An industrial specialist serving public interest

PORTFOLIOS OF EXPERTISE

RATP GROUP

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RATP GROUP, AN INDUSTRIAL SPECIALIST SERVING PUBLIC INTEREST

Building a new metro line, automating an existing line, extending a tram network, and converting a bus fleet to electricity are projects that mobilize cutting-edge technical and logistical field knowledge. These are areas of expertise that RATP Group deploys for projects, which are undertaken for the benefit of passengers, local authorities, and regions.
In the Île-de-France region, exceptional investment by Île-de-France Mobilités is enabling the successful completion of large-scale projects, both in terms of network upgrades and expansion. In this context, maintenance, upgrades, and expansion are always carried out with minimal disruption to passengers.
Where maintenance is concerned, the Group excels in the optimal upkeep of its assets, ensuring that their useful lives are as sustainable and streamlined as possible.
RATP Group has thus made it a priority to leverage its industrial abilities for the benefit of public interest. This is what makes its mission unique and meaningful.

RATP, STANDARD-SETTING INDUSTRIAL SPECIALIST, ELEVATED BY ITS EXCELLENCE IN MULTIPLE FIELDS

Sylvie Buglioni
Director, Technical and Industrial Projects Division, and Digital Innovation Division, and Member of the Executive Committee

Given its diverse, complex infrastructure – a mix of old and new installations of varying sizes – RATP Group rises up to a major challenge: guaranteeing the efficiency of its network, while preparing its future. This is a commitment that shows through the Group's continuous mobilization of its expertise to improve the passenger experience, and its vision of sustainable efficiency. As part of its efforts to meet this challenge, RATP concentrates its efforts on Group-wide policies that are designed to address immediate concerns, while building long-term industrial ambition. RATP also relies on its consolidated organizational model, which combines operations, maintenance, and engineering, aligning its projects in a continuous improvement approach that is enriched by constructive feedback, the coordination of disciplines, and the development of soft skills.

Strengthened by these qualities, RATP goes further beyond metro and tram line extensions, committing to thorough renovation projects on its current lines. The MF19 program is an iconic illustration, as it prepares for the arrival of new trains across half the Paris network by implementing infrastructure works, upgrading transport systems, integrating service systems (for smart trains), and renovating maintenance centers.

The Group also conducts complex industrial operations in dense urban areas, as was the case with the Belgrand – Saint-Fargeau project. In addition, the technical challenges that were involved in the project further confirm the Group's reputation as a central player in a rich, innovative industrial ecosystem. This is a position that has been rightfully earned, through its role as a discerning partner that is able to present its industrial counterparts with new challenges of designing safe, efficient, and cost-effective solutions, notably in rolling stock, signaling systems, and transport systems.

It has to be emphasized that behind all these world firsts, technical innovations, and challenges that RATP Group has successfully met, and behind the service quality that is provided daily to assist passengers, without forgetting the high-level maintenance of rolling stock and infrastructure, are actual men and women. The company's excellence in industrial expertise is recognized above all because it has successfully developed, leveraged, and imparted its invaluable soft skills. Furthermore, as RATP Group is vast, and it facilitates cross-disciplinary career paths, our various professions are familiar and respectful with one another, and work intelligently together, driven by a deep-seated sense of collective achievement, and shared pride.

In its fields of specialization, RATP leverages its industrial skills to benefit passengers and regions, with one steadfast ambition: providing reliable, sustainable, and innovative mobility solutions.

Several key dates

1956
The world's first rubber-tyred metro trains were commissioned on metro line 11.

1977
RER line A commissioned, the result of a joint project between RATP (west) and SNCF (east). The line's urban integration model and interoperability have made it a world-class pioneering innovation.

1979
Automated driving commissioned on metro line 11, a world first on a metro rail line.

1991
Orlyval commissioned, first fully automated metro line in the Île-de-France region. The system is a precursor to the launch of other automated lines on the Paris metro network, such as metro line 14 (commissioned in 1998).

2015
Bus2025 program launched (in partnership with Île-de-France Mobilités), one of the most ambitious bus fleet electrification programs to have been undertaken across Europe.

2022
Following works lasting seven years, an extended and automated metro line 4 was commissioned. It was the first time in France (and among the first in Europe) that a century-old line was converted to run fully automated. The line was successfully automated without any major service disruptions.

2024
Between April and June, on schedule to host the Olympic and Paralympic Games Paris 2024, three line extensions were commissioned: tram line T3b, metro line 14 (including the replacement of the automated driving system), and metro line 11.

2025
Initial deployments of MF19 rolling stock on Paris metro line 10.

01

CONTINUOUS NETWORK UPGRADES FOR OPTIMAL PASSENGER SERVICE

Whether it is extending the service offering, enriching the passenger experience, or streamlining traffic by upgrading assets, RATP Group turns ambition into reality in its fields of specialization. Its projects, which are often looked up to as worldwide benchmarks, are proof that industrial expertise and passenger service are the core focuses of the Group.

SINCE 2012 IN THE ÎLE-DE-FRANCE REGION*

31 MORE KILOMETERS OF METRO TRACKS

24 NEW METRO STATIONS

72 MORE KILOMETERS OF TRAM TRACK

+ 131 NEW TRAM STATIONS

** Extensions and constructions of lines operated or managed by the Group since 2012.*

Building and upgrading public transport networks

Taking into account its complexity, multidisciplinary involvement, and the amount of investment required, any rail public transport construction, extension or upgrading project constitutes a colossal technical and organizational challenge.
During the design stage, this means building the project's functional program, and then identifying the technical solutions to meet project requirements, by setting rolling stock specifications, and planning the details of infrastructure and systems: major and minor stations, signaling, control and command, telecommunications, ticketing, and others. Once the project is launched, risk management has to be coordinated to meet deadlines and budgets. RATP Group has had many opportunities to prove how well it rises up to similar challenges, as demonstrated in Florence, Italy (construction of a tram network), and Johannesburg, South Africa (commissioning of the fastest regional train in Africa). The Group will continue leveraging its expertise in Casablanca (Morocco), and Belgrade (Serbia).

SUCCESSIVE, SUCCESSFUL AMBITIOUS FEATS

The Île-de-France regional network is a formidable benchmark in itself. In this particularly expansive, densely populated, and complex region, RATP can rightfully boast an unsurpassed number of success stories and world firsts, notably in network line extensions. Among the accomplishments that stand out are the automation of century-old metro line 4 without major service disruption, as well as the extensions to metro lines 11 and 14, which have doubled in distance since they were first commissioned. It is no coincidence that these projects have been praised as feats of true technical prowess – more than mere extensions, they also included a parallel upgrading and/or automation component. In addition, RATP Group managed to continue operating as normal despite ongoing works, and to keep temporary traffic suspensions to a minimum. The project that was successfully executed on tram line T3b (a new 3.2-km segment, and seven new stations were built), and the tram line T1 project that is underway (extensions to the east and west, and renovation of stations across the line), are further examples of the Group's unique range of expertise.

OLYMPIC MEDAL-WORTHY METRO LINE 14

The northward and southward extensions to metro line 14 – backbone of the future Grand Paris Express network – comprising over 14 additional kilometers, eight new stations, a new maintenance and depot center, and full replacement of the automated driving system, were completed in time to host the Olympic and Paralympic Games Paris 2024, once again, an accomplishment that left a deep lasting impression.

