

LA DÉFENSE 2050

BEYOND URBAN FORMS

ANALYSIS REPORT - AUGUST 27TH > SEPTEMBER 23RD, 2011

29TH SUMMER SESSION OF THE INTERNATIONAL WORKSHOPS OF
URBAN PLANNING AND DESIGN - CERGY-PONTOISE - ILE-DE-FRANCE



Les Ateliers

Les Ateliers is an NGO, with an international network made of professionals, scholars and leaders in urban planning. Focusing on the practice of urban planning, Les Ateliers organizes workshops, perfect places for stimulating conception and creativity. Taking place in France or in other countries, these workshops bring an international perspective on urban planning issues and ground breaking proposals to the contractors. By confronting their cultures and their fields of expertise, the participants question their knowledge and take part in top-level debates.

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Les Ateliers wishes to thank all the people who have worked on this document, and especially the members of the Scientific Comitee, the members of the first working group, the participants and speakers of the January 2011's seminary :

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Publishing date: June 2011, Paris

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List of the Abbreviations

EPAD : Etablissement Public d'Aménagement de la Défense. Organization created by the State to plan La Défense's territory.

EPASA : Etablissement Public d'Aménagement Seine-Arche. Organization in charge of Nanterre's planning.

EPADESA : Etablissement public d'aménagement Défense-Seine-Arche. Organization in charge of La Défense and OIN's sectors. The EPADESA is the result of the merging of EPAD and EPASA.

OIN : Opération d'Intérêt National. It is a planning operation where the State has control over the planning management. La Défense's OIN includes the platform of La Défense, a part of Nanterre and a part of La Garenne-Colombes.

SIEP des Deux Seine : Syndicat Intercommunal d'Etudes et de Projet. Organization managed by Courbevoie, La Garenne-Colombes, Nanterre, Rueil-Malmaison and Suresnes, created in 2010 so as to plan shared studies and projects.

IAU : Institut d'Aménagement et d'Urbanisme de la Région Ile de France. It is the office in charge of studies and planning for Ile-de-France.

SDRIF : Schéma Directeur de la Région Ile de France. It is the document defining the region's planning orientations for the next 25 years.

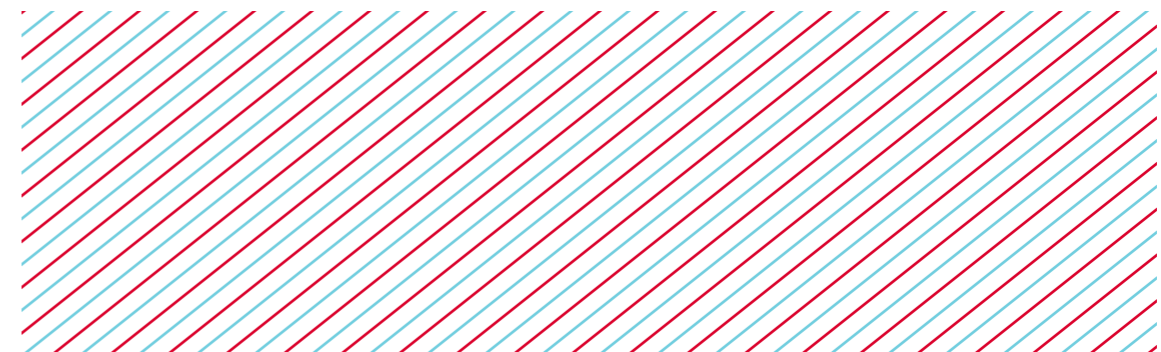
LA DÉFENSE 2050 BEYOND URBAN FORMS

ANALYSIS REPORT FOR THE SUMMER 2011 WORKSHOP

This document has been specially written for the workshop's participants, in other words, you. It is a collection of maps and theme cards in order for you to be introduced in a detailed, yet open minded way to the site of La Défense and to the workshop's topic: the long-term future of a business district.

The document is divided into three parts. First, the past and history of the site, and the ways one imagined its future... 50 years ago. Then, the document gives you an overview of the current situation, a situation you will see for yourself and absolutely must be aware of. Finally, the third part is focusing on „your future“: because these 40 years period that separates us from 2050 happens to match the time of your professional career, from your recent graduation to your retirement. What will you do with it?

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INTRODUCTION

An outstanding urban operation, La Défense is both a fascinating and repulsive district, and as such, it leaves no one cold. A unique district, created to protect Paris's historical skyline, all the while facing the needs of large business spaces inside towers during the booming period of the tertiary economy. Thirty hectares of public space served by one of the most powerful transport hub in the region, with remarkable architecture landmarks, major national and international companies headquarters: La Défense is one the major polarities of the Parisian metropolis and a living environment for thousands of employees, inhabitants and visitors.

For a long time, La Défense was defined as an urban planning operation, continuing Paris's historical axis, granted with a privileged connection to the city's center. But few things have been said about its home territory, the housing areas, large housing projects, industrial fabrics, and about the infrastructures and the geographical and natural entities of its territory. Rooted in its historical connection with Paris's city center, La Défense was seen as the capital's growth for a long time. But in the on-going metropolitan reshaping, the

district is now taking place inside a more complex scheme.

The almost exclusive dialogue between La Défense and the capital city is becoming a conversation with the many cities of Paris's Western outskirts, and the axis structure is transforming into a varied connections network.

The choice to build the business district in Paris's Western area and the strong financial involvement of the State has subsequently increased the speed of the territory's mutation and created wealth as well as discrepancies. Space discrepancies because of the transport structures, urban discrepancies because of the piling up of old houses with new buildings, and social discrepancies because of the coexistence of many social classes who don't interact. The urban and economic mutation has been swift, impressive and generally profitable for the territory, but it left some scars inside the urban fabrics and created some disorders for men and women as well. The planning process must now go beyond the sole economic challenge.

In the future, environmental, social and economic evolutions create new challenges for the business district and its welcoming territory. The deple-



Périmètre Epadesa
Source: Epadesa



tion of natural resources, the carbon emissions and the global warming has been occurring for dozens of years and the consequences are apparent. The ability to live together, the social and functional diversity appears to be essential to the social harmony and the quality of life, whereas the increasing land price trend tends to separate people and functions. These evolutions will shake the core facts and, for example, shake the economic system that is leaning on lowcost oil. How to foresee these evolutions for the business district and its home territory?

During four weeks, with a medium and long-term vision, leaning on the global evolutions and the local reshaping process, the participants will focus on this major polarity of Paris's Western area. The next 40 years, until 2050, is matching the term of their professional career (given the average age of the participants: 25 years). What are their evaluations of the future, their strategies for cities to adapt to the expected changes, where do they want to lead this district and this territory?

And for those who won't have had enough, they can go to the 24th World Congress of Architecture – UIA 2011 that will take place straight after the workshop, between the 25/09/2011 and the 01/10/11 in Tokyo, Japan, under the title „Design 2050“.

Christian Horn, head of the leading committee

Can the cluster of La Défense be a sustainable metropolitan development tool? How to accelerate its evolution towards a post-oil metropolis? Will La Défense continue to strengthen itself, or will it merge into the future Parisian metropolis? What is the purpose of a transport hub in La Défense inside a metropolitan strategy? On the metropolitan scale, must we promote concentration or sprawl? Can the future transport ways match the needs of the new employees, and can we increase the size of the tubes indefinitely? What links will emerge between the various metropolitan poles and La Défense? Can there be a relationship between the logistic functions of the ports and the business district? What is the future, what is the new plan for La Défense and its territory on a long-term basis? What is the new vision regarding environmental, economic and social challenges? What is the shape, the face, the mechanism of a business cluster in 2050? How to locally distribute the wealth and activity flows generated by the business district? How to promote the integration and the participation of the inhabitants in the district's future? Does La Défense has to become a mixed city district, lively, open to everyone (we insist on everyone!) ? What characteristics of the urban district are necessary, which ones can evolve? What is the district's ability to evolve inside the metropolitan areas? What is the territory's future inside a new geography? Towards a balance between urban amenities, economic and environmental aspects? Can there be a relationship between a territory's geography and the building of a city? What shape will the companies take, and what kind of workplaces will they need? How will the evolutions of the work methods in the 21st century influence the area? What urban environment for the employees, and what kind of collective areas will they gather in?

THE PAST

GENERAL AND URBAN HISTORY

A territory in Paris's western outskirts (Neolithic-1959)...

An old occupation

The first traces of an occupation of the Hauts-de-Seine's territory go back to the Neolithic era. As soon as the Gallo-Roman era, human settlements can be found. Recent researches have shown that early « Parisii » have settled in the territory that is now occupied by Nanterre. According to some, it is there that Caesar have met the first people of Lutetia, before the latter were moved to the current Ile de la Cité.

During the Middle-Ages, the territory was mainly composed of farming lands (cereals, vegetables, vineyards), a few villages were spread out across the plain, woods were filled with game the lords and kings loved to hunt, and some stone were proving material for construction.

The place also has a certain religious aura thanks to the presence of Sainte-Geneviève, born in Nanterre in the 5th century AC. She is said to have cured her mother's blindness using water from a well that was in her garden. This well is still standing in



Seurat – The Seine in Courbevoie - 1885
Source: Galerie Flickr - CG27

Nanterre's old town. Clovis and his wife, Clotilde, came to Nanterre and founded an abbey where people could celebrate this miracle. Moreover, on the Mount Valérien, a hermitage has been built during the Middle-Ages and became a pilgrimage and rituals place, the top of Mount Valérien has become a famous place for the Way of the Cross during certain popular processions.

Later, the area has caught the attention of the elite, like Madame de Maintenon who created her school in Saint-Cyr, or Napoléon and Joséphine who made the Château de Malmaison their home from 1799 on.

The industrialization's revolutions

All along the 19th century, aside from the war between France and Prussia, the territory developed itself, and followed the national trend of industrialization, embodied by the railway between Paris and Saint-Germain-en-Laye, that crossed the territory, launched in 1837.

New companies settled inside the territory: first, live stocking industries, tallow factories, bone char factories, glue factories. Then, activities became more varied: an aluminium foundry opened in Nanterre, for instance.

Then, new inhabitants were drawn, whether they were rich Parisians who wanted to build country houses along the Seine, or poorer employees who were attracted by the new jobs opportunities. At the end of the century, the Seine banks were a trendy place for Parisians to spend their week-ends and enjoy the countryside. It was the



The former Courbevoie county
Source: <http://www.lagarennecolombes.fr/>



Old postcards (from top to bottom: statue of La Défense, Dion Bouton factory, and HBM in Suresnes)
Source: Flickr - BonjourPuteaux

time of « Guinguettes », canoe strolls along the Seine, which have been rendered famous by the impressionist painters, but also by writers such as Maupassant or Flaubert.

The 1870 war put an end to this countryside leisure and the Mount Valérien fort held back the Prussian soldiers. A statue was erected to celebrate the life of soldiers who have defended the city during the the French-German war of 1870. It is a bronze sculpture of Louis-Ernest Barrias, that was unveiled in 1933, on the former Courbevoie's round about, and one can still gaze at it today (even though it was slightly moved East) ; the round about has now completely disappeared.

Over a century, the landscape has dramatically changed, and the population swiftly increased: Courbevoie's population reached 1000 in 1801 and raised up to 25 000 in 1901.

