MODERN AND EFFICIENT PUBLIC TRANSPORT SYSTEM

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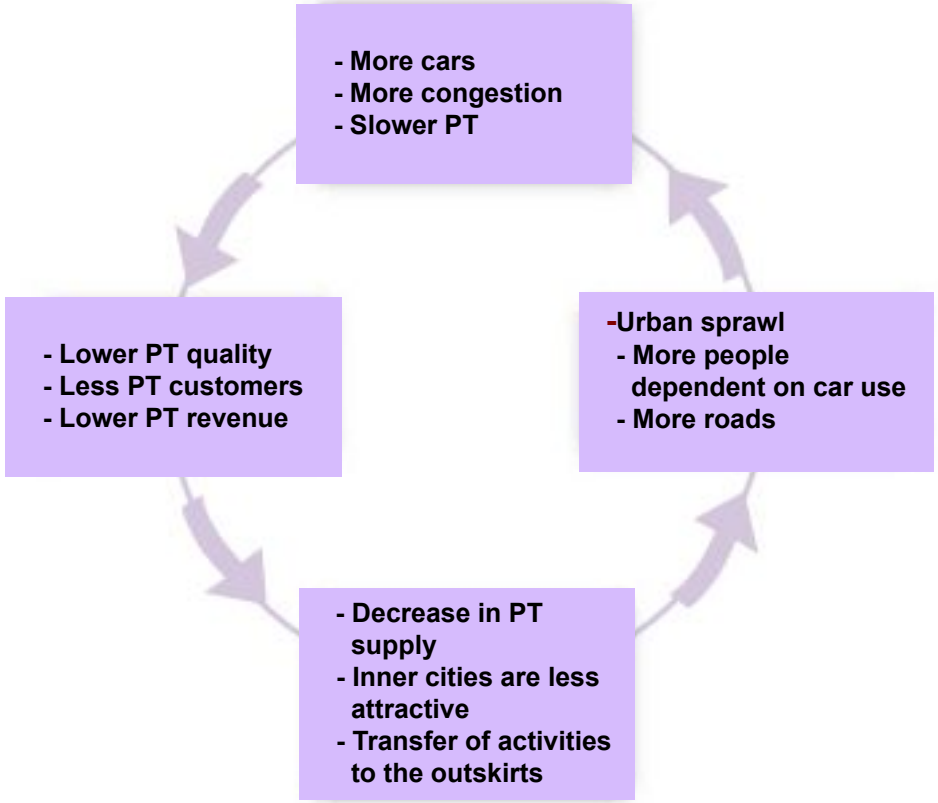
THE CONTEXT OF URBAN MOBILITY

- Urban sprawl
- Growing car ownership
- Increasing traffic congestion
- Improved energy/environmental technologies but lower energy/environmental performances
- Increasing energy prices

