Session 12: implementing sustainable transport

Public Bike Services

The alternative case of

Vélomagg

Montpellier – France

(by Laurent MERCAT)

EComm 2008 - London

Public Bicycles programmes

- are innovative schemes of rental or free bicycles in urban areas;
- can be used for daily mobility as one-way-use is possible and they can be seen as part of the public transport system;
- differ from traditional, mostly leisure-oriented bicycle rental services as they provide fast and easy access;
- have diversified in organisational layout, the business models and the applied technology towards "smart bikes" (rental process via smart card or mobile phone).

The transferability of Public Bicycle schemes to cities with appropriate framework conditions for cycling has been proven in many cases (e.g. in France, Germany, Spain...).

Key benefits of implementing a Public Bicycle scheme...

- provides a fast, convenient and flexible inner urban transport option;
- can be a "door opener" to increase the acceptance of cycling as urban transport mode in cities which still lack a good level of bicycle use;
- also makes sense in cities that have a good level of cycling as it adds a valuable element to existing mobility services;
- increases sustainable mobility choices at low cost when compared to other public transport measures;
- encourages intermodal travelling.

niches

Présentation in 3 parts

1. The mainstream public bike systems (JC Decaux, ClearChannel…)

2. The alternative public system of Montpellier: « Vélomagg »

3. On going Smoove developments from Velomagg experience

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  (prior to March 2008)

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  (after March 2008)

The « traditionnal » models of Public Bike: Decaux, Clear Channel...

Very efficient services which change drastically bike policies

1

Rapid history of Public Bikes…
It moves now but it began 30 years ago

- **1974** : La Rochelle propose 350 *bikes jaunes* sur 3 points de location en complément de son offre de transport public.

- **1988** Morten Sadolin et Wessung Ole imaginent un système de bikes en libre service partagés.

- **1991** L'idée des *Bycyklen* de Copenhague est lancée par M. Sadolin et W. Ole, ils seront aidés ensuite par Niels Christiansen, puis lanceront le *Fonden Bycyklen* sur la base d'un partenariat public/privé.

- **1995** Lancement de *Bycyklen* à Copenhague, Danemark1 : 1 000 bikes sont proposés dans 120 stations en libre service.

- **1996** L'Université de Portsmouth initie un système de bike en libre service à Portsmouth, Royaume-Uni. Ce service a aujourd'hui été abandonné par manque de fond.

- **1997** Plusieurs services similaires sont lancés en Hollande, en 1997 à Rotterdam et en 1999 à Amsterdam, aujourd'hui abandonnés.

- **1998** : Lancement de *bike à la carte* à Rennes par Clear Channel, « Premier libre-service bike informatisé au monde »

- 199**9**.: Mise au point du système *Call a Bike* par Christian Hogl.

- **2000**: Lancement du premier service *Call a Bike* à Munich en Allemagne ;
Lancement d'un service de bikes en libre service gratuit, *HKL Citybike*, à Helsinki en Finlande sur le modèle des *Bycyklen* danois ;
Clear Channel lance plusieurs offres de bikes en libre service à Singapour, aujourd'hui toutes abandonnées.

- **2002**: Lancement de *Viennabike* par une association à Vienne en Autriche, toujours sur le modèle des *Bycyklen* mais le service faillit au bout de quelques semaines.

- **2003**: **R**emplacement du système *Viennabike* par *Citybike Wien*, premier lancement du système *Cyclocity* de JCDecaux.
Juin 2003, mise en place de deux systèmes *Cyclocity* en Espagne (Gijón et Córdoba) à petite échelle et entièrement gratuits.

- **2005**: **L**ancement du service *bike'v* à Lyon, plus important service de bikes en libre service à son lancement ; il le restera jusqu'au lancement du service *Vélib'* à Paris.

- *****2007** 22 mars 2007, lancement de *bicing* à Barcelone en Espagne, nouvelle application, la plus importante, du système de Clear Channel.
25 juin 2007, lancement à Orléans de *bike+* par le groupe EFFIA, premier service de ce type exploité en dehors d'un marché de mobilier urbain publicitaire en France
15 juillet 2007, lancement du service *Vélib'* à Paris, plus important service de bikes en libre service au monde

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1995: « Depo » in Amsterdam
It stoped because of no public funding

1995: A very different bike...
reducing vandalism and theft, facilitating maintenance

Why did it recently developped ?

- Easy access: fast, 24h a day, 7 days a week
- Open access: registered ans occasional users
- Mass volumes : you find a bike anywhere…
- Cheap for user for urban short trips
- Direct or Indirect public fundings through advertising, transport or parking policies
- Public / private partnerships for implementation

The « Call a Bike » model
of Deutsche Bahn (DB)

2 concepts:

1. Use of smart phone (unique entry)

2. Algorithm lock

2 systems:

- Without bike station; You let the bike at a street corner

- With fixed station; Facilitating bike location

How does it work ?