In the end of the 19th century and in the beginning of the 20th century, industry promptly developed itself. The territory provided cheap and wide territories for industrialists, like in Nanterre, Puteaux, Courbevoie and the Seine banks were transformed in order to build wharfs. A mint alcohol factory, a paper factory, foundries and a biscuit factory were built, and soon, all the branches of the industrial production were found.

The factories employees tried to settle nearby and workers were a wide part of the population. Small houses or shacks were erected in a chaotic way on



Before-After in Puteaux
Source: <http://www.monputeaux.com>



farming lands, depending on the people's income.

The territory was innovative regarding social housing, and Henri Sellier, Suresne's mayor and urban planner, built the first houses with moderate rents, the ancestors of the HLM...

After the WWII, the urbanization expanded

After the WWI, the French demographic growth led to a major increase of the territory's urbanization.



Shanty towns in Nanterre.
Source: photographer Jean Pottier



Shanty town children
Source: photographer Jean Pottier



Map of the road from Paris to Saint-Germain.
Source: Le Guide Histoire et histoires - EPAD

In Nanterre, this urbanization led to the creation of shanty towns. In 1968, there were 9 shanty towns, and the two largest ones had a population of 5 233. All the shanty towns were not served by a water network and people had to get it from a public fountain. There was no comfort, and people lived their lives fearing diseases, rats and fires.

On the contrary, in towns like Rueil, the demographic growth drew a wealthier population and new business and shops settled in. Indeed, the first French « mall » opened in 1959.

This historically rich territory, where discrepancies began to rise, was soon going to be at the center of one of the most important planning operations of the last century.

... A State-planned mutation. (1959 - today)

The history and reasons of a choice

Around 1950, the French state decided to create a business district in order to face the needs of the 20th century, with new programs and urban shapes so as to answer the companies new demands provoked by the increase of the tertiary employment.

This territory was chosen because of its position on the historical Parisian axis, therefore, a large Parisian composition was chosen.

The historical axis is the structuring axis of Paris's Western area. It is an important straight way whose geographical and historical origin was the central Pavilion of the Palais des Tuileries. Although this axis was drawn in 1640 by André Le Nôtre, early Capetian kings used to take this

Traces of this period can be found in the urban planning, as shown in the pictures below, or in the wine production in Suresnes.



The « Defense committee » against the EPAD's operation in Puteaux

Source: <http://www.monputeaux.com/>

path to go hunting in the forest of Saint-Germain-en-Laye.

The EPAD was created in September 1958 in order to build and manage the district that will be located on the towns of Courbevoie, Puteaux and Nanterre. This planning operation had one goal: to gather every tall buildings in one place in order to preserve Paris's historical skyline, which was composed of limited-height buildings and popular silhouettes such as the Eiffel Tower and the Montmartre Hills.

The very first stone of the new business district belonged to the CNIT (Centre National des Industries et Techniques). The building's

roof is a reinforced concrete self-supporting vault of 22 500m², only 6cm thick, with a 128m span, which makes it a world record. It was inaugurated by General de Gaulle in 1958.

This operation was particularly traumatizing for cities like Puteaux: one fourth of its territory was demolished in order to welcome the new business district. From this moment on, the territory's history was overshadowed by this « island », this growth of Paris: The business district of La Défense, whose history is marked by the many interventions of the State.

The beginning of the operation

A first plan was approved by the State in 1964 and the first buildings were erected. This plan forced towers to respect the same regulation. The towers built under this first plan, "first generation towers", are of identical size: 42m by 24m base, with a 10m height limit, for a 30 000m² office area. As a matter of fact, this plan promoted a modernist approach with a concrete platform. The separation of the traffic flows was the chosen process, and the platform was meant for pedestrians only. A wide pedestrian area is covering the platform, with a central plaza and smaller side plazas. The underground level is perfect for the other urban services (transformers, access) and the elements that could disturb the everyday life of the district (roads, technical galleries...). The platform-based urban planning required very complex engineering processes, with important investment and management costs, but it allowed to face the contradiction between a monumental axis, a communication axis, a very dense activity

and the comfort of the people who worked and lived there.

From 1965 on, Ile-de-France's urban planning design planned to build two motorways: A86 and A14, in addition to the existing roads and railways. More SNCF and RER railways will be added in 1970, in order to link La Défense, Paris and the suburbs, but they shattered the territory.

In the beginning of the 1970's, second generation towers appeared in order to face the needs of companies for large office spaces. The 1964 plan is transformed so as to increase the building's area. 100 000m² towers were erected, named « Second generation towers », like the Fiat tower (today Areva's), peaking at 184m with 44 floors. Nonetheless, the 1973's economic crisis stalled La Défense's development: not even one meter square of office space were sold in almost 4 years.

Searching for the grand composition: To the West?

After the 1970's struggles, La Défense's development was invigorated by the construction of one of the biggest malls in Europe, Les Quatre Temps, and the implementation of a strong cultural policy. Third generation towers were built, with a much more lenient regulation over the new towers than over previously built ones ; indeed, their shapes are more varied. Moreover, the metro's first line has linked La Défense to Paris's city center since the beginning of the 90 's.

The 80's are also the beginning of La Défense's quest to the West. The « Tete Défense » competition in 1982 was the opportunity to answer a fundamental question on the planning of Le Louvre and The Champs-Élysées's historical axis: must we close the perspective, is it already long enough, or should we allow it to go further? The architect Von Spreckelsen chose the second option with his idea of a white Grand Arch, opened in its center, a symbol of openness to the world and fraternity. The building of the arch in 1989 brought a breath of fresh air to the district and the extension of the metro's first line in 1992 brought it closer to Paris's city center. « The idea of extending the historical axis beyond the Grand Arch was a no brainer for the EPAD. The monument wasn't built only to finish La Défense's project ; it was a new perspective on the Seine. The magnificent aspect of the monument didn't match the chaotic



The Arch

Source : DeFacto - Guide historique de la Défense



Nanterre's terraces

Source : L'axe historique La Défense Seine-Arche Hors série découvertes Gallimard / EPADESA

landscape of Nanterre's territory. President Mitterrand's vision, and the vision of his entourage, was to « frame » the landscape and « reinvigorate the great design scheme».

Twenty years later, in 2002, the TGT & Associates team of architects and urban planners, who were on a mission for the EPASA, unveiled their project: a 3,5 km long succession of twenty terraces, going from East to West, from the bottom of the Arch to the Seine's banks, extending the historical axis, although with a slight deviation. These terraces had to adapt to the site's relief and to its peculiarities, hence the deviation. The axis is unsymmetrical, it is rising to the Place de la Croisée and goes down until the Arch's pedestal.

Moreover, the International Competition for Grand Paris in 2007 was an opportunity for Grumbach & Associates to conceive a new axis, yet still going West, in order to develop the Metropolis in a linear way, as opposed to the former concentric approach, along the Seine valley up to Le Havre.



Urban plan, 1964

Source: L'axe historique La Défense Seine-Arche Hors série découvertes Gallimard / EPADESA



The launching of the operation

Source : www.ladefense.fr/

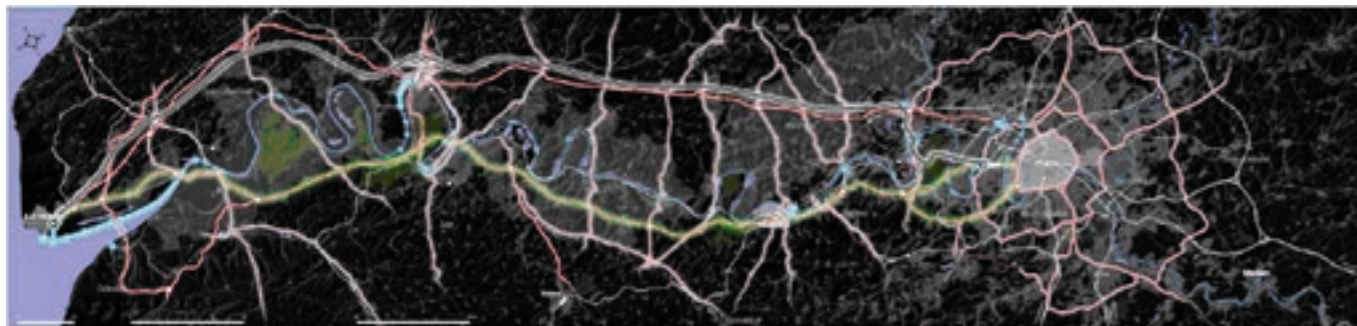
The changes on the enlarged territory

In addition to this regeneration plans for La Défense, the neighbour cities also witnessed major evolutions. Economically, despite the regimented and overpowering aspect of La Défense, its activities have progressively been spread on the territory, e.g Rueil 2000, or in Nanterre's many areas. In these cities around La Défense, companies have found cheaper land to build their offices, for their back offices, tech support, yet connected to their headquarters.

In addition to that, the gentrification of the population slowly increased, due to the fact that La Défense drew more executives and high-salary jobs. As a result, rents have increased, and people with lower incomes have been forced to leave the SIEP territory.

