Survey of Smart City Trends in the West: Transit-oriented Development and Mobility-as-a-Service Part 6: Case Study – Paris, France (1)

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1. Overview of TOD and its Relationship with MaaS

Paris, France is well-known as a public transit-oriented city, with a large portion of public transportation including the subway. [*] Regarding urban redevelopment, although there are few cases where it is explicitly mentioned in terms such as TOD, (a concept that originated in the United States), there are many compact development areas centered around subway stations, and it is becoming highly rated as a sustainable city in many surveys.[1]

A typical example is Rive Gauche, an area of redeveloped former industrial sites (railway depots, warehouses, factories, etc.) on the left bank of the Seine. There are also many other development areas, including the Gare de Nord and La Defense stations and the Pleyel district in the suburb of Saint-Denis (see Figure-1). Most of these projects involve the development of land owned by public transport companies in cooperation with local governments, and in the case of Rive Gauche, land owned by French National Railways, *Société nationale des chemins de fer français* (SNCF), was purchased by the city's Regional Development Corporation, *Société d'Economie Mixte d'Aménagement de Paris* (SEMAPA), and development has been outsourced to a designated developer. Currently, MaaS has not been fully realized in the TOD sector, but with the national and local governments setting guidelines and public transportation playing a leading role, various developments and demonstrable efforts are underway.

At the end of 2019, the Mobility Guidelines Law, *loi d'orientation des mobilités* (LOM)—commonly known as the "MaaS Law"—was enacted as a response to climate change with an aim of developing a new transportation industry.[2] Its distinguishing feature is that it provides guidelines to encourage innovation in the transportation field at the national level.

The law actively aims to make land transportation carbon neutral by 2050 and to introduce and expand new transportation services using the following three pillars:
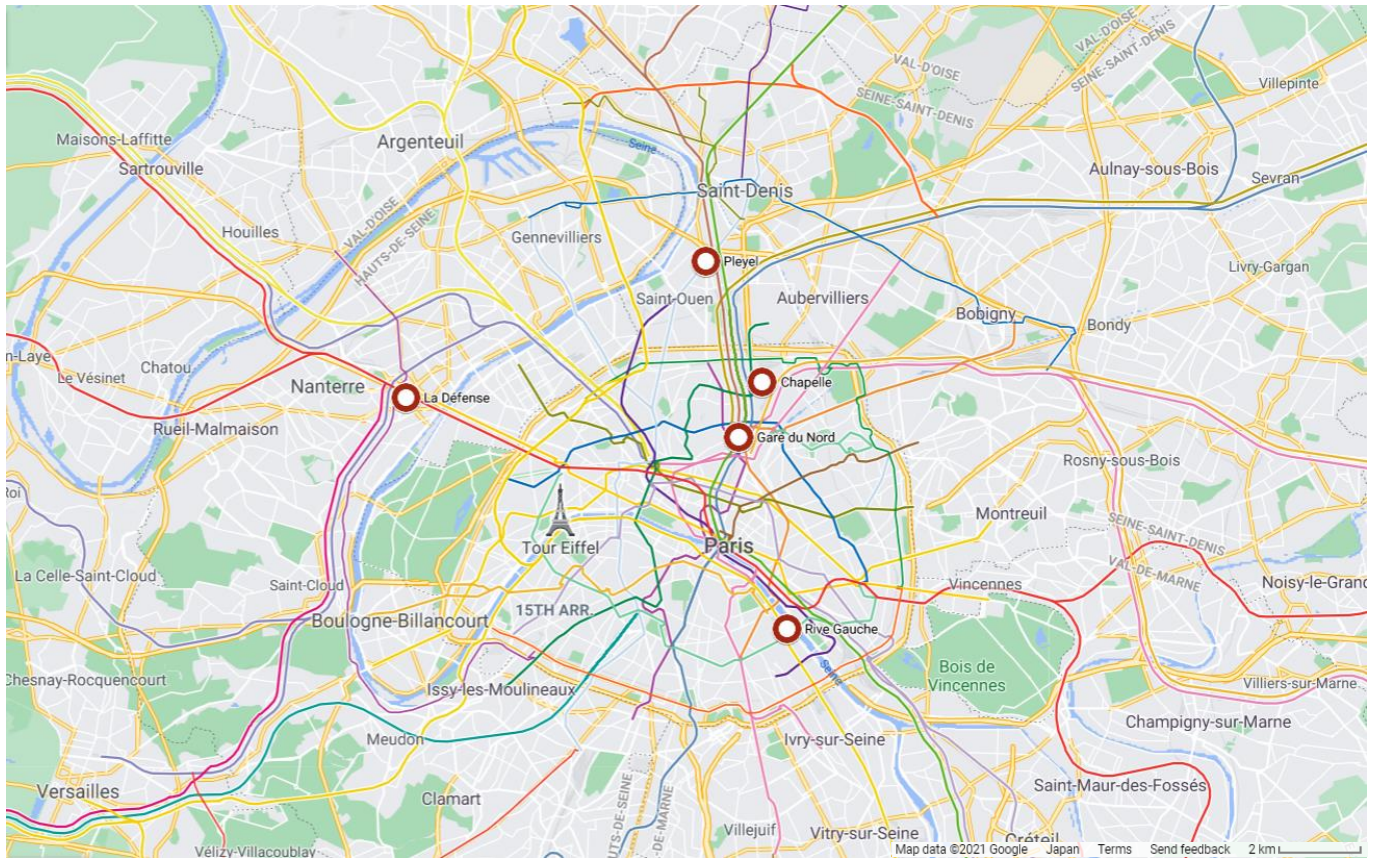
1. Improving daily transportation (eliminating empty spaces for traffic, making it barrier-free, etc.)
2. Developing new transportation solutions (e.g., using new mobility to replace private cars),
3. Reducing environmental impact (improving environments for bicycle and EV usage, promoting carpooling, etc.)[3]

