

TRB LRT committee, Workshop 139

LRT innovations and urban insertion

the French approach to inserting LRT into town



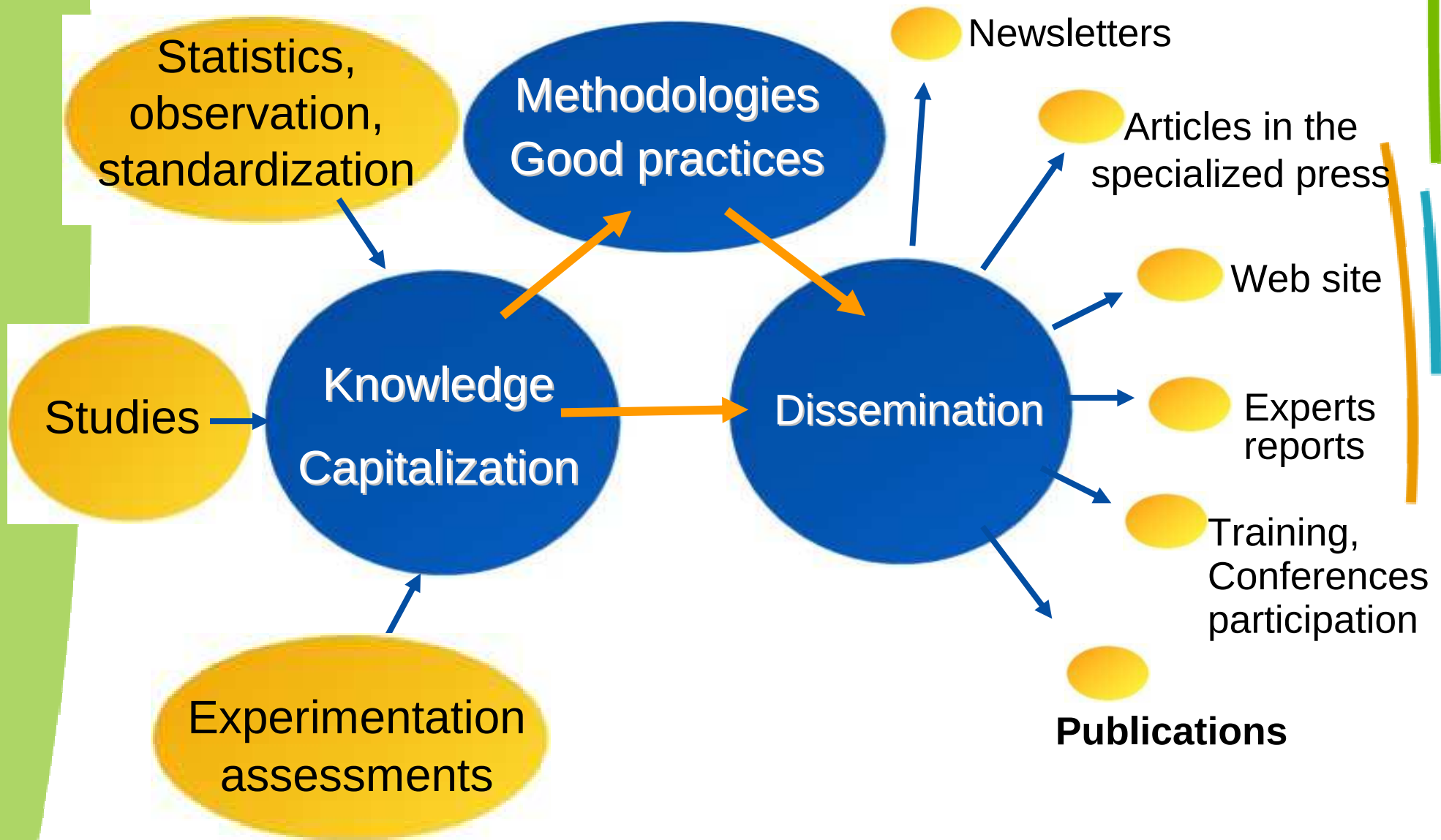
contents

- what is Cerema ?
- French LRT = tramways : current situation
- the institutional context : some favourable points
- a goal : the High Level of Service
- safety as a main way to reach HLS
- a tool : urban insertion of tramways
- a chance : starting from no-where : re-building the street
- some positive aspects : design (rolling stock, layouts)
- more or less speedy tramways ...