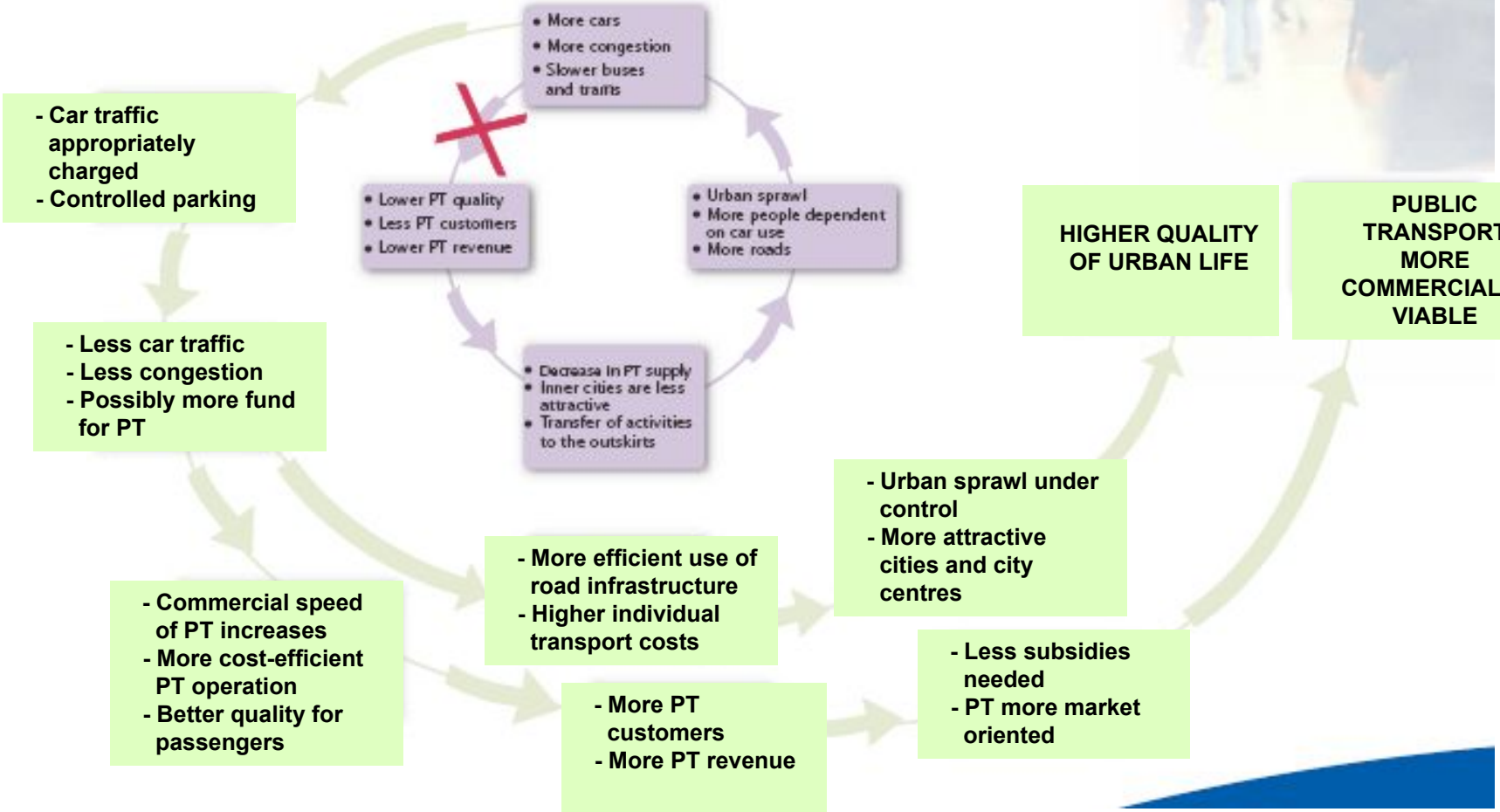
CHANGING CITIZENS‘ EXPECTATIONS

- Demographic changes
- Changing urban rythms
- Changing citizens‘ behaviour and habits
- Growing concern for environmental issues
- Insecurity feeling

THE VICIOUS CIRCLE OF URBAN DECLINE



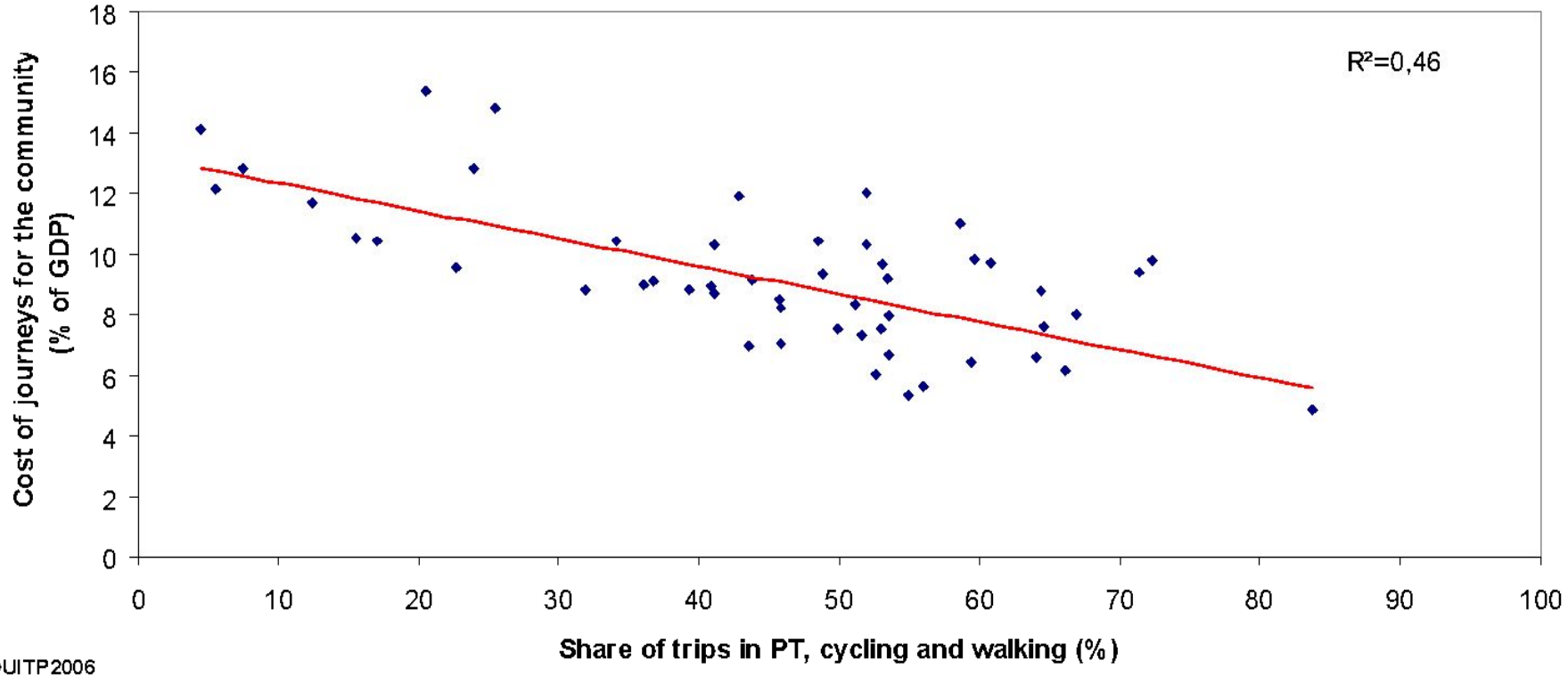
WE MUST BREAK THE VICIOUS CIRCLE



PUBLIC TRANSPORT ...