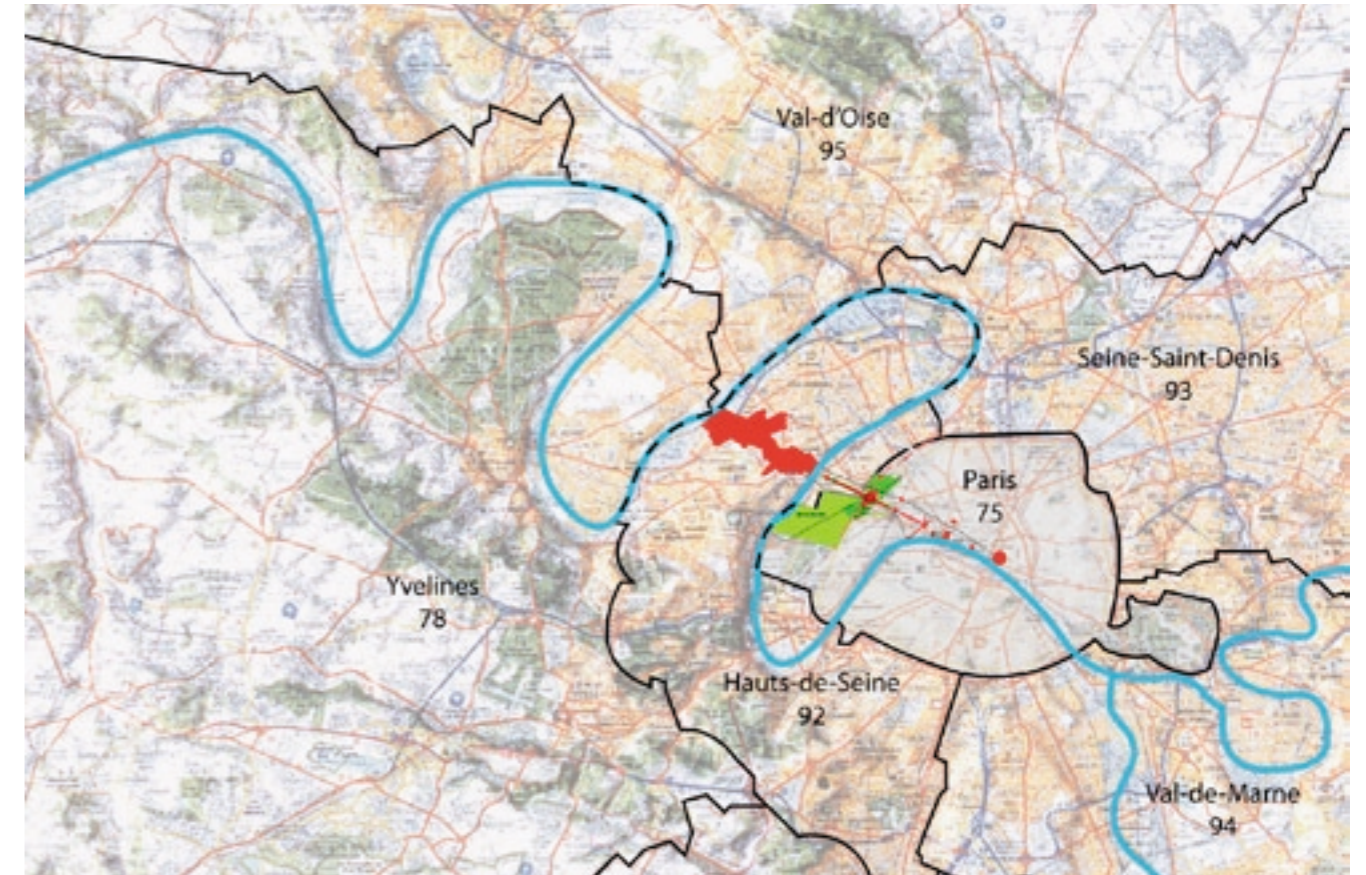


Rueil-Sur-Seine, tertiary district In Rueil-Malmaison
Source : CG92 Flickr

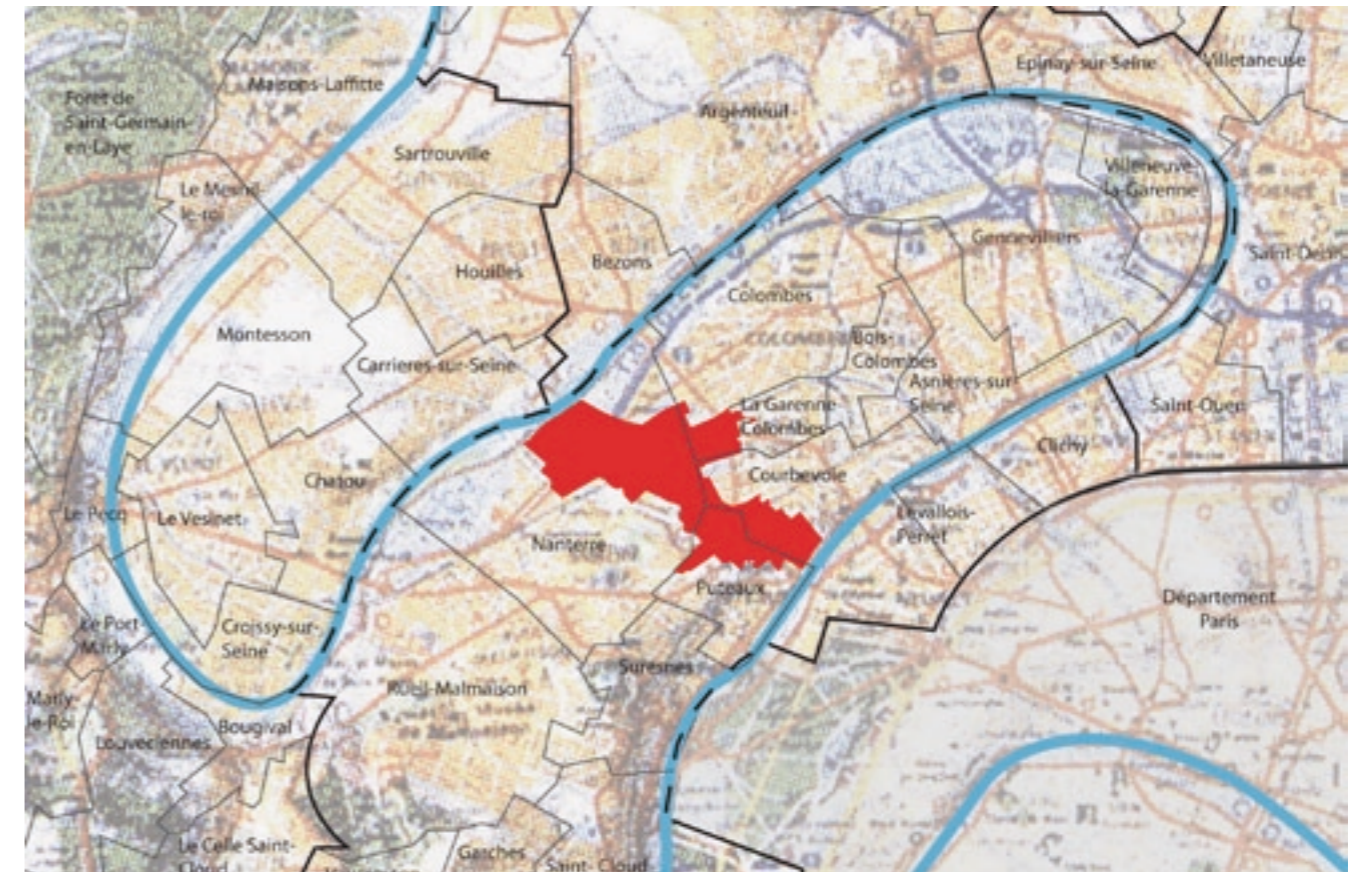


Paris-Le Havre line
Source : Antoine Grumbach

CARTOGRAPHY



La Défense's location and the historical axis in Paris's Western area (rethink)
Source : Les Ateliers



La Défense's location in its home territory
Source : Les Ateliers

UTOPIAS IN PARIS

The 1960's plan the next 40 years to come.

In the 1960's, society evolved and numerous projects were conceived for Paris, covering the next 40 years. We will not write about every projects and utopias that have emerged during the 60's and the 70's, but we will take a closer look on some significant projects, with an urban or metropolitan scale, that were designed specifically for Paris, and we will put them in perspective with the actual achievements.

The 60's were significantly shaped by the many changes that occurred during the period: on the one hand, the Baby-boom led to the increase of the population, and on the other hand, the population got younger, while the modernization of the French economy brought forth an unprecedented growth (« The Glorious Thirties »): a new society appeared, the consumer society.

On the urban scale, many changes occurred, in Paris's old districts, which were unsanitary, but also in modern districts, quickly built and promptly criticized (large housing projects). An idea for a metropolitan scale planning emerged. The massive development of the car dramatically impacted the territory's planning: between 1954 and 1968, the number of cars increased by 150%.

To help Paris adapting to this new context, Several important projects were conceived.

Le Corbusier : a pioneer

Between 1922 and 1945, Le Corbusier created several plans, including the famous Voisin plan. On a 240 hectares area, from Place de la République to the rue du Louvre, a gigantic business district would emerge, with 18 60 floors-skyscrapers, welcoming 20 to 40 000 employees. A housing district is meant to occupy the area between rue des Pyramides and the Champs-Élysées's roundabout, and from the Saint-Lazare station to Rue du Rivoli. The « building-villas » of these districts were no more than 6 floors high, and were organized around large interior green areas. Le Corbusier recommended 5 branches of motorways, with a large East-West way and a North-South way (upon the current Boulevard de Sébastopol). At the crossing of these two main ways, in the center of the city, there would be an airport .



The Voisin Plan by Le Corbusier
Source : <http://www.futuretechtecture.com>

In this plan, an important part of Paris's right bank (the current Marais district) would have been destroyed in order to built the 60 floors-skyscrapers, a 240 hectares « business district » in the heart of Paris. When people would criticize the fact that he wanted to destroy quality buildings in the center of Paris, he would say "there are actually very few nice buildings with wrought iron" and « why don't we share these beautiful buildings between the people who actually love them so? »

The Spatial city in Paris by Yona Friedman

Yona Friedman recommended a mobile architecture, in order to fight against the large housing projects problems of residential mobility. A mobile city means a mobile society, and that's what Friedman wanted. Buildings could be disassembled, moved, transformed following the people's desires.

The city is made of a spatial structure which is 35m high from the ground, supported by pylons. The inhabitants can freely move their house on the grid-like structure, making the city a large floating and moving checker board, with always



Yona Friedman, sketches of the mobile city
Source : <http://utopies.skynetblogs.be>



Paul Maymont's project for Paris and its suburbs.
Source : <http://utopies.skynetblogs.be>

the same number of empty and full cells. Thus, people can decide of their city's shape. According to Friedman, little by little, the districts located under the floating city would have been forsaken by their inhabitants and they would have joined the elevated structure.

Paul Maymond, under city and floating city

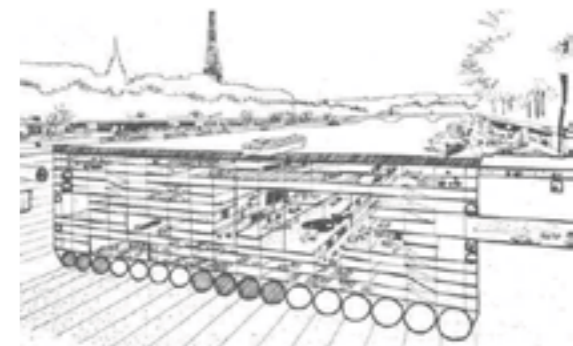
In the 1960's, the architect Paul Maymont proposed a plan for Paris that was based on cone-like cities with 15 to 50 000 people in each cities. A hollow column hosts the technical infrastructures (transport, water, etc...), and from this column, cables are unfolded to create a giant web that can support various buildings. The city is organized in horizontal layers. From bottom to top, there are car parks, traffic, then industry and arts and crafts, then, streets, suspended plazas, vertical and circular metros, stairs, cultural amenities, houses, offices... This conic cities can be floating and linked with one another thanks to suspended motorways.

Paul Maymont recommended a green belt (250m) to protect the historical center of Paris, the first seven „arrondissements“, which would make it the administration and cultural center of the metropolis. An 2000 ha artificial lake was planned in the plain of Montesson.

His project planned to build a motorway under the Seine, but also other technical infrastructures (car parks, water tanks, fallout shelter...) so as to give back the Seine banks to the pedestrians and ease the crossing of Paris's center.



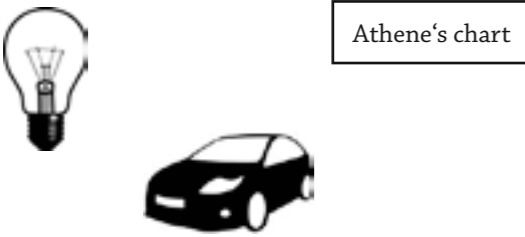
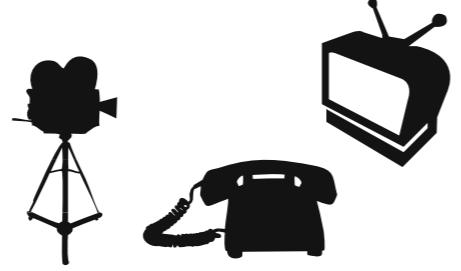






Paul Maymont's project for Paris and its suburbs.
Source : <http://utopies.skynetblogs.be>




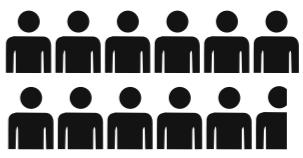






Paul Maymond, city under the Seine.
Source : <http://utopies.skynetblogs.be>

40 YEARS OF URBAN EVOLUTION IN ILE-DE-FRANCE

After seeing how the 60's shaped the next forty years, here are the evolutions of the metropolis during the last 40 years, so as to compare the projects with the achievements. What have we done throughout time and space in the last 40 years in Paris? What major events have changed society and the way of life?