In addition, the same law requires public transportation agencies to disclose data they retain, and the promotion of MaaS is accelerating, with a focus on considering the development and introduction of digital platforms.
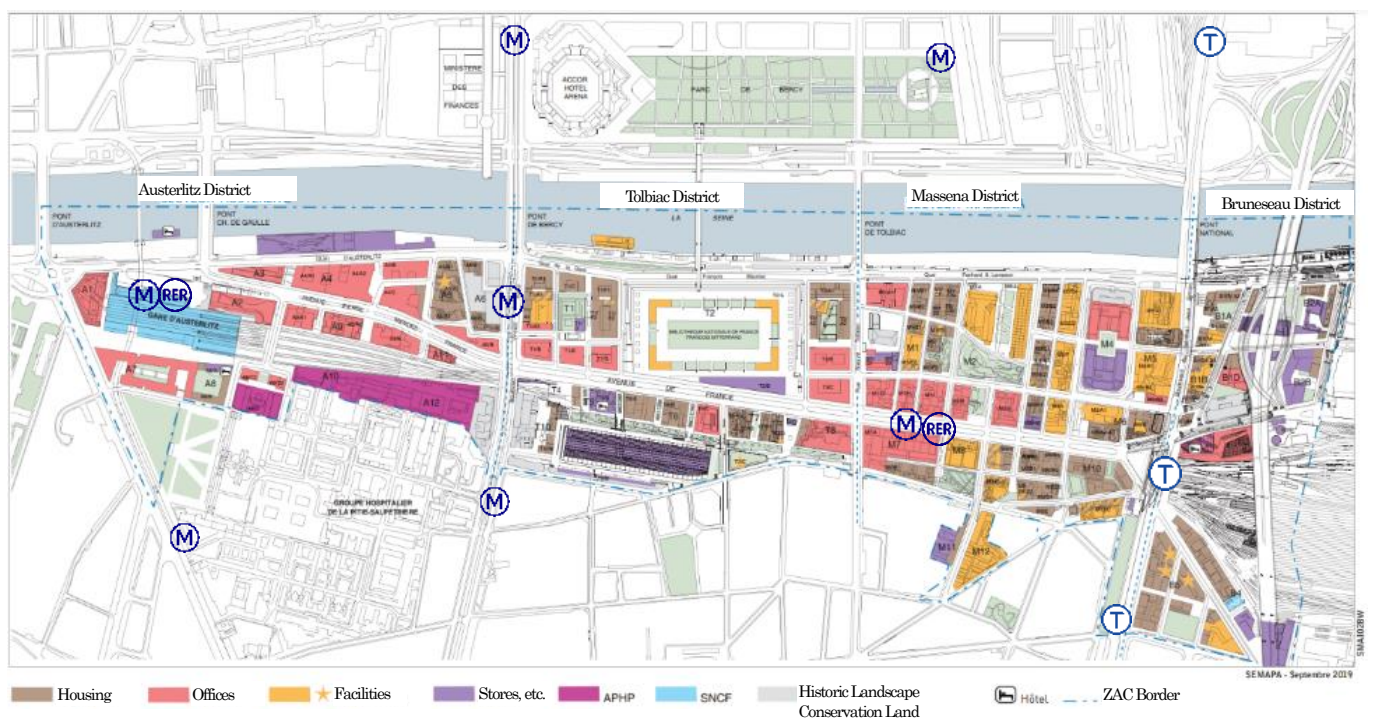
Regarding specific technologies and services, an organization called *Île-de-France Mobilités* is playing a leading role—especially in the operation of common tickets and IC cards in metropolitan areas. It is showing its presence in coordinating between transportation agencies in the development and demonstration of MaaS applications. Furthermore, *Groupe Régie Autonome des Transports Parisiens* (RATP), which is a subway and route bus operator, also operates an IT department that is coordinating and cooperating with *Ile-de-France Mobilité* as appropriate to develop unique smartphone apps and services through RATP Smart Systems. At the end of 2020, it acquired Mappy, a major French map app operator, and is promoting the provision of comprehensive route searches by integrating Mappy's specialty automotive map app with

