



International Association of Public Transport  
Union Internationale des Transports Publics  
Internationaler Verband für öffentliches Verkehrswesen  
Unión Internacional de Transporte Público

# Intelligent Public Transport System (IPTs)

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Adviser of the International  
Association of Public Transport

**Better mobility for people worldwide**

# UITP mission



The international NETWORK of public transport professionals



The point of REFERENCE for the sector



The international FORUM for transport policy



The ADVOCATE of public transport

# A global membership

UITP represents:

- over 2,700 urban, local, regional and national mobility actors
- from more than 80 countries on all continents

# One main office in Brussels

## Seven liaison and regional offices worldwide



## A diverse membership



UITP unites the entire supply chain of public transport players

- Operating companies
- Local, regional and national authorities
- Service and supply industry
- Research institutes, academics and consultants

# A diverse membership

## **All modes** of public transport:

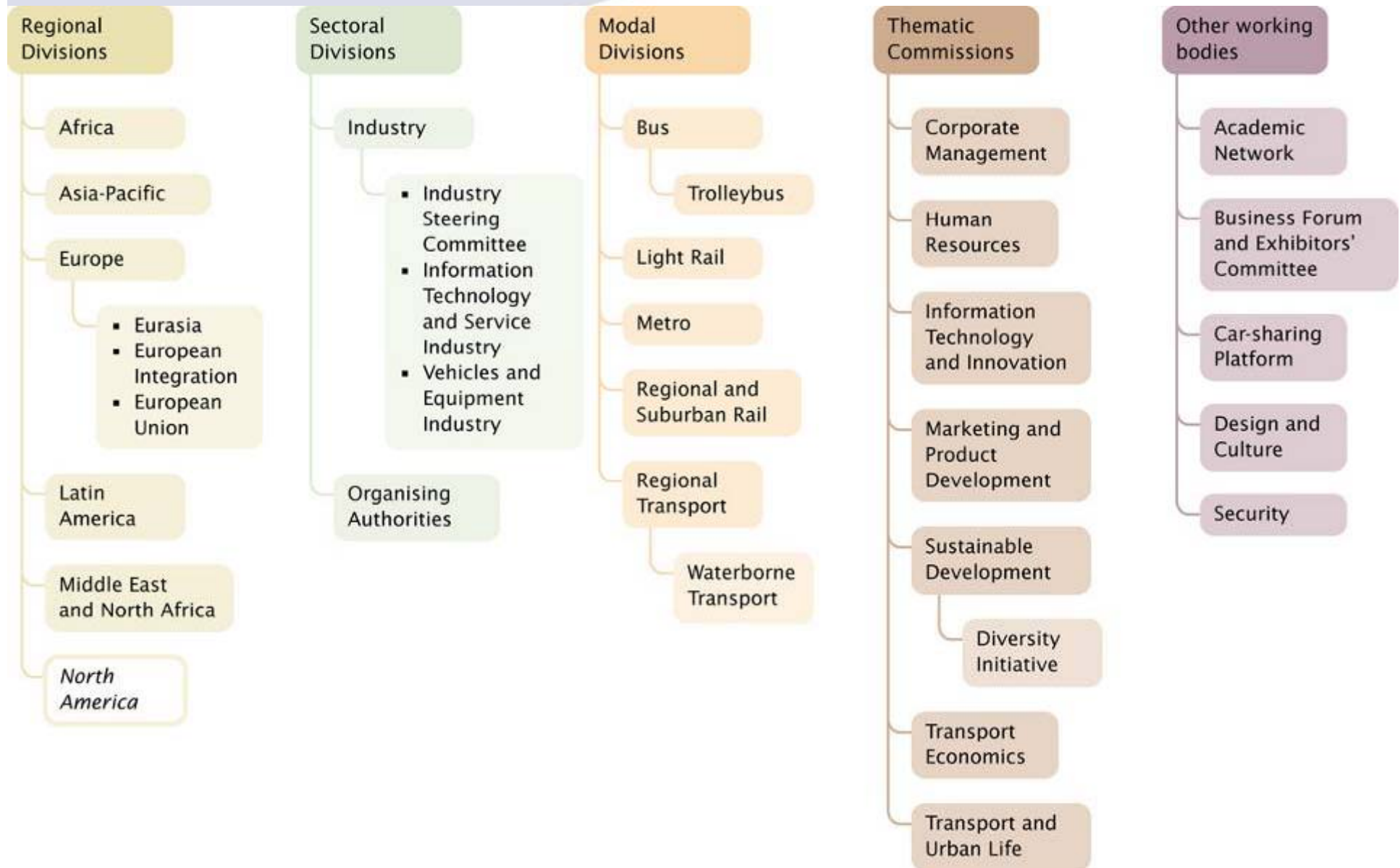
- Metro
- Bus
- Light rail
- Regional and suburban railways
- Waterborne

## **Collective transport** in a broader sense:

- Taxis
- Car-sharing



# Membership bodies



# The context of urban mobility

- Urban sprawl
- Growing car ownership
- Increasing traffic congestion
- Changing citizens' behaviour and habits
- Growing concern for environmental issues
- Insecurity feeling