	1890	1930
INNOVATIONS / INVENTIONS		
POPULATION ILE DE FRANCE	 4.2 M people	 6.6 M people
URBAN PLANNING / ARCHITECTURE	<p>Major transformation</p>  Haussmann and the new urban vision	<p>Great vision</p>  Le Corbusier and his great vision for Paris The functional city Source: http://architectural-world.blogspot.com
METRO AND RER NETWORK	 Map of the Metro 1900 Source: http://www.amtuir.org	 Map of the metropolitan network in July 1929 Source: http://www.amtuir.org

	1970	2010	2050 →
			?
	 9.4 M people	 11.7 M people	?
	<p>Large-scale construction</p>  La Défense's business district Source: Les Ateliers	<p>Sustainable urban planning</p>  The Stroll in the 12th district. Source: http://urbangreens.tumblr.com	?
	 Official map of the network in 1973 Source: http://www.amtuir.org	 Today's network official map Source: http://www.cartoville.com/	?

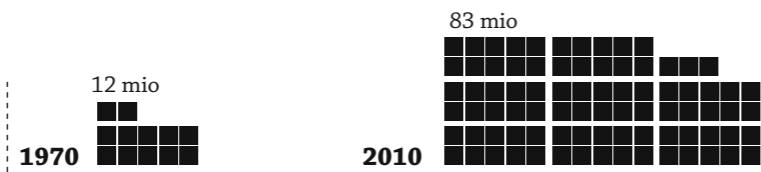
40 YEARS OF EVOLUTION IN FRANCE



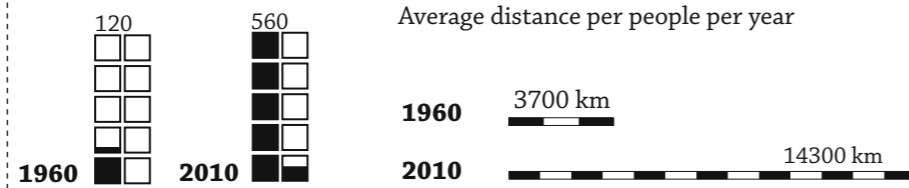
Number of passengers per year in Paris

incl. Paris-Charles de Gaulle, Paris-Orly and Paris-Le Bourget

Source: <http://www.aeroportsdeparis.fr>

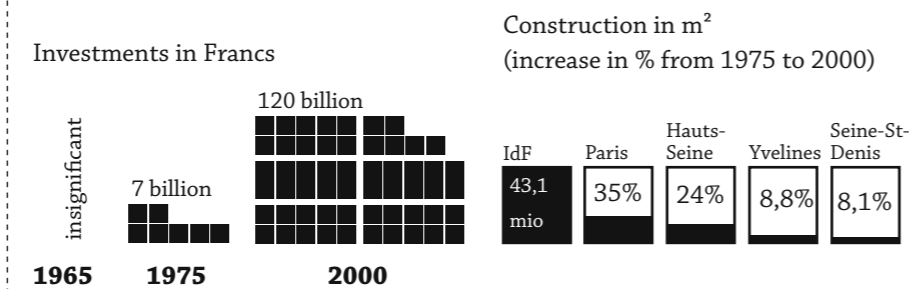


Numbers of vehicles in France for 1000 people.

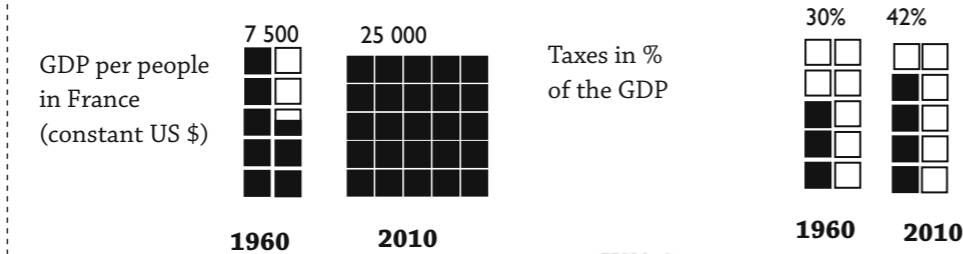


Office space area in Ile-de-France

Source: <http://geocarrefour.revues.org>

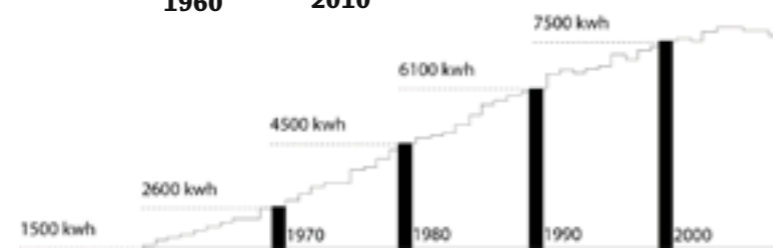


GDP and taxes in France



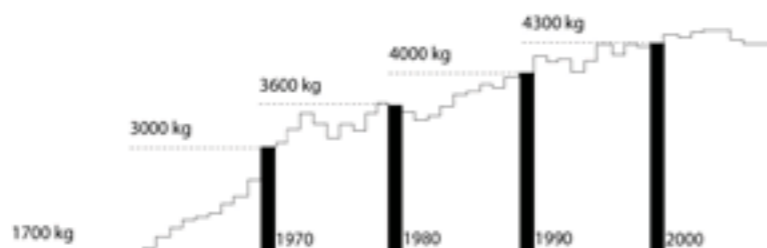
Electricity consumption in France kw/h per person

Source: World Bank



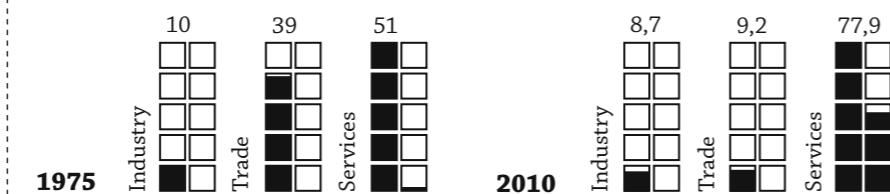
Consumption Oil in France kg/person

Source: World Bank



The part of economic sectors

Source: <http://wikipedia.fr>



40 YEARS OF EVOLUTION IN LA DÉFENSE

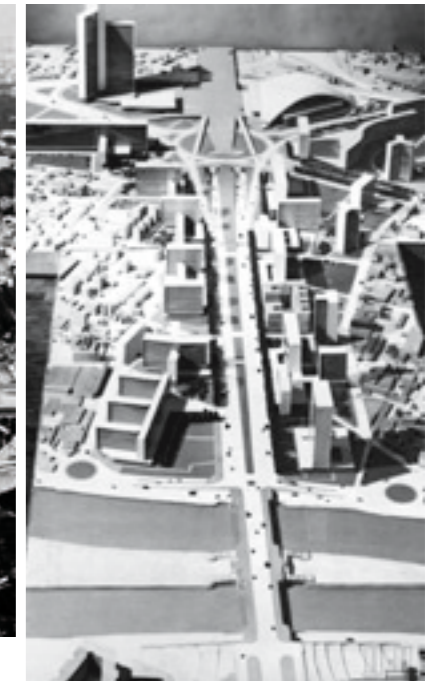
La Défense is a territory that has enormously evolved in 40 years, but not on its own. Considerable efforts and finances have been invested to build this business district. In 1958, the State created the EPAD with a 30 years long mission to plan the district, that was still occupied by time-worn houses, shanty towns, small shops... The CNIT was built in order to host the Universal Exhibition that finally took place in Bruxelles. The program foresaw a 850 000m2 offices area. 50 years later, the CNIT is under work for the second time, whereas La Défense, which has become one of the most important European business district, with 3 million m2 of offices on a 160ha area, is following a regeneration plan until 2015.



1970



La Défense in 1970: a large construction site
Source: <http://www.isheep.fr>



Tête Défense 1955
Source: divers

2010



La Défense today: a large-scale business district
Source: <http://www.ladefense-seine-arche.fr>



40 YEARS OF EVOLUTIONS IN THE CENTER OF PARIS - PLACE DE LA RÉPUBLIQUE

Compared to La Défense, the regeneration of Paris is taking place at an extremely slow pace. The urban shape and the buildings of locations such as Place de la République haven't changed a bit for the last 40 years.

Place de la République is one of the major plazas of Paris: iconic, and very busy, it is located at the crossroad of 7 major traffic axes. Throughout the years the plaza has lost its urban function: time-worn and quite unfriendly, it lacks equipments and 60% of its area is devoted to the car traffic. There is an on-going new planning project which aims to give the area back to the pedestrians.



1973



View on the Place de la République, 1973
Source: <http://gerardfoley.tripod.com>



Entrance of the République metro station, 1973
Source: <http://gerardfoley.tripod.com>

2013



Planning project of the Place de la République by TVK agency
Source: <http://www.paris.fr>

40 YEARS OF SUBURBAN EVOLUTIONS IN ILE-DE-FRANCE - CHATOU (EUROPE DISTRICT)

In the outskirts of the metropolis, the evolutions have occurred at an ever-changing rhythm. To the large housing projects construction period has succeeded the urban sprawl with individual houses. Chatou's plateau always had a farming history with an important market-gardening activity. Until the late 1960's, this district was only poorly urbanized and few roads served it. In 1969, a ZAC is created to control the urbanization of the area, the construction of collective equipments, and to promote more varied housing solutions. Thus, in over 30 years, a completely different district has emerged, a constantly evolving district whose planning will be final in the future.



1972



Chatou's plateau in 1972: poorly urbanized.
Source: <http://bordabord.org/>



Chatou's assets in 1958
Source: <http://chatounotreville.hautetfort.com>

2010



Aerial shot of Chatou's plateau today: The Europe district
Source <http://etablisements.ac-amiens.fr>





THE TERRITORY'S LANDSCAPES

The importance of the geography.

On a geographic level, the Seine is very present in the landscape, with 15 km of banks. Yet, the territory is mainly showing its back to the river..

In the South, there is a plateau peaking with the Mount Valérien, clearly shown on the topographic map below. There is a maximum 136m difference of altitude (between Mount Valérien and the Seine). The territory is located between two big forests: Boulogne in the East and the Forest of Saint-Germain in the West.

Moreover, nature is today intricate with the urban environment, as shown on the green areas map below. The question of nature in the city and biodiversity is therefore asked, whether it is a species biodiversity or the biodiversity of the ecological area.

