RATP will be experimenting from May 2012 onwards a bus station of the future as part of the EBSF project coordinated by UITP, which also extends its Osmose research programme.

RATP is committed to an ambitious research program focusing on tomorrow’s transport environments (known as “Osmose” and will be experimenting from 22 May 2012 onwards a pilot bus station near the Gare de Lyon, on the Boulevard Diderot in Paris. The experiment is part of the EBSF (European Bus System of the Future) project. The EBSF bus station is a concrete translation of the RATP vision on the bus infrastructures’ potential in the urban environment as a multi-functional space ensuring better quality of services for passengers, pedestrians and people living in its neighbourhood.

The carefully designed objective is to contribute to analyses by parties considering surface transportation environments such as local authorities managing public spaces and urban furniture suppliers.
1. The RATP Osmose program

RATP launched a program named “Osmose” in 2009 to showcase its vision of tomorrow’s transport environments and how they interact with urban spaces. The research program is intended to promote sustainable urban development, improve functionality and services to passengers and highlight quality architecture, design and urban environments.

RATP started to focus on metro stations for the Grand Paris project. In May 2010, as results of this work different forms of an “Osmose metro station” were developed by three well-known European architects. The analysis of these projects led to the vision that tomorrow’s stations should be:

- « enhanced » (i.e., not limited to transport functions)
- shared (which means operated by parties catering to additional functionalities)
- subject to change (able to host activities that may change over time)
- expressive (carefully worked on in design and architecture terms to ensure continued appeal not only for various segments of the public but also for operating partners).

Through the EBSF Bus Station, RATP is concretely testing these findings on the scale of bus stops and stations in public areas.
2. The EBSF (European Bus System of the Future) European research program

RATP has been committed for over a decade at the European level to develop a new generation of bus mode solutions as the initiator of a collective approach bringing together seven urban transport operators (Keolis, Veolia Transdev, SRWT – TEC, TPG, Carris, HUR and the RATP). It was joined by UITP (International Association of Public Transport) in 2003 and has contributed with an advanced design approach to raise awareness of the fact that bus transportation has to change to remain attractive in towns and cities.

At its very start, the EBSF (European Bus System of the Future) project has been organised to respond to a call for projects in the Seventh Framework Program for Research and Development issued by the European Commission. EBSF began in 2008 with the main goal of improving the attractiveness and image of bus transport. The project has an overall budget of €26 million for a four-year term (2008 – 2012), making it one of the largest research projects launched by the European Commission in the field of urban transport.

The program is coordinated and managed by UITP and brings together 47 partners from eleven countries including all parties involved in the system (13 industrial groups, nine local and international operators, four organizing authorities, five national associations, 16 academics, consultants and research centres).

The project aims to redefine bus transportation as a system by adapting it to the specific features of European towns and cities. It is intended to enhance the image of bus networks based on a global approach that includes vehicles, infrastructures, stations, integration in the urban environment, information systems and operating methods.

Seven test operations have already been conducted in European towns and cities (Budapest, Madrid, Rouen, Gothenburg, Bremerhaven, Brunoy and Rome) as part of the EBSF project. The RATP experiment is the eighth and final operational test of the project and is the only one exclusively focusing on a transport environments.

For more information: www.ebsf.eu / www.uitp.org
3. The “Osmose bus station”: a tool for research, demonstration and reflection

The EBSF project is based on a systematic approach that considers the bus station as one of the components of the “bus system” with a high potential of improving the attractiveness of the bus.

RATP therefore commissioned the design of a "concept-station" with the same rationale as concept-cars: to bring together and experiment with a number of innovations. This is a “research demonstrator” developed around the idea that a major bus stop could host services intended as much for passengers as for the neighbourhood.

To achieve this, the RATP commissioned architect and designer Marc Aurel, who previously won the competition for urban fixtures for stations on the future T6 tramway line and is well known for his commitment to the quality of public space and urban furniture.

RATP applied a rigorous functional analysis to bring together and select new concepts not only to elicit an assessment from the public, but also to add to the thinking by the various parties involved in surface transport environments and help develop their strategic directions (parties involved included municipal authorities, authorities in charge of public spaces, transport operators and authorities and in particular suppliers of urban furniture suppliers).

RATP objective is to help raise awareness of the fact that in addition to architectural and design issues, the management and disposition of current parties regarding urban bus stops may also change, in particular in terms of comfort, information and services. This is why RATP believes that in demonstrating a high level of service quality, the “Osmose bus station” can also help creating new solutions in design and new services and aims at developing innovative business models for new surface transport environments.
4. Description of the test station

RATP will conduct a five-month experiment from 22 May onwards with the “enhanced” station that features services focusing both on transport and urban use.