- ... costs less to the community
- ... needs less urban space
- ... is less energy-intensive
- ... pollutes less
- ... is the safest mode
- ... improves accessibility to jobs
- ... offers mobility for all

IMPACT OF MODAL SPLIT ON MOBILITY COST



IMPACT OF MODAL SPLIT ON MOBILITY COST AND ENERGY DEMAND

Cities	Density (inhab/ha)	% walking + cycling + PT	Journey cost (% of GDP)	Energy (Mj/inhab)
Houston	9	5 %	14.1 %	86,000
Sydney	19	25 %	11.0 %	30,000
London	59	51 %	7.1 %	14,500
Paris	48	56 %	6.7 %	15,500
Munich	56	60 %	5.8 %	17,500
Tokyo	88	68 %	5.0 %	11,500
Hong Kong	320	82 %	5.0 %	6,500

IMPACT OF MODAL SPLIT ON ACCESS TO JOBS

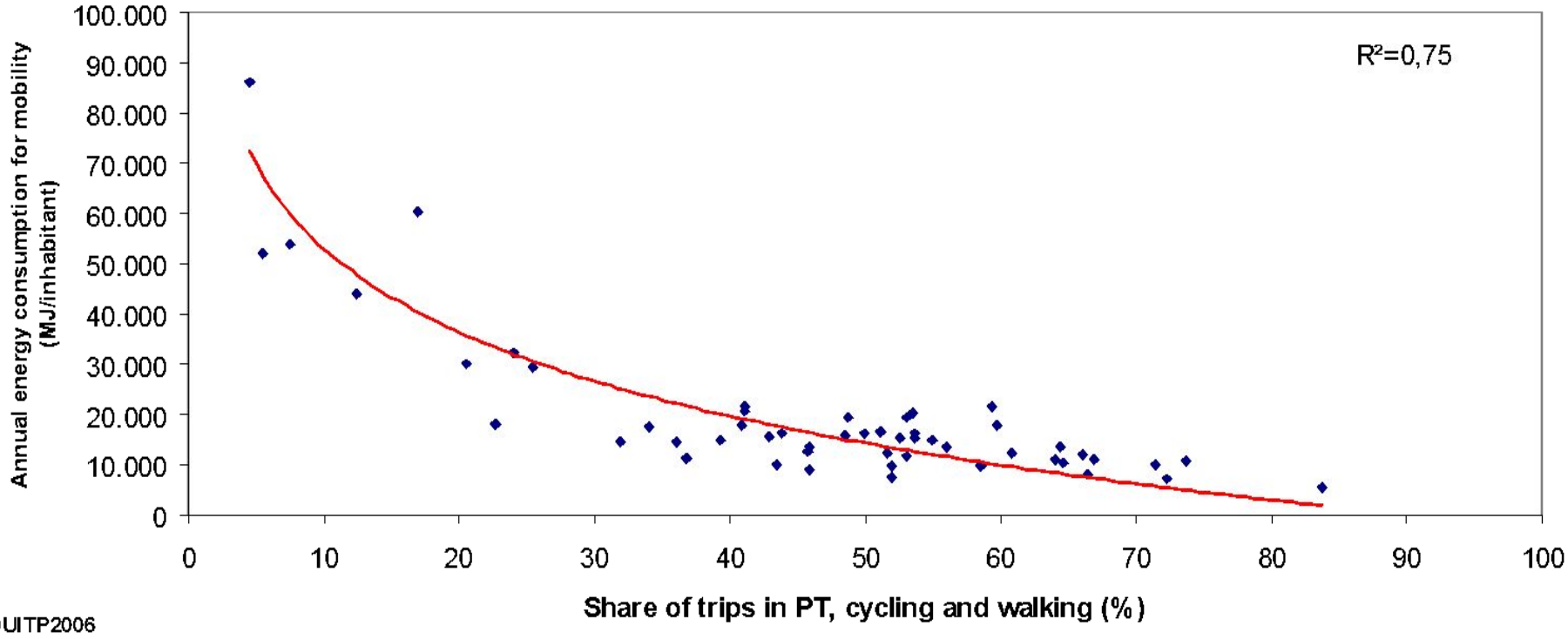
Cities	Density (inhab/ha)	% walking + cycling + PT	Motorised mobility (km per year and per inhab)	Access by PT to 500,000 jobs
Houston	9	5 %	25,600	70 mn
Melbourne	14	26 %	13,100	57 mn
Paris	48	56 %	7,250	31 mn
Munich	56	60 %	8,850	26 mn
Tokyo	88	68 %	9,900	21 mn
Singapore	94	48 %	7,850	27 mn
Hong Kong	320	82 %	5,000	21 mn

IMPACT OF MODAL SPLIT ON MOBILITY COST

- The cost of transport for the community in cities with a high share of public transport is up to half the cost in cities where the private car is dominant. This difference represents a saving of 2.000 EUR per inhabitant per year.
- Cities characterized by the lowest cost of transport to the community are often those where expenditure in public transport is the highest.

	Modal share of public transport (%mechanized and motorized trips)		Cost of transport to the Community (% of GDP)	
	1995	2001	1995	2001
Geneva	18,8	21,7	10,2	9,4
London	23,9	26,8	8,5	7,5
Madrid	23,4	29,1	12,2	10,4
Paris	27,1	27,5	6,8	6,7
Vienna	43,2	46,6	6,9	6,6

IMPACT OF MODAL SPLIT ON ENERGY CONSUMPTION



IMPACT OF MODAL SPLIT ON ENERGY CONSUMPTION

- Energy savings between cities with a high modal share of public transport and cities relying mainly on the private car represent around 500 to 600 litres of petrol per inhabitant per year.
- Cities which managed to increase the modal share of walking, cycling and PT saw a decrease in the consumption of energy per person.