# Citizens' expectations for their mobility

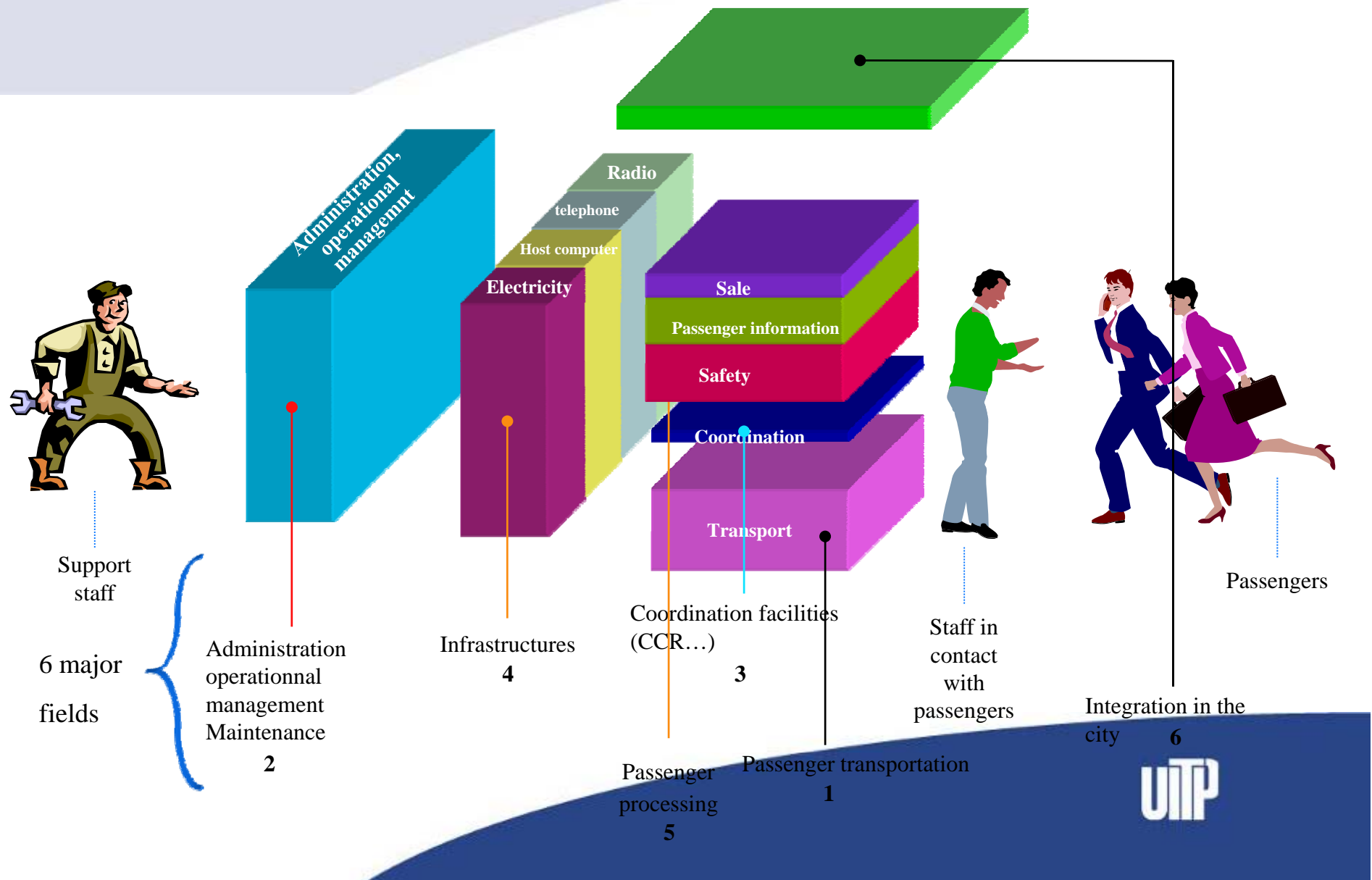
- Speed
- Reliability
- Flexibility
- Intermodality
- Information
- Conviviality
- Comfort and services
- Safety and security

# IT applications for public transport

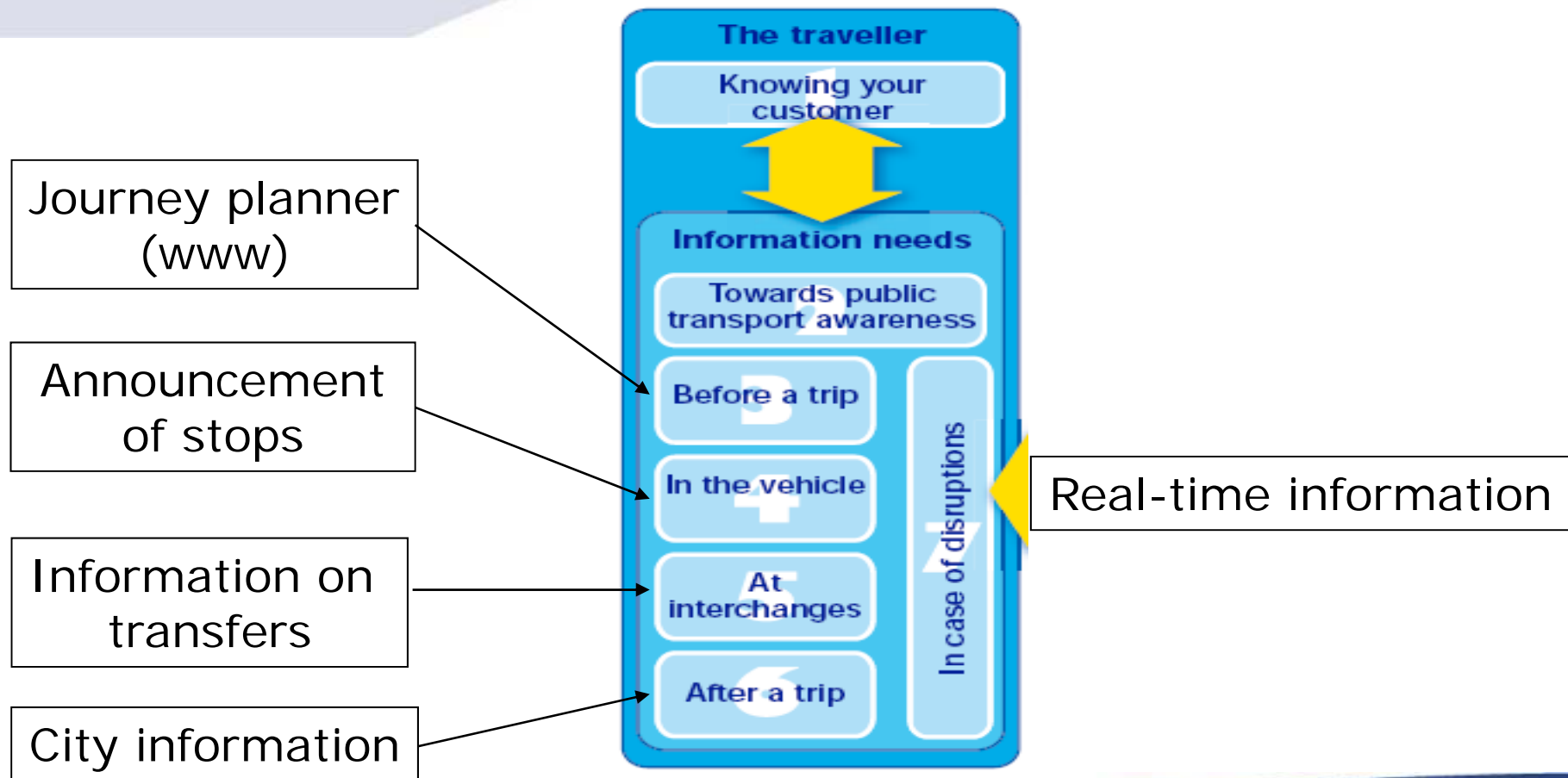
To answer these expectations, public transport must develop IT tools on the following axes:

- Travel information
- Electronic ticketing
- Operational management
- Safety and security

# The main functional fields of IPTS



# Travel information: What and where?



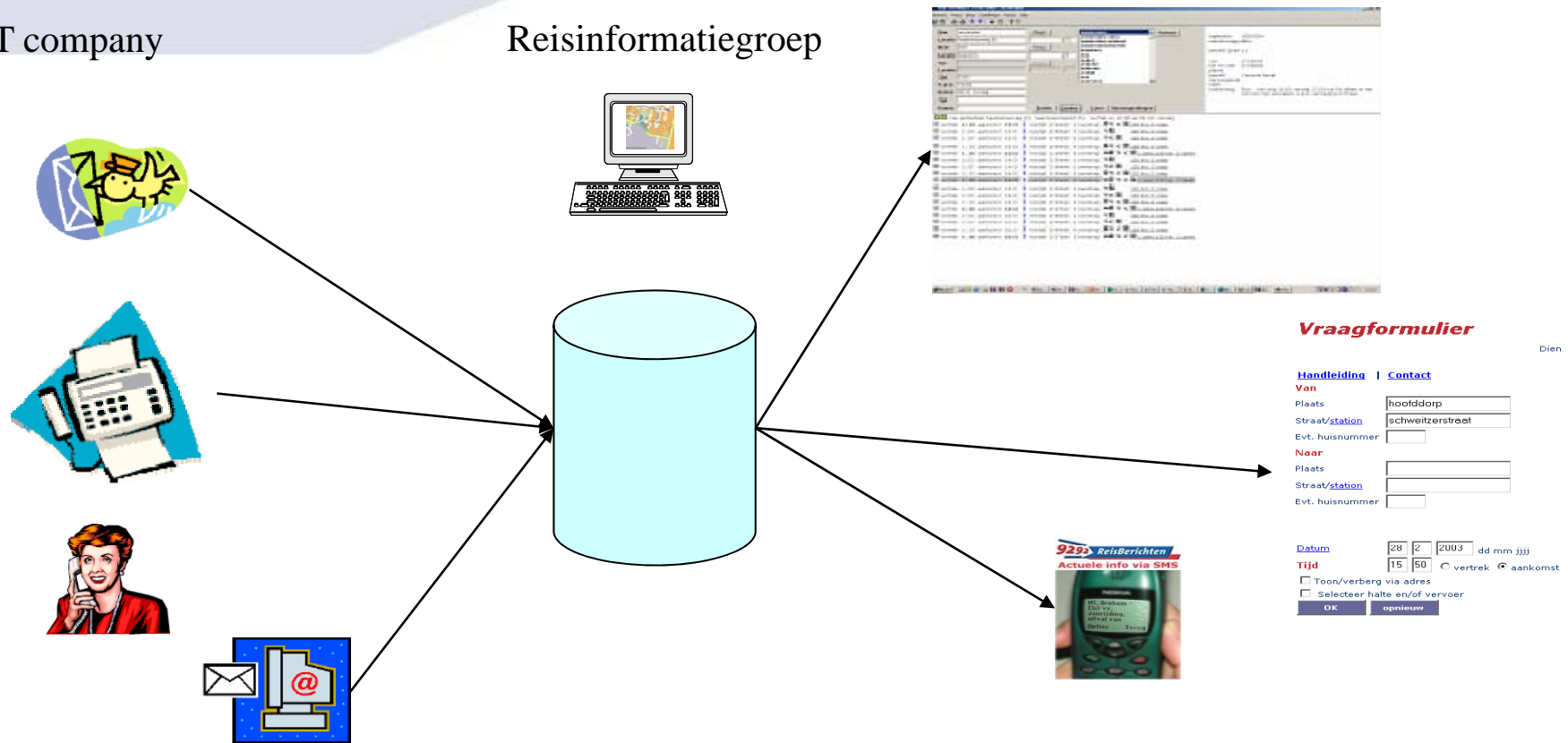
# Travel information: Examples

- The Netherlands nation-wide information system: OVR-9292
- Gothenburg city-wide real-time information system
- Adelaide SMS/emails to announce service changes
- Hanover on-board monitors
- Helsinki journey planner on mobile phones

# OVR 9292

PT company

Reisinformatiegroep



**9 2 9 2**

makkelijk, snel, 24 uur per dag

3. Klik te

9292 onderweg

zakelijk

9292 dagje uit

reizen per ov

sprekende computer

over 9292

[Hoofdpagina](#) > Reisadvies**REISwijzer**

standaard

uitgebreid

Van ☒ ADRES ☐ STATION

Straat

Huisnummer

Plaats

Naar ☒ ADRES ☐ STATION

Straat

Huisnummer

Plaats

Datum 2 maart

Tijd 12 10

☒ VERTREK☐ AANKOMST

Geef reisadvies &gt;&gt;

OV-reisinformatie van deur tot deur

**Vertragingen**

dinsdag, 2 maart - 12:12 uur

- [Treintraject Oberhausen Hbf - Arnhem vv](#)
- [Treintraject Oberhausen Hbf - Arnhem vv](#)

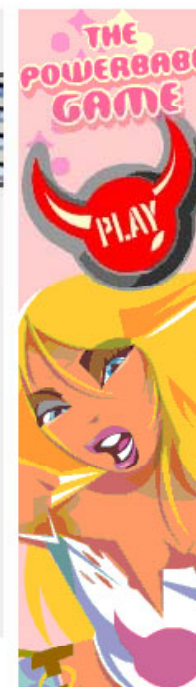
**Geplande wijzigingen**

- [Connexxion bus 41, Katwijk Zeeweg](#)
- [Connexxion bus 90, Katwijk Zeeweg](#)
- [Connexxion bus 31, Katwijk Zeeweg](#)
- [Connexxion bus 54, Katwijk Zeeweg](#)
- [Connexxion bus 75, Katwijk Zeeweg](#)

Bel 0900-9292 voor persoonlijk reisadvies of aanvullende informatie (70 cent/minuut).