Developping in Germany

- 5 Call a Bike « without station » :
    - 2000: Munich
    - 2002: Berlin,
    - 2003: Frankfurt,
    - 2004: Cologne,
    - 2005: Karlsruhe
- 1 Call a Bike « **Fix** » in Stuttgart (50 stations)
- Other sites: Hannover…

New comer in France

- Called « **bike réflex** »
- Partnership TransDev / DB
- Spring 2008:
  - 15 stations;
  - 150 bikes

www.reflex-grandchalon.com

DOSSIER de PRESSE
Le Grand Chalon et Transdev testent les vélos Réflex en libre-service

Contact Presse : Cécile Joseph 03 85 94 21 77

le GrandChalon
Agglomération

PARTENAIRE
TRANSDEV

JCDecaux
les vitrines du monde

Cyclocity

The « Cyclocity » of JC Decaux

One of the leading model in Europe

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2002/2003: Start in Wien

The 1st Mass effect: 4.000 bike'v in Lyon

The reasons of tremendous success ? :

- The mass effect in a very dense urban environment
  - 2 to 4 thousands bikes
  - X hundreds of bike stations
- Very easy access through card and CB :
  - 24h/24 et 7d/week
  - Registered users and occasionnal users
- Very good quality service

The 2nd Mass effect:
More than 20.000 Véli'b in Paris

Bike securing system

The totems

The stands

Velib'

2008 -

The « Smart Bike »
of Clear Channel

The second main model

The « Smart Bike »

- Started before JC Decaux (1999 in Rennes – France) with different conditions at the begining:
  - Authorised registered users only
  - Free use, no cost at all
- Main differences:
  - Different Bike Design
  - Securing system in front less convenient
  - Station with horizontal bar

The 6000 « Bicing »
ClearChannel in Barcelonne
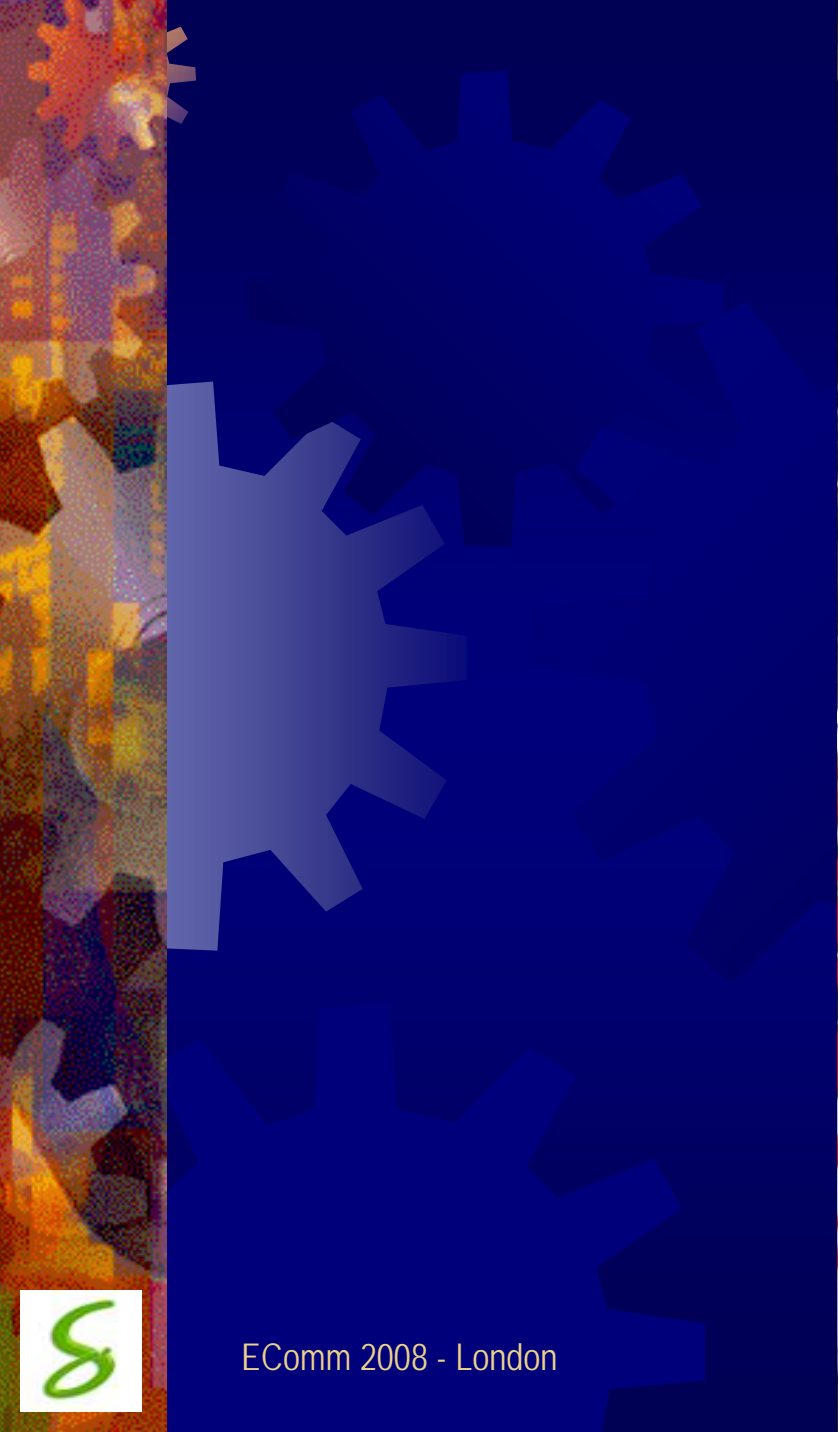
The most important Clear Channel project