25
BUS DEPOTS IN THE ÎLE-DE-FRANCE REGION TO BE PART OF THE ENERGY TRANSITION

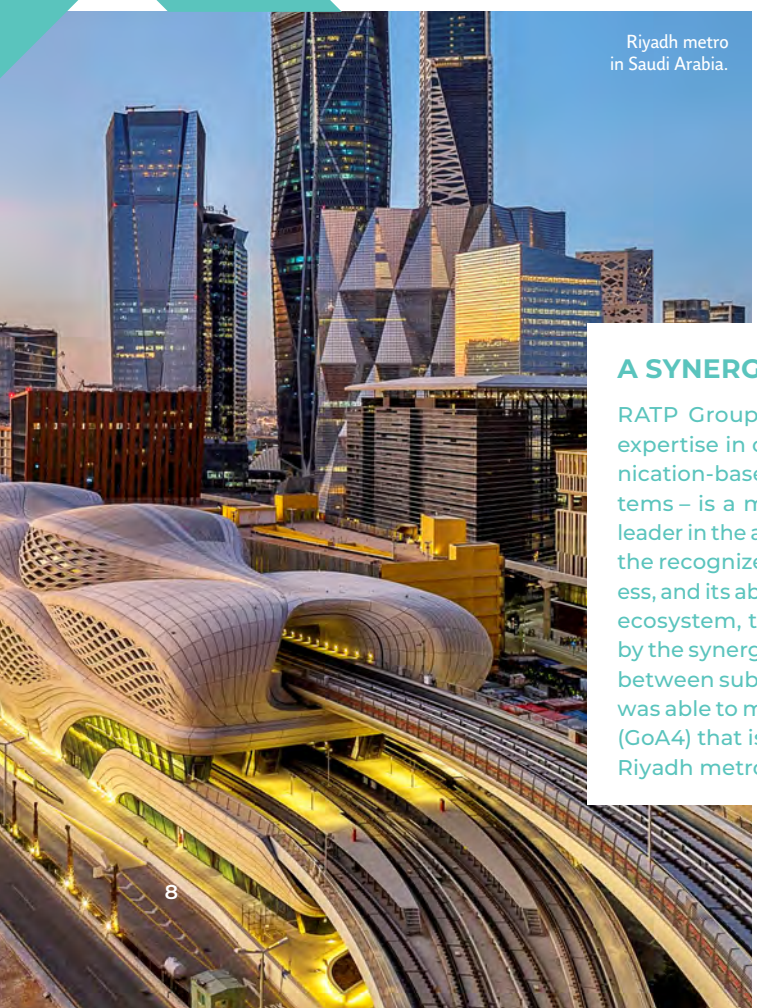
FUTURE BELGRADE METRO NETWORK: RATP DEV CONTRIBUTES SKILLS IN PRE-PRODUCTION

RATP Dev is advising the public transport secretariat of the City of Belgrade, and operator BMV (Beogradski Metro i Voz) on the functional design and specifications of the future automated metro network in the Serbian capital. It is the largest infrastructure project to have been led to date in the country (three metro lines over a total distance of 69 km and 69 stations). Responsible for ensuring that the future network meets the highest international standards, RATP Dev pays close attention to the passenger experience, safety, the quality of operations and maintenance services, and overall cost optimization.

AUTOMATION, A FULL-SCALE FIELD OF EXPERTISE

The complete automation (GoA4) of a metro line provides substantial benefits to regions and commuters: this means more trains in circulation, running smoothly and safely. An upgrade of this order is nothing short of a technical and organizational feat, and all the more so when automating a line that is in operation. This is where RATP Group's expertise has elevated it to a global leader, with several major projects as proof. The commissioning of metro line 14 in 1998 – a line that was automated from its construction – was already a world first in terms of efficiency and transport capacity, similarly to the commissioning that was subsequently carried out in Riyadh (Saudi Arabia) by RATP Dev. In 2012, when RATP succeeded in its feat of fully automating Paris line 1, a particularly busy century-old line, it broke through a new threshold that many considered impossible. That feat was renewed in 2024 with metro line 4. Not only was the line automated, but it was also extended with three additional stations, and it simultaneously accommodated three different train generations. In that same year, metro line 14 was upgraded with the unprecedented migration from the existing automated driving system to a next-generation system. The next in line is metro line 13, with the added complexity of forked tracks, which will be automated while in operation. For the first time, it will be a steel-tyred metro line instead of rubber-tyred metro that will be automated. As numerous networks around the world begin launching automation projects, these successful endeavors provide the Group with a portfolio of proven references. This is also how RATP Dev will proceed in the automation of Lyon metro's line A *(see page 25)*.

Operating an automated metro line requires unique human skill sets. RATP Group has become a benchmark: traffic controllers at centralized command posts complemented by in-station teams, all demonstrating their expertise every day, not only in the Île-de-France region but also in our networks across the world. The professionalism and highly technical skills of maintenance teams also contribute to guaranteeing service quality.



Riyadh metro in Saudi Arabia.

A SYNERGY OF SYSTEMS

RATP Group's unmistakable high level of technological expertise in operating systems – notably in CBTC (communication-based train control) automated train operating systems – is a major contributor to its position as worldwide leader in the automation of existing transport lines. In line with the recognized excellence in its in-house engineering prowess, and its ability to draw maximum benefit from its industrial ecosystem, the Group's leadership is further strengthened by the synergy that can be developed between projects, and between subsidiaries. This is notably how Paris metro line 14 was able to migrate to an automated train operating system (GoA4) that is close to the system used by RATP Dev for the Riyadh metro network (Saudi Arabia).

Driver in a cabin of a metro line 5 train in Paris.

INSIGHT FROM THE EXPERT

David Bonvoisin
Director, Rail Transport Systems Unit

"When it comes to safety, we set the bar very high"

With rail safety being an extremely deterministic domain, what has made us experts in automation is the fact that we are in full control across the value chain: from equipment to the various processes, applications, and interconnections that work together to guarantee safety. During preliminary studies, we have specialized engineers trained to identify potentially dangerous situations, and who then proceed to look for all possible causes. These factors are integrated into system specifications. We then verify whether the necessary safety barriers have been installed, with the right depths, sturdiness, and other requirements. A 70-employee team is devoted exclusively to these safety issues. And because RATP Group has always chosen to do much more than what is required by law, we have developed methodologies, skills, and internal control protocols that allow us to provide our industrial partners with new challenges.

AN INTERCHANGEABLE, INTEGRATED DRIVING SYSTEM

OCTYS* is a driving system (CBTC technology) that was specified by RATP in collaboration with the industrial sector to operate Paris metro lines at GoA2 (semi-automated driving). The main characteristic of OCTYS lies in the standardization of its structure and interfaces, which removes any dependency on a single vendor in the acquisition of train, infrastructure, and radio systems for the same line.
It was deployed since the beginning of the 2000s on Paris metro lines 3, 5 and 9, and subsequently on lines 6 and 11. On the occasion of the MF19 program *(see pages 14-15)*, an enhanced standardization approach named OCTYS 2030 was launched. The deployment of OCTYS 2030 is underway on metro line 12, and it is set to also run on lines 7 and 8. As each component of this program is available through at least two providers, OCTYS 2030 can be migrated in the future to GoA4 (fully automated driving).

** OCTYS: Open Control of Trains, Interchangeable & Integrated System.*

Maintaining and upgrading networks without compromising operations

Over the past few years, RATP Group has repeatedly demonstrated its ease in leading major maintenance, upgrading, and extension projects on lines that are in operation, while successfully minimizing the impact on passengers. This was the case on Paris metro line 1, a feat that the Group subsequently replicated on metro lines 4, 11, 12 and 14, and which it will accomplish once again with the automation of metro line 13, and line A on the Lyon metro network.