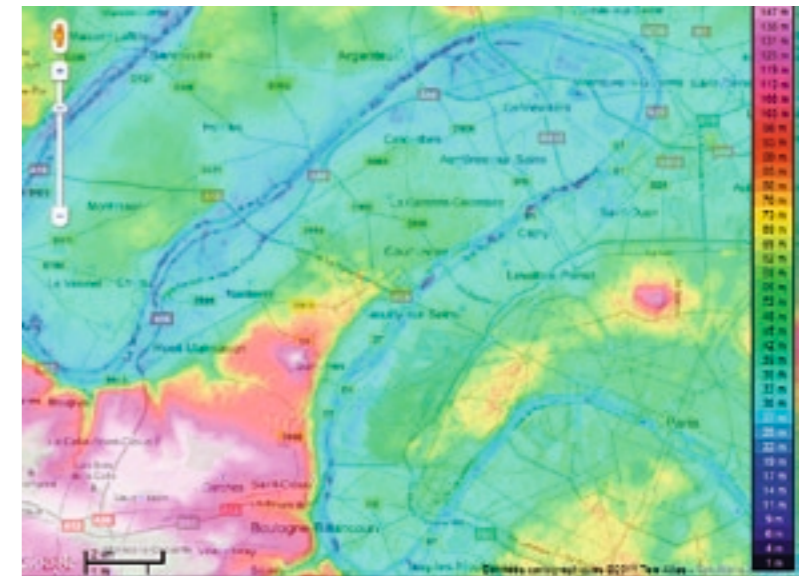
The Seine's meanders: an essential element of the Parisian's Western area.

Île-de-France is shaped by the water, which has sculpted the territory's topography, organized with large plateaus, rivers and thalwegs.

A very varied urban landscape

The urban landscape of the territory is widely varied, with many urban shapes, as a result of the chaotic history of this territory: there is the Mount Valerien and its fort, surrounded by a housing area, La Garenne-Colombes's city center with its star-shaped roads network, La Défense's platform, a few 60's and 70's social housing districts, tertiary business districts, or large industrial areas.

74% of the territory is made of built areas against 26% of open spaces.



Topographic map of the territory
Source <http://www.cartes-topographiques.fr/>



Plateaus and the Seine in Ile-de-France
Source étude IAURIF 2006, le fleuve

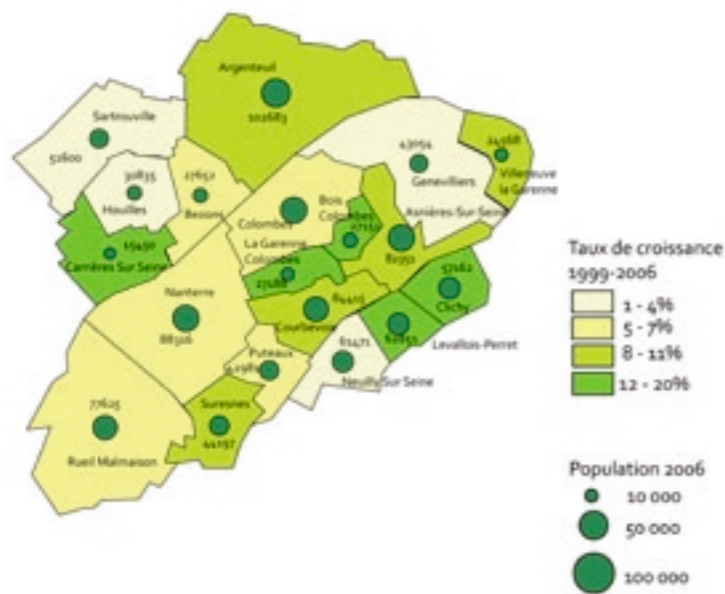


Generally, there is a difference between the North-eastern part of the territory where the urban shape is closer to Paris's density, and the South-western part where there are more individual houses, and therefore, a lower density and a clearer distinction between city centers and business areas. (see next page- Cartography)

The territory has many culture and recreational equipments (3 theaters, sports equipments, a new stadium...)



The population in the six SIEP cities. Source: IAU



The population in La Défense's area and its dynamic. Source: IAU

A dynamic and contrasting human landscape

Regarding the population, the six towns of the SIEP are an ensemble of 364 722 people (3% of Ile-de-France's population), which is similar to Nice and constitutes a pole on the regional scale.

The territory's population has increased over the 1999-2006 period, particularly those of Courbevoie and La Garenne-Colombes.

This rise in the population creates a pressure over the real estate market, the rents and the selling prices remain very high. The part of Middle management inside the population is increasing and the lower income households find it difficult to stay in the territory. Despite this general trend of increasing real estate prices and of gentrification, some micro-areas do not follow this trend.

Moreover, the part of social housing is almost 30% on the whole territory, with important discrepancies (54% in Nanterre against 9% in La Garennes-Colombes).

On Ile-de-France's scale, the SIEP's territory is at the border of a wealthy South West and a poor North West, as shown on the general map for income taxes in Ile-de-France.

There are 3 types of cities (according to IAU) classified regarding the social profile of their population:

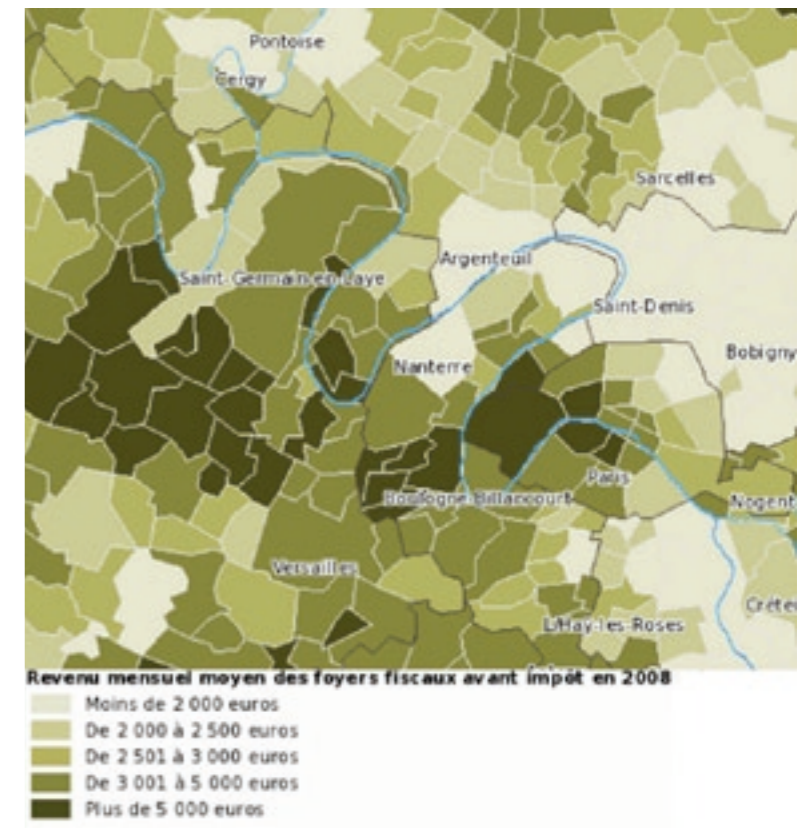
- the first type is called « mixed popular », and is made of Nanterre, which has an important part of industry workers and employees amongst its population (about half of the population), and a significant part of middle management (one fourth of the population)
- the second type is called « wealthy mixed », and is made of Puteaux, la Garennes-Colombes and Suresnes, with an important part of middle management, executives, and a part of industrial workers and employees between one fourth and one third of the population.
- Finally, the third type is called « wealthy », and is made of Reuil-Malmaison and Courbevoie, with half of their population made of executives and middle management, and a lower part of workers and employees (10% of the population).

Paris-La Défense inside a global landscape?

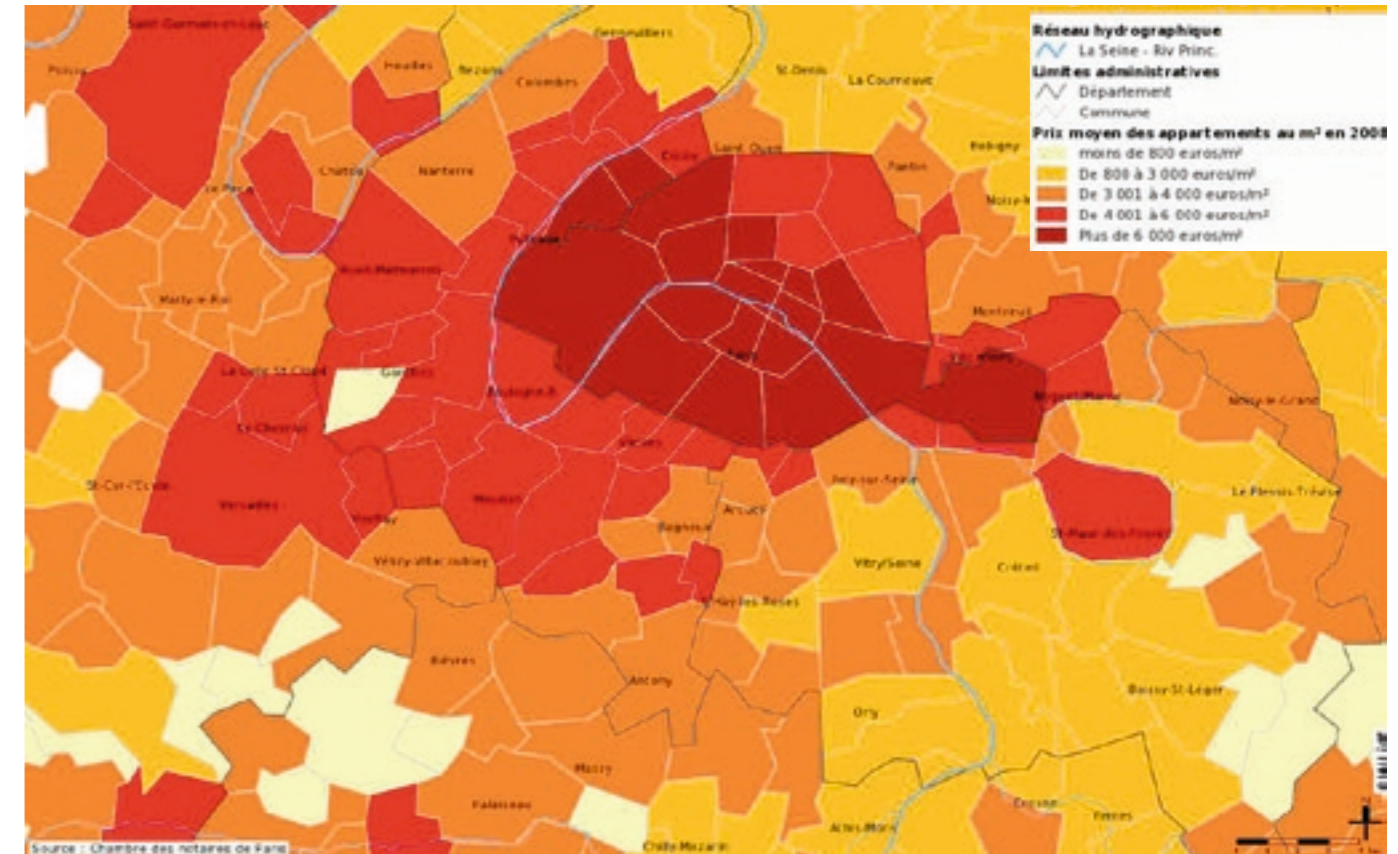
Paris is a global city, according to Saskia Sassen (1991). Saskia Sassen explained that globalization led to two economic and territorial phenomenon: the spreading of industries in the world and its volatility (its ability to move fast), and the concentration inside a few global cities of central and political functions of management and decision.

Global cities are defined by their wealth, their efficient infrastructure, the concentration of the governance functions. Moreover, these global cities are « denationalized » areas with super-efficient infrastructure, great quality of life and are major wealth production centers. For instance, Paris-Ile-de-France's GDP (552 664 billion Euros) represents a third of the national GDP, and is superior to Belgium, Ireland or even Argentina's GDPs.

