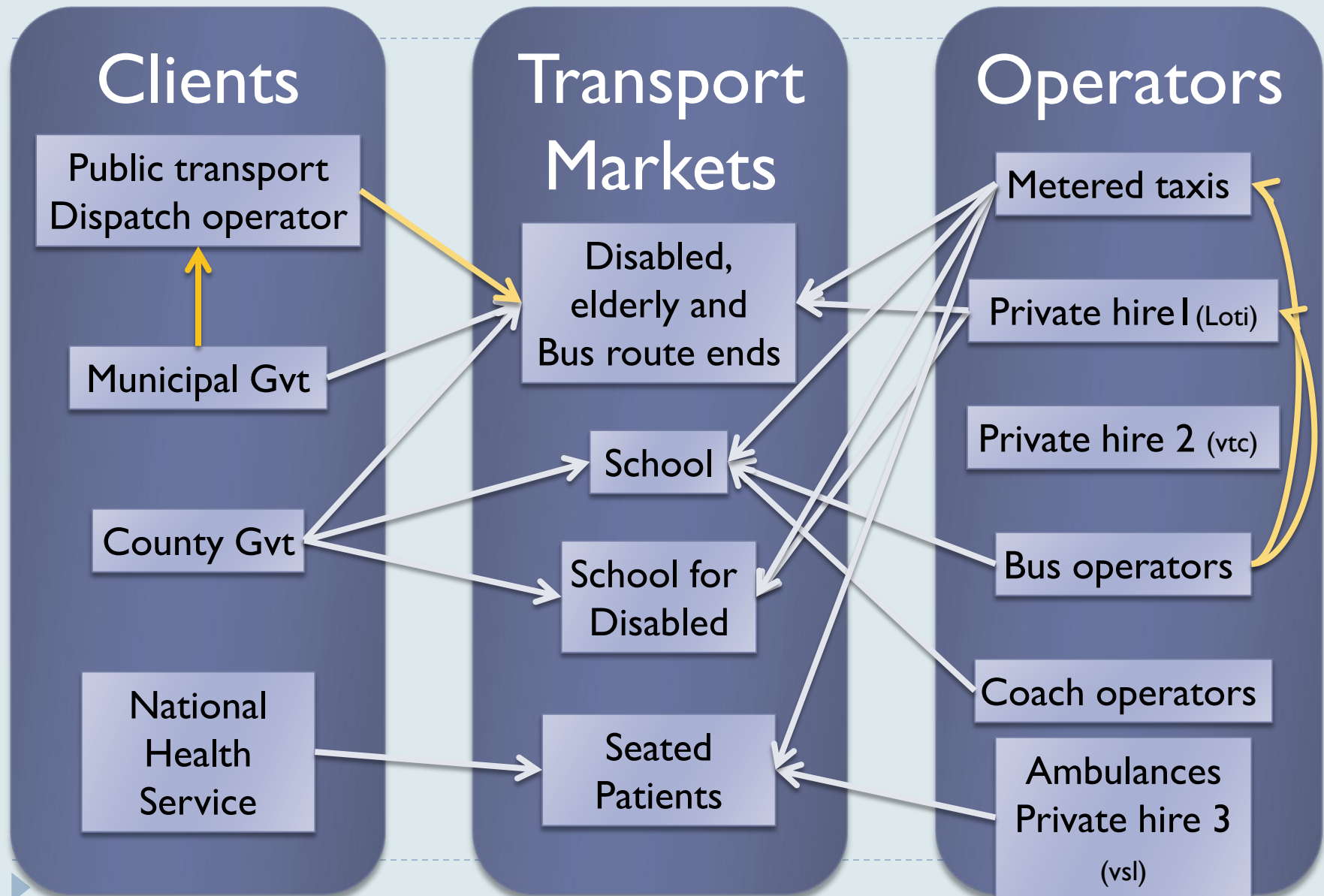
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## ► Table 2 – Capacity to regroup services in the same call for bids

	France	Netherlands	Sweden	Denmark
All services are competitively tendered		X	X	X
All services are under local responsibility			X	X
In some regions some services are regrouped		X	X	X
In some regions all services are regrouped			X	X