Accomplishing such feats requires extremely deft organizational coordination. As most operations are carried out during the night, over short traffic suspensions, or at least during periods with low ridership, i.e., late evenings, weekends, and school holidays. Scheduling and coordination are thus planned to the minutest detail, and RATP Group has developed extensive know-how in consolidating and pooling interventions.

Also with the aim of optimizing the duration of interventions, RATP Group teams and partners implement swift, modular work techniques, notably by assembling components prior to installation.

BUS2025: A MAJOR ENERGY TRANSITION FOR AN OPTIMAL PASSENGER EXPERIENCE

In 2015, Île-de-France Mobilités (authority that funds and owns vehicles) and RATP Group set themselves a 10-year target to convert a major portion of the bus fleet operated by RATP to either electricity or biomethane. The goal was met, and if the Bus2025 industrial project has now become an international benchmark for the energy transition of such an expansive overground network, it is mainly because the unprecedented conversion scheme, which transformed the bus fleet, bus depots, and operating processes, was completed without any service disruptions. To accomplish the goal, project teams were able to coordinate efficiently with operations and maintenance teams, notably by building temporary depots. At the same time, a full program was deployed to train teams on using new equipment, which included driving, maintenance operations, and compliance with applicable regulations.

Automation of Paris metro line 4: when platforms were renovated between 2016 and 2018, each of the 27 stations were closed for either three days (works to raise the level of the platform floor) or three months (reconstruction), but never were two consecutive stations closed simultaneously in order to keep the impact on passengers as low as possible.

These operating modes, which have been developed and applied to ensure continuous improvement, are continuously fine-tuned with regular feedback.

AN INDUSTRIAL MECHANISM THAT LEAVES NOTHING TO CHANCE

Operational excellence of such scale can only be possible at RATP Group through ongoing dialogue between the teams that specialize in design, operations, and maintenance. However, excellence also stems from particularly in-depth knowledge of the various components in the industrial mechanism – infrastructure, rolling stock, systems, safety, and more – as well as thorough, detailed understanding of their architecture, operation, and interactions with one another. And because traffic disruptions sometimes remain a necessity, RATP Group and its subsidiaries have become so adept at taking into account the needs of various groups (passengers, residents, companies whose employees travel on affected lines, and others) that the scenarios it proposes to transport authorities strike the finest balance, while factoring in financial concerns. Clear, accurate communication is always implemented with regard to interventions, alternatives, and substitute systems.

INSIGHT FROM THE EXPERT

Tony Mailly-Dufresne
Project Management Officer

"Organization, scheduling, and coordination boils down to methodology and technology"

Projects tend to begin with a detailed diagnosis of the existing infrastructure: in what state are the structures and systems, and how does one organize passenger traffic, even in station corridors? Knowing this information, and being in control of it, is essential in defining a functional program, determining the sequence of operations, and breaking them down into successive segments that are streamlined, and between which operations can safely continue. Our project management methods factor in these considerations, which the sequencing-piloting-coordination (SPC) unit deploys as of the design stages, and subsequently throughout the duration of projects. Our SPC units take operational and maintenance constraints into account to create different work phase scenarios that meet requirements with regard to time, transport offering, cost, safety, and others. These scenarios are informed by risk analyzes, so that they restrict the impacts of incidents that may occur. They also rely on numerous operational skills throughout the company, and highly efficient digital tools, which are increasingly connected to BIM* solutions and digital twins.

** Building information modeling.*

Informing and guiding passengers in the age of live data

Providing passengers with accurate and accessible live information, even in complex, multi-modal ecosystems that accommodate various operators, constitutes a crucial step in simplifying commutes, enhancing the mobility experience, and ultimately boosting the attractiveness of public transport.

RATP has always been a precursor in this area, through its attention to the quality of signage, and through the increasingly efficient technologies and operating modes that it has spent decades developing.

When one thinks of passenger information today, the buzzword that comes to mind is (big) data. Yet again, RATP Group and its subsidiaries have gained a head start in effectively leveraging data collection, processing, and broadcasting technologies, making it possible to build and deploy turnkey, modular, and customized solutions that adapt to the individual needs of each network.

A CENTRAL HUB THAT HAS BECOME PASSENGERS' EYES AND EARS

RATP has thus compiled a database for the Île-de-France regional network, known as ACIV (*acquisition et concentration des données d'information voyageurs*, passenger information data acquisition and concentration). Operating as a central hub, ACIV securely and consistently supplies data to the media and systems that broadcast passenger information.

Likewise, RATP Dev has created a digital ecosystem, Explore, which is a Software as a Service (SaaS) platform that provides a wide array of features: multi-modal itineraries, real-time wayfinding, traffic information alerts, and others. These features are available over multiple digital channels – such as websites, smartphone apps, social media, QR codes – , and through stops and terminals passenger information announcements and screens deployed across the network. These

AUTOLINEE TOSCANE: ORCHESTRA IN ACTION

With 1,000 lines and 38,000 stops previously operated by 22 different companies, managing transport data from the Tuscany region was a colossal challenge that RATP Dev was able to meet with its solution Orchestra. Connected to passenger information solutions, Orchestra aggregates a large volume of theoretical and live data (lines, stops, routes, timetables, arrival of upcoming buses, trains and any disruptions). The data is then processed, formatted, and broadcast to passengers through a redesigned ecosystem that includes a website, smartphone apps, and information display systems.

Deployed progressively in RER stations since 2018, SysPad panoramic screens were awarded a prize under the "Traffic and Public Transport" category during the IIID Awards 2023 *(photo on p. 12)*. These screens were designed and developed by the same team behind the Panam screens that can be found on metro platforms *(above)*.

same tools and information sources also enable our station staff to assist with passenger directions, and queries. With RATP Dev's support, Explore is available as a white-label product that transport authorities can customize and rebrand to perfectly address their needs.

INSIGHT FROM THE EXPERT

Bastien Perroy
RGD Data Scientist, Passenger Cognition Lab Manager

"Now that we have mapped the metro space-wise, we are also making it predictable time-wise"

Passenger information is one of RATP Group's long-standing areas of expertise. The signage systems across our network have inspired numerous transport operators worldwide, setting standards that remain benchmarks. Today, that requirement of excellence extends to our ability to deliver solutions across the information chain: from transport data to the basemap of our MaaS* application, we are equipped to provide each component whenever necessary. Our strength lies in how seamlessly we combine the expertise of our design teams, which excel in sensitive fields, with our industrial skills. SysPad and Panam display screens are an illustration of their synergy, as they are designed to enhance the passenger experience, supported by software architecture that is easy to maintain, and over which we have full control. This integrated approach evolves alongside the in-depth transformation of our professions. Now that we have mapped the metro space-wise, we are also making it predictable time-wise. We are covering new ground in passenger information design, be it through our industrial processes, services, or graphical standards.

** Mobility as a Service.*

PILI (*plans indicateurs lumineux d'itinéraire,* light-up maps) were ahead of their time when they appeared across the RATP network in 1937. They became iconic, and could be found in metro stations until the 2000s.

Trials of new MF19 metro trains on line 10 under real-life conditions in April 2025.

FOCUS

MF19: Defying the norm

Mandated by Île-de-France Mobilités, which has invested €3 billion in rolling stock, and €4 billion in infrastructure adaptation, RATP ordered next-generation rolling stock from Alstom to progressively replace the MF67, MF77, and MF88 series trains that currently run on eight Paris metro lines. Commissioning of MF19 trains will begin on metro line 10 at the end of 2025, and will continue until 2033.