The temporary station has been set up in the position of the current “Gare de Lyon – Diderot” bus stop at 17 Boulevard Diderot in the 12th arrondissement in Paris. The stop is located in a heavy traffic zone and is highly frequented. Three day-time bus lines meet at Gare de Lyon - Diderot bus station (57, 61 and above all the very frequented line 91 which has a very high patronage because it connects the Gare de Lyon TGV railway station to the south of the capital and the Montparnasse TGV railway station), along with five night bus lines, including the N01 round route that connects with four Noctilien lines for the suburbs. Above all, the stop links to the hub of the Gare de Lyon railway station (metro lignes 1 and 14, RER regional express lines A and D, SNCF Transilien suburban train lines, inter-city lines and the TGV high speed train service).

The stop has a surface area of 85 sq. m, with a sheltered area of approximately 35 sq. m (compared to 6.5 sq. m at the previous stop). The transport area is wide enough to welcome descending and waiting passengers, identify various services and ensure unrestricted circulation for users. It has been designed for access by wheel-chair users and differently-abled persons (users with hearing or seeing difficulties, etc.).

The stop features a floor space with eleven sheltered seats and many conveniences to offer optimized capacity and comfort. The stop has a crossover space with a transport façade and an urban façade for services for pedestrians and people from the neighbourhood. The modularity of the bus stop shows how its size could be tailored to other locations, even though no deployment has been scheduled at present.
Easier information access

- **Two real-time transport information screens** (information about next buses and disruptions in the surrounding area defined as the neighbourhood map): one located on the bus side; the other on the city side

- **Two interactive information touchscreens**, each located under the real-time information screens. The screens can be accessed by wheel-chair users and display advice for directions, transport information or attractions in the area, along with latest news about the 12tharrondissement)

- **Resized signage** to facilitate visual accessibility

- Conventional **information panels** with maps and timetables

- **Two pylon signs** at either end: the totems are backlit at night and help to identify the station in the city from the outside as well as displaying instructions on the inside to connect to nearby transportation with a raised pictogram for the visually-impaired to launch voice-recorded information about lines and bus station directions

- **An advertising board** (dual-side displays and backlit at night) operated during the experimentation phase to communicate about the operation.

Innovative services to make users’ lives easier

- **An automatic ticket machine** of the latest generation with an interface designed for the visually impaired

- **A mini retail outlet space for mobile retailers**: the aim over time is to have this space filled throughout the day with an offering tailored to each moment (e.g. coffees, snacks, smoothies, etc.)

- **An interface tri-display station with ads** concerning Paris (one of the screens is accessible to wheel-chair users)

- **A self-service station for electrical bikes**: the service is under experimentation with a community of users recruited in the neighbourhood who will be able to use the service at no charge for a month

- **A self-service library** with books made available for free on the principle of “leave one book; pick up another”

- **A public Wi-Fi hotspot** and power outlet to recharge personal electronic devices

- **A defibrillator** for emergency interventions

- Ledges on which to place bags and a **courtesy mirror**.
A calming and comfortable atmosphere

- **Original metal and ceramic benches** for a public area, whose design evokes the transport context (white bevelled surface like Paris metro station walls)

- **The central vertical section features an urban decorative surface** which will be heated when outdoor temperatures are low to ensure a mild sensation of heat for users seated in front of the section

- **Lighting ambiance** that varies according to the time of day in the central section with spot lighting in three specific locations

- **The station also features sound ambiances** broadcast by means of an invisible and innovative technology: sound is not broadcast via speakers, but through the glass of the vertical sections to ensure a radius via resonance limited to the bus stop surface area.

  - Sound ambiances are synchronised in the central part with lights to express the theme of changing skies. They change over time, are light and harmonic.
  
  - As for the media library, sounds to be browsed simply by moving your hand over them will be sounds for reading or for dreaming with natural tunes and echoes.
  
  - A short musical tune will be broadcasted from the central section when a bus approaches.
Bus network, RATP and RATP group

RATP runs 350 bus lines and nearly 4,500 buses in the Paris region. With over 12,000 stops and over 3.8 million passengers each day throughout its bus network in the greater Paris region, RATP manages the largest fleet of buses in France and one of the densest networks in the world.

RATP operates one of the leading multimodal networks in the world in the greater Paris region comprising 14 metro lines, two RER regional express rail lines, three tramway lines and 350 bus lines. The group deploys 45,000 staff members to transport its ten million passengers each day with the aim of ensuring a high quality urban public transport service at the best cost for the community. The RATP will invest €1.6 billion in 2012 to modernise and renovate its networks in the greater Paris region.