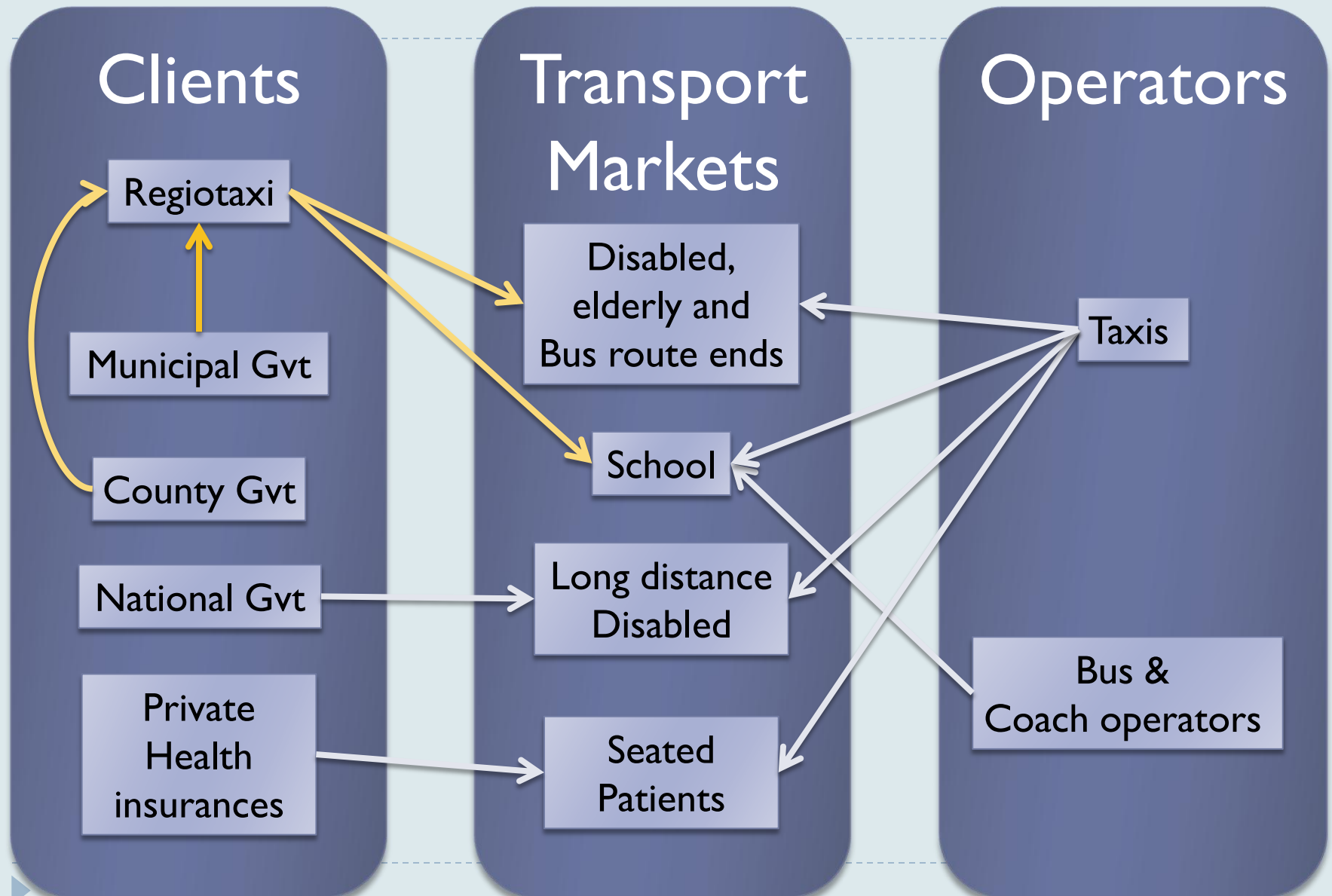


# Interactions between clients, operators and subsidized transport markets in France



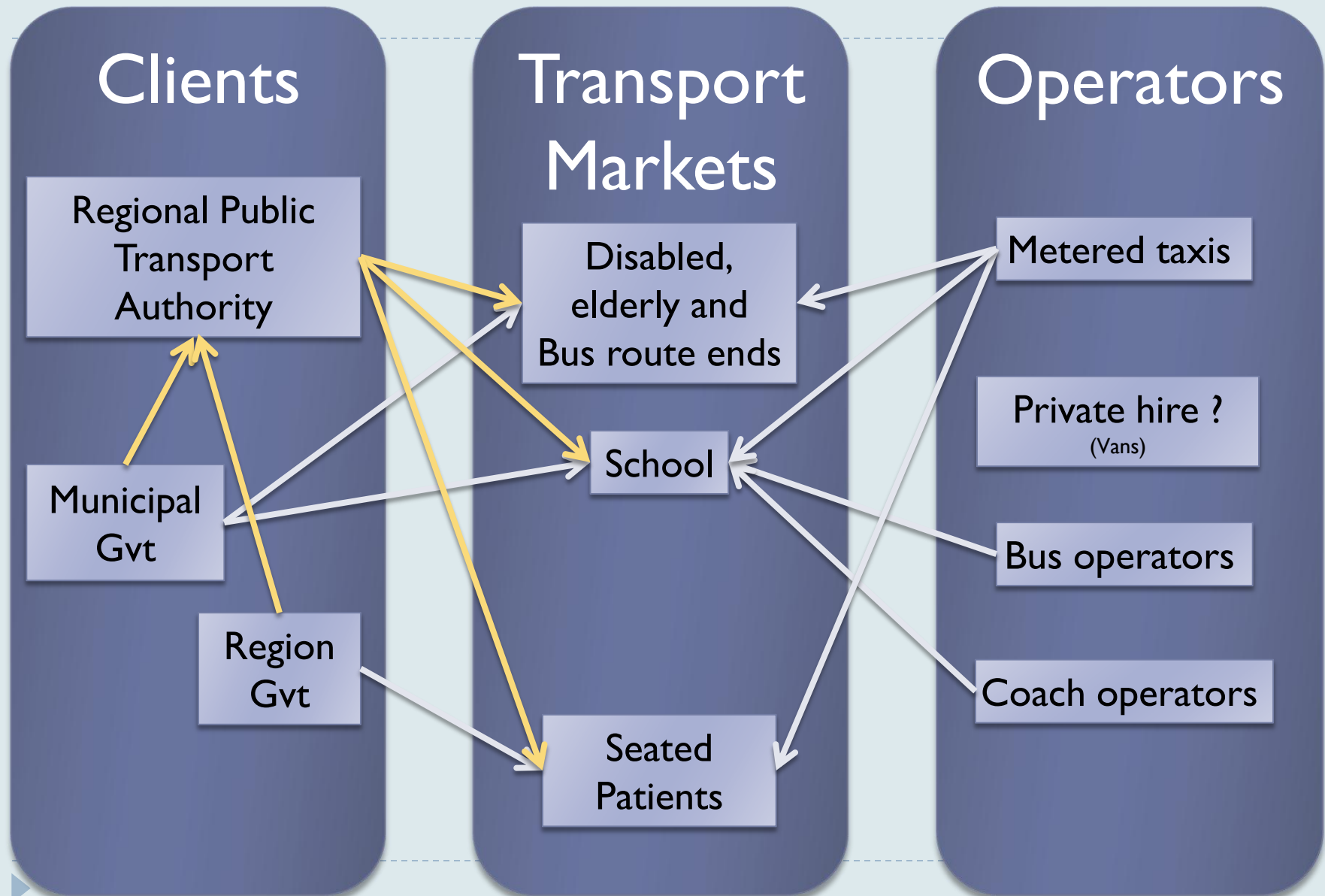
We call “client” the authority that awards the contracts, not necessarily the one that eventually pays for the service