Thus, La Défense's district can be considered as an « infrastructure » just like a successful airport, and is an essential piece of the global cities attraction's power.



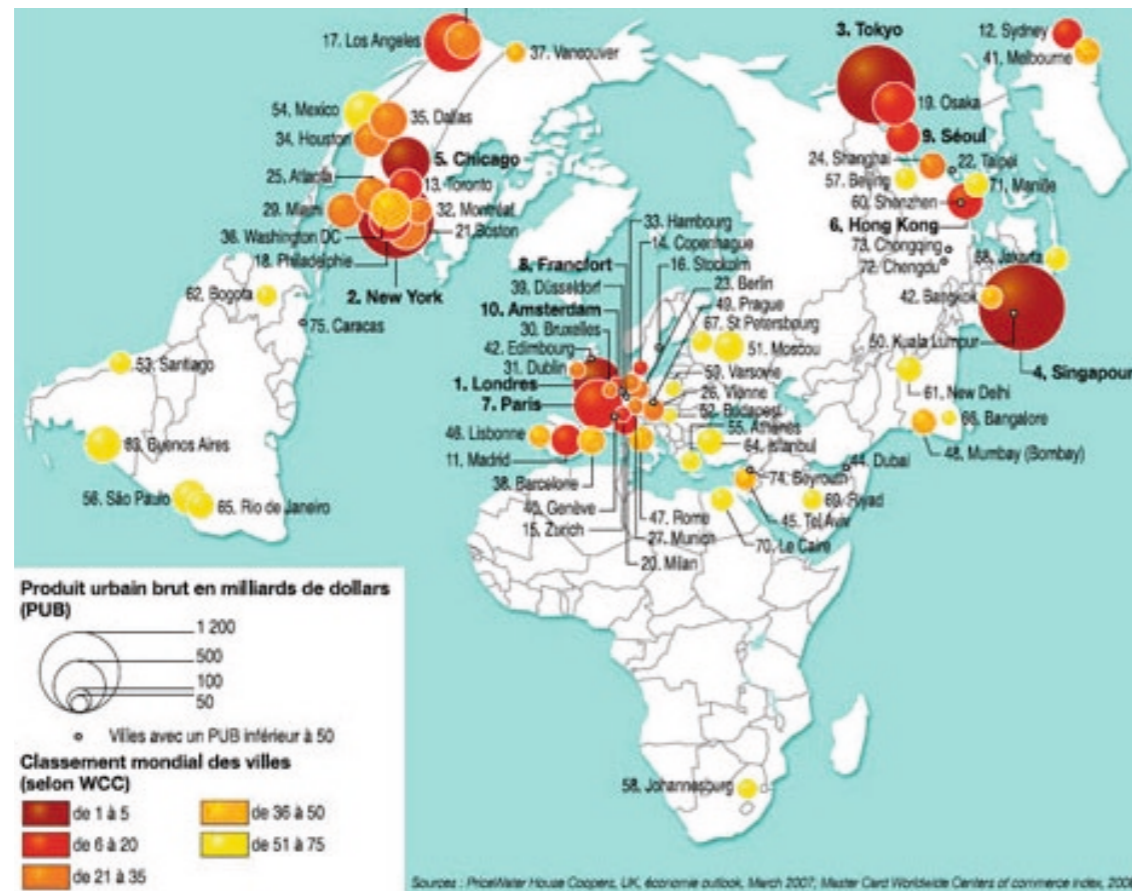
Income Tax in Ile-de-France Source: IAU



Real Estate market in 2008 Source: Chambre des notaires de Paris

La Défense must face a challenge (according to DREIF's report): the district must be 100% generic, in order to answer the standard needs of the market, and 100% specific, to remain attractive.

On the international scale, major metropolitan projects emerge, with an integration of La Défense's rival business districts inside a vast territorial area (Zuidas, Barcelone 22@, Stanford...) with a very aggressive economic and governance project: they all recommend functional, structural and social diversity. Thus, the most attractive major international business districts are those who have managed a regeneration under the form of a combined urban planning, and which are efficiently using the urban, economic and social functions of the different figures of the constituted city. (Source DREIF)



Urban GDP and cities ranks
Source: PWC

A quick overview over SIEP cities in Deux-Seine.

Nanterre
Population : 88 875
Density : 7 290 hab/km²
Area : 12,2km²
Employment (number of jobs) : 80 200
Housing (number of houses) : 35 721
Average Income per household : 21 633 euros
Unemployment rate : 13,4%

La Garenne-Colombes
Population: 27 000
Density: 15 169 pers/km²
Area: 1,8 km²
Employment (number of jobs): 11 598
Housing (number of houses): 14 198
Average Income per household: 35 939 Euros
Unemployment rate: 7,4

Courbevoie
Population : 84 974
Density : 20 378 hab/km²
Area : 4,2km²
Employment (number of jobs) : 97 848
Housing (number of houses) : 45 662
Average Income per household : 34 664 euros
Unemployment rate: 8,7%

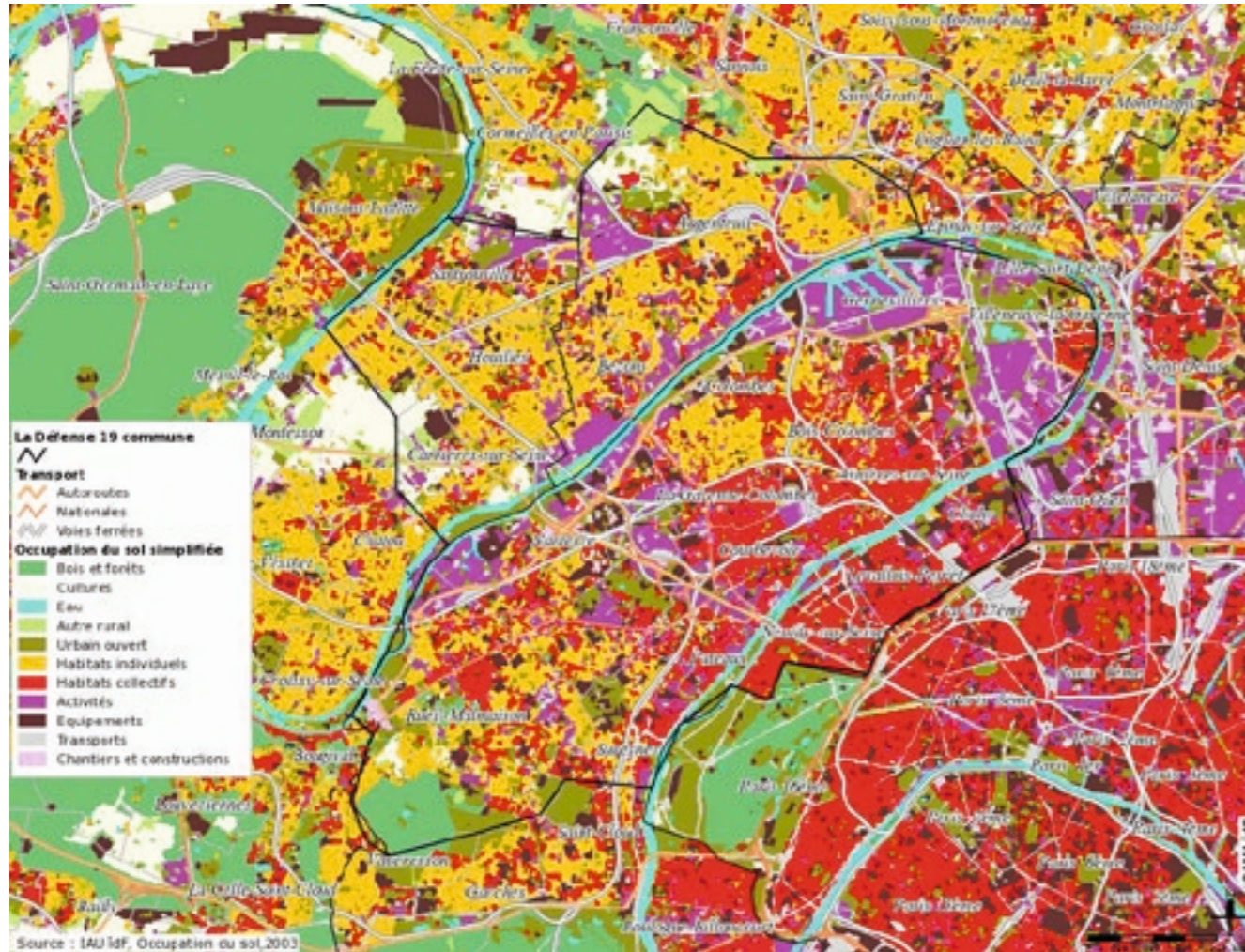
Rueil-Malmaison
Population : 78 145
Density : 5 316 hab/km²
Area : 14,7 km²
Employment (number of jobs) : 49 456
Housing (number of houses) : 35 230
Average Income per household: 42 960 euros
Unemployment rate: 7,3%

Suresnes
Population : 44 738
Density : 11 804 hab/km²
Area : 3,8 km²
Employment (number of jobs) : 27 644
Housing (number of houses) : 21 356
Average Income per household : 37 209 euros
Unemployment rate : 9,3%

Puteaux
Population : 43 994
Density : 13 791 hab/km²
Area : 3,2km²
Employment (number of jobs) : 76 260
Housing (number of houses) : 23 200
Average Income per household : 30 158 euros
Unemployment rate: 9,9%

CARTOGRAPHY

Soil's occupation



CARTOGRAPHY



Ile-de-France's relief
Source: Pavillon de l'Arsenal: Territoires partagés, l'archipel métropolitain 2002, p.53

LOCATIONS THAT STRUCTURE THE TERRITORY

On these territory, one can observe many structuring locations on different scales (historical, identity, economic, geographic...). They are introduced to you in an impressionist approach.



Mount Valérien
Source: CG 92

centuries for Parisian aristocrats at first, but more recently, an American cemetery has been created.

This territory has many functions: recreational green areas (pony-riding club, skate parks...), farming activities (educational farm, Suresnes's vineyards), water tanks, military camp (8th Regiment for transmissions, with 15 dovecotes containing 180 pigeons)

The port of Gennevilliers

A major logistical pole in Ile-de-France.

La Défense, with its location between two banks of the Seine, at the entrance of Paris, has a strategic location for freight transport and logistic.

The importance of this aspect increased with the freight traffic augmentation of Le Havre's port. In the long-term, a major port is meant to be built in Achères, at the confluence of the Seine and the Oise rivers. The Oise will be extended thanks to the Seine-Nord Europe Canal.

The 6 SIEP towns territory has many inactive freight railway sites. Hauts-de-Seine have 725 000m² of warehouses (4% of Ile-de-France's total) ; 55% of these warehouses are located in Gennevilliers. This territory doesn't have a major multi-modal equipment for freight transport and the industrial sites that used the river are now closed. Moreover, the on-going mutations led to a gradual disappearance of the few warehouses which were linked to rail and water ways. As a result, roads are now the only way to transport freight inside this very populated territory, using exterior warehouses.

The port of Gennevilliers (Hauts-de-Seine) is Ile-de-France's biggest and busiest port platform. It

is the second European river port, after Duisburg in Germany. It combines all the transport modes: river, river-sea, rail, pipeline, roads...). More than 270 companies with varied activities have settled there. The port is now doubling its activity area: it handles more than 290 000 twenty foot equivalent units (100 000 for the river), and its capacity will soon reach 450 000 twenty ft equivalent units.