[zoek op deze site](#)

Zoek

**Zakelijk****REISBESCHRIJVING**Uw eigen route-  
beschrijving op  
internet.**REISKOSTENVERGOEDING**Bereken de  
vergoedingen voor  
uw medewerkers.**REISPLANNER**Uw eigen reisplanner  
stand-alone of op  
uw intranet.

Deeplinken naar de 9292REISwijzer is niet toegestaan.

Voor informatie over commercieel gebruik van de 9292REISwijzer kunt u contact opnemen met de afdeling zakelijke producten

**UTP**



Plan een reis met het OV naar ANWB - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print View Source

Address <http://193.172.87.221/locatiewijzer/reisadvies.asp> Go Links

## Auto en OV routeplanner overzicht

**9292 LocatieWijzer**

**Routebeschrijving met de auto, of het openbaar vervoer, of een combinatie van beide**  
Datum: 4 maart 2004  
Van: Eikenlaan in 't harde  
Naar: ANWB, wassenaarseweg 220 in den haag

Aktie	Omschrijving	Reisduur	Bijzonderheden
<a href="#">Details</a>	openbaar vervoer	2:17	vertrek om 07:47 met 2 overstappen
<a href="#">Details</a>	openbaar vervoer	2:17	vertrek om 08:17 met 2 overstappen
<a href="#">Details</a>	openbaar vervoer	2:17	vertrek om 08:47 met 2 overstappen
<a href="#">Details</a>	auto met openbaar vervoer	2:30	reisduur autodeel: 17 min. vertrek om 07:34 met 2 overstappen
<a href="#">Details</a>	auto met openbaar vervoer	2:09	reisduur autodeel: 17 min. vertrek om 08:01 met 1 overstap
<a href="#">Details</a>	auto met openbaar vervoer	2:30	reisduur autodeel: 17 min. vertrek om 08:04 met 2 overstappen
<a href="#">Details</a>	auto	1:20	geen

[Plan Route Terug](#) [Terug](#) [Afdrukken](#)

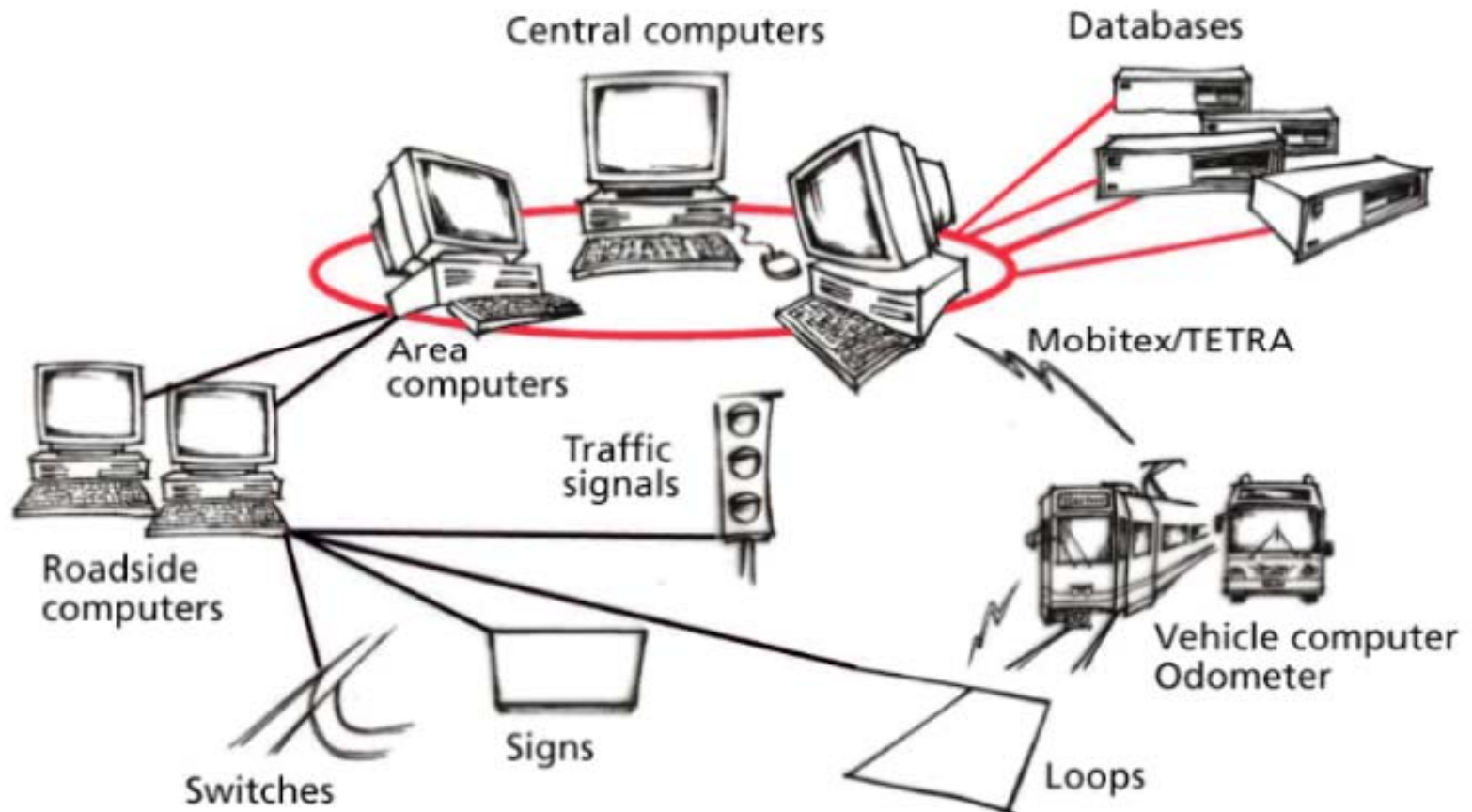
[Opmerking plaatsen](#)