A very high density of bike stations
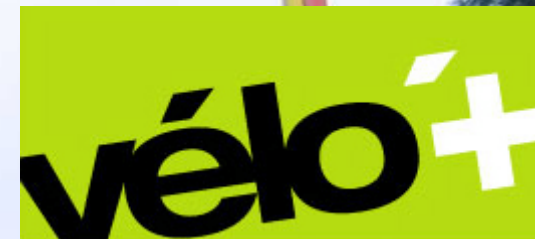## (one every 300 meters on average)

La station « bikessimo » d'Effia

vélo+

EFFIA

Une très belle copie du Cyclocity
Très épurée (procès en cours...)

vélo+

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# The « Oy Bike » project in western London

- Chainless bike
- Use of the Homeport 3 slots locking system in station
- Use of a normal code lock outside the station
- Main limits:
  - 1 station = 3 slots
  - Use of the mobil phone to get the code

Oy Bike in London

- Communications portées par le téléphone des usagers

- Start of the project: 2000

- Experimentation in 2004

- 57 stations in western London
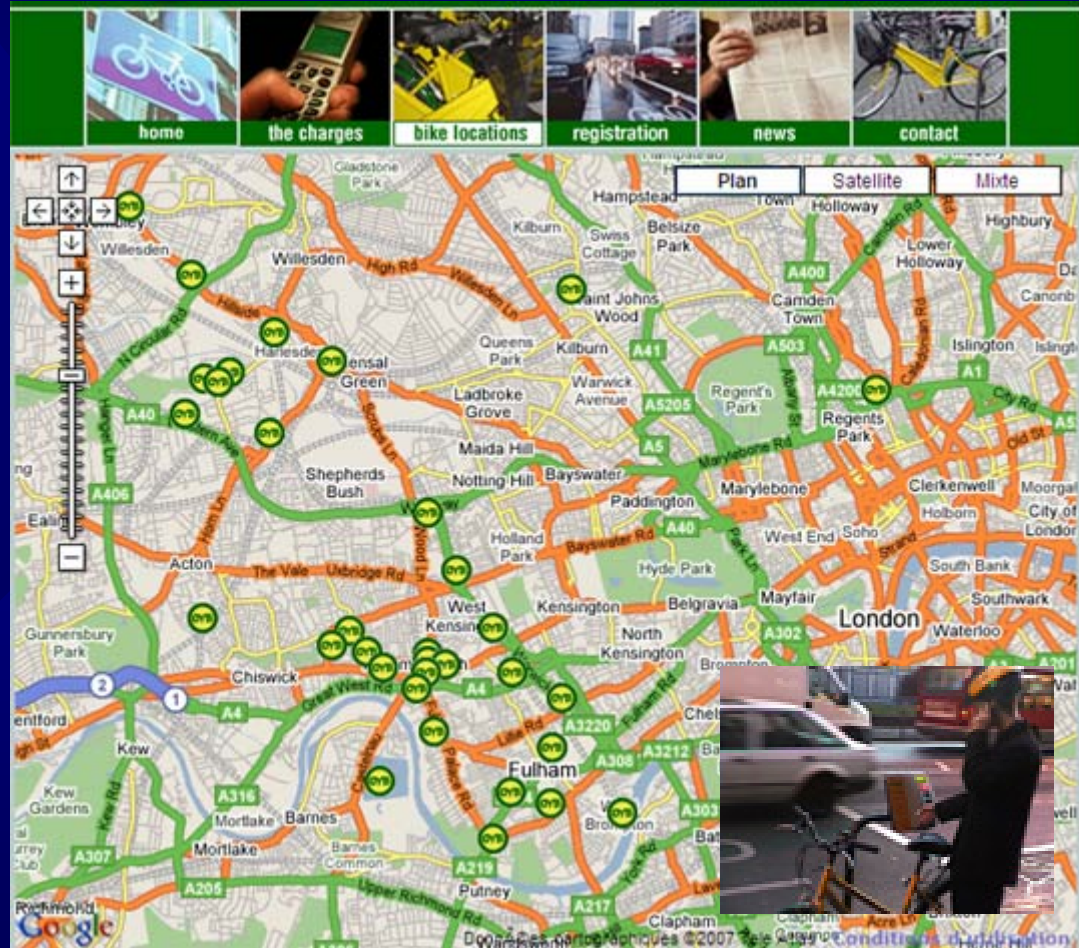
The « Yello Bike » in Pragues

- Same as OyBike in London

- But Homeport boxes equiped with GPRS card avoiding the use of user's mobil phones