RATP Dev subsidiary, which task is to develop the group’s operating and maintenance activities outside its historic network in the greater Paris region, ensures the group’s presence in twelve countries on four continents and boasts major achievements such as the Algiers metro, the Florence tramway and the Gautrain connecting Johannesburg to Pretoria in South Africa.

RATP group is currently the fifth largest urban transport operator in the world.

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RATP’s partners in the realization of the EBSF Bus Station

UITP, coordinator of the EBSF project
UITP, the International Association of Public Transport, has over 3,400 members in 92 countries throughout the world and represents the interests of key players in this sector. Its membership includes transport authorities, operators, both private and public, in all modes of collective passenger transport, and the industry. UITP addresses the economic, technical, organisation and management aspects of passenger transport, as well as the development of policy for mobility and public transport world-wide. UITP is the global advocate of public transport and sustainable mobility, and the promoter of innovations in the sector.

Designer: MARC AUREL – taming public space
The Marc Aurel firm has been accompanying changes in public space and contributing to developing an urban landscape that preserves usage and environs since 1996. When Marc Aurel began his designer career at the end of the 1980s, the term “urban fixture design” was both unknown and rarely used even within architecture and design circles. Marc Aurel has accompanied the development of his discipline and has contributed to the emergence of a specific urban approach by participating in the first major urban development project in France (Lyon city authorities, 1990), by matching the development of the leading European manufacturers, by designing station fixture for the future Chatillon–Véliy Vieilflay tramway (2014), the experimental bus stop at Gare de Lyon (2012), new fixtures for town centres in Marseilles, Poitiers, Metz, Liège (Belgium), Martigny (Switzerland) and Beirut in Lebanon in the summer 2012, to name but a few. The ceramic fixtures at the stop are the result of Marc Aurel’s research since 2009 with CRAFT in Limoges as part of the URBACER European project to study possible ceramic applications in urban areas. The first series of prototypes in October 2011 was used for a collection of furniture and flower boxes to be released in the spring of 2012 by MetalcoMobilconcept.
Archibooks published Marc Aurel’s first monograph in the spring of 2011.
Marc Aurel works with international corporations such as Philips lighting – Decaux – RATP – Eclatec – Comatelec – Escofet – Aubrilam – Metalco – Mobilconcept – Sineugraf – Indal – Rohl – Iguzzini, etc.

Station and seat builder: METALCO MOBILCONCEPTS
For the last 15 years Mobil Concepts has been the sole representative in France and in French-speaking countries of the METALCO group, the leading European manufacturer of urban fixtures. The brand operates in 32 countries and on four continents and offers the widest range of urban fixtures available. The group’s worldwide presence and growth potential can be attributed squarely to its values: Innovation, Quality and Design.
In France, Mobil Concepts applies the same values and develops its own approach for tomorrow’s town. It intends to contribute to the development of a more human urban civilisation.
The company invests in projects concerning urban transportation and has set up a division focusing specifically on these projects to make its expertise available to designers. Its latest orders include the tramways in Montpellier, Algiers and Casablanca, with many other major programs in its order book.
The integrated approach to project management is one of the fields of expertise demonstrated by Mobil Concepts such as the study of technical and economic constraints in a project, the identification of tailored solutions, calculation plans, execution plans and integrated project management, along with assessing, selecting and managing sub-contractors, assisting with foundations and assembly and coverage of ‘post-project management’.
Mobil concepts METALCO boasts 25,000 sq. m of automated factory space.
The RATP EBSF test station makes it possible for Mobil Concepts to take the centre stage as a vital party in the development of the French urban landscape and to adopt a position for its commitment to the major issue of mobility. Mobil Concepts demonstrates that product and material innovation must not be achieved at the cost of usage and must be integrated in the product consideration and design process. Urban fixtures serve in this instance as a vector for building social bonds.

Heat glass manufacturer: QUANTUM GLASS
Tomorrow’s architecture will be built with interactive, dynamic and smart materials.
QUANTUM GLASS is at the cutting edge of interactive and smart glass technologies. A Saint-Gobain group brand specialising in active glazing, QUANTUM GLASS aims to facilitate the emergence of avant-garde architectural projects using hybrid glass featuring varying physical and optical properties by means of a low electrical current: glass that darkens or lightens on demand, heats up, illuminates and communicates, etc. QUANTUM GLASS therefore clearly caters to designers, architects and end clients with technological and technical solutions for the most creative projects and the most demanding ones in terms of ecology, comfort and functionality.
QUANTUM GLASS accordingly worked on the innovative project of the RATP EBSF bus stop designed by Marc Aurel with a heating solution integrated in the glass (HEATskin). Normally used in façades, the glass is completely transparent and emits low-temperature radiant heat which is soft and comfortable for waiting passengers.