# Interactions in the Netherlands



We call “client” the authority that awards the contracts, not necessarily the one that eventually pays for the service

# Interactions between clients, operators and subsidized transport markets in Denmark



We call “client” the authority that awards the contracts, not necessarily the one that eventually pays for the service

# Strategies to contain growing costs

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- ▶ (i) combine as much as possible the services for different target groups,
- ▶ (ii) try to introduce competition when tendering these services to the transport operators.
- ▶ These two strategies are intimately interwoven
  - ▶ the number of competitors and hence competition for the markets depends on the size of the market,
  - ▶ and the size of market depends on the ability of the various public authorities to work together and allow to regroup these different services into the same vehicles.



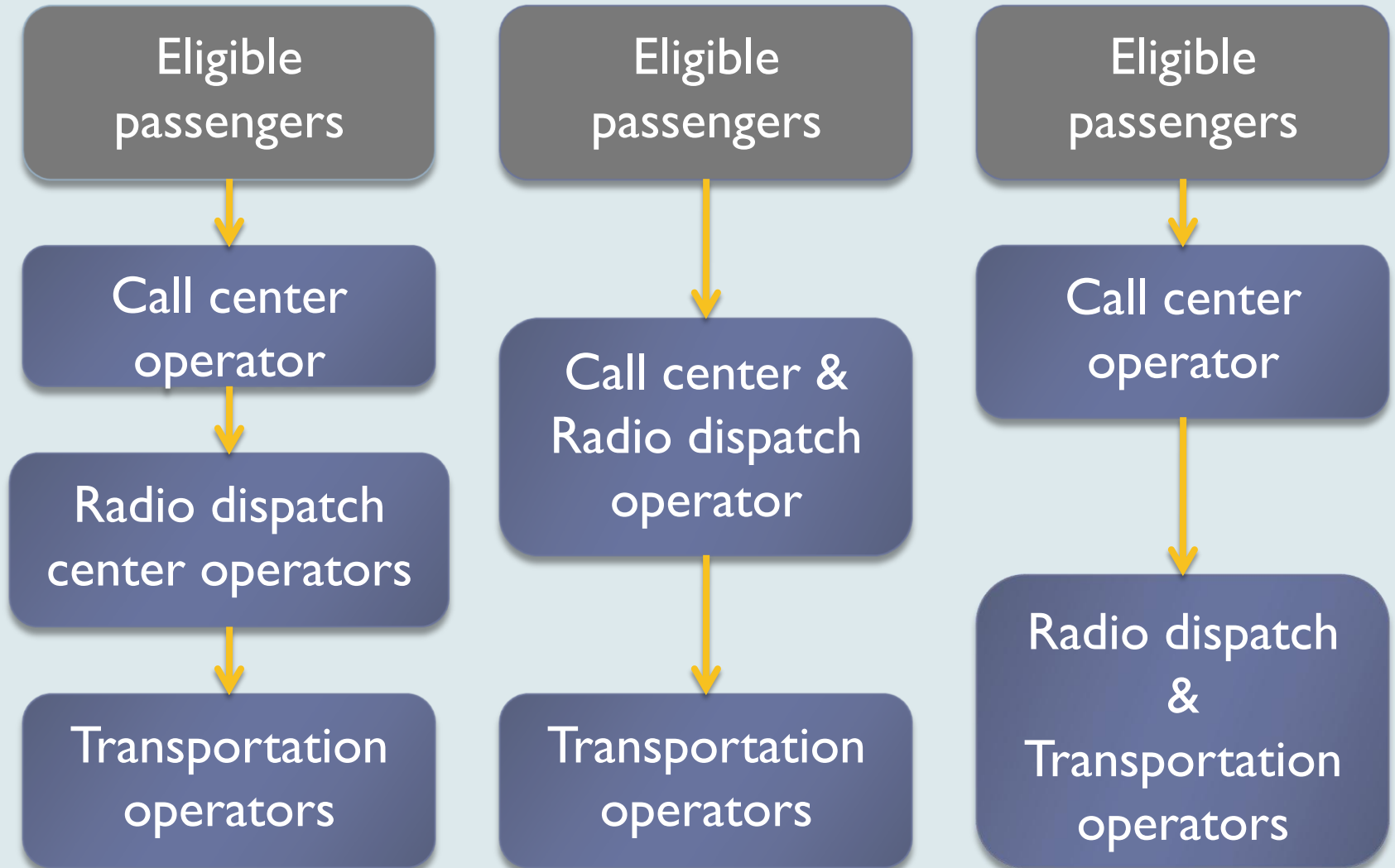
# What is procured

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- ▶ Once different institutions in charge of providing subsidized transport services for specific target groups have joined up as a single client, they can procure some or all the services along the chain that goes from the operation of the call center down to the actual transportation.
- ▶ Theoretically all these services can be procured separately, in fact they are sometimes regrouped and tendered to the same operator.
- ▶ Sometimes, some of them are not tendered and are provided (in house) by the public authority in charge of coordinating the system.