Done Internet

Start Postvak IN - Microsoft ... Windows Media Player Reis Op Maat presenta... Plan een reis met h... 7:59 AM

UTP

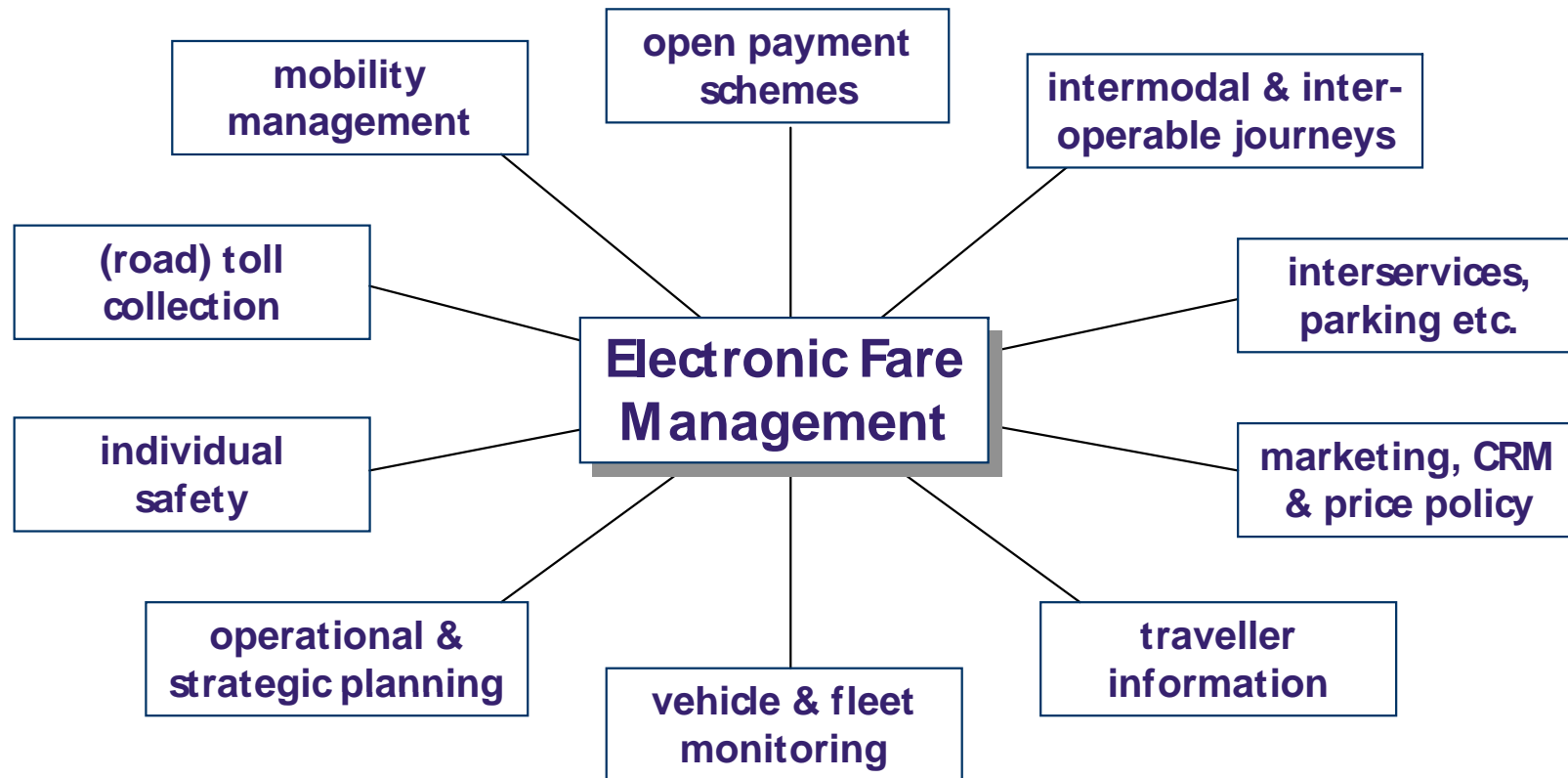
# Gothenburg



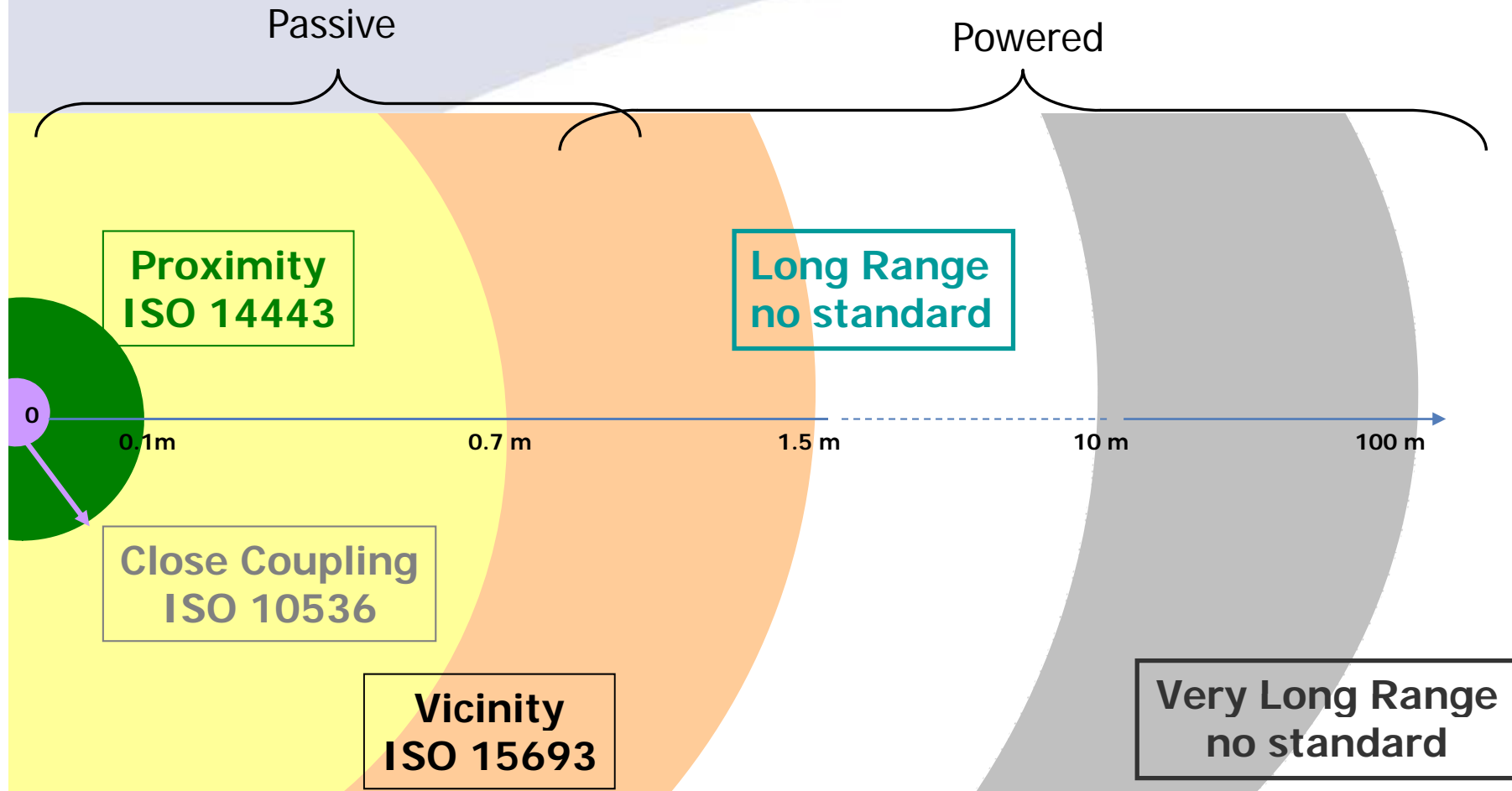




# Electronic ticketing



# Distance range and standards



# The Contactless smart card standards

	<b>ISO/IEC 10536</b> <b>Close-Coupled</b> <b>Cards</b>	<b>ISO/IEC 14443</b> <b>Proximity Cards</b> <b>13.56 Mhz</b>	<b>ISO/IEC 15693</b> <b>Vicinity Cards</b> <b>13.56 Mhz</b>
<b>Distance</b>	About 2mm	Maximum 10 cm	Up to 1m
		Conscious act	Hands Free
<b>Main Applications</b>	Very Few	<ul style="list-style-type: none"><li>▪Fare Collection</li><li>▪Payment</li><li>▪High Security access control</li></ul>	<ul style="list-style-type: none"><li>▪Access Control</li><li>▪Object Identification</li><li>▪Personal identification</li></ul>



## Electronic ticketing: Benefits for the authorities

- Creation of seamless journeys in PT networks