HEAT skinsolutions
A transparent, heating envelope prevents any cold wall effect and does away with any risk of condensation. It also ensures the comfort and health safety of radiant heat. HEAT skinsolutions make it possible for architects to increase natural light contributions within buildings and use health and comfortable radiant heat in all glazed surfaces.
Bus stop lighting: PHILIPS

Philips, a group focused on people’s health and well-being

The Philips strategy aims at focusing all our effort on each of its three activities, health, lighting and lifestyle, to develop products and services and improve the quality of life.

Philips LED, the light that changes everything

In devising solutions that are as innovative as they are easy to use, whilst fulfilling the basic needs of the population, the company accepts today’s global challenges of rising health requirements and an optimal use of energy resources.

Innovating lighting completely in LED

Philips, the world leader in lighting, demonstrates its commitment to the environment. Thanks to the use of next-generation light-emitting diodes (LEDs), lighting for the entire stop uses less than 1 kWh of electricity.

Lighting for urban fixtures creates ambiance and enhances the feeling of safety and well-being whilst preserving the environment.

The dynamic lighting ambiance at the RATP EBSF test bus stop varies in intensity and colour according to the time of day. It is synchronised with sounds and becomes interactive and entertaining. Light sets the distinctive aspects of the station, such as the Paris map, in perspective. Nuances of white light contribute to creating a feeling of well-being in relaxation areas.

Automated external defibrillator from Philips

Simplicity means the ability to save a life by pressing a button. Everyone can use a defibrillator since May 2007 without prior training. These are very simple appliances that guide the user by voice (“press button”). They are effective and pose no danger to the victim or to the person attempting to help him or her.

Sound design: Michel Redolfi and AUDIONAUTE studio

AUDIONAUTE, established by the contemporary music composer Michel REDOLFI, focuses on sound design and publishing and producing music. AUDIONAUTE specialises in providing sounds for public areas in a resolutely experimental style. Many major international names work with the studio to add a unique dimension to each project.

The studio also develops innovative technologies for solar-powered broadcasting, under water and inside materials to offer landscape design and architecture new ways of integrating sound in the habitat. At the behest of transport networks in major cities, the studio develops designs that change depending on the time of day or season: the sound signs for the tramways in Nice, Brest and Liège are entirely punctuated by the playful programming of “sonals” designed by AUDIONAUTE.

Sound design in the RATP EBSF project has both an atmospheric and a musical function, but also contributes information with a major part of playful interaction.

Innovative glass resonance systems were installed to make the stop chime gently like crystal. The resulting sound is omniphonic and is discreetly and uniformly broadcast within a specific perimeter. Programming makes it possible to change the musical climate according to the time of day or night.

Music by Michel Redolfi and Christoph Harbonnier.

Passenger information applications: IXXI

Ixxi is a subsidiary of the RATP group, which was established at the start of 2010 with the primary objective to:

- Centralise and enhance the value of the skills, products and services of the RATP group in ticketing, passenger information and mobility hubs
- Serve as the service operator for the RATP group in the above fields and support its expansion in France and internationally
- In these fields, meet the needs of organising authorities, regional authorities, urban transport operators and companies.

Ixxi has developed passenger information applications for the RATP EBSF station.

The developments are based on the Ixxi SmartMob solution that features two real-time information monitors for the next buses and two other touchscreens displaying a range of context-sensitive information and services. Touchscreens ensure that the immediate neighbourhood, services and news in the 12th arrondissement and other modes of transport can be accessed just by tapping the screen.

Electrical bike supplier: ARCADE CYCLES

With over a hundred client towns and cities in France and worldwide, Arcade Cycles is a major supplier of self-service city bikes for local authorities ranging from Barcelona to Stockholm, Monaco to La Rochelle, Milan to Antwerp, Strasbourg to Montpellier, Durban to Mexico City…

At its brand new factory in La Roche-sur-Yon in western France, Arcade Cycles sets the trend in innovation from its design centre in in the quality of Made in France manufacturing. Arcade Cycles specialises in universal-joint bikes and boasts a strong position in electrical bikes.

Its know-how in designing and assembling high-quality, robust and reliable bicycles tailored to intensive use and easy to maintain is also available to private customers with a complete range of bicycles designed to last.