RATP's public transportation app. In addition, in terms of shared mobility, bike sharing's *Vélib'* and car pooling's BlaBlaCar are well known, and companies operating these services are currently involved in multiple advanced initiatives.

[Figure-1] Paris metropolitan area map　　　　Source: Created using Google Maps

| | Housing | | Offices | ★ Facilities | | Stores, etc. | | APHP | | SNCF | | Historic Landscape Conservation Land | | Hôtel | ‒ ‒ ZAC Border |

SEMAPA - Septembre 2019

[Figure-2] Rive Gauche redevelopment area　　　Source: Created with reference to SEMAPA website

Notes: SNCF site (light blue) is Austerlitz station. APHP is the *Assistance Publique – Hôpitaux de Paris*. ○ marks are major public transportation stations (M = subway, T = streetcar, RER = commuter rail. In addition, there are bus stops at major intersections).

2. History and Background of TOD at National/Local Levels

Like London and New York, Paris is a transit metropolis that expanded along with its transportation system (centered on trains), but its origins date back to the 1960s. At the time, Paris was experiencing regional imbalances due to the rapid population growth and concentration of urban functions in the post-war metropolitan area. In order to alleviate this, the government set a development policy for the Paris metropolitan area and a master plan was announced.[4] This was an attempt to build a grand suburban new town, and served as guidelines for the subsequent growth of the Paris metropolitan area.

One of the main principles of this master plan is to enhance the neighborhood feel of the city center through the development of a transportation network, and create a situation in which suburban residents can easily enjoy the services of the city center. Railway maintenance was considered to be of extremely high importance.