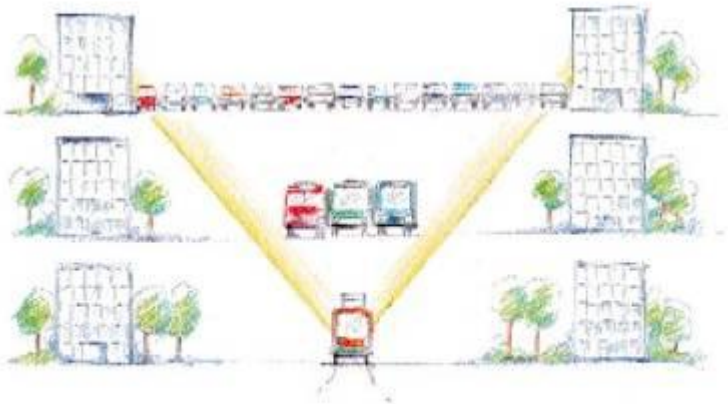
	Modal share of walking, cycling and public transport (%)		Average consumption of energy per person for transport (MJ)	
	1995	2001	1995	2001
Athens	34,1	40,9	12.900	12.600
Geneva	44,8	48,8	23.600	19.200
Rome	43,2	43,8	18.200	17.100
Vienna	62	64	10.700	9.050

CARS TAKE UP PRECIOUS URBAN SPACE

Cars are parked for about 95% of their life, and parked cars take up as much space as their driver's offices.

To carry 50,000 people per hour per direction, you need:

- a 175 m wide road used only by cars, or
- a 35 m wide road used only by buses, or
- a 9 m wide railway track bed for metro.