RATP has overseen the entire rolling stock procurement process, from the identification of needs to the industrialization phase, drafting technical specifications in the meantime, and monitoring bidding procedures. The company subsequently followed up on industrial players – vendors and equipment manufacturers – during the development and industrialization phases, and it will continue to do so throughout production.

A vast Group-wide operation has been simultaneously launched to ensure that the network – stations, tunnels, tracks, operating systems, and other infrastructure – is able to accommodate these new trains. Ultra-connected MF19 trains gather a multitude of data with which more efficient maintenance (predictive and corrective) can be conducted.

Through its sheer scale, and the technical and logistical complexity stemming from the technological innovations introduced, the program requires an exceptional degree of agility and flexibility, as well as perfectly timed industrial coordination. RATP will exercise the greatest caution during the introduction of MF19 trains, by causing minimal line disruptions.

IMPROVED PASSENGER EXPERIENCE

The arrival of these next-generation trains is set to significantly improve the passenger experience: service frequency and reliability, comfortable ergonomic seats, low on-board noise, refrigerated ventilation, latest-generation built-in passenger information and video monitoring, among other features. Better still, MF19 trains are energy efficient, notably with their regenerative braking systems.

IN FIGURES
IN THE NEXT TEN YEARS

8
METRO LINES TO BE TRANSFORMED.

Up to 410
TRAINS DELIVERED (LINES 3, 3BIS, 7, 7BIS, 8, 10, 12, AND 13), AMOUNTING TO 50% OF THE PARIS METRO ROLLING STOCK FLEET.

40%
OF JOURNEYS MADE ANNUALLY ON THE NETWORK WILL BE ON MF19 TRAINS, CLOSE TO **600 MILLION** JOURNEYS PER YEAR.

INSIGHT FROM THE EXPERT

Franck Samyn
Director, OMF19 program

"One train model, one ambitious plan"

MF19 trains were designed to be streamlined, all-purpose rolling stock that can be adapted to all our lines, and their distinctive environments, ultimately resulting in major savings for our transport authority. Since this operating mode makes these trains relatively easy to build, we can be certain that the vendor will meet its production targets. This is a real concern for us, as our network absolutely has to meet extremely tight deadlines: in barely six and a half years, we are set to introduce approximately 350 trains, which will be delivered continuously, and which we will need to deploy over 8 metro lines. However, we are confidently taking on this challenge, notably because we were able to anticipate the various phases of the program, beginning with the design and development of equipment.

KEY PROJECTS OF THE PROGRAM

ROLLING STOCK
Collaboration with the vendor and equipment manufacturers on design and production matters, under mandate by the transport authority.

INFRASTRUCTURE
Adjustments to accommodate MF19 trains: track works (shifting or tamping), platform works (resizing), tunnel adaptation.

STATIONS
Expansion, addition of entrances to optimize evacuation time, strengthened fire systems, and more.

MAINTENANCE CENTERS
Two new centers will be built, and three others renovated to host a program dedicated to training maintenance teams.

TRANSPORT SYSTEMS
Adaptation of signaling systems, automated driving systems, centralized command posts, automated driving assistance systems, and others.

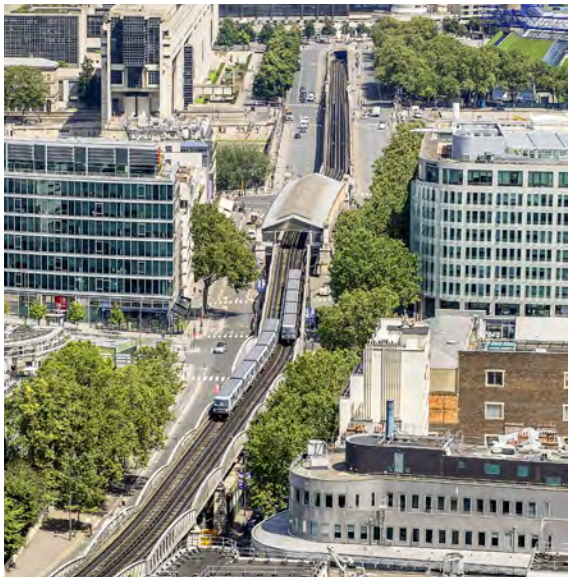
TRACTION AND ENERGY SYSTEMS
Addition of rectifier substations, adaptation of high-voltage substations, and more.

BUILT-IN PASSENGER INFORMATION AND VIDEO MONITORING
Deployment of an onboard train-to-ground data transmission system.

02

INTEGRATED, EFFICIENT, AND SUSTAINABLE ASSET MANAGEMENT

Careful asset maintenance, and striking the ideal long-term economic balance – both of which are pillars of responsible asset management – matter particularly in the public transport sector. This approach, which has always been at the core of RATP's business model, now has to address new challenges that range from climate change adaptation to the reinvention of urban public areas.



Conserving public assets with thorough and agile methods

Be it RER trains, escalators, signal cabins, or ticket gates, RATP Group has always made the strategic decision to retain most of its infrastructure and rolling stock maintenance operations in-house. Not only does this strategy guarantee relative independence with regard to suppliers, and help control costs, it has also enabled the Group to develop extensive technical expertise. Throughout its history, the company has thus proceeded to acquire sites, skills, and equipment that continue to grow in value with continuous upgrades. In this area, the Group has demonstrated another major strength – being an organization that successfully integrates the engineering, operations

WELL-EQUIPPED PROCESSES AND DIGITAL TWINS

The RATP MRF *(matériel roulant ferroviaire,* rail rolling stock) division, and subsidiary RATP Infrastructures recently launched programs known respectively as Magellan and Galaxie, with the aim of equipping maintenance professionals with common benchmark processes, and unified digital tools to better manage the operations that they oversee. This makes it possible to centralize and pool knowledge and methodologies, as well as build shared efficiency plans, in view of assigning hierarchies and priorities to actions. In addition, the asset manager has initiated a digital transformation drive based on BIM, or building information modeling. The goal is to progressively centralize technical data in the form of digital twins, beginning with building data, to facilitate operation scheduling, information sharing, and time and cost optimization.

and maintenance of existing and legacy assets. This strength upholds the synergies between professional teams that know each other well, and which are culturally accustomed to working together: engineering factors maintainability into design, while routine maintenance teams consult with engineering as soon as complex issues arise, and maintenance operations on legacy assets are better coordinated with routine maintenance operations. Given the size and intensive use of the Île-de-France regional network, RATP Group has made consolidated asset management a global benchmark in industrial expertise.

The Group's teams oversee an exceptionally large portfolio of rolling stock and infrastructure covering all areas of urban transport across the life cycles of assets of widely varying age, and which are subject to extensive use (frequency, passenger load, and other factors).

As an illustration, since its recent extension, tram line T3b alone carries more passengers than Strasbourg's eight tram lines combined! Since RATP has successfully adapted its maintenance activities to these challenges and volumes, it can now harness an unequalled source of feedback.

PREDICTIVE MAINTENANCE, WHERE AI AND HUMAN EXPERTISE INTERSECT

Anticipating breakdowns by monitoring the actual condition of equipment, thereby reducing unscheduled downtime while optimizing maintenance costs: the benefits of predictive maintenance are clear, with the power of artificial intelligence opening up many new possibilities. Several applications are already in operation across the Île-de-France regional network, notably to monitor train door closing systems on RER line A, and to prevent overhead cables from being ripped off. To ensure that this approach delivers reliable and truly useful results, RATP Group and its subsidiaries are taking a very pragmatic approach. Use cases are therefore systematically analyzed with operational staff, whose experience is essential for identifying the most relevant topics.