This master plan was formulated with the assumption that the rapid population growth in the Paris metropolitan area at the time would continue, but it has been revised from time to time due to changes in the economic environment, such as a slowdown in population growth. The New Paris Metropolitan Area Development Plan, established in 1994, focuses on the development of suburban areas adjacent to Paris (rather than the expansion of suburban new towns), so building a close public transportation network is also an important issue here. While there is a high-density subway network in the city of Paris, the suburban areas have a significantly lower density, and the idea of building a circular railway line surrounding the city of Paris was thought to be an effective measure.[5]

In June 2010, in light of the intensifying competition between cities within the EU, the "Grand Paris Law" was enacted with a main focus of strengthening the international power of the Paris metropolitan area. The law also considers the development of circular railways and

base development as important measures, and construction of the Grand Paris Express, which runs outside of existing urban railways and subways, is currently underway.[6]

3. Example of Exemplary TOD: Redevelopment of the Rive Gauche Area

3.1 Project Outline

This section will discuss the redevelopment of the Rive Gauche area located on the left bank of the Seine River as an excellent example of TOD in Paris. Rive Gauche, a redevelopment of a railway depot and former factory, is Paris's largest development project in recent years. The Massena district, located on the east side of this TOD district, is an example of a compact commercial and residential multifunctional city development that is integrated with the waterfront. It received a gold rating, along with Sweden's Hammarby SjÖstad, in the Institute for Transportation and Development Policy (ITDP)'s 2014 report comparing the excellent TOD scores for 50 cities.[7, 8] In addition, from the perspective of transportation planning, the city was developed based on the premise that the redevelopment area would be accessible by tram, bus, and bicycle, with Austerlitz Station, Paris's public transportation hub, as its center.

This redevelopment is being led by SNCF, SEMAPA, RATP, and other public sectors, and construction began in 1996. It is said to be the largest scale project since the Haussmann Plan, which was a renovation project for Paris in the 19th century, and the project is still ongoing. Despite the city's typically strict building standards, different architects were responsible for the urban planning and design for each development area, allowing the region to have a variety of architectural styles.[9]

In addition to the four development areas, Rive Gauche also includes the Austerlitz public transport hub, the Seine waterfront, and two major roads. The four development areas are as follows (see Figure-2):

1. Austerlitz District (*Austerlitz Nord, Austerlitz Sud*): Redevelopment centered on the railway station (left side of Figure-2)

2. Tolbiac District (*Tolbiac Nord, Tolbiac-Chevaleret*): The National Library is a landmark (center left in Figure-2)

3. Massena District (*Masséna Nord, Masséna-Chevaleret*): Cluster of academic institutions including the University of Paris (center right of Figure-2)

4. Bruneseau District (North Bruneseau, South Bruneseau): Along the Paris city limits/Paris ring road (right side of Figure-2)

The TOD concept for the Rive Gauche redevelopment project largely reflects the EU's Sustainable Development Strategy, which has been discussed since the 1990s.

The EU's Sustainable Development Strategy

Since the 1990s, discussions have been held on a global scale to realize the development of a sustainable society—the United Nations Conference on Environment and Development (UNCED) in 1992, the United Nations General Assembly meeting in Special Session (UNGASS) in 1997), the World Summit on Sustainable Development (WSSD) in 2002, and the European Commission's communication, "Towards an Urban Agenda in the European Union" in 1997. In the EU, "sustainable development" is set as an interdisciplinary strategic goal, developed into many policies, and the goal is to integrate various policies at the city level.

"Sustainable Urban Development in the European Union: A Framework for Action", submitted in 1998, is an action plan designed to put into practice what is outlined in the "Towards an Urban Agenda in the European Union" communication. The purpose here is not to develop solutions to urban problems at the EU level, but to recognize problems and issues at the regional (country/city) level. The Sustainable Development Strategy, approved by the European Council in Gothenburg, Sweden in June 2001, covers economic, social and environmental aspects; it has a strategy aimed at achieving balanced and sustainable development. From an economic perspective, sustainable economic growth and fiscal soundness through job creation, etc. are important, and from a social perspective, human rights protection, social security, and the abolition of discrimination are essential to ensuring level fairness. From an environmental perspective, the goals include protecting the natural environment, reducing the burden, and maintaining the urban environment.