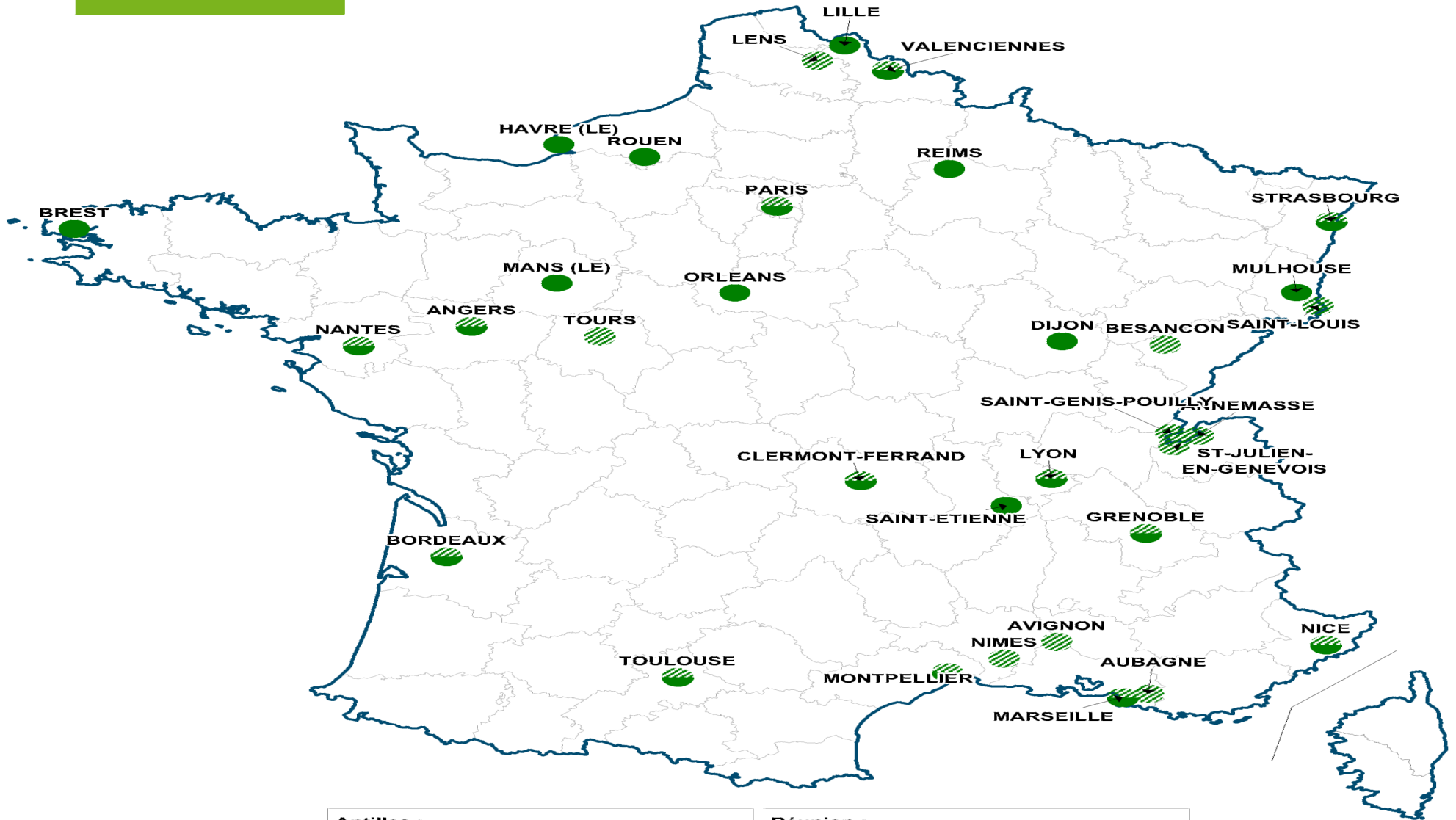
What is CEREMA ?