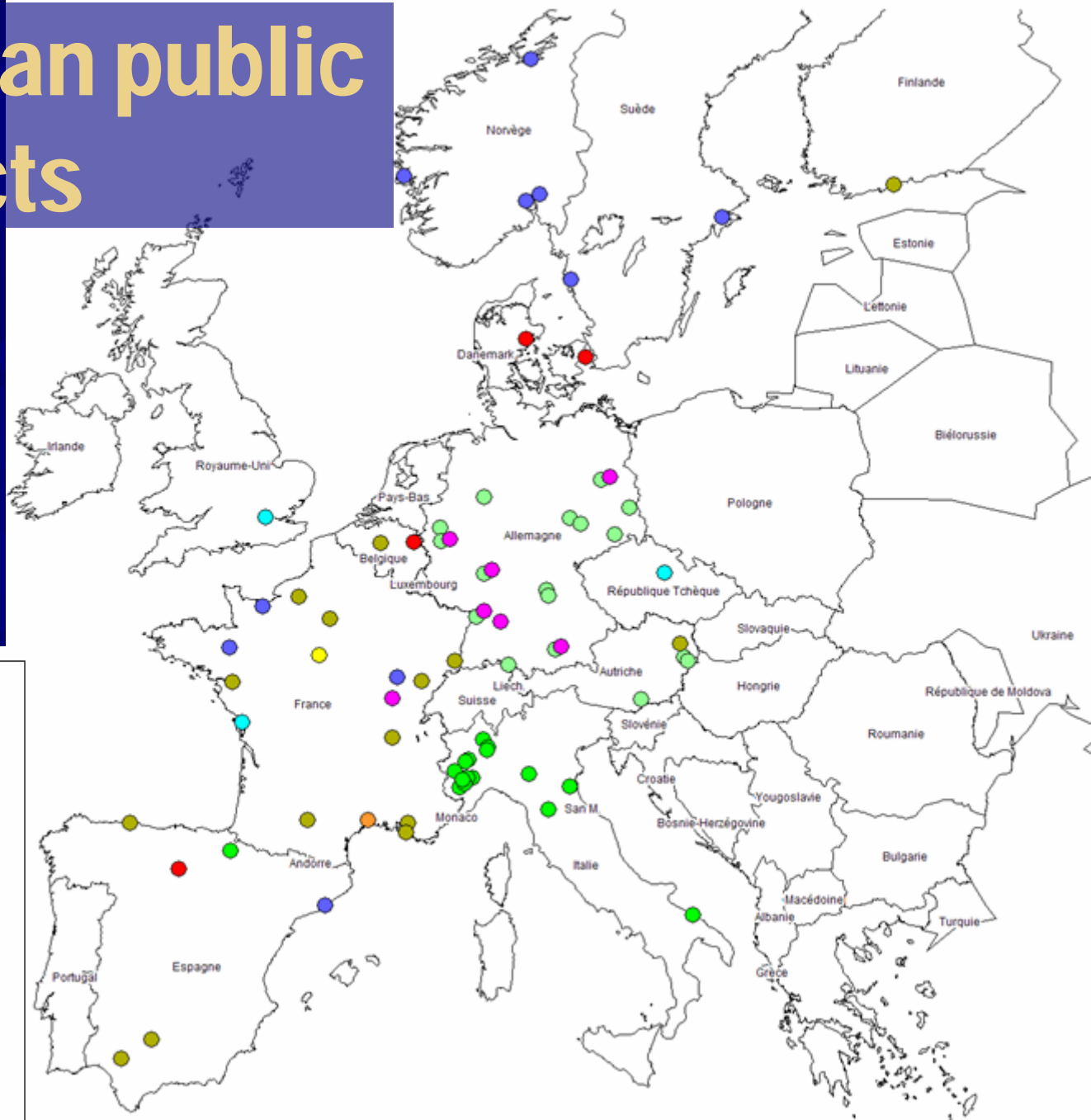# The European public bike projects

Color = Management system / provider
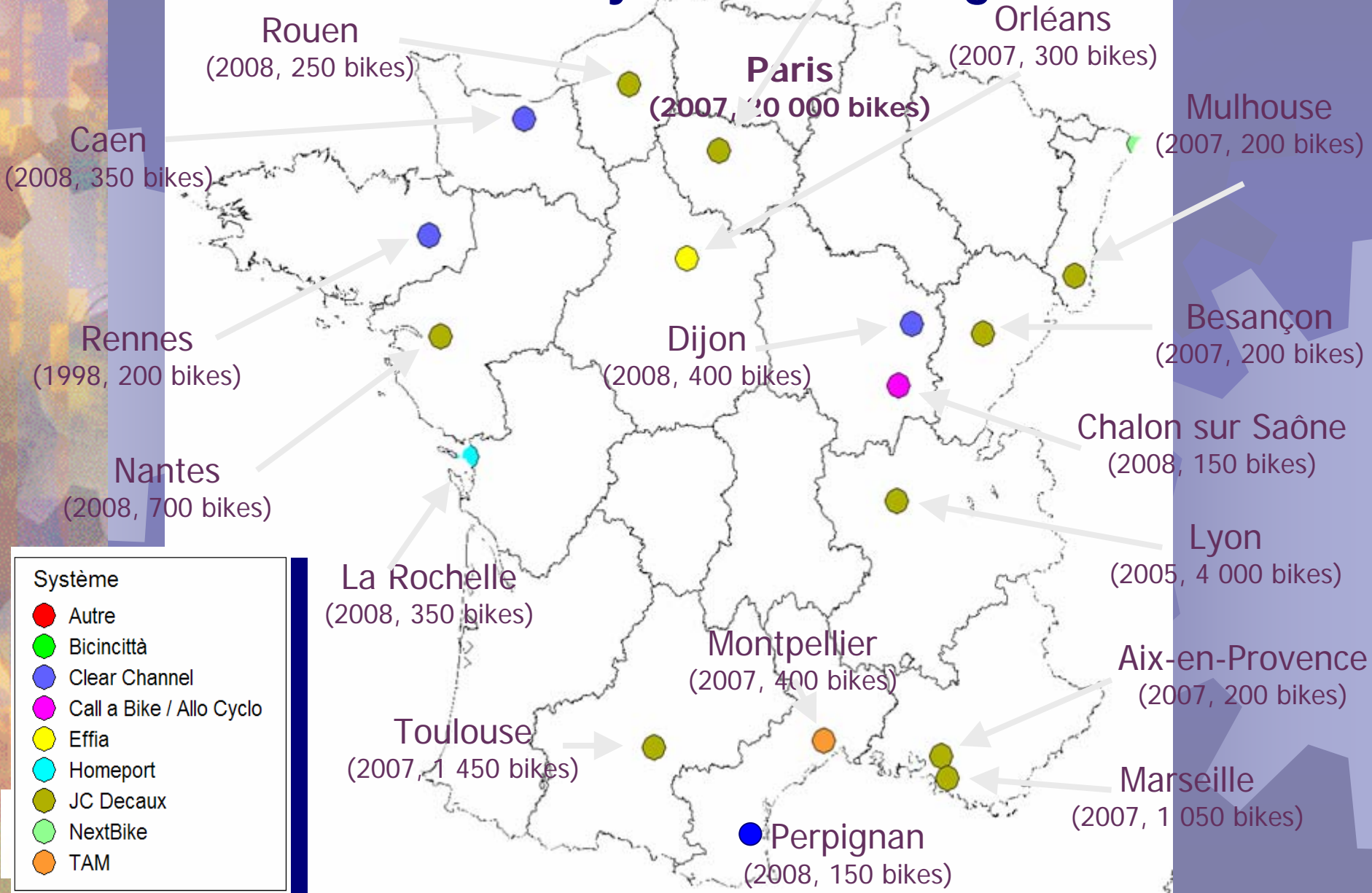
<u>Source</u>: L. Mercat January 2008

Système

- 🔴 Autre
- 🟢 Bicincittà
- 🔵 Clear Channel
- 🟣 Call a Bike / Allo Cyclo
- 🟡 Effia
- 🔵 Homeport
- 🟤 JC Decaux
- 🟢 NextBike
- 🟠 TAM

Zoom on France
The most advanced country on Bike Sharing

Rouen
(2008, 250 bikes)

Orléans
(2007, 300 bikes)

Paris
(2007, 20 000 bikes)

Mulhouse
(2007, 200 bikes)

Caen
(2008, 350 bikes)

Rennes
(1998, 200 bikes)

Dijon
(2008, 400 bikes)

Besançon
(2007, 200 bikes)

Nantes
(2008, 700 bikes)

Chalon sur Saône
(2008, 150 bikes)

La Rochelle
(2008, 350 bikes)

Lyon
(2005, 4 000 bikes)

Montpellier
(2007, 400 bikes)

Aix-en-Provence
(2007, 200 bikes)

Toulouse
(2007, 1 450 bikes)

Marseille
(2007, 1 050 bikes)

Perpignan
(2008, 150 bikes)

Système
- Autre
- Bicincittà
- Clear Channel
- Call a Bike / Allo Cyclo
- Effia
- Homeport
- JC Decaux
- NextBike
- TAM

Number of bikes per person: Average of 5 bikes / 1.000 persons

Commune	Population99	Velos	Vélo/1000hab
Paris	2 125 246	20 050	9,43
Lyon	445 452	4 000	8,98
La Rochelle	76 584	350	4,57
Nancy	103 605	400	3,86
Toulouse	390 350	1 470	3,77
Angers	151 279	500	3,31
Caen	113 987	350	3,07
Dijon	149 867	400	2,67
Orléans	113 126	300	2,65
Nantes	270 251	700	2,59
Rouen	106 592	250	2,35
Mulhouse	110 359	200	1,81
Montpellier	225 392	400	1,77
Besançon	117 733	200	1,70
Aix-en-Provence	134 222	200	1,49
Perpignan	105 115	150	1,43
Marseille	798 430	1 050	1,32
Rennes	206 229	200	0,97
Moyenne	**319 101**	**1 732**	**5,43**

*Source: Census of population 1999 of the city only

The alternative case of Montpellier

A more integrated and public system
based on key management equipments

2

The initial questions...

Is it possible to create a Bike service system:

- *Modern, ergonomic and efficient*
- *Larger than the only short term renting system*
- *Associating human services in addition to automatic systems accessible 24h/24 and 7days/week*
- *Less « dependant » on suppliers for investment and service*
- *And... Less expensive, more affordable...*

The strategical orientations...