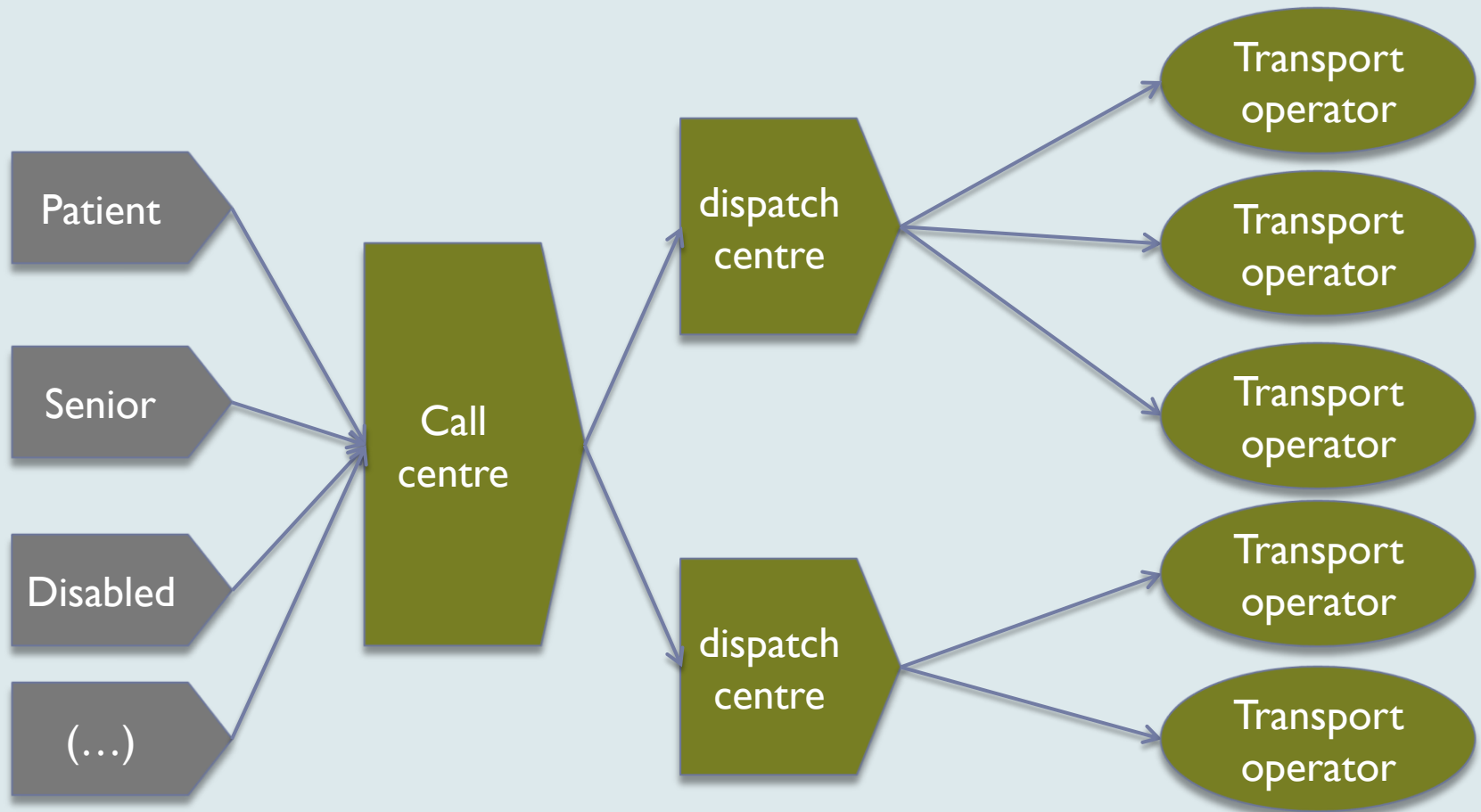


# What is procured

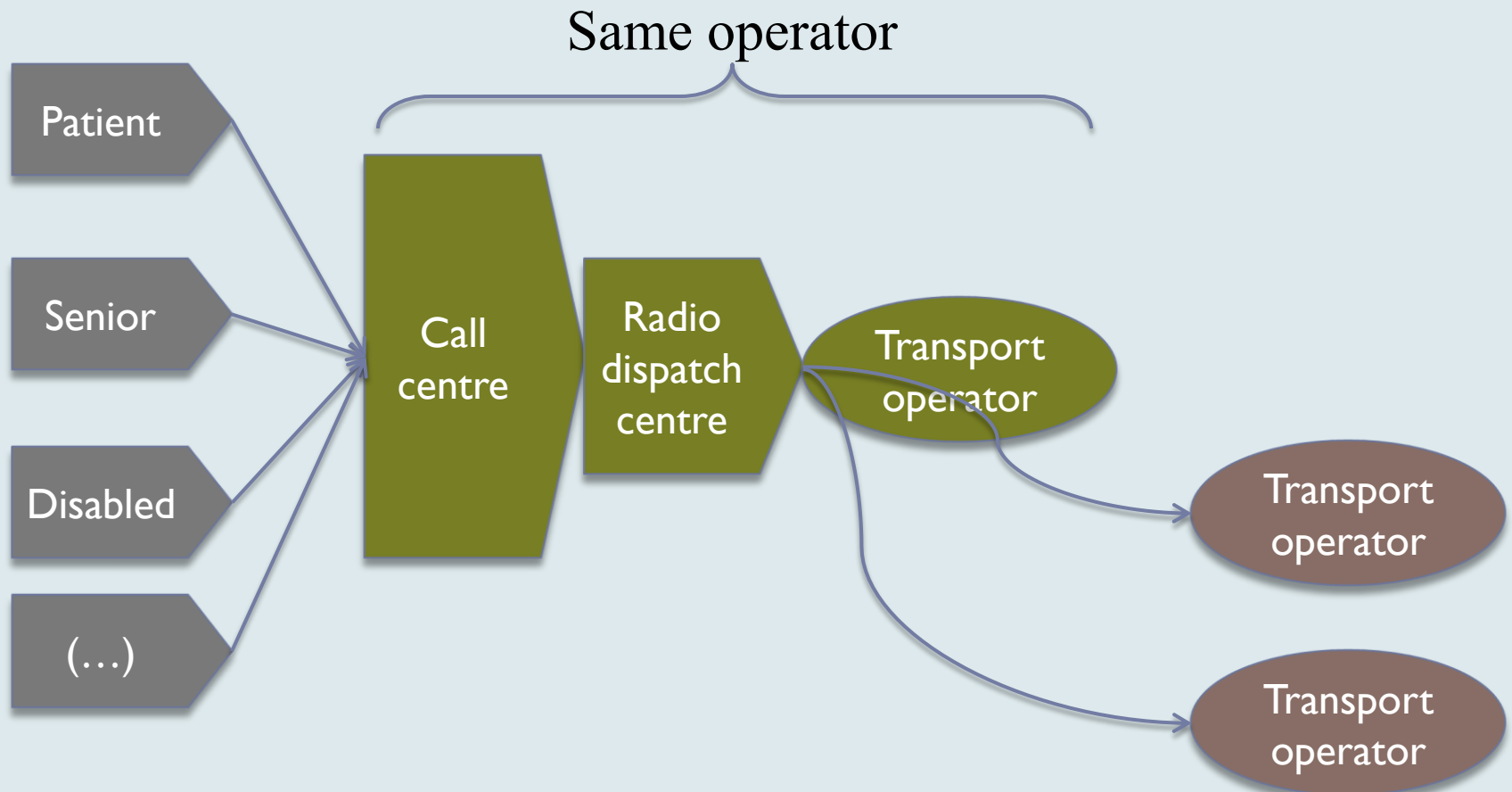


Theoretically all services can be procured separately

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In fact they are sometimes tendered to a single operator that, in turn, subcontracts smaller transport operators (Regiotaxi in the Netherlands)



# The Regiotaxi model

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- ▶ **Theoretical advantages**