- New Fare Media models (unification)
- Source of new marketing data
- Better control of revenues & subsidies
- Extend the scheme to other players (taxis,...)
- Projects with political connexion value

## Electronic ticketing: Benefits for the operators

- Gain new customers with modern approach
- Increase their medium term operating profit
- Do not use cash anymore (heavy, dirty,.....)
- Control their cash flow availability (banks)
- Increase speed at boarding (buses)
- Valuable opportunities to add “new services”
- Source of marketing data for PT management

## Electronic ticketing: Benefits for the customers

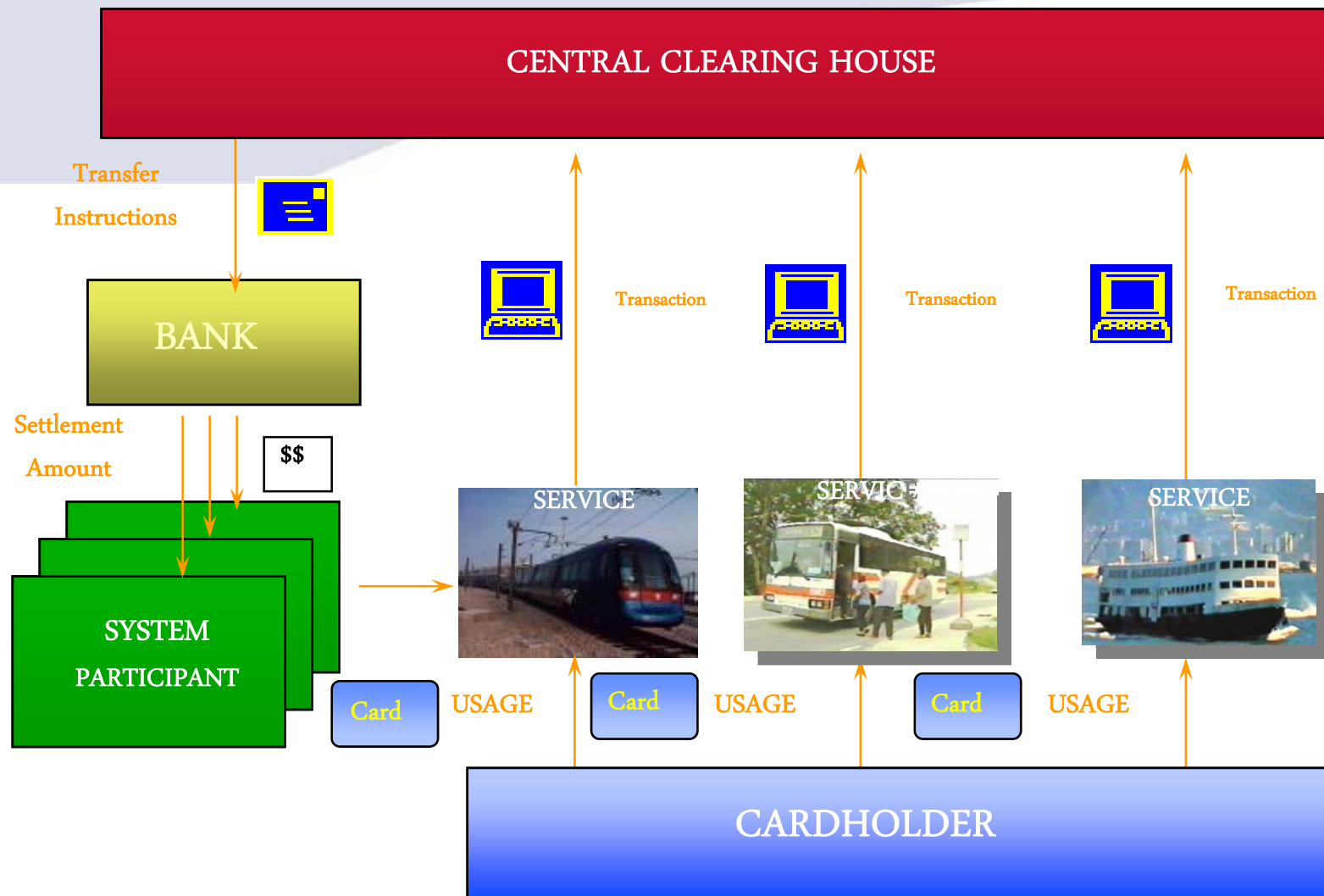
- Convenience & speed, no cash
- Seamless journeys in multimodal, multi PT schemes
- Easier ways to reload value or renew passes
- New card when it has been lost or stolen
- Additional appreciated services when available from PT or authority