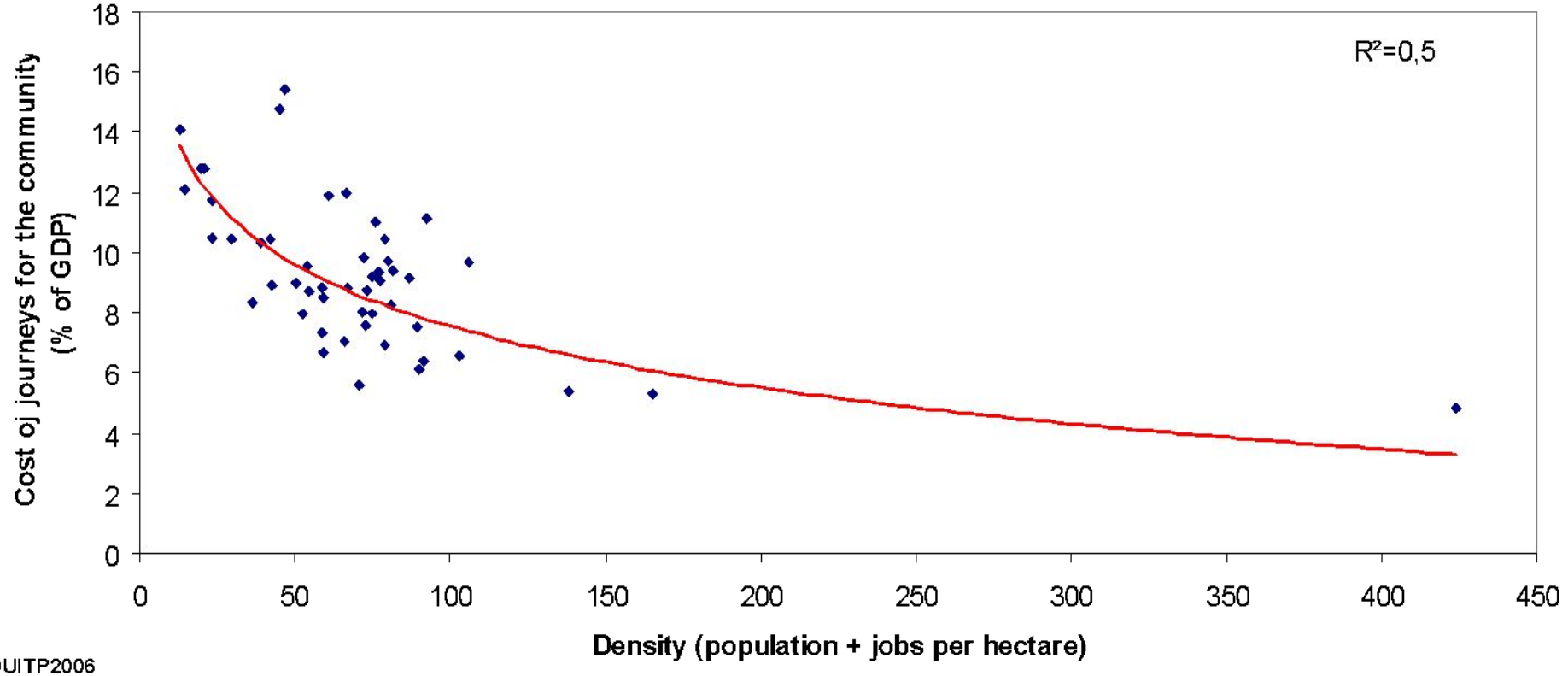
THE THREE PILLARS OF AN INTEGRATED URBAN MOBILITY SYSTEM

Only a combination of solutions is successful

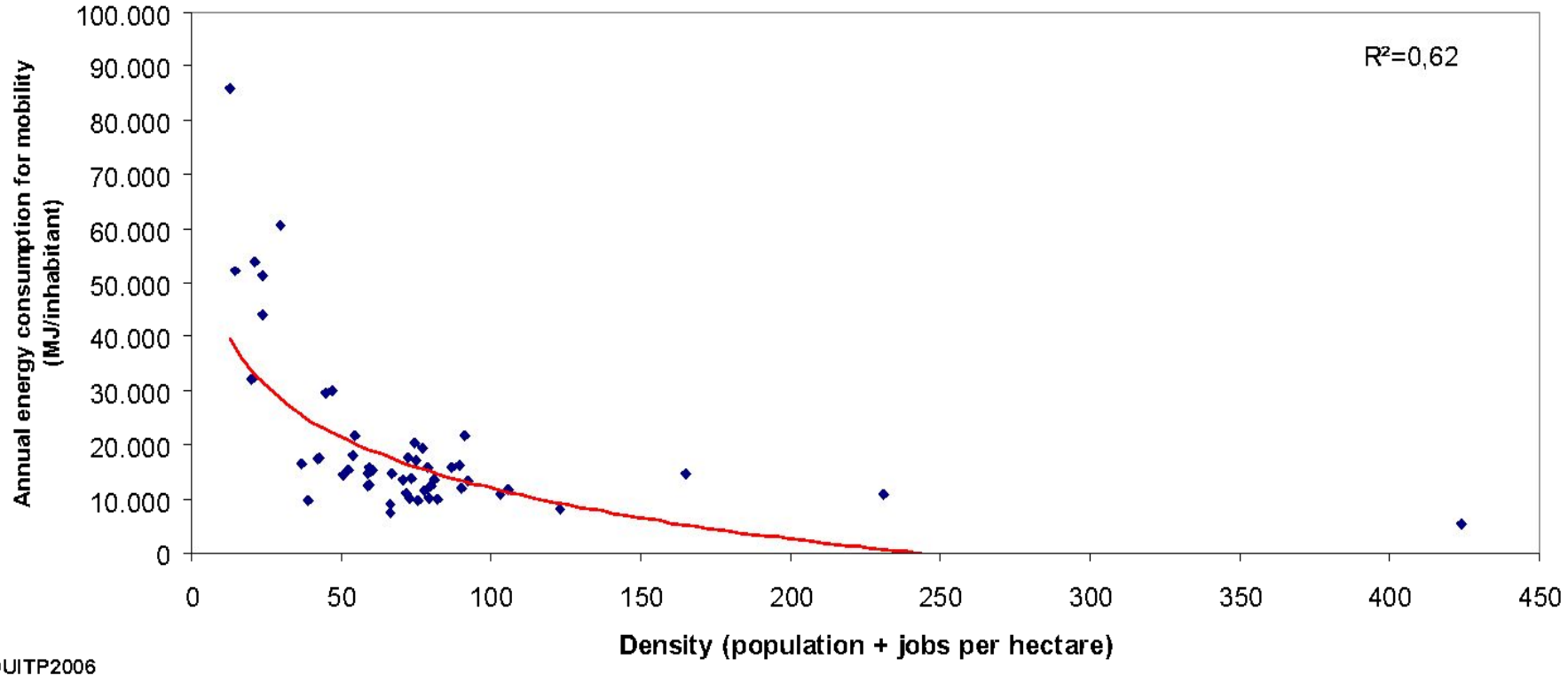
PUBLIC TRANSPORT ORIENTED URBAN PLANNING
Urban density is more cost-effective than urban sprawl

- Put and end to urban sprawl (Compact city)
- Promote density around PT stations and routes
- Encourage integration of activities
- Limit construction on vacant land
- Control parking standards for residential, office and commercial buildings
- Encourage car-free residential zones
- Ensure coherency of housing policies

IMPACT OF URBAN DENSITY ON MOBILITY COSTS

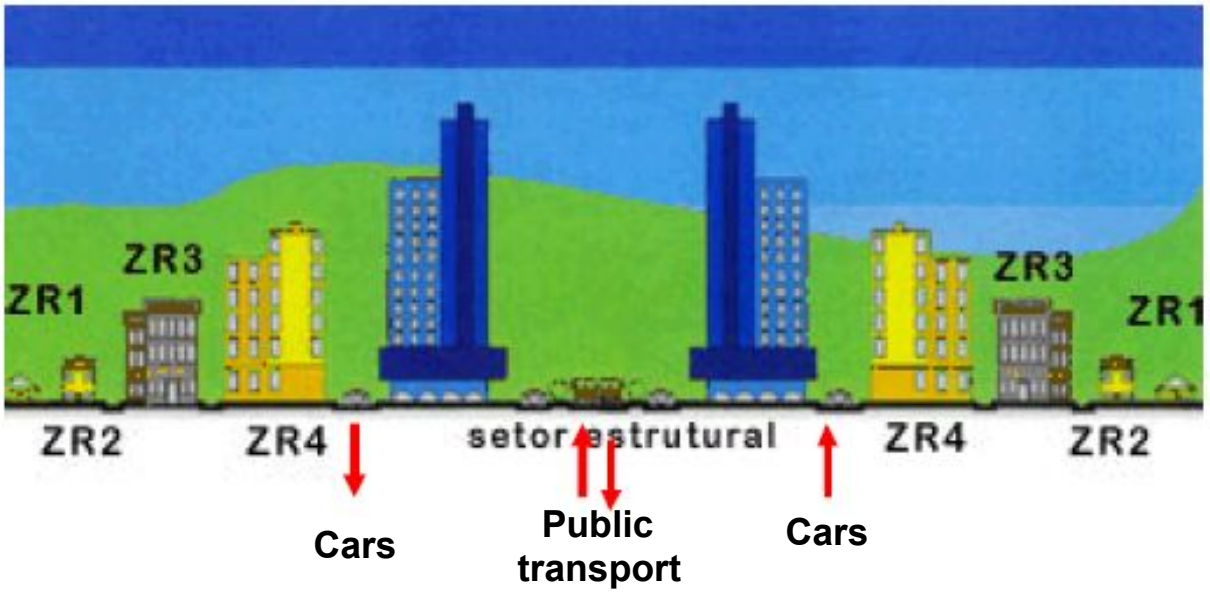


IMPACT OF URBAN DENSITY ON ENERGY CONSUMPTION



CURITIBA, BRAZIL

- Linear city with structural corridors
- Opposite to the conception of radial/monocentric city