- merging of
 - 3 technical state offices :
CERTU (urban planning, housing, transport, ...)
SETRA (inter-urban roads and transport, bridges)
CETMEF (sea and rivers)
 - and 8 regional entities of the Ministry:
CETE (centres for technical studies techniques)
- a new scientific and technical **public agency**

Certu => DTTV : missions



Tramway systems in France (end of 2012)



Antilles :



Réunion :



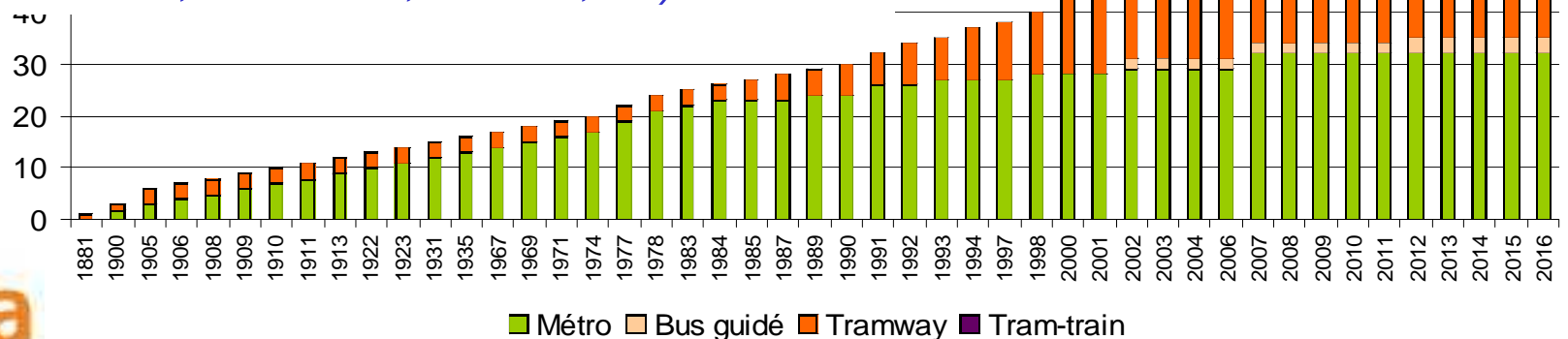
*** Till now, French LRT are mostly urban tramways**

Tramways

- en service
- en projet

Tramways in France

- a few « historical » networks
 - 2 surviving lines (*StEtienne, Lille*)
 - A few renewal pioneers (*Rouen, Strasbourg, Grenoble, Nantes, Paris reg.*)
- a wave of new networks at beginning of Years 2000
 - Essentially in big urban areas (*Lyon, Montpellier, Bordeaux, Orléans, Mulhouse*)
- a continuous development since 2005
 - A few more big cities (*Clermont Fd, Marseille, Nice, Paris, Toulouse*)
 - extensions of big networks (*Lyon, Montpellier, Nantes, Strasbourg*)
 - New networks in smaller cities (*Angers, Brest, Le Havre, Le Mans, Reims, ...*)



Tramways in France

- *main general characteristics*
 - **25 networks, 57 lines, 600 km** (avril 2013)
 - *Radial lines through city centres, based on traffic generation hotspots (universities, hospitals) et high density housing areas*
 - *Tram lines = base of re-structured PT networks*
 - *P+R in suburbs*
 - *Mainly exclusive right of way (2% of total length in mixed traffic)*
 - *Layouts and rolling stock oriented on accessibility for disabled people – compulsory application*



Actors in French public transport

- Regulation and control => **State**
- Management of PT systems => “**AOT**” : organising authorities
 - State => national railways & coach lines
 - Regions => regional railways
 - Departments => interurban coach lines, local railways
 - **Local “AOT” (cities) => urban transport**
- Providing of transport services => **Operator**
 - **for urban transport**
 - mainly, private companies through a contract with AOT
 - a few public companies
- Roads and public space and traffic management
 - **In towns : cities (or federation of cities)**

Some favourable elements of context

Accessibility rules

(*“handicap” law, Feb. 2005*)



Promotion of active modes



Bicycles must be taken in account

in projects (*“LAURE” law*)

Moderation of cars in city centers

(*“Code de la rue” decrees*)



The High Level of Service

Main indicators for H L S :

- capacity, with a sufficient comfort
- **frequency**
- commercial speed

+ 2 fundamental indicators for quality:

- **regularity** / ponctuality
- reliability / availability

- *backbones of a ranked network*
- *a systemic approach :*

rolling stock ↔ infrastructure ↔ operation



Safety, an essential stake for HLS

a **direct stake** ...

but also an **indirect** one,
because of



impact on **productivity** :

- **regularity**
- **availability**
- **commercial speed**
- **corporate image**
- **operation costs**

disruptions due to accidents

- immobilized vehicles
- damaged facilities
- services breaks



prevention methods

- restrictives orders
- distrusting driving
- drivers' stress



Main key factors for tram (un-)safety

- *Obstacles to mutual visibilities*
 - *Plants, parked vehicles, urban furniture, buildings*
- *Readabilty of layouts*
 - *Design, materials,*
- *Bad awareness of other modes needs*
 - *Pedestrians, cyclists needs*
- *Lack of attention and awareness of danger*
 - *Mobile phones, portables devices, ...*
- *Speed of vehicles (and tramways)*

“STPG”* regulations, as a facilitator...