Figures for the Port of Gennevilliers

- 401 hectares (272 ha for the implementation of companies, 51 ha of water areas, 78 ha for equipped public areas),
- 510 000 m² of buildings (warehouses, factories, offices and misc.),
- more than 20 million tons of traffic (all modes)
- more than 8 000 direct jobs (Activities, Construction, Steel Industry, Food Industry, Environment and recyclable products, Energy Products, Auto industry, Logistics, and Containers.)

Nanterre's University – A scholar and research center

France's second largest university welcomes 2000 professors-researchers, 700 administration and technical employees, and over 30 000 students.

The university was created in 1964 in order to release La Sorbonne. There is a Humanities school and a Social sciences school. Nanterre has a history of political awareness, unions are very present and all through its history, it has been a hot spot for student protests, from the events of May 68 to the more recent demonstrations in 2005.

Each year, 268 diplomas are prepared, and about 8 000 students graduate. The university has 9 Education and research units (schools), one IUT (University Institute for Technology) and one institute.

The university has a 30ha campus, organized around a central « green square »: the majority of the teaching and research facilities, the University Library and the International and Contemporary Documentation Library, The House for Archaeology and Ethnology, the Students House, the Cafeteria, a CROUS-Versailles Student Accommodation with 1400 rooms, an Olympic swimming-



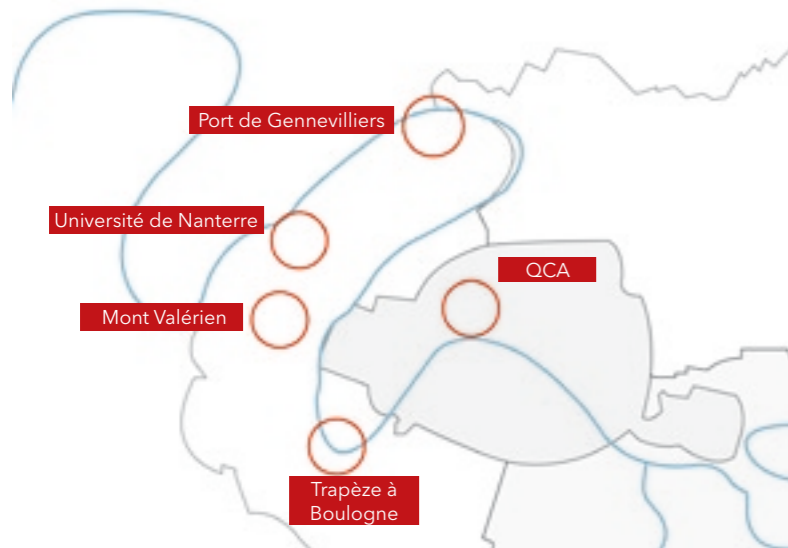
The East-West river network and the future Seine-Nord Canal
Source: <http://www.rsenews.com/>



The port of Genevilliers
Source: CG92



Green areas on the campus of Nanterre's University
Source: <http://www.u-paris10.fr>



The Mount Valérien: a geographical landmark for the territory

Mount Valérien is the highest location of the territory (162m), but it also is one of the highest location of all Ile-de-France. This is why it was chosen as the location for the Mount Valérien fort in 1841.

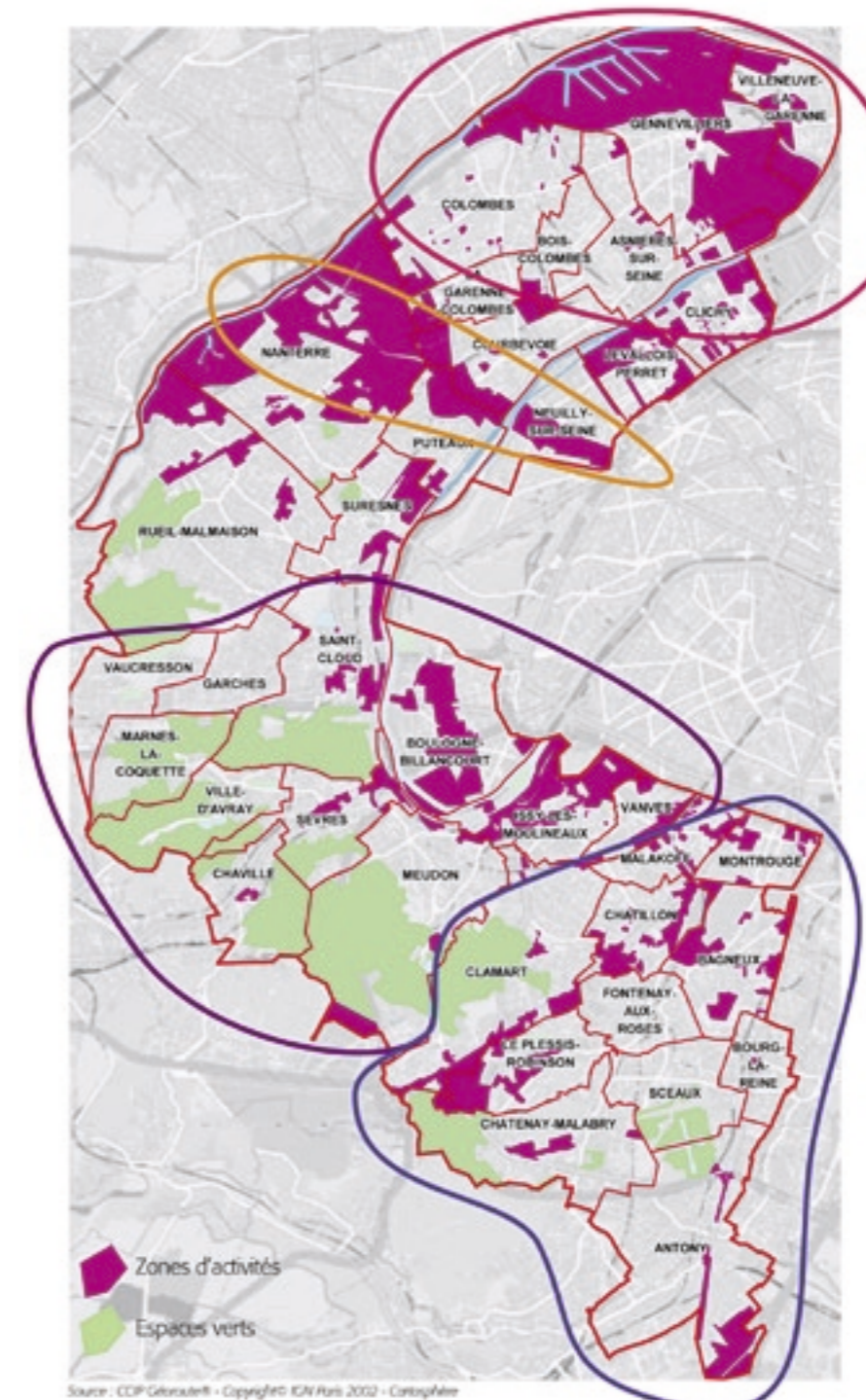
Since the Middle-Ages, the Mount Valérien has an almost religious aura. Sainte-Genevieve (patroness of Ile-de-France) is said to have taken her sheeps to pasture there. Then, some hermits and priests congregation have lived there. Many Parisians would go there during the Holy Week for a pilgrimage.

Over a thousand hostages and members of the Résistance movement have been shot to death here during WWII. A memorial has been erected and inaugurated by General de Gaulle in 1960 to honour the memory of these men and women.

This place has also been a burial location for many

CARTOGRAPHY

Quatre territoires de projets



- Boucle des Hauts-de-Seine**
 - > Favoriser l'émergence d'un véritable projet de développement économique partagé sur ce territoire autour des activités traditionnelles (logistiques et industrielles) et nouvelles (tertiaires et commerciales).
 - > Fédérer les énergies des chefs d'entreprise autour d'un réseau PLATO, réseau d'information, d'échanges et de partage d'expériences.
- Quartier d'affaires de Paris-La Défense**
 - > Rééquilibrer la programmation logements /activités et renforcer l'accessibilité du quartier d'affaires.
 - > Mettre en place une structure légère pour confirmer la notoriété et promouvoir le quartier à l'international.
- Val-de-Seine élargi**
 - > Permettre aux PME impactées par les pôles de compétitivité CAP DIGITAL et SYSTEM@TIC d'y prendre toute leur part.
 - > Maintenir et développer les fonctions de proximité (commerces et services) sur le plateau résidentiel.
- Vallée Scientifique de la Bièvre**
 - > Contribuer à l'essor et au développement des filières scientifiques et des systèmes locaux d'innovation, notamment autour du pôle de compétitivité MEDITECH SANTE.
 - > Accompagner l'arrivée du Tramway Châtillon-Valzy auprès des entreprises et des commerces concernés

Quatre territoires de projet
Source: CCIP92

- Excellence poles in Hauts-de-Seine
1,4 million people ; 863 465 households; Avrage annual income: 24 997 E
- La Défense, 1st European district business.
 - Port Autonome de Paris - Gennevilliers, 1st multimodal platform in Ile-de-France and 2nd European river port.
 - 280 public and private research centers with 14 000 researchers, 5 universities, 24 higher-education schools with 130 000 students.
 - 3 international competitiveness poles: system@tic (software engineering and complex systems), Méditech Santé (health, biotechnology, drugs), Cap Digital (image, multimedia et and digital life)

The Boulogne-Billancourt's new trapezoid district.

In Boulogne Billancourt, Hauts-de-Seine, a new trapezoid district is emerging. This mixed operation will include housing (5 500), offices (247 000m²), businesses and sports equipments (75 000m²). 12 000 people should settle in. The first people arrived in 2009.

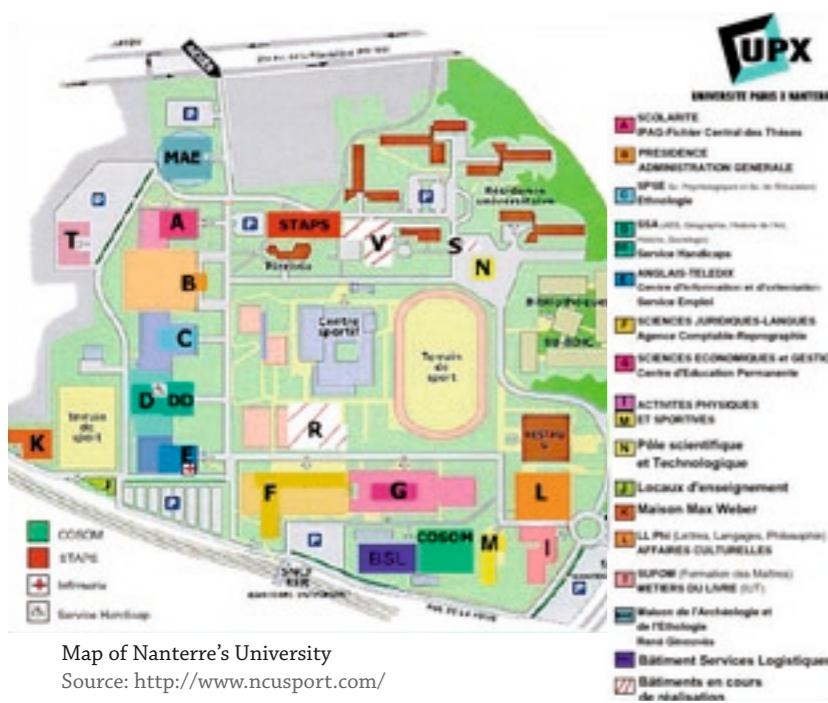
The urban project is articulated around a « green » frame, with a 7ha park and buildings created by renowned architects (Jean Nouvel, Norman Foster...). The buildings are brand new, and there are some towers of moderate height. The urban shape is quite different from Paris and La Défense.