In line with this strategy, a balance between these three perspectives (economic, social, environmental) is emphasized in various policies in each field. Representative policies include (1) small business policy, (2) energy policy, (3) urban policy, and (4) transportation policy. The definition of a "sustainable transport system" adopted by the European Transport Council in 2001 also states that a transport system must balance social, economic, and environmental aspects. The EU's goal of "sustainability" must be realized not only from an environmental perspective, but also from social and economic aspects, and by balancing these three, "sustainable development" can be achieved. In addition, establishing a sound governance system is also considered essential.

3.2 Promotion System

This development began in 1996 when SEMAPA was commissioned by the city of Paris.[10] As mentioned above, in addition to SEMAPA, SNCF, RATP, and the Paris Metropolitan Planning Institute are participating as major players, and the project is unique in that it is a public sector-led development project. (The private sector is restricted from independently developing lots.)

SEMAPA is an organization of which the city owns 92% and the *Ile-de-France* region owns 8%. It is responsible for urban planning and project management, and is currently

in charge of purchasing and selling SNCF land to developers, as well as the supervision and financial auditing of individual development projects. In addition, they also conduct preliminary surveys and make arrangements for selling construction rights to private developers and public sector development entities that build cities.[11] For this development, SEMAPA gathered approximately 70 people involved in planning (urban planning experts, finance experts, designers, engineers, technicians, architects, lawyers, real estate development/management specialists, public relations/communications personnel), and a development team was established.

SEMAPA also established a consulting committee consisting of 25 people representing each stakeholder, and developed a plan based on the intentions of this committee.[12] This committee is unique in that it was established based on the Charter of Consultation of the Ministry of the Environment of France as part of its efforts to incorporate environmental harmony into development. The city adopted this charter in July 1996 with the aim of encouraging citizen participation in development planning, and this development area was the first in France to be covered by this charter. This committee is unique in France, where SEMAPA bears the costs of activities and experts, and each organization has its own independent operating budget.

[Figure-3] Diagram of Rive Gauche redevelopment major players
Source: Created with reference to various materials

3.3 Funding

According to the City of Paris' development financial plan, the development will span several decades and is expected to cost at least 4 billion euros, with the main funding for the operation coming from the sale of railway-related land. SEMAPA has made it possible to purchase and resell land even during the project, in line with the circumstances of the French Rail Network, *Réseaux Ferrés de France* (RFF), which is under the umbrella of SNCF and is in charge of managing and utilizing real estate (track networks, land, etc.). In addition, the City of Paris is indirectly subsidizing the project by guaranteeing SEMAPA's temporary loan for the purchase of land.

Due to the large scale of this development, it is being carried out in multiple development stages, and by dividing the construction period, it was considered advantageous for being able to capture favorable timing in the real estate market. In addition to procuring development funds through the purchase and resale of land, this development also aims to reduce financial risk for the developer by utilizing zones *d'aménagement concerté* (ZAC), which is a comprehensive zoning system. When a developer acquires land in the early stages of development, it involves great risks due to the uncertainty of the real estate market, but RFF, the main landowner in the Rive Gauche area, attempts to reduce the risks faced by developers by setting the city sales price lower than the market value on land subject to ZAC, for example, on the condition that low-income housing is constructed.[13]

France's Urban Development Zones (ZAC)

Urban planning and development in France has a history of requiring the voices of individual municipalities and local residents to be reflected, especially since the decentralization trend of the 1980s.