*** Safety for guided public transport**

What the “*urban insertion of tramways*” means

= the physical integration of a transport system in the public space, and its interaction with other users and activities

- pedestrians
- bicycles
- motorized vehicles
- parking and deliveries
- residents' activities
- *urban services*
- *maintenance actions*



a way to fight against un-safety factors

=> **sharing** the public space

=> handling **uses'** conflicts

‣ in space => **infrastructure design**



‣ in time => **traffic management and operation**



streetcars had quite disappeared in French towns...

to let LRT run (back) in streets ...*
we had to take the cars' place !

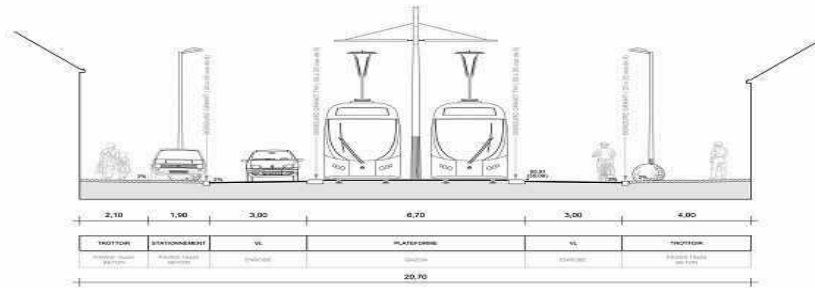


=> getting **dedicated running ways** (most often)



a chance to re-design public space

- full revision of **cross-sections** (frontage to frontage)



- introduction of singular points :



the **stops**

- technical elements to be installed



Main basics for lines design

- *2 essential entries*
 - *Tram has got the priority, as it's a rail vehicle...*
 - *Tram drivers run « on sight »*
- *between junctions and stops*
 - *Segregated lanes when relevant*
 - *Other modes taken in account (to avoid use of tram tracks)*
 - *Shared space with traffic management (put the tram in front of cars)*
- *at stops*
 - *Accessibility for disabled people, an essential tool*
 - *Taking in account pedestrians routes (they will do so anyway)*
- *at junctions*
 - *Matching of design and traffic management*
 - *Believable signage and traffic management => **priority to LRT***
 - *Mutual visibilities*

Image and design, key facts for success

Rolling stock :

- **customised** (head of) vehicles
- “clean” mode
- silent, “friendly” vehicle



Infrastructure and layouts

- high quality materials
- “green tracks” (grass, plants)
- urban furniture
- artistic acts



Speed adapted to context

From...

- pedestrian areas
- mixed traffic zones



To ...

- fully segregated (and level crossings)



Thanks for your attention



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“STPG”* regulations, as a facilitator...

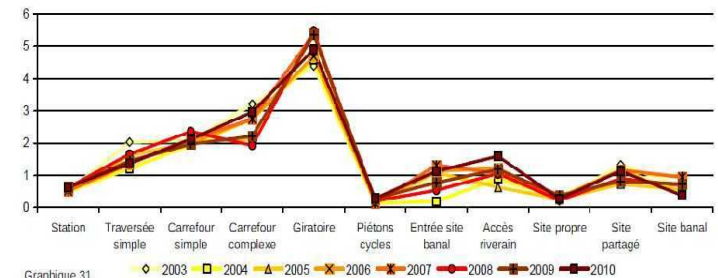
a **regulation** background :

- new projects from 2003 :
commitments during the project
- existing lines in 2003 :
regularization in the next 10 years



a **continuous process** :

- annual reports by operators
- a national accidents database
- technical audits in networks by STRMTG



* STPG : safety for public guided transport (*Decree 2003-425, May 9th 2003*)

safety, a federating issue around LRT...



An integrated approach of transport systems