- ▶ Competition for the market guaranties that prices will be low

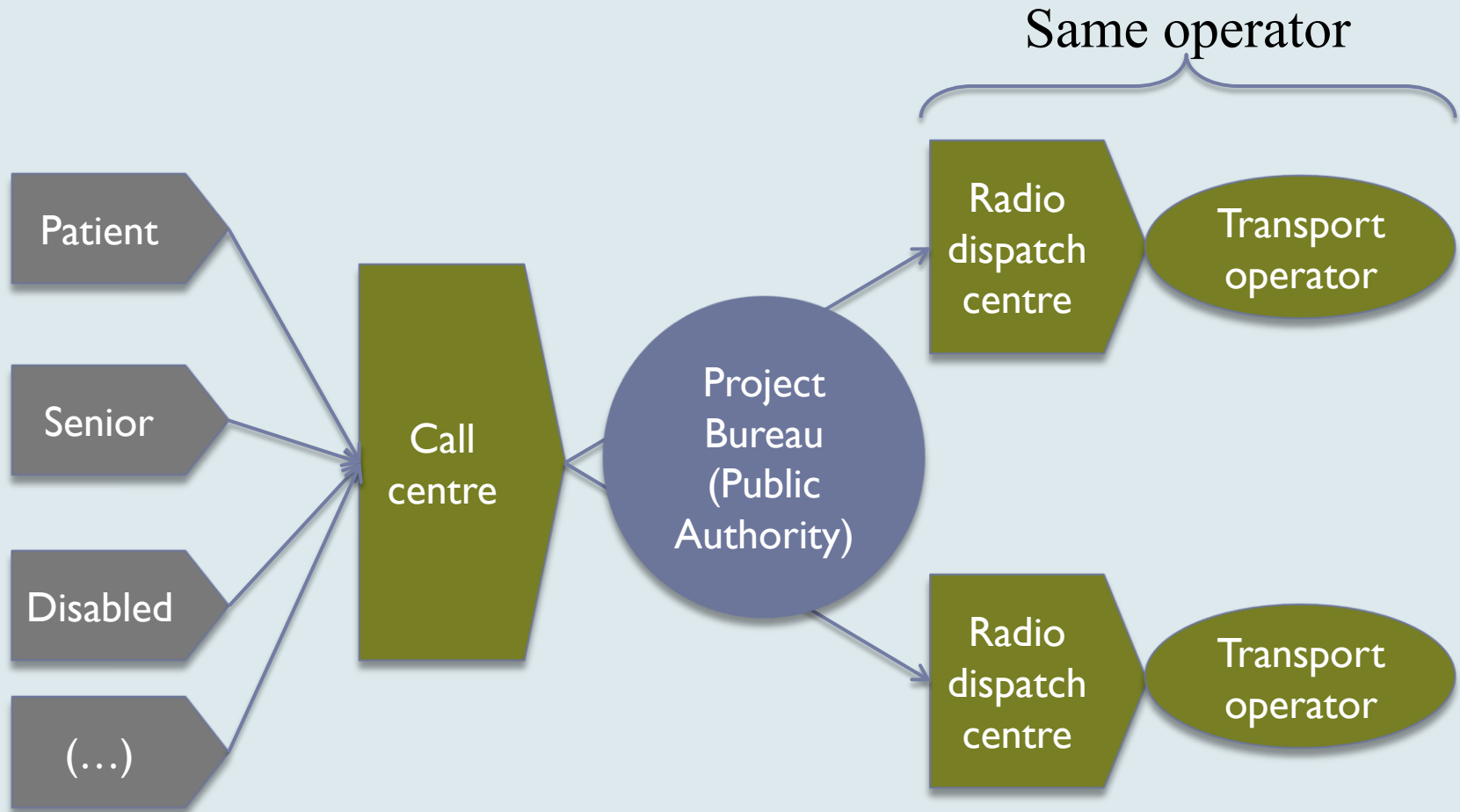
- ▶ **Real world shortcomings**

- ▶ No transparency: The contracting authority has no information on the unit costs of the different types of services
  - ▶ At the periodic tenders, the incumbent has an advantage: the knowledge of the actual market conditions.



# The province of Gelderland (Netherlands) solution

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# The Gelderland province Regiotaxi model

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## ▶ Constant monitoring

- ▶ All information exchanged between the operator of the call centre and transport operators passes through the computer system of this control office
- ▶ Also receives real-time GPS coordinates of each vehicle.
- ▶ All these data are recorded and a statistical analysis is done regularly