Arcade Cycles and the RATP have had a relationship based on trust for over a decade: rentabike services for members of the general public under the Roue Libre brand and provision of corporate fleets. The relationship continues today with the RATP EBSF bus stop project.
Electrical bike stations: TRACETEL
TRACETEL was established in 1998 and has based its operations on innovative developments, radio-frequency tracking systems and on-board electronics. TRACETEL moved into the integrator business in 2005 and now provides comprehensive urban mobility solutions in new mobility fields (self-service vehicles, charging systems for electrical vehicles).

As a pioneer in RFID technologies in the automotive industry, TRACETEL has progressed in three fields:

- Combustion / electrical vehicle diagnostics (RF data communication) and RF industrial asset tracking (fleet management, maintenance) or of people (access controls)
- Self-service urban systems; self-service bikes for Keolis and EFFIA and urban fixtures in general (multimedia stations)
- TRACETEL involvement in the test bus stop entails the installation of a system for five self-service electrical bikes* using RFID technology.

e-Village station and maintenance of the bus stop: JCDecaux
As the inventor of the urban fixture concept in 1964, JCDecaux is the sole global operator to work exclusively in external communication and to develop every aspect of this activity: urban fixtures, advertising in transports and large-format displays.

JCDecaux is the world’s No. 1 external communication operation and the No. 1 worldwide in self-service bicycles. Boasting a workforce of 10,304 staff, the group operates in over 50 countries and 3,600 towns and cities and in 2011 generated turnover of €2,463 million.

JCDecaux set up an e-Village station for the RATP-EBSF project. This is an innovative fixture for viewing local ads which can be accessed using large touchscreens. The e-Village station is one of the projects submitted by JCDecaux for the “Mobilier UrbainIntelligent” experiment by the Paris city authorities.

JCDecaux will also provide maintenance services for the test bus station during the experiment phase.

Coordination of the retail area: PROMOMETRO
Promométro has been working in transport areas for over thirty years to enhance their value by offering additional retail outlets and services to passengers during their trip.

Promométro is not only a specialist in retail areas in major traffic zones, but also a company that is attentive to forms of consumption, is close to consumers and their expectations and carefully monitors lifestyles and travel habits.

Innovation is a major strategic axis, which is why Promométro is an RATP partner in the EBSF program and explains why it has contributed its expertise in retail outlet management to the next generation bus stop project.

A wholly-owned RATP subsidiary, Promométro manages the retail areas in the RATP network in Paris, for SYTRAL in Lyons and for the RTM in Marseilles. Promométro also offers its expertise to local authorities in managing and marketing stores on building ground floors.

Promométro has been innovative in services by setting up medical analysis laboratories in RATP areas in 2010 and 2011 and with a new art gallery at the Palais Royal /Musée du Louvre station> The Allée du Recyclage presents many pieces for sale made by artists using recycled objects.

Neighbourhood information concerning professionals displayed by the interactive monitor: PagesJaunes
PagesJaunes is the leader in local searches on mobile Internet with over 10 million applications downloaded of which 4.7 million on iPhone, 3.5 million on Android and 300,000 on iPad. PagesJaunes is available on all platforms (smartphones, slates, GPS) and now in urban fixtures in particular with the RATP.

The PagesJaunes service makes it possible easily to find all the right addresses around the user. Professionals are listed according to some 20 top activities of use for mobility purposes (restaurants, florists, dry cleaners, cinema, etc.). Professionals are directly displayed on the map with a pictogram just by clicking on one of the activities. Clicking on the pictogram takes the user to the detailed file (address, telephone number) about the professional and may guide the user to the destination with an RATP route.

As stated Valérie Shwartz, director for mobile internet at PagesJaunes, “for the passenger information service developed for interactive screens at the RATP –EBSF stop, PagesJaunes makes it possible for users to access local content and find and contact professionals in the neighbourhood – quickly and simply”.

Library management: CIRCUL'Livre
Circul'Livre is the name of the neighbourhood coordination system that provides books at no cost to inhabitants and asks only that they put them back into use once read.

To do so, they can give them to a friend, leave them in a public place or preferably return them to one of the meeting points, the details of which are given on the website www.circul-livre.blogspot.com

Books provided by participants are stamped with the operation logo.

Circul'Livre aims at more than promoting reading; it is also a wonderful vector for forging social bonds in neighbourhoods.

The not-for-profit organisation Les Amis de Circul’Livre regulated by the French 1901 association law is a partner of the RATP in implementing and maintaining a Circul’Livre point at the test bus stop created for the EBSF project.