INSIGHT FROM THE EXPERT

Pierre Herriau
Chairman, RATP
Maintenance Services

"Industrial expertise that complements the Group"

RATP Maintenance Services is the RATP Group subsidiary specializing in the maintenance of systems for the protection of property and people, as well as accessibility equipment, such as escalators, moving walkways, and elevators. With regard to both RATP, and external clients and service providers, we are chosen because of our unique expertise. We work with Aéroports de Paris, hospitals in Paris and the east of Paris, the Ministry of the Interior, private companies such as Plastic Omnium, as well as the City of Paris, Saint-Cloud, Puteaux, and Villejuif.
We currently have 110 clients, and our business continues to grow from year to year.

RATP CAP ATELIERS CHAMPIONNET: EXPERTS IN MULTI-VENDOR AND MULTI-EQUIPMENT MAINTENANCE

RATP Cap Ateliers Championnet stands out for its skill in urban transport maintenance, which is as specialized as it is extensive. Notably, its activities cover bus maintenance and repair, the maintenance of industrial equipment, and of on-board electronic equipment with no relation to rail safety, on-board air conditioning, ramps for people with reduced mobility, and electrical bus charging systems (charging stations in particular). Its clients are public transport professionals both inside and outside RATP Group.

Equipped with highly efficient on-site industrial resources, the subsidiary also deploys its expert-level technicians to carry out various maintenance missions in the Île-de-France region and beyond. RATP Cap Ateliers Championnet can also provide on-the-spot bus repair services in Paris and the inner suburbs, as well as bus and tram tyre replacement services.

OPSERVE BY RATP DEV: VERSATILITY, EFFICIENCY, AND EASE OF USE

Now that smart devices (sensors, IoT, and others) have become widespread and easily available, transport operators have access to an increasing amount of data on anything from infrastructure to rolling stock. With this in mind, RATP Dev created Opserve, a modular digital Software-as-a-Service (SaaS) solution that has been designed to optimize the operation and maintenance of urban and rail transport networks. Developed by operators for operators and transport authorities, the solution adapts to every business context and existing system. Opserve's analytical and predictive capabilities optimize operational and financial efficiency, ultimately enhancing the passenger experience.

INSIGHT FROM THE EXPERT

Alain Charlet
Director, RATP Cap Ateliers Championnet

"Our clients place their trust in our expertise"

We were very recently awarded a call for tenders, which was launched by the Rennes urban transport authority. We deploy staff on site to carry out standard exchanges of bus gearboxes and engines. Among the reasons that we were designated, were the solidity of the RATP brand, and recognition of our expertise. The synergy between RATP's industrial identity and our subsidiary's operational agility were instrumental in the success of the bid. This initial breakthrough beyond the Île-de-France region, and outside the Group, constitutes a key milestone, which we intend to leverage to the fullest to accelerate our development, and conquer new markets.

Managing asset life cycles with a long-term vision

Through its robust management culture that prioritizes public interest, RATP Group has honed its ability to optimize the lifespan of its assets.
This management culture is recognizable in its teams' commitment to the proper upkeep of their work tools, and it is integrated into the Group's work ethic, bridging maintenance activities with engineering and operations. This applies to rolling stock as well: with its holistic view of the train lifecycle (metro, tram, and RER), and its particular attention to long-term maintainability, and obsolescence management, RATP Group has successfully extended the lifespan of its equipment far beyond initial manufacturer estimates. Likewise for buses: thorough control over technical upgrades, combined with long-standing expertise in maintenance and repair, adds several valuable years.

COEXISTENCE OF SEVERAL EQUIPMENT GENERATIONS

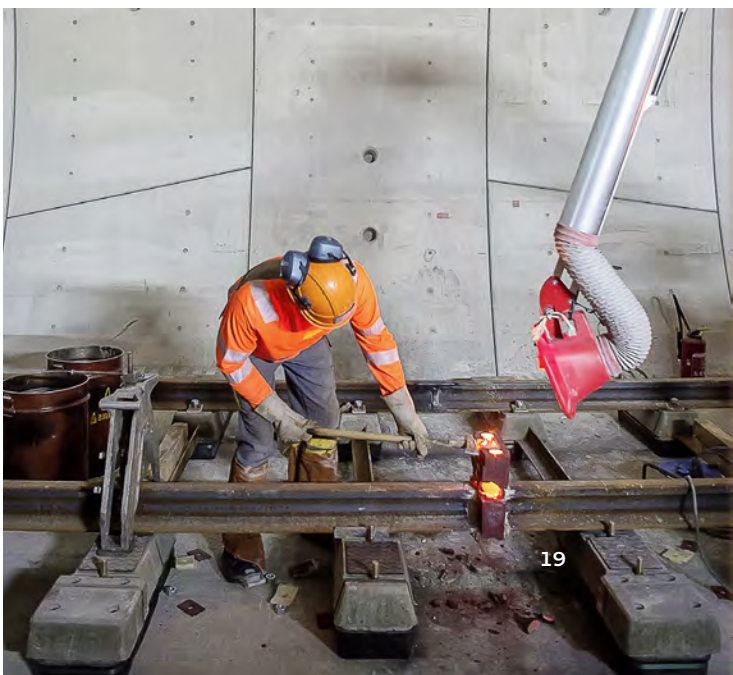
The Group aims to streamline the use of its rolling stock fleets, notably by operating several generations of rolling stock simultaneously on the same network, and by implementing cascade replacement programs when new train or bus models are commissioned. The result of this strategy is an overall improvement in cost-effectiveness, and while the Paris metro's rubber-tyred train program (*see next page*) is a perfect example, this practice is also common among the bus fleets managed by RATP Group.
In the same spirit, and applying similar principles – routine maintenance, upgrades, optimization of partial replacements, etc. – RATP Infrastructures manages and extends the lifespan of its assets.

INSIGHT FROM THE EXPERT

Caroline Nouzarède
Director, Operational Asset Management Division – RATP Infrastructures

"Extending life cycles and upgrading at the right time, guided by economic efficiency"

In the Île-de-France region, we have drafted and standardized management plans by asset class, for which we have documented benchmark lifespans, and defined life cycle optimization methodologies for most of our assets: tracks, structures, catenaries, rectifier substations, escalators, etc. These management plans are linked to various asset strategies, and this is how we are able to extend the lifespan of our assets over the long term, upgrading them at the right time to enhance their efficiency, particularly in terms of safety.



Track welding during the extension of Paris metro line 14.

THE BEST SOLUTIONS ARE NOT ALWAYS THE MOST COSTLY

The sustainable management of collective assets involves looking for only what is necessary. In this area, RATP Group has acquired genuine technical and economic credibility with its contractors, who trust in the ability of RATP experts to identify solutions that are adapted to actual conditions on the ground. The company's integrated operating mode – fostering knowledge sharing, and continuous interactions between engineering, operations, and maintenance teams – constitutes a decisive asset when it comes to targeting priorities, as operational feedback is taken into account to determine what users find truly useful. This also gives weight to RATP Group's efforts to challenge manufacturers: by avoiding over-specification during the design phase, buying only the best technological solution if it can be proven that the cost-benefit ratio will be met, and others.

As the notion of spending wisely also applies to asset maintenance, this has led to the widespread application of condition-based maintenance, reliability-centered maintenance, and risk-based maintenance methods, which optimize equipment maintenance by factoring in the actual condition of equipment, the criticality of such equipment for system reliability, and the risks associated with its failure.