Example of Haussmann building in the QCA
Source: <http://www.constructa.fr>



View from the Trapèze district
Source: <http://www.projets-architecte-urbanisme.fr>



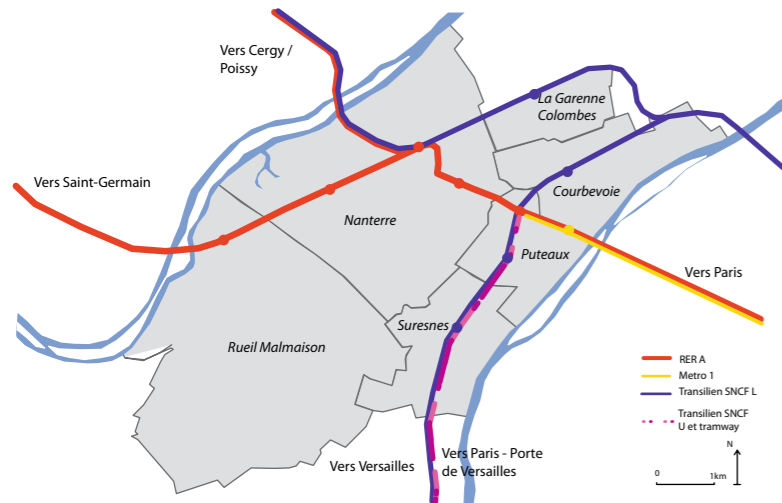
Map of Nanterre's University
Source: <http://www.ncusport.com/>

pool, a Sports complex with a sports hall, specialized rooms and many exterior fields, a 1000 seats movie theater, a theater and an exhibition space.

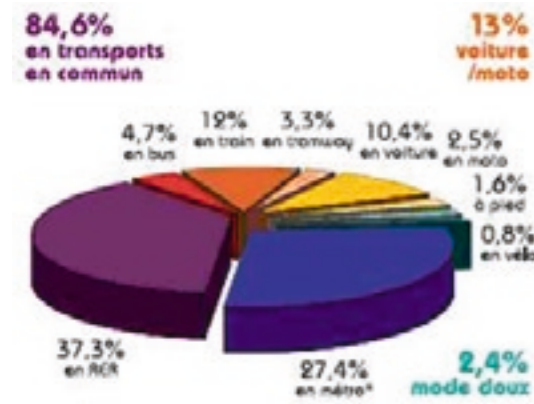
Paris's « QCA »: a district business inside the city's walls.

The QCA is Paris's Central Business District. The QCA is the center part of the area formed by the 1st, 2nd, 8th, 9th, 16th and 17th districts of Paris. Its West end is Porte Maillot, Avenue de Malakoff and Trocadéro ; In the north, its end is the Porte Champerret, avenue de Villiers and Gare Saint-Lazare; in the East, the district is closed by Rue Montmartre and rue du Louvre, and in the South by rue de Rivoli.

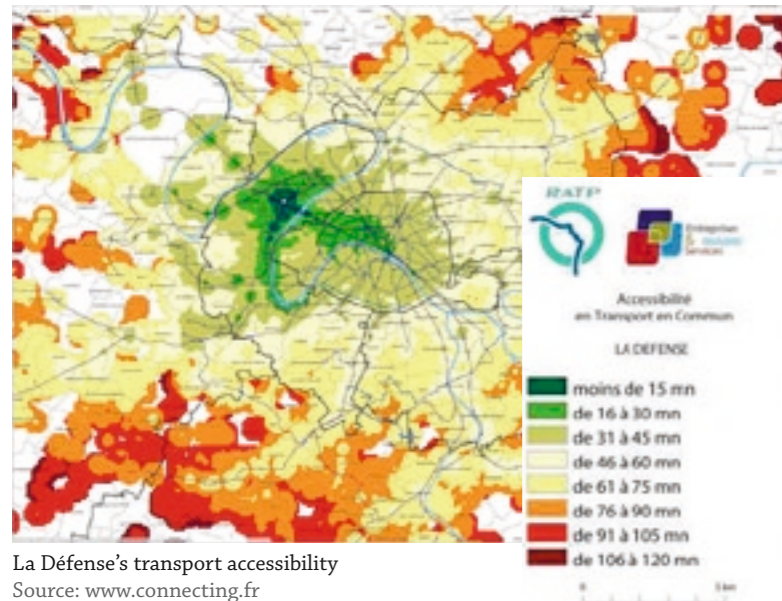
This district is the prestigious center of Paris's economic life, with 30% of the Parisian jobs located on 8% of the city's territory. The district is amongst the ten most expensive business districts in the world. The QCA welcomes finance, consultancy and legal activities. Its the first financial jobs area in the metropolis. Unlike La Défense, the QCA's offices are located inside Haussmann buildings, not inside towers.



Current transport ways around La Défense.
Source: Les Ateliers



Transport modes to La Défense.
(Business district)
Source: Etude mobilité



La Défense's transport accessibility
Source: www.connecting.fr

TRANSPORT

Public transport

The public transport services:

- The metro : Line 1, which crosses Paris from East to West, with two stations calling at La Défense. These two stations welcome about 100 000 daily passengers.
- The RER : The A line, which serves the region from East to West and directly links La Défense to Paris's Etoile district in less than 10 minutes. It also serves Nanterre and Rueil-Malmaison.
- SNCF 's«Transilien»: many regional rail lines from Paris Saint-Lazare to Paris's Western outskirts, calling at La Défense.
- The tramway : The T2 line links La Défense with Issy-les-Moulineaux and with the south of the Hauts-de-Seine.
- The bus : 15 RATP lines serve the territory and a coach station links La Défense's district with other European cities.

This good service is somewhat unequal. On the one hand, the actual service is mainly oriented towards Paris (55% of the service), with only 27% towards the North-West, 18% towards the South-West, and on the other hand, the service to the territory's center and South is poorer.

Moreover, this good service is mainly devoted to the business district. 400 000 people come to La Défense on a daily basis and 87% of them use public transport. Yet, soft transportation represent a very low part for the district's travellers (2,3% of the passengers) and the district's employees who live nearby use their car.

Road transport

Sur le plan des transports routiers, le territoire s'intègre dans un réseau francilien et dispose d'infrastructures de transport lourdes. Deux axes



Passengers flow during peak hours.
(RER A - La Défense Grande Arche)
Source: Flickr

Scene from « Buffet Froid » directed by B.Blier, 1979,
La Défense-Grande Arche RER A off-peak hours
Source: still shot from the movie.

Observation : the particular atmosphere of the public transport under La Défense's platform.

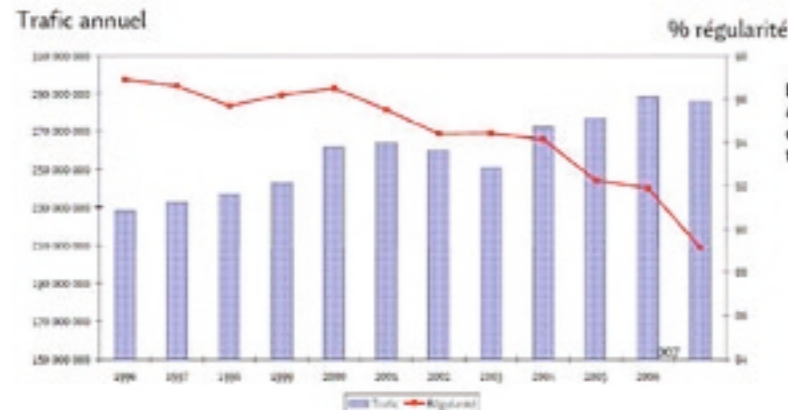
There is an important road transport network on the territory. Two main axes (A15 and A86) link the territory. The A 86 is a ring-like road, and the A 15 links Paris to the Normandy. Moreover, from Paris's inner boulevard, the territory is served by a « trident » formed by the D992/D913 (and 991)/D914. There is also an interior transversal axis, the D131 which serves the territory following the Seine's axis and is an addition to the service towards Paris.



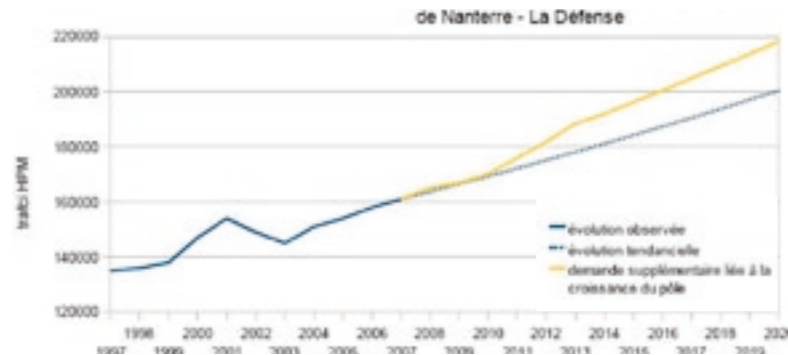
The Main roads.
Source: Les Ateliers



The territory's transport infrastructures, the scales superimposition.
Source: Flickr CG92 et DREIF



Evolution of the annual traffic and regularity of the RER A
Source: rapport Lelarge



RER A's traffic during peak hours
Source: rapport Lelarge



RER A
Source: Flickr

SATURATION

The territory's road services are congested and saturated because of an important transit traffic, in addition to an important freight traffic (including dangerous material coming from the the two oil storage facilities in Nanterre). The main axes are often saturated during peak hours. This leads to a traffic deviation towards local roads which has a negative impact on the local quality of life.

The public transport's network saturation is particularly obvious on the RER's A line and the needs for public transport are constantly increasing. RER A is the backbone of Ile-de-France's public transport network. This is one of Europe's most saturated lines, with 1,07 million passengers each day. Yet, the RER A's situation has significantly improved: ten years ago, only 2,5 trains were running every hour during peak hours, today, there are 24 trains. Unfortunately, this offer's improvement is also accompanied by poorer transport conditions.

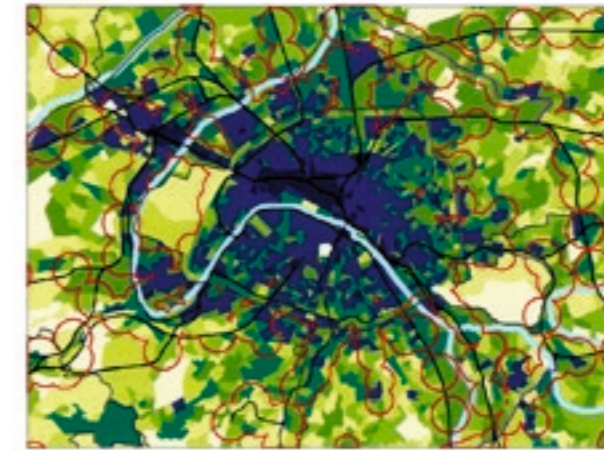