COPENHAGEN, DENMARK

- Fingers plan: Development of the metropolitan area around rail corridors
- Density around rail stations
- A public company was set up to develop the area and finance the rail system

CONTROL OF CAR TRAFFIC

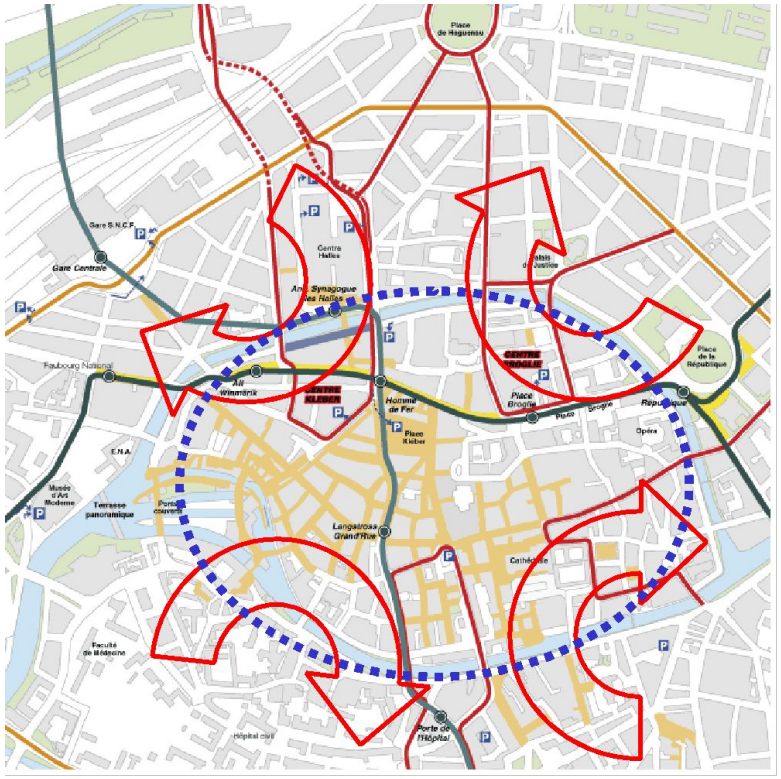
Congestion costs represent 2% of the EU GDP, i.e. 4 times what is spent for public transport

- Implement traffic schemes limiting car use in city centres
- Set a price on car use to reflect nuisance cost (ex. Congestion charging)
- Control parking (at working places, residential, park & ride)
- Develop pedestrian zones

STRASBOURG, FRANCE

- In-transit car traffic is forbidden (Loop traffic scheme)
- 3 light rail lines
- Complementary bus network
- Control of parking
- Provision of Park & Ride
- Exclusive bicycle lanes

 -30% in car traffic
+101% In PT use (1992-2004)



LONDON, UK

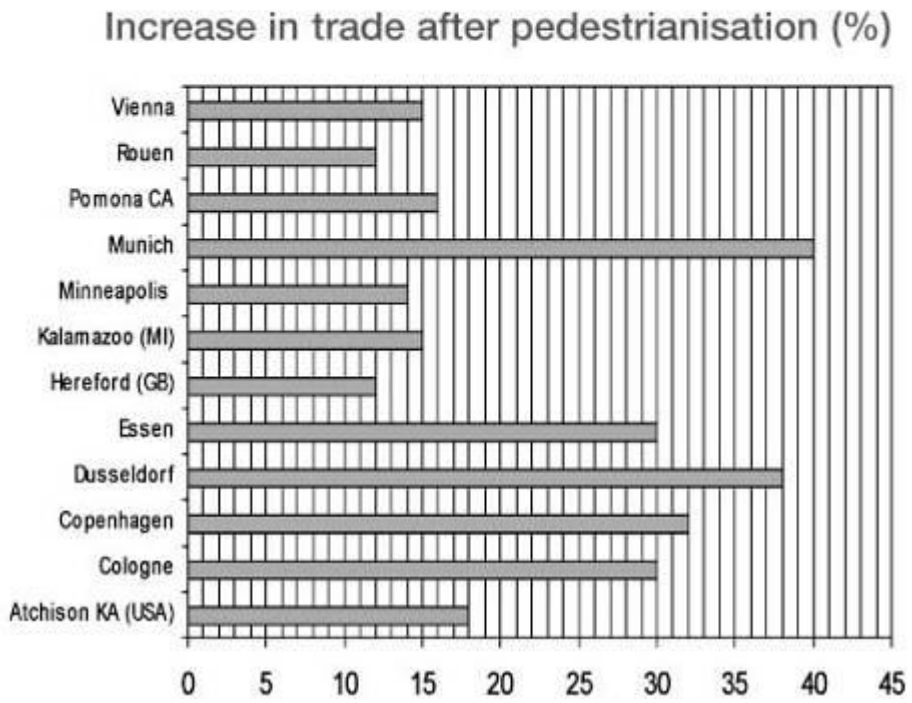
- Traffic delays reduced by 30%
- Number of cars reduced by 30%
- 50 to 60% of avoided car trips have been transferred to PT
- £100 million net revenues per year