RUBBER-TYRED TRAIN PROGRAM: A CASE STUDY

In 2014, new trains (MP14 models) had to be ordered in preparation for the extension of Paris metro lines 11 and 14. The question then arose as to the fate of the trains that they were replacing. While the trains on metro line 11 – MP59 models dating back to the 1960s – had reached the end of their service life, this was by no means the case for metro line 14, on which MP89 trains had been commissioned as of 1997. For this reason, RATP Group's railway rolling stock division (MRF) opted to design and implement a vast cascade program, in which the MP89 trains from metro line 14 were to be transferred to metro lines 4 and 6, the general purpose being to replace trains of one generation with others of subsequent generations. It was a particularly complex technical and logistical feat: managing the interdependencies that were created between the lines involved, and the numerous modifications to be made to the trains before they could be transferred from one line to another. But the division's efforts paid off. *"Taking into account depreciation and the extensive use of assets over time, it is still much more environmentally sustainable than writing off trains that were twenty-five or thirty years old, and buying new ones,"* concluded Côme Berbain, MRF Director. Problem solved.

Three generations of rolling stock at the metro line 14 maintenance and depot center in Saint-Ouen.

Tracks and switching systems at Villette maintenance center in Paris.

INSIGHT FROM THE EXPERT

Rémy Foret
Director, Digital Innovation and Sustainable Development – RATP Infrastructures

"We are trialing reuse and recycling with a pragmatic approach"

One of our strategies is to actively develop the practice of reusing and recycling materials and equipment. As an example, we are conducting several trials with track components: processing used ballast for reuse, recovering materials from rails to produce new rails, and recycling concrete from track sleepers into pellets. The goal is to minimize our carbon footprint, and to consume the least amount of new resources possible when we build or replace assets. We are looking to develop these trials together with industrial manufacturers, to ensure that our environmental efficiency goals can be met, and to subsequently industrialize these processes. We teamed up with a manufacturer to find a pragmatic solution that can be industrialized, to recover manganese from the cores of track equipment, so that the manganese can be reused to produce new cores.

ADDITIVE MANUFACTURING OPTIMIZING INDUSTRIAL PROCESSES

Several RATP Group teams use additive manufacturing, or 3D printing, for various purposes. When certain modifications are being analyzed, notably on rolling stock, parts can be printed for prototyping, to test the usefulness of their design before determining whether they should be mass-produced. However, this process can also be used for the small-scale manufacture of polymer spare parts that are no longer available on the market (either because they have been discontinued and/or because their manufacturers no longer exist), which can sometimes be crucial in extending the service life of certain types of equipment. In addition, teams at maintenance centers can design and print in-house tools to meet specific needs.

Proactively factoring in climate change challenges

Global warming is no longer a distant prospect: its effects can already be seen today through the growing frequency of heatwaves, as well as episodes of heavy rainfall that lead to flooding risks, in addition to other weather phenomena such as droughts, wildfires, and ground shifting due to the expansion and shrinking of clay soils.

Infrastructure monitoring and maintenance have to adapt to the new climate conditions. To prevent distortion or wear and tear from heatwaves, stronger measures have been implemented for the preventive maintenance of rail tracks and rolling stock. As such, ventilation systems and cooling circuits are now systematically inspected ahead of heatwave periods, and the most vulnerable infrastructure and equipment will be more frequently monitored during summer months. Furthermore, RATP Group is simultaneously upgrading its technical benchmarks and specifications, by factoring climate projections into new designs to increase the resilience of its infrastructure.

Furthermore, RATP Group and its subsidiaries are working alongside transport authorities to accelerate upgrades of rolling stock to improve passenger comfort: refrigerated ventilation and air conditioning systems have thus been progressively deployed on metros, RER trains, buses and trams across the Île-de-France Mobilités network.

TARGETED PLANS FOR FLOOD PREPAREDNESS

As of the early 2000s, RATP had already embarked on a large-scale plan to protect its underground networks in the Île-de-France region from flooding when the Seine River or Marne River swells, by installing protection systems at over 400 potential water ingress points. The flood protection plan, known as PPRI, is regularly tested and improved. Yearly drills are also organized in collaboration with the major urban service operators (SNCF, Enedis, RTE and the City of Paris).

In addition, RATP has established a crisis management organization that provides functional support to the RATP command center, which is in a position to coordinate a series of relevant measures when major events occur. A business continuity plan, catering specifically to flood risks, was implemented in 2012. Under the plan, various technical systems will be mobilized in the event of a flood, such as automatic lift pumps in tunnels and stations, and flood barrier bags, which expand when they absorb water that arrives in stations, thereby redirecting run-off, and keeping stations open and safe.

CONSERVING WATER, A PRECIOUS RESOURCE

With global warming leading to more frequent and intense water stress, water is becoming an increasingly precious resource. RATP Group is therefore launching multiple initiatives aimed at recovering run-off water, and water that seeps into infrastructure (mine water), with the goal of channeling it to various purposes, such as washing trains or watering grass platforms along tram lines.

Intervention on a refrigerated ventilation system on board a Paris metro line 14 train. Consuming less energy than conventional air conditioning, refrigerated ventilation makes indoor air cooler than outdoor air by several degrees, giving passengers optimized comfort.

INSIGHT FROM THE EXPERT

David Courteille
Technical Director, Operational Asset Management Division – RATP Infrastructures

"Monitoring, troubleshooting, and reinforcements: leaving no stone unturned"

To protect our infrastructure from heatwaves, we leverage weather data to better monitor our equipment. This is how the temperature of elevated tracks, which is measured in real time by smart sensors, is integrated into an internal predictive model. As soon as critical thresholds are reached, various measures will be applied to guarantee rail safety, which begins by lowering train speeds on certain sections of the network. We have also equipped our lifts with heat-proof film and thermal control devices, to avoid having to shut them down during heatwaves. Among the measures we are taking to prepare our network for heavy rainfall, we have reinforced certain structures that had been identified as potentially vulnerable, by additionally reviewing water evacuation systems to increase their capacity.

A WORLDWIDE CONCERN

In many cities across the globe, RATP Group subsidiary RATP Dev is deploying climate resilience solutions that cater to specific local characteristics. RATP Dev Casablanca (which operates four tram lines and a rapid transit bus network in Morocco's financial capital) has thus taken a number of preventive and technical measures to cope with exceptional rainfall, and temperatures that sometimes exceed 45°C. Meanwhile in Cairo, RATP Dev Mobility Cairo, which oversees metro line 3 and the Capital Train (LRT), has incorporated the potential impacts of floods, sandstorms and heat-waves into its business continuity plan. The Group's internationally proven expertise is a valuable resource in supporting other regions through their own climate change adaptation initiatives.

Redeveloping buildings for better city living and passenger experience

Through its subsidiaries RATP Solutions Ville (urban services), RATP Real Estate and RATP Habitat (real estate), RATP Group develops, designs, converts, builds, and manages office building sites, as well as industrial and logistical infrastructure dedicated to urban services – bus depots, rail maintenance centers, bus stations, data centers, and more.

By optimizing their sustainability and supporting their energy transition (electrification or conversion of bus depots to biogas), the Group, which is a major stakeholder in mobility and sustainable cities, contributes to improving living conditions, and making cities more resilient to climate change. In 2024, RATP Solutions Industrielles was created. This new structure draws from RATP Group's long-standing expertise in industrial site management, acquired notably through subsidiary RATP Real Estate. RATP Solutions Industrielles oversees the building management of bus depots, and tram maintenance and depot sites that recently started being operated by RATP Cap Île-de-France and RATP Dev.