- Identify and select a standard product « on catalogue » : The key management system

- « Involve » all the possible existing systems or services and link them to the bike system:

  - Use of Transportation Ticket Automatic Dispensors of the transport network = less investment in bike specific totems

  - Involve existing human ressources, public or private:

    - Interested in Bike service: increasing attractiveness

    - Being located in strategic locations

    - Opened on large time periods

The Montpellier project differences

- A different technical choice:
  - Based on automatic key dispensers of bike locks
  - Bike system integrated into the transportation management system
- A different project management choice:
  - A **public investment** (and not private)
  - Maintenance and Commercial services provided by the transportation company (**TAM**) associating sub-contractors
  - No advertisment contract linked to the Bike service
  - Associating public and private partners for most of the bike stations
- The **inter-modality strenghtened**:
  - **Free Bike access** for all public transportation registered users limited to 24hours
  - Same Smart transport Card for Bike and public transport services
  - Occasionnal users have access to the bike either through local partners or Transport Ticket Automatic Dispensors

The 3 services integrated into the Vélomagg project:

1. **Short term bike sharing / renting system** :
   - Started in June 2007: **200 bikes in 17 stations**
   - Feb. 2008: Increase to **550 bikes in 50 stations**
   - 2009-2010: Extension planned up to **2.000 bikes in 125 stations**

2. **Long Term renting system »** from 3 to 12 months (**600 bikes – extension…)**; « Copy » of Bordeaux (400 bikes), Angers (1200 bikes), Tours (500 bikes)…

3. Securised **Parking** including private bikes covering 28 sites

The 3 components
of a bike station

1. Bikes
2. Packs of 4 bikes **stands** fixed on the ground (2 stands / bike minimum)
3. A **totem (outdoor)** including Key Management tool (One key position per stand)

The specifications of the Bike Vélomagg (short term renting)

- Urban Bike **17 kg** (- 5 kg of Decaux's one)
- Chainless transmission + Nexus 3
- Aluminium frame
- **Roller brakes**
- **Dynamo** in the front hub + automatic ligths
- 26 inches wheels

Very simple bike stands

Packs of 4 stands easy to set up on the ground by drilling:

1. No heavy Civil works !
2. Easy changes of the capacity of the stations if needed

Bike is secured with
a cable to the stand

Temporary System (June – Oct. 2007)
key system « indoor »

Same system in NL fixed on a wall

Final system (Oct. 2007) with
Key system « outdoor »

- Capacity from 8 to 32 keys
- Set up on public space (street, square, city centre…)
- Plug on electric network or on batery (option)
- Communication with GPRS links

The 3 key products available

« Maxx » = Indoor uses

« Mini » = High security

« Flex » = with secured door

Various integrations into totems

ligne 2   BEAUX-ARTS   Direction : Jacou

Additionnal access to the bike service through ticket dispenser:
•Avoid duplication of public investment
•Facilitate multi modal integration

Montpellier Exemple
(Secured bike parking in tramway station)

Système Montpellierain:
Boite à clé Outdoor +
Porte

Strasbourg exemple

The Smoove project

Launching of complementary alternative solutions based on Vélomagg experience

3

The « Smoove Box » system

All the bikes are equipped with the system " Smoove Box ", fixed in front of the bike and including :

➢ **A securisation module situated under the basket, including :**
- The highly secured **locking mechanism** of the bike on the bike-stand
- A **roll-up cable** allowing the security of the bike outside of the bike-station
- The **light** in front of the bike (linked to hub dynamo inside the front wheel)
- The **radio** communication unit to transmit management data to the main terminal of the bike-station, also transmitting data to central server