IMPACT OF PARKING PROVISION

	Automobile	Public Transport	Other Mode	Total
Besançon Guaranteed parking No guaranteed parking	90% 46%	6% 29%	4% 25%	100% 100%
Grenoble Guaranteed parking No guaranteed parking	94% 53%	3% 29%	3% 18%	100% 100%
Toulouse Guaranteed parking No guaranteed parking	99% 41%	1% 24%	0% 35%	100% 100%
Bern Guaranteed parking No guaranteed parking	95% 13%	3% 55%	2% 32%	100% 100%
Geneva Guaranteed parking No guaranteed parking	93% 36%	3% 25%	4% 39%	100% 100%

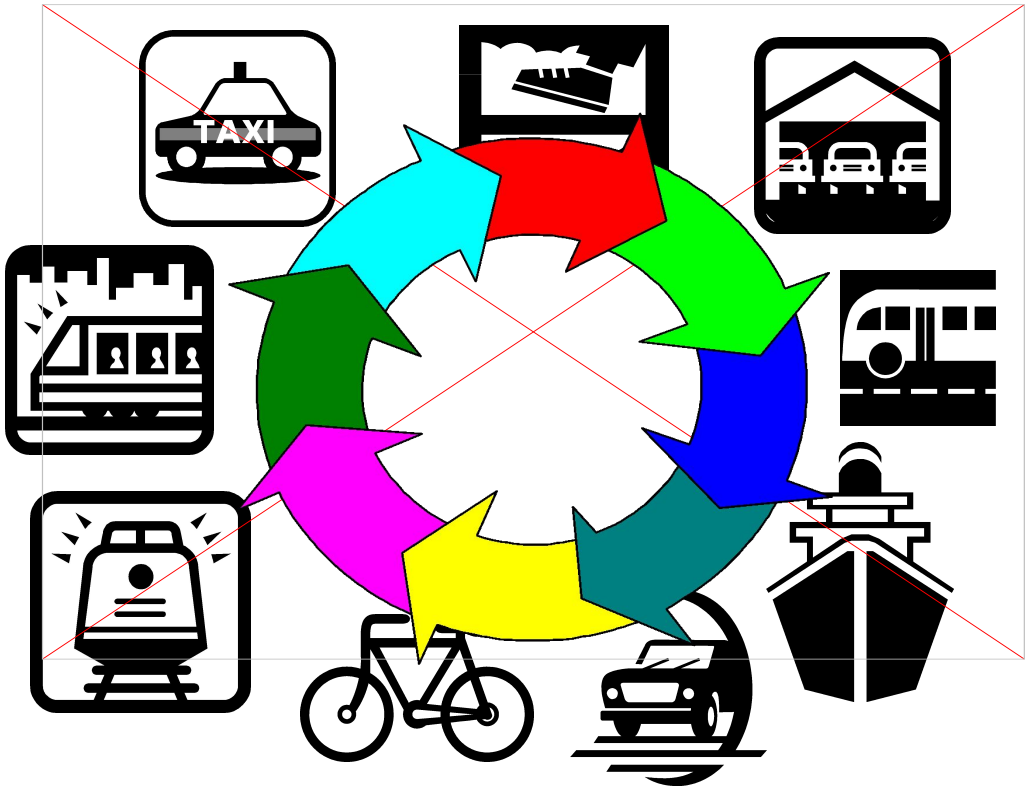
PEDESTRIAN AREAS

Many shopkeepers believe, that parking spaces in front of their shops are essential for sales. But experience in many cities shows that converting streets into pedestrian areas, allowing access only to public transport vehicles and for deliveries, has increased turnover for local commerce.



QUALITY PUBLIC TRANSPORT SYSTEM

Integration, at all levels, is a prerequisite of a modern and efficient public transport system



THE NEED FOR INTEGRATION

Passengers use ...

- different routes and interchanges
- different PT modes
- PT across administrative borders
- PT produced by different companies

 The integration of all these aspects is the main challenge in order to offer passengers an easy-to-use door-to-door PT system.

PUBLIC TRANSPORT ORGANISATION

BUILDING SOLID AND FAIR PARTNERSHIP

- A strong institutional framework: The organising authority plays a decisive role in integrating public transport.
- Strong agreements: Contracts constitute an efficient tool for integration.
- Investment and operation: Integration costs money, but will be profitable in the long term.
- An Integrating body directing the policy and funding of integration and coordinating between authorities, operators, infrastructure managers, etc.

INTERCONNECTING NETWORKS AND MODES

PT users expect a continuity of the system beyond administrative borders and even if it includes several modes, or operated by several companies

- Adopting a network approach
- Reducing the number of unnecessary transfers
- Integrating timetables
- Filling in any missing links in the infrastructure
- Providing public transport on demand where needed
- Tacking account of public and private transport services
- Interoperability planning

ENHANCING INTERCHANGE POINTS

Time spent in an interchange is perceived twice as long as time on board a vehicle

- Location: Interchanges between two public transport trips; Interchanges at the beginning or end of the public transport journey.
- Functionality: Transfers should be as smooth as possible: reliable information; distances; single platform; avoid stairs; specific requirements of elderly, children, disabled, tourists; etc.
- Quality: Designed to be pleasant; comfortable and attractive waiting areas; safety and security; shops and public facilities.