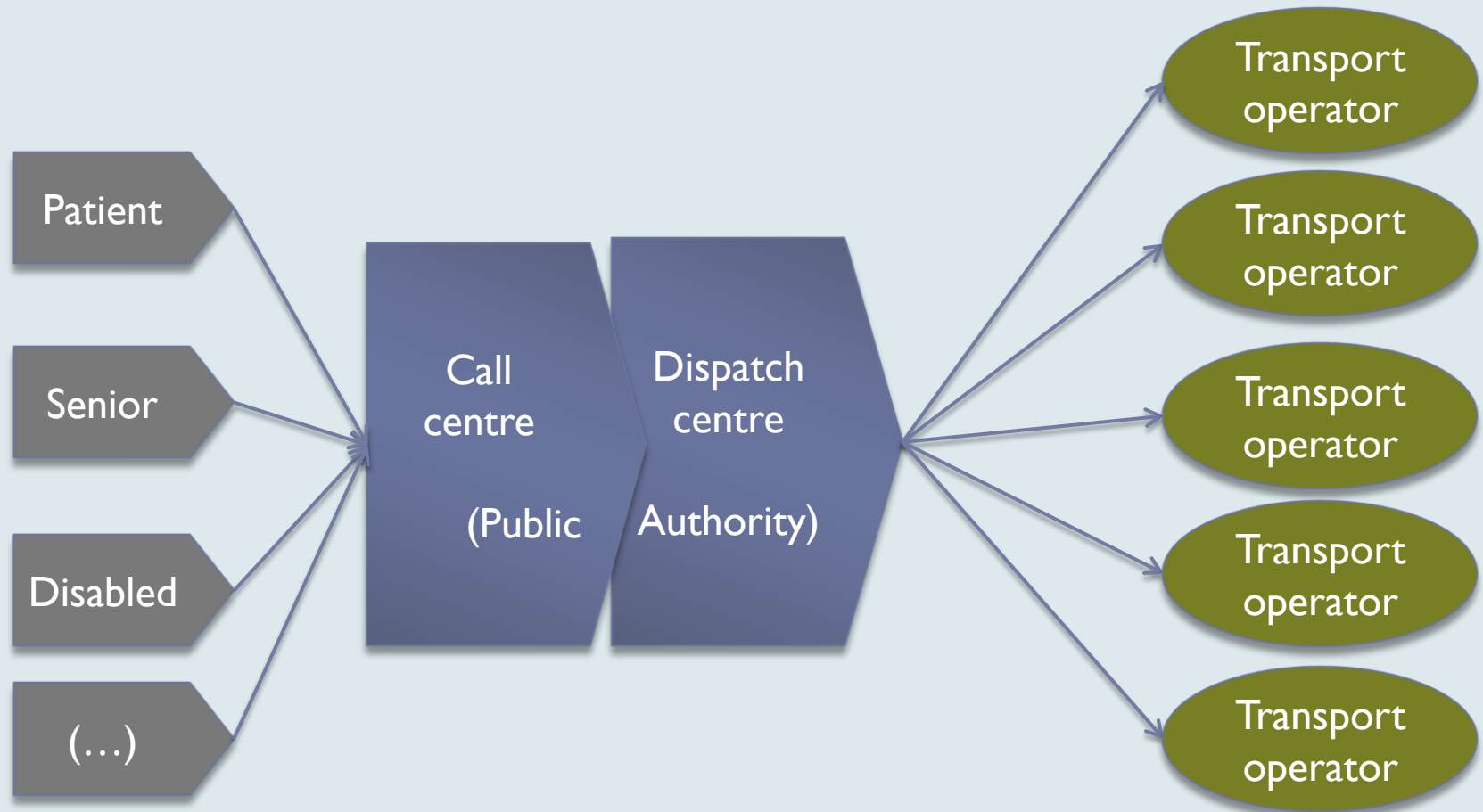
## ▶ Benefits

- ▶ First hand information on actual service quality
- ▶ At the periodic tenders, no advantage to the incumbents.



When the public authority operates both call & dispatch, many small transport operators can be contracted (Denmark & some Swedish counties)

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# Why it is important to keep the taxis in the picture

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- ▶ Because they are here
- ▶ Because they have a comparative advantage when markets are narrow
  - ▶ Given by their exclusive right to ply for hire and stand at taxi ranks
  - ▶ Economies of scope
- ▶ Because they also provide (non subsidized) mobility when a private car is not available



# The “Planet” system (Sweden & Denmark)

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- ▶ The demand aggregation
- ▶ A complex tendering system



# The demand aggregation

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## ▶ The challenge

- ▶ Coordinate these services as much as possible to increase volume, and the chance to fix ride sharing
- ▶ Link the various trips optimally to avoid deadheading between runs or assignments