In the context of transport operations opening to competition, RATP Solutions Industrielles is also committed to helping operational subsidiaries respond to calls for tender.

BELGRAND – SAINT-FARGEAU: FROM AN INDUSTRIAL NEED TO AN URBAN DEVELOPMENT PROJECT

The arrival of new MF19 metro trains requires maintenance centers that are adapted to a new generation of rolling stock. In preparation for their arrival, RATP is extensively restructuring one of its major Parisian sites, located on rue Belgrand, in Paris' 20th arrondissement.

The restructuring program is an opportunity to completely transform the site's layout. In consultation with the City of Paris and the city council of Paris' 20th arrondissement, RATP is designing an urban project that includes – in addition to the maintenance centers – an open-air public garden, approximately 100 housing units (half of which are social housing units), businesses, and ground-floor shops, with RATP Solutions Ville as co-developer. The project will be exemplary from an environmental point of view, as it will comply with Paris' new climate-friendly local urban planning strategy, while meeting RATP Group's CSR goals. As an example, drinking water requirements will fall by 77% (saving 3,000 m³/year), by reusing drainage water from Porte de Bagnolet station for purposes in which the water does not need to be fit for human consumption: flushing, cleaning of buildings and trains, watering of planted areas, among others. In addition, to prevent the formation of urban heat islands, the project calls for the creation of 12 times more green spaces, i.e., 5,000 m² of green roofs, and 1,400 m² of open spaces.

FOCUS

Lyon: committed to more efficient networks

Following a historic competitive bidding process, on 1 January 2025, RATP Dev became the operator, for a ten-year period, of heavy transport modes on Lyon's public transport network (TCL), on behalf of SYTRAL Mobilités, the transport authority for Lyon and the surrounding region*. RATP Dev therefore operates and maintains the trains and infrastructure on four metro lines (two of which are automated), seven tram lines, two funicular lines, and the Rhônexpress airport link. This historic success was complemented by the inauguration of the Navigône river shuttle service in June 2025.

In addition, RATP Dev will provide project management assistance for the automation of Lyon metro line A, upgrades to metro lines C and D, the commissioning of new tram lines (T9, T10, and TEOL), and the extension of tram line T6.

* SYTRAL Mobilités is a local public body that oversees the organization, management, and development of public transport services for close to 1.9 million residents in 262 municipalities across the Lyon urban area, and the Rhône department, as well as certain municipalities in the Ain and Loire departments.

IN FIGURES

4 METRO LINES, INCL. **2** AUTOMATED, 102 TRAINS, 70 KILOMETERS OF TRACKS

7 TRAM LINES, **107** TRAINS, 71 KILOMETERS OF TRACKS

2 FUNICULAR LINES

RHÔNEXPRESS AIRPORT LINK: **6** TRAINS AND **4** STATIONS OVER A DISTANCE OF 13 KILOMETERS

INSIGHT FROM THE EXPERT

Denis Tassin
Technical expert,
Bid Technical Lead,
Asset Management –
RATP Dev

"A major benchmark for now and the future"

This contract is of particular strategic importance simply because the Lyon public transport network is the second largest in France, after Paris. Given the stakes involved, we invested a great deal of time and effort in thoroughly verifying the condition of facilities before the takeover. This is standard practice whenever RATP Dev takes over the operation of an existing network, and in this case, on a relatively old network like Lyon's, it has proved extremely useful, both for us and for the transport authority. Notably, we were able to identify a number of areas for improvement, which we are already working on, in line with our maintenance benchmarks and expertise. Another noteworthy point to highlight is that SYTRAL Mobilités has also entrusted us with the task of providing project management assistance in major upcoming projects: automation of metro line A, upgrades to metro lines C and D, and extensions to tram lines. We were able to prove that we possess the *ad-hoc* skills, notably in the complex undertaking of replacing signaling systems.

03

AN EXTENSIVE, COMPLEX INDUSTRIAL ECOSYSTEM

Regardless of whether RATP Group provides advice, recommendations, assessments, or adjustments, it plays a pivotal role in ensuring collective efficiency. Recognized and appreciated by its counterparts, the Group's proven expertise and in-depth knowledge of systems nurture relationships of trust with transport authorities as well as industrial players. This is how the Group contributes to a collaborative dynamic that creates value for every subsidiary and stakeholder.

Solutions developed for and with transport authorities

Where RATP Group adds value is as much in the design of new transport systems – known as greenfield* projects – as in the upgrading of existing brownfield projects. In upstream phases, our experts assist transport authorities in sizing, defining and optimizing infrastructure. And throughout project phases, they provide invaluable support in operations and maintenance, from pre-project research to performance audits. These tasks are always carried out in close collaboration with transport authorities, which increasingly call for transparency. The shared objective is clear: optimizing investments and costs, while putting passengers' needs at the core of the approach. It means working together to find the right balance between expenditure – for the community and users – and the level of service provided. This is a long-term relationship of trust that involves collaborative constructiveness at every stage, from the moment investment needs are identified, to the operational management of projects.

Designing systems that can be maintained and operated over the long term guarantees the relevance of choices and the credibility of commitments made.

AN INVALUABLE ALLY FOR THE GRAND PARIS EXPRESS* NETWORK

The project management mission entrusted to RATP Infrastructures by Société des Grands Projets (SGP)** comprises four main phases.

- **Design phase (pre-sales):** prescribing requirements, by highlighting areas for attention in light of RATP's expertise in infrastructure operation; issuing technical opinions on solutions that are proposed by the prime contractor.
- **Project phase:** inspecting and verifying the compliance of deliverables (thereby allowing SGP to take into account notifications of incompatibility).
- **Trial phase:** verifying the compliance of features provided by every infrastructure component.
- **Transfer of technical management:** once the infrastructure is commissioned, this means guaranteeing that they remain in operational condition.

* A new automated metro network around Paris; four new lines and two extensions, 200 kilometers of tunnels and 68 stations built or renovated by 2031.
** Public industrial and commercial institution (EPIC), Grand Paris Express project owner.

* Greenfield project: creation of a line (or network) from scratch; Brownfield project: extension, upgrade and/or automation of a preexisting line (or network).

INSIGHT FROM THE EXPERT

Stéphane Garreau
Director, Grand Paris Infrastructure Management Unit

"Expert-level project management throughout various project phases"

SGP recognizes our accomplishments for what they are, because our stakeholders realize that our track record as an integrator of various technical solutions allows us to manage issues with the utmost precision.
Our added value is evident when we take over infrastructure: given our expertise in every project phase, we know what needs to be done in advance, to ensure that we subsequently deliver optimal value to SGP and passengers.

INSIGHT FROM THE EXPERT

Gautier Brodeo
Director, ADO-IE, RATP Group's Office for Operations & Maintenance Development

"Our business is to offer clients comprehensive support"

We are "general experts" who provide research, consulting, and technical assistance services. Accustomed to complex environments (in densely populated areas, and often in operation), we liaise between RATP Group and RATP Dev projects, as well as projects by RATP CAP Île-de-France, Systra, and transport authorities and manufacturers. Our main strength lies in our ability to quickly understand a functional and/or technical issue in order to immediately mobilize in-house *ad hoc* expertise, by providing the Group's research, consulting, and technical assistance services. We have successfully demonstrated this in the Île-de-France region, and in several areas across the globe.

Electric bus on a road in Paris.