MAKING TICKETING USER-FRIENDLY

Multi-ticketing makes travel complicated and gives the feeling that public transport is expensive

- Harmonizing and integrating fares and ticketing facilitates the use of public transport.
- Fare integration provides an incentive to travel, because PT is much easier to use and more accessible for travellers.
- New technologies can be a great help in fare integration.

PROVIDING INTEGRATED INFORMATION

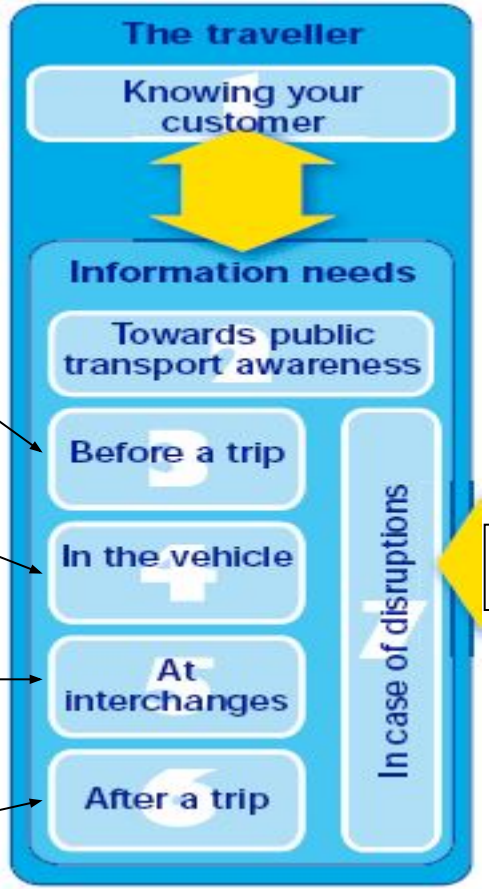
9292 wijst je de weg in het OV

Journey planner (www)

Announcement of stops

Information on transfers

City information



Real-time information

TURNING TRAVEL TIME INTO AN ASSET

Time spent in public transport is perceived as time lost compared to car time

- Travellers should feel at ease in PT systems: heating, air-conditioning, quiet environment, news, music, ..
- The transport service itself should be personalised to people's special needs: quality, type of transport solution bus or train; PT solution adapted to special needs.
- The advantages of public transport must be promoted to provide services that are not accessible for users of private transport modes.

PROVIDING COMPREHENSIVE MOBILITY SOLUTION

Conventional public transport modes are not able to offer door-to-door solutions in all situations

- Public transport should be complemented by flexible solutions in order to offer a comprehensive mobility package
- Integrated Park & Ride scheme is an incentive to the use of public transport by motorists
- Car-sharing offers the use of a car to (loyal) public transport customers when needed
- Shared taxis and on-demand transport are appropriate solutions for low density areas

MODERNISE PUBLIC TRANSPORT VEHICLES

- Driverless metros and automation of conventional metro lines
- Alternative fuels for buses
- Catenary-less power supply for tramways
- Information technologies for improved operation and security
- Low-floor buses
- Innovative design

IMPLEMENTING MODERN MANAGEMENT

Public transport is moving from a production-focused industry to a customer-oriented service in a competitive market

- Public transport companies should adopt a more commercial approach to business without sacrificing the social dimension of public transport
- Public transport staff should adopt a customer-oriented behaviour and should be motivated for that
- New information technology offers important possibilities for more efficient and improved fleet management and maintenance

MADRID, SPAIN

- Set-up of an organising authority
- Extension of the metro network (+10 km/year)
- Reorganisation of the bus network and implementation of bus corridors
- Improvement of interchange stations
- Fare integration

 +60% of public transport use (1986-2003)

BOGOTA, COLOMBIA

- Implementation of Bus Rapid Transit network (41 km in 2002, 388 km in 2015)
- Reorganisation of bus network (trunk lines, feeder lines)
- Car traffic restriction

 -32% in travel time

 -40% in air pollutants

 -93% in number of accidents

DUBLIN, IRELAND

- Implementation of 100 km of bus corridors
- Provision of Park & Ride parking with fares integrated with public transport

- Bus speed 30 to 50% higher than car speed
- +29.7% in bus use (+38% in peak hours)
- 65% of new customers from the car

BRUSSELS, BELGIUM

- Increase of public transport supply
- Improved quality (new buses, frequency, night services)
- New tariff policy

 +50% in public transport use between 1999 and 2004

SEOUL, SOUTH KOREA

- Implementation of Bus Rapid Transit system (84 km in 2005)
- Reorganisation of bus network (trunk lines, feeder lines, local lines)
- Integrated smartcard system (distance-based fare)
- Real time location of buses and travel information

 +11% in public transport users in one year

 Improved customer satisfaction

HONG KONG

- Easy use of PT and increased attractiveness
- Speeding up access to train platforms (100 ms/pax)
- Better information on customers
- Saving in operational and maintenance costs in comparison with magnetic tickets
- Fight against fraud

- 7.5 million Octopus cards issued
- 6 million transactions every day
- 90% of all trips are paid by the Octopus card

MARKETING AND BRANDING

Retaining and attracting customers

PARIS, France

750 000 HOLDERS

- +10% OF NEW CUSTOMERS (+ 51 000 new PT users)
- + 13% for the PT Market share in only 3 Years
- + 5% of intensive users

FINANCES /net margin: 9 to 23 €/year /pass

"**Transport is not a technical, but a political issue**.
Technically and economically it is possible and simple to structure high quality bus based transit systems, as long as other vehicles be removed from a few lanes in main arteries"

Enrique Peñalosa
Former Mayor of Bogotà

Thank you for your attention and contribution!

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