## Electronic ticketing: Examples

- Hong Kong's Octopus card
- London's Oyster card
- Paris' Navigo card
- Singapore ez-Link
- Helsinki mobile ticketing
- The Netherlands and Denmark nation wide cards

# Octopus, Hong Kong











## Security: What IT can do?

- Detect and localize an event
- Evaluate the severity of an event (in order to take immediately the appropriate decision)
- Guidance and assistance of the emergency teams
- Permanent (real-time) information availability about events

# Security: What and where?

- Control centre
- Detection of unusual manipulation of a video camera
- Detection of unusual behavior
- Object detection
- Video of past events
- Security button on smart card
- Wifi and hot spot for real time data transmission
- Audio detection
- Control of flows of passengers

# Security: Examples

- Paris integrated security system
- Hong Kong: fare collection and access control

# Paris

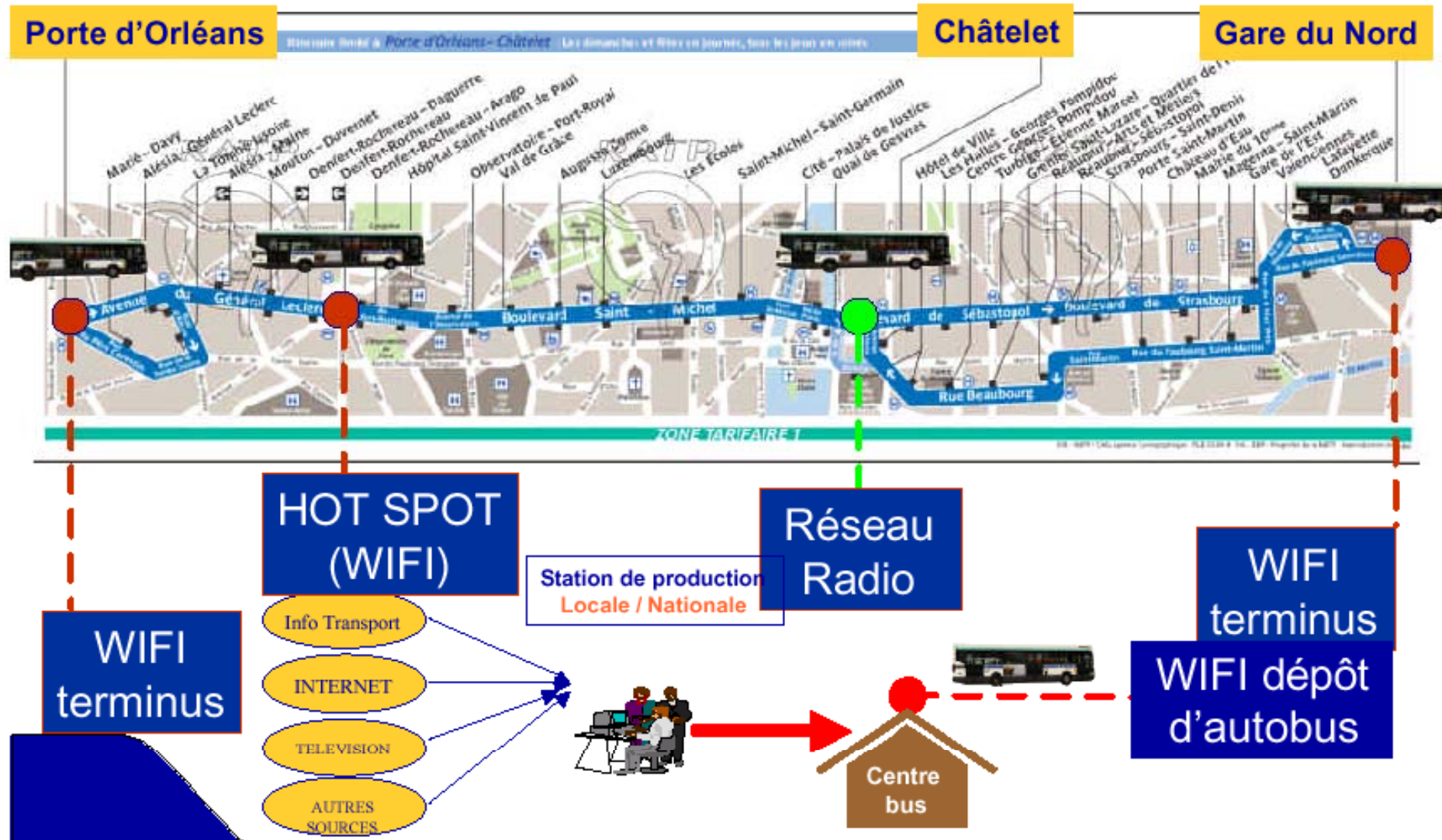














# Operational management

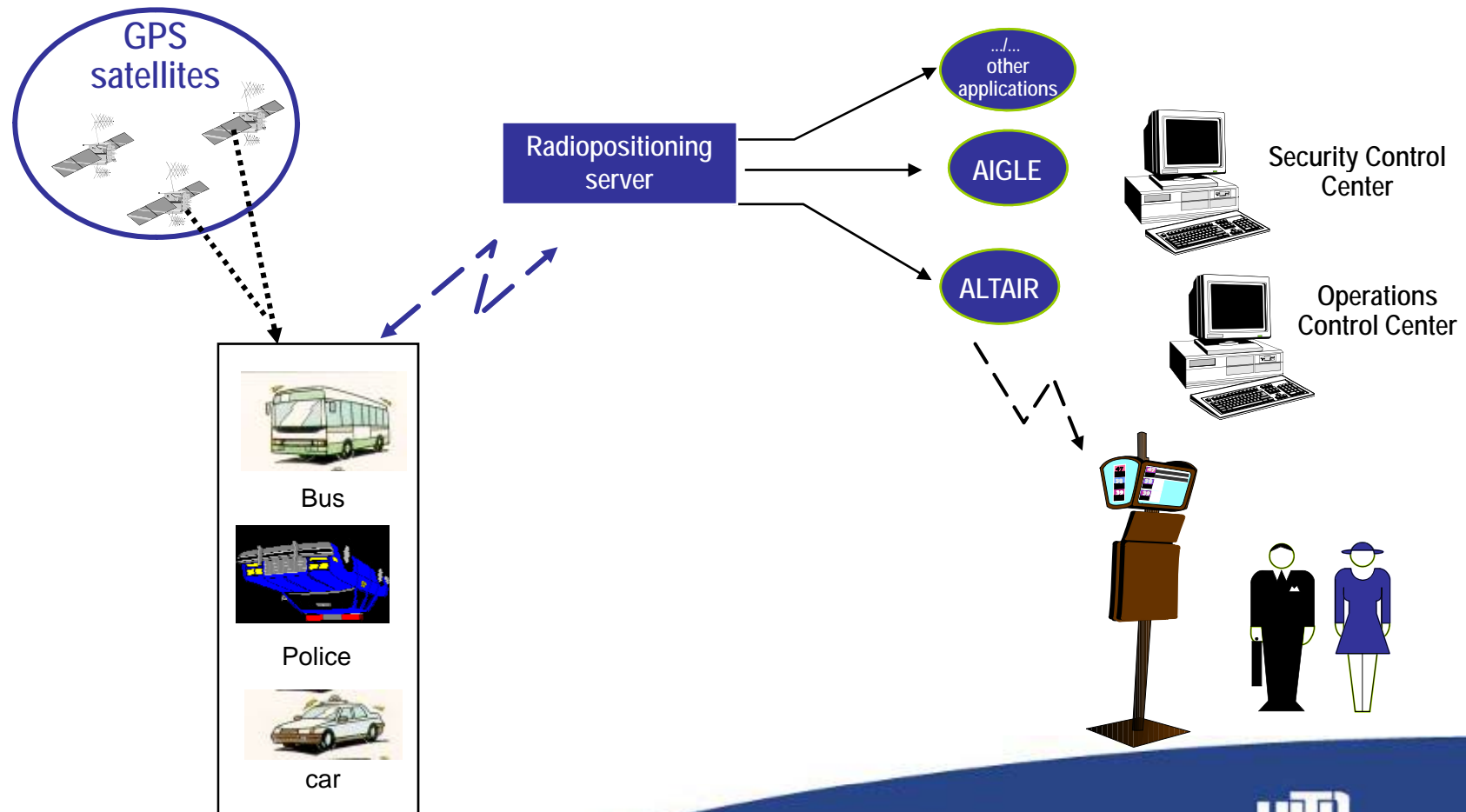
To provide Public Transport Companies with a set of relevant operational data on the fleet network service situation:

- bus position on the network,
- actual travel time/speed,
- amount of transported passengers,
- line regularity,
- etc.

It will permit to check if the planned service is delivered and implement corrective measures if needed.



# Operational management: Automated Vehicle Location (AVL)



## Operational management: Benefits (1)

- More **safety of drivers** (voice connection and dispatching of pre-coded and alarm messages to the control room)
- Control of **service operation** by means of automated control commands on service regulation (i.e. bus start time at terminals) and semi-automated commands (limited trip, lost trips, insertion of new buses on the network, etc.)
- **User information** both on board and at bus stop, and/or with direct phone calls to the operational control room

## Operational management: Benefits (2)

- Verification and optimization of the **scheduling** of vehicles and drivers by comparing the real service with the scheduled service
- Improved bus **maintenance** in terms of control of the real traveled km and bus diagnosis
- Better use of the **control personnel** on the road, reducing the overall task of control and concentrating it where it is really necessary
- Smooth **inter-modality** of all public transport modes
- Collection of updated **information** on service characteristics and results

## Operational management: Benefits (3)

- Enhancement of the **service quality** perceived by the users/passengers mainly due to the increased service regularity
- **Real-time information** on the bus arrival time at bus stops and on the interconnection with other services (of the same or other modes)
- **Onboard information** on the next stop and possibility of connection with other lines and modes



# The challenges of IPTS

- Satisfy customer needs
- Integration: comprehensive information and ticketing strategy
- The business case of travel information and e-ticketing
- Branding of public transport
- Interoperability
- Standardization
- The “big brother” issue

# Conclusion

- Information technologies could improve efficiency and attractiveness of public transport

BUT

- It is not possible to control everything with information technologies
- Information technologies are a tool and will never replace a clear policy



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**Thank you for your attention!**

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