Unifying and incentivizing industrial partners

Over the years, RATP Group has forged close ties with its main industrial partners. These relationships of trust and mutual recognition, which have been conducive to collaborative working modes, provide everyone with the opportunity to contribute their expertise in solving what are often complex problems.
Through integrated project management and ownership, the Group is able to work in short loops, adjusting work site orientations in real time when unforeseen technical circumstances arise. This agile operating mode, which is crucial to honoring our client commitments, is based on ongoing dialogue with industry players, notably by sharing feedback.

A BALANCE OF AUTONOMY, SHARED VISION, AND HEALTHY COMPETITION

In addition, since RATP Group teams have acquired in-depth knowledge of the equipment, infrastructure and systems that they oversee, as well as proven expertise in project management, they have built up recognition of their technical prowess that allows them to be exacting and discerning in the working relationships with industrial players. From this standpoint, the company has

INSIGHT FROM THE EXPERT

Nicolas Cartier
Director, Bus Maintenance

"The European electric bus market owes us a great deal"

We give manufacturers specifications on the features that we expect, so that they will include them in their bus design road maps. It is highly instructive for them, because we are fairly representative of market expectations; and it is also an advantage for us: it helps to ensure that the offers they make to us are in line with our specifications, at a controlled cost price, since our expectations have already been taken into account. In 2014, when we launched our Bus2025 program, no European manufacturers were offering any electric buses. Right from the start of the program, we told the manufacturers what we wanted: slow charging, a 200-km range, etc. This worked out very well, because when we launched the purchasing process for our buses, the European offering – and particularly in France – had grown.

succeeded in striking the right balance between three imperatives: retaining sufficient autonomy to provide asset maintenance and product upgrades; sharing a long-term vision with its technical service providers, by giving them visibility over workload plans; and preserving a competitive environment, which is essential for stimulating innovation. When RATP Group takes part in consortia, which sometimes involve rival companies, it cultivates relationships based on respect, mutual enrichment and the quest for collective success.

RAIL OPEN LAB BOOSTS RAIL INNOVATION

The Rail Open Lab is an open innovation association dedicated to the rail sector. Created in 2020 on the initiative of four founding members (RATP Group, SNCF Réseau, SERCE – union of ecological and digital transition organizations – and Fédération des industries ferroviaires), it also brings together approximately thirty industrial actors, start-ups, SME-ETIs and researchers.
Its role is to accelerate and field-test innovative solutions in short cycles (four months), contributing to improved rail maintenance, operation, sustainability and efficiency. Through a professional ecosystem and collaborative platform, members can work together to develop practical use cases – smart glasses, worksite geolocation, AI sensors, and more – and experiment with them under real operating conditions.
"It's a win-win situation between infrastructure management and the industrial sector," emphasizes Raphaël Blanchard, Director of Projects and Engineering at RATP Infrastructures. *"Once a solution has been trialled and validated in a benchmark railway environment, it will be certified by SNCF and RATP, which are internationally recognized operators".*

INSIGHT FROM THE EXPERT

Sylvie Buglioni
Director, Technical and Industrial Projects Division, and Digital Innovation Division, and Member of the Executive Committee

"Ambitions that provide industrial players with new challenges"

We provide project ownership support that serves the interests of transport authorities, both in defining a global operating system that adapts to the challenges of the network, and in managing commissioning to ensure continuity of operation. In addition, we have the right industrial and digital expertise that is needed to make our projects a success, as well as to maintain our assets over the long term. As such, we provide our industrial partners with new challenges, and we are extremely demanding in order to guarantee service efficiency and cost optimization. In return, we provide them with some very attractive references, while helping the rail industry to advance, something that the industrial sector is the first to admit. They know that our history and extensive feedback pool make us a contractor that stands out from the rest. They also appreciate the fact that we have a knowledgeable project management team, an agile project management team, and a professional project ownership team that knows when to make trade-offs that balance technical and operating constraints.

Coteaux Beauclair station on Paris metro line 11, along the boundaries of Rosny-sous-Bois and Noisy-le-Sec.

EXTENDED ENTERPRISE: A FORMAL PROCESS TO STRENGTHEN SUPPLIER SYNERGY

Under the guidance of Daniel Ruston, Director of Purchasing and Logistics, RATP Group is currently rolling out a new framework to establish dialogue with suppliers, thereby fostering collaborative construction and innovation. This initiative, known as "Extended Enterprise", corresponds to the challenges of the Group's new five-year investment plan for the Île-de-France region. After a period during which investments consisted largely of line extensions, which aimed to ensure the success of the Paris 2024 Games, the new plan focuses on the upgrade and upkeep of heritage assets across the existing network. New rolling stock, new driving systems, new maintenance centers, ambitious station renovation programs, management policy by asset class *(see page 19):* investment is set to accelerate. It is in this context that the Group is seeking to increase the integration of its strategic suppliers into its efficiency and value creation.

To do so, the Group relies on four levers: clearly distinguishing the activities covered by the extended enterprise; setting up Group-wide units involving technical specifiers, maintenance operators, and professionals in logistics and purchasing, to create the best strategy upstream, and manage its deployment with suppliers; organizing regular strategic performance reviews with suppliers, to observe the level of efficiency achieved and identify common areas for improvement; and lastly, integrating the extended enterprise approach into a global vision of the rail industry, notably in view of pooling efforts and breakthroughs.

MAINTENANCE AND DRIVING: A TRAINING CENTER DEDICATED TO HYDROGEN-POWERED VEHICLES

In March 2025, the training center dedicated to hydrogen-powered public transport vehicles, inaugurated by RATP Dev in La Roche-sur-Yon (France), received its first "students". The training course, which was designed by the RATP Dev – CNAM partnership chair, is aimed at RATP Group bus and coach maintenance technicians who work on hydrogen vehicles. A second phase, focusing on energy savings and eco-driving, will be launched in the coming months. The center is located at the strategic Atinéa site, a flagship project that has been designed to develop an excellence hub dedicated to low-carbon energy sources, and mobility solutions of the future.

FOCUS

Sydney Metro – Western Sydney Airport: RATP Dev firmly anchored in Australia

In December 2022, RATP Dev was awarded the contract to operate and maintain the Sydney Metro – Western Sydney Airport line. This is an automated metro line that is set to become the backbone on the western side of Australia's largest urban area (population of close to 6 million).

To respond to Sydney Metro's call for tenders, RATP Dev formed a consortium with partners in the construction sector (WeBuild), transport solutions (Siemens Mobility), and financial (Plenary Group) partners.

As of 2020, i.e., before the actual start of the tender process, a local office had already been opened, to acquaint Australian transport authorities, as well as stakeholders in the rail and infrastructure construction industries, with RATP Dev.

Once the consortium was formed and designated, RATP Dev mobilized a core team in Sydney that comprised experts in automated metro operation, maintenance and integration, as well as PPP (Public Private Partnership) contractual arrangements. The team was largely supported by the skills of the central divisions at the Paris head office.

RATP Dev, which will operate and maintain the future line for fifteen years from its commissioning, has a positive influence on the design phase, first by providing its detailed requirements, and then by reviewing and challenging the technical solutions proposed by the partners. The aim is to ensure that what is delivered leverages both efficiency – to meet or even exceed contractual KPIs – and total cost of ownership, notably through optimized maintenance procedures.

INSIGHT FROM THE EXPERT

Denis Masure
General Manager
Australia & New Zealand
– RATP Dev

"An initial reference, followed by numerous opportunities to be seized"

We contribute a fresh yet highly experienced outlook on the issues that Australia is encountering with regard to urban rail. And this is not unique to the Sydney urban area – growth opportunities have also opened up in Melbourne, in automated metro technology. In any case, we now have a solid local team, and we mobilize areas of expertise that optimize our visibility among our clients for future opportunities.

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