In order to realize development that reflects the voices of local residents, French municipalities use a system called zones *d'aménagement concerté* (ZAC). ZAC is a type of zoning that is designated by a local government that has been approved by the municipal assembly, and
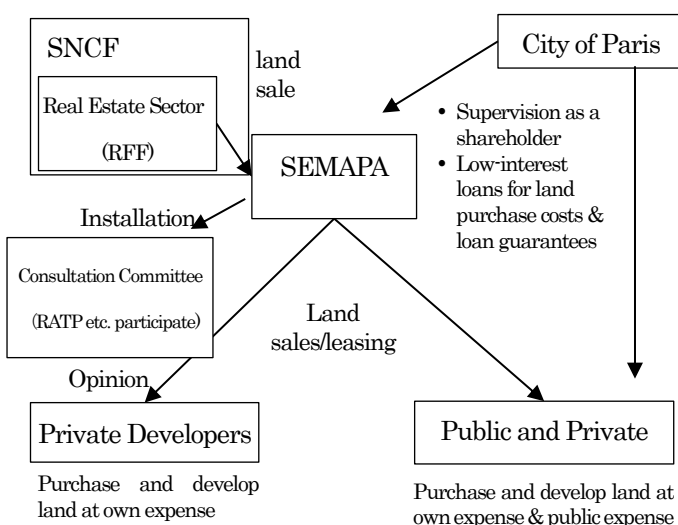
is developed by the local government itself or by a contractor while regularly exchanging opinions with local residents. For this reason, regulations regarding residential buildings and other buildings within the ZAC (type, density, form, etc.) are set flexibly, leaving room for changes to be made as the project progresses. Some analysis suggests that this is a feature that enables long-term land development and use.[14]

Once a ZAC is established, the local government uses financial tools such as loan guarantees and low-interest loans to promote the resale of land to private businesses, while at the same time using the funds from the sale of the land to demolish existing buildings, and to promote land preparation and purification, construction of public facilities, etc.[15]

In the next issue of this series, I will introduce transportation plans, residential and office development, and future prospects for this development, and lastly, I will also discuss the implications obtained from this series of case studies on Smart City Trends in the West: TOD and MaaS.

Notes

* The transportation ratio in Paris is 36% public transportation, 13% private cars, 2% bicycles, and 48% walking, and the low ratio of private cars is particularly notable. (As of 2010)

Citations/References/Source Materials

1. Alain l'Hostis, Sébastien Darchen. Characterising Transit Oriented Development in the Paris metropolitan region: what type of TOD are they? https://hal.archives-ouvertes.fr/hal-01138076 （Accessed: 2023/8/8）

2. https://www.legifrance.gouv.fr/dossierlegislatif/JORFDOLE000037646678/; https://www.ecologie.gouv.fr/loi-dorientation-des-mobilites; http://www.assemblee-nationale.fr/dyn/15/dossiers/loi_orientation_mobilites; https://www.francemobilites.fr/loi-mobilites （Accessed: 2023/8/8）

3. https://www.fr.emb-japan.go.jp/files/100221482.pdf （Accessed: 2023/8/8）

4. Official Name：*Schéma directeur d'aménagement et d'urbanisme de la région de Paris* (SDAURP)

5. https://core.ac.uk/download/pdf/56657336.pdf （Accessed: 2023/8/8）

6. https://www.jstage.jst.go.jp/article/journalcpij/46/3/46_3_343/_pdf （Accessed: 2023/8/8）

7. https://www.itdp.org/publication/tod-scores/ （Accessed: 2023/8/8）

8. https://www.jttri.or.jp/document/2021_report_Dec_okabe.pdf （Accessed: 2023/8/8）

9. https://www.c40.org/case_studies/c40-good-practice-guides-paris-quartier-massena-rive-gauche （Accessed: 2023/8/8）

10. http://www.parisrivegauche.com/Plans （Accessed: 2023/8/8）

11. http://www.semapa.fr/Qui-sommes-nous （Accessed: 2023/8/8）

12. http://www.parisrivegauche.com/La-concertation; http://www.parisrivegauche.com/La-concertation/Les-textes-cles （Accessed: 2023/8/8）

13. http://www.uclg-localfinance.org/sites/default/files/Fiches%20F18%20France%20VE.pdf （Accessed: 2023/8/8）

14. https://theconversation.com/france-has-a-unique-approach-to-regenerating-inner-cities-what-can-we-learn-from-its-success-91652 （Accessed: 2023/8/8）

15. https://www.paris.fr/pages/les-zones-d-amenagement-concerte-zac-5763 （Accessed: 2023/8/8）