➢ **A keyboard of command situated on the handlebars of every bike, including :**
- An **RFID reader** for RFID's card suscriber
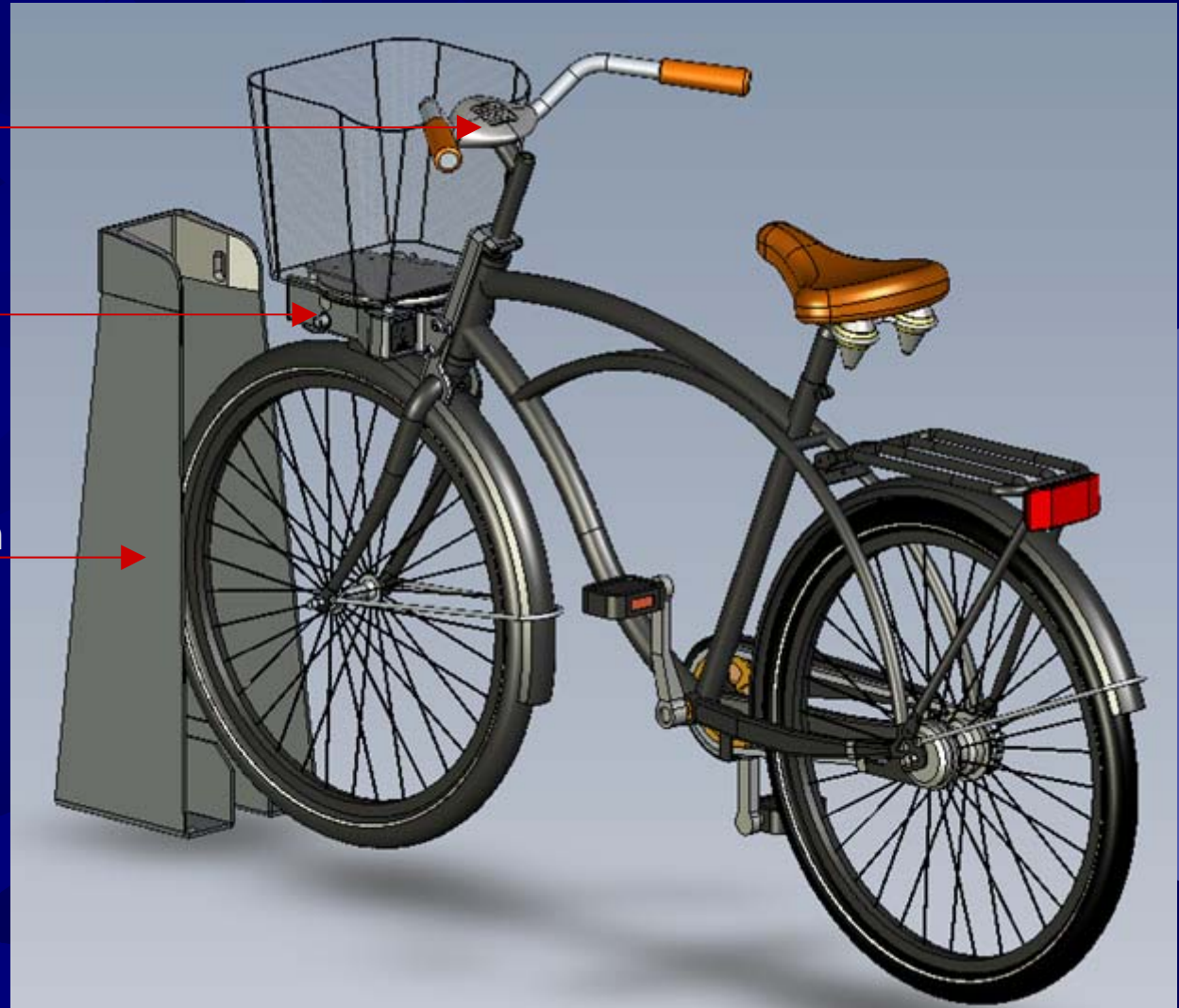- An **anti-vandalism keypad** for occasionnal users whom receive a code from a SMS or a ticket