## ▶ Which service?

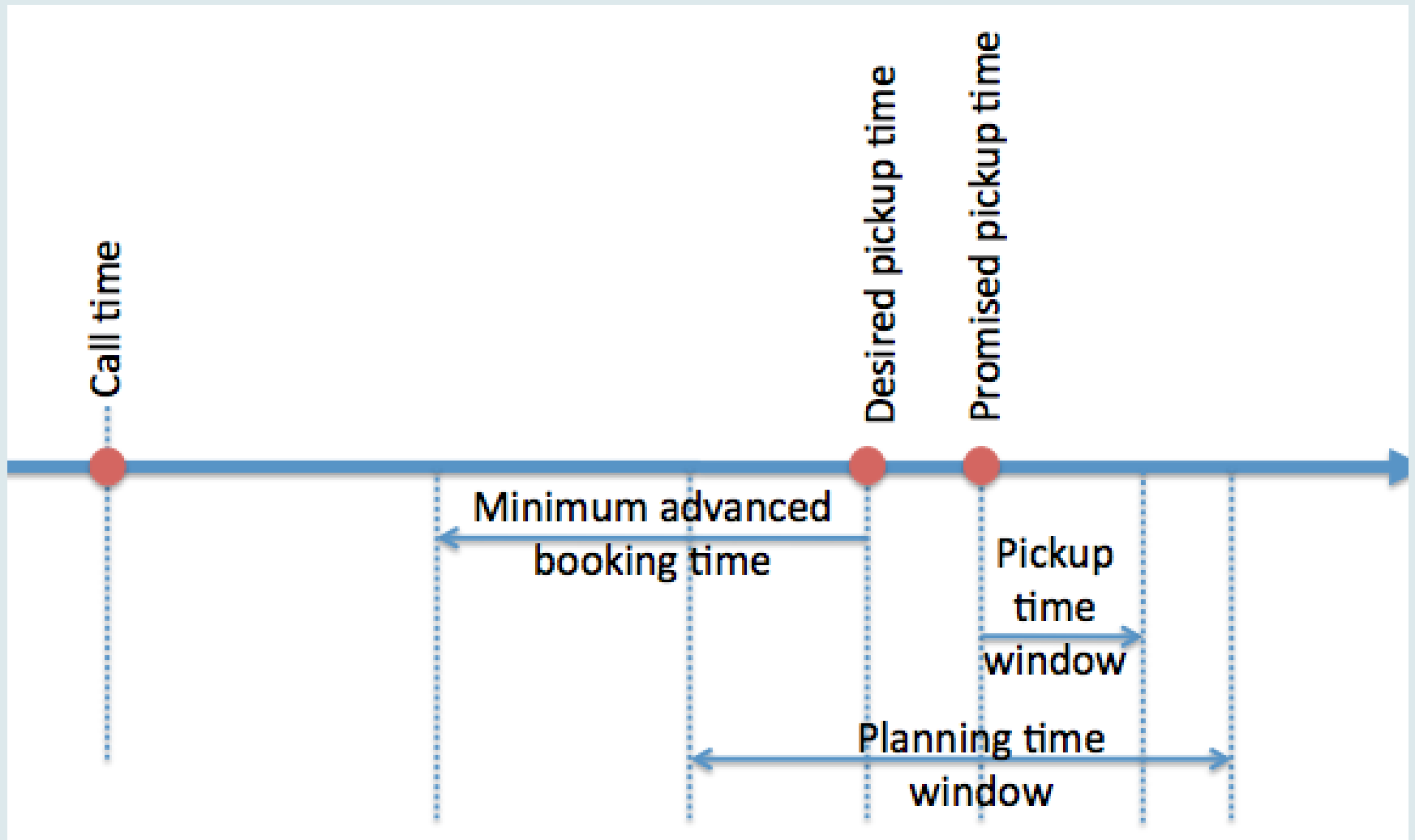
- ▶ Time windows (see next slide)
- ▶ Detour time (capped)
- ▶ Individual restrictions, or restrictions per category of customers.

## ▶ Which vehicle?

- ▶ The needs of the customer (special vehicle?)
- ▶ Cost per minute (selects cheapest)
- ▶ The geographic position of the vehicles (selects closest)



## Time windows



# A complex tendering system

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- ▶ Transport operators bid on a price per minute
- ▶ They can bid for two types of contracts
  - ▶ “Full day contracts”
  - ▶ “Spot-market hire contracts”
- ▶ Prices per minute are generally lower for “Full day contracts”
- ▶ For night services, the price per minute of all bidders is raised by the same given percentage (to make bids more easily comparable)



# A complex tendering system

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## ▶ “Full day contracts”

- ▶ the contractor provides the agency with...
  - ▶ a fixed number of vehicles
  - ▶ for a given period of time (generally all day long)
  - ▶ paid whether the vehicles are used or not.
  - ▶ The contracts also stipulate a “home area” where the vehicle is based.
  - ▶ Contract duration is 2-4 years

## ▶ “Spot-market hire contracts”

- ▶ the contractor shall make available to the agency
    - ▶ a maximum number of vehicles
    - ▶ at certain times of the day
    - ▶ paid only for the vehicles actually used, including the return trip to the “home area” base.
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# Comparing outcomes

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## ▶ How to measure the cost effectiveness?

- ▶ cost/passenger-mile?
  - ▶ Difficult because of differences in input prices
- ▶ revenue/passenger-mile?
- ▶ % of empty vehicle-miles
- ▶ passenger-miles/ vehicle-mile

## ▶ How to explain the cost effectiveness?

- ▶ Procurement process
- ▶ Other variables
  - ▶ Population density?
  - ▶ Age pyramid
  - ▶ Eligible population/ total population
  - ▶ Eligible population structure

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- ▶ Thank you for your attention
  - ▶ [darbera@enpc.fr](mailto:darbera@enpc.fr)
  - ▶ The original report of the research will shortly be available on our website
  - ▶ <http://www.ville-en-mouvement.com/taxi/uk/index.html>