Smoove Box
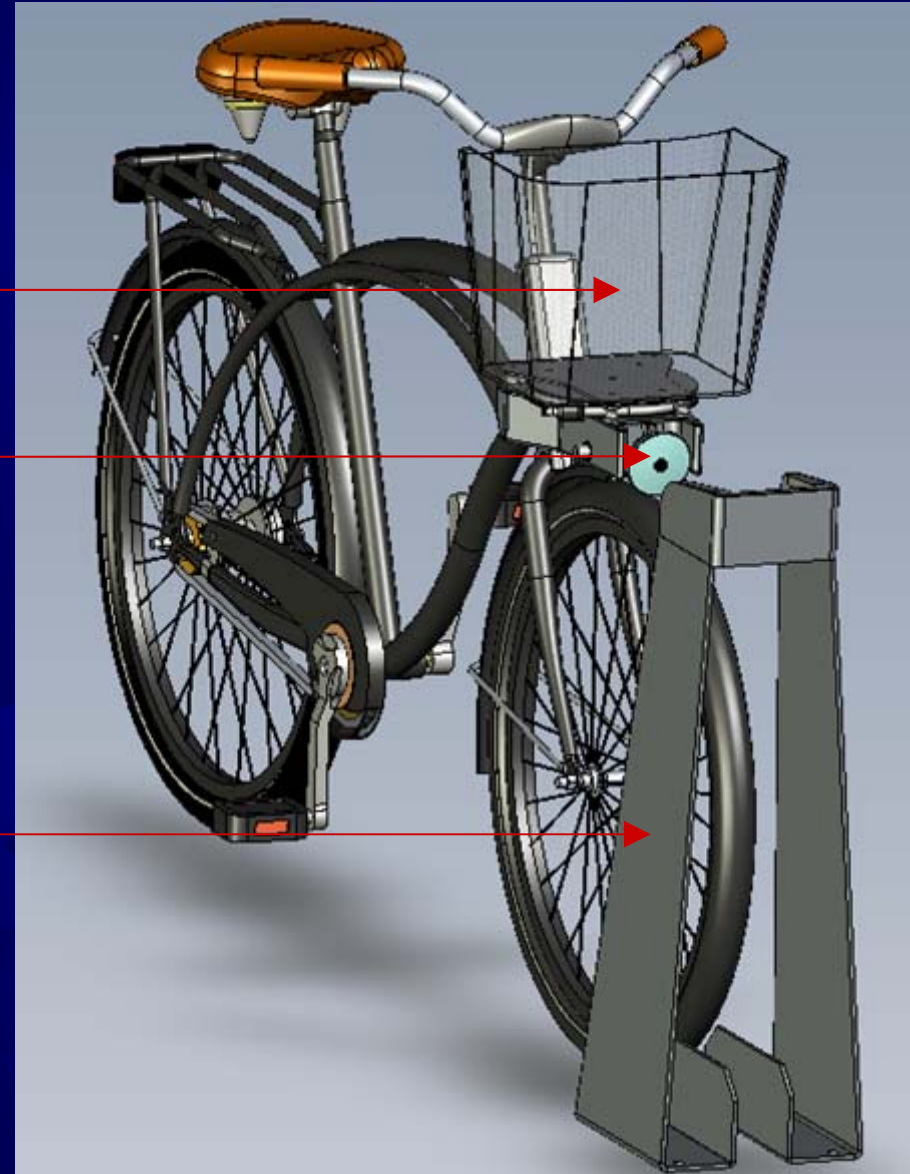## *Back sight*

High module

Low module
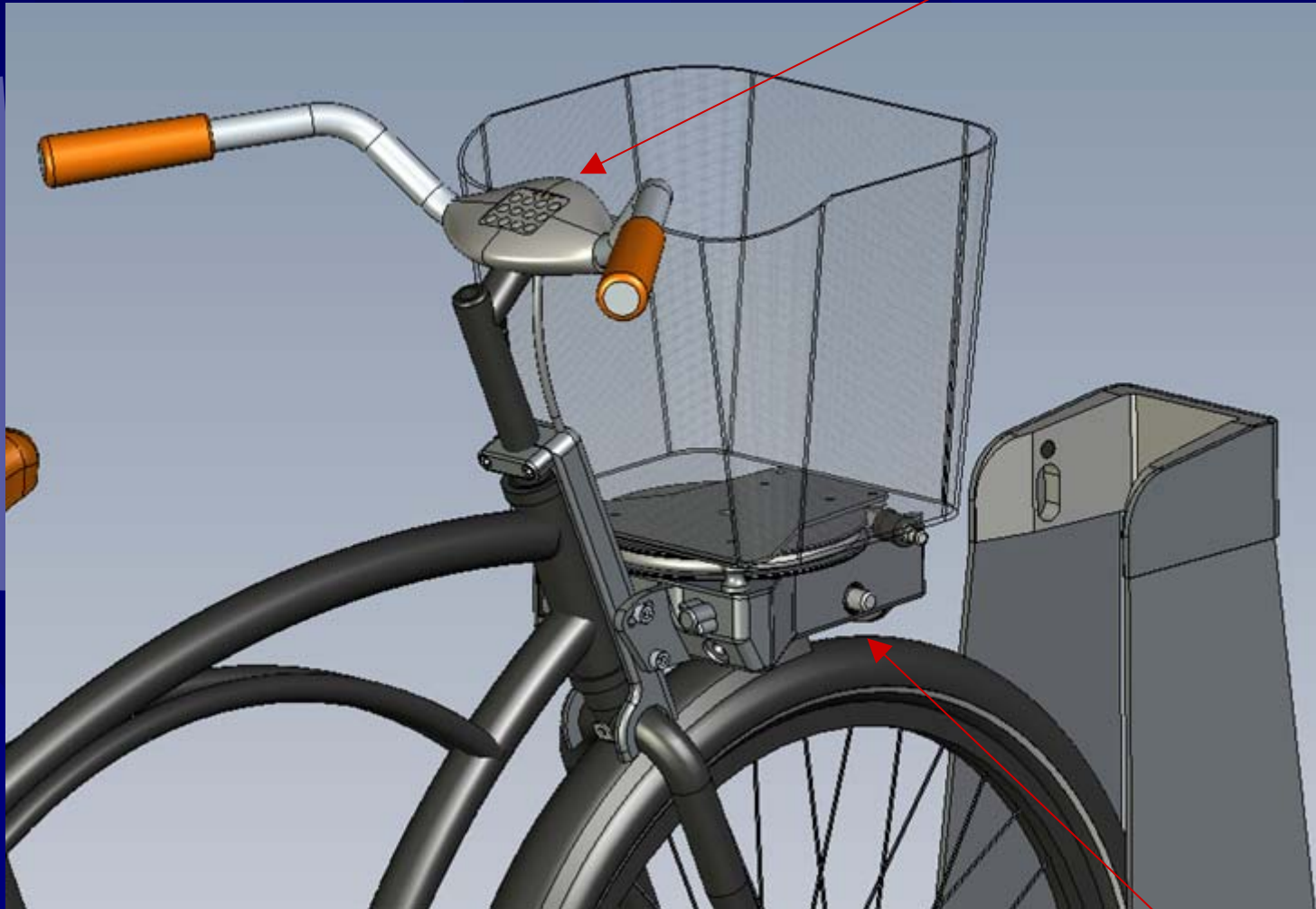
Docking station

Smoove Box
Front view

Basket example

Light

Docking station

Smoove Box
Details

High module

Low module

Second prototype
Industrial production on september 2008

- The most anti-vandalism system
- Bike parked in a very stable way
- Including electric bilke battery automatic management

How to use the « Smoove Box » ?

Step 1: Get identified
to have access to the bike

Step 2: Unlock and Go

3 means of access:

1. RFID member card – the fastest way
• Dial the unlock code given through:
2. Ticket – easy occassional access
3. SMS – fast and easy

Other informations on : www.smoove.fr

Thanks for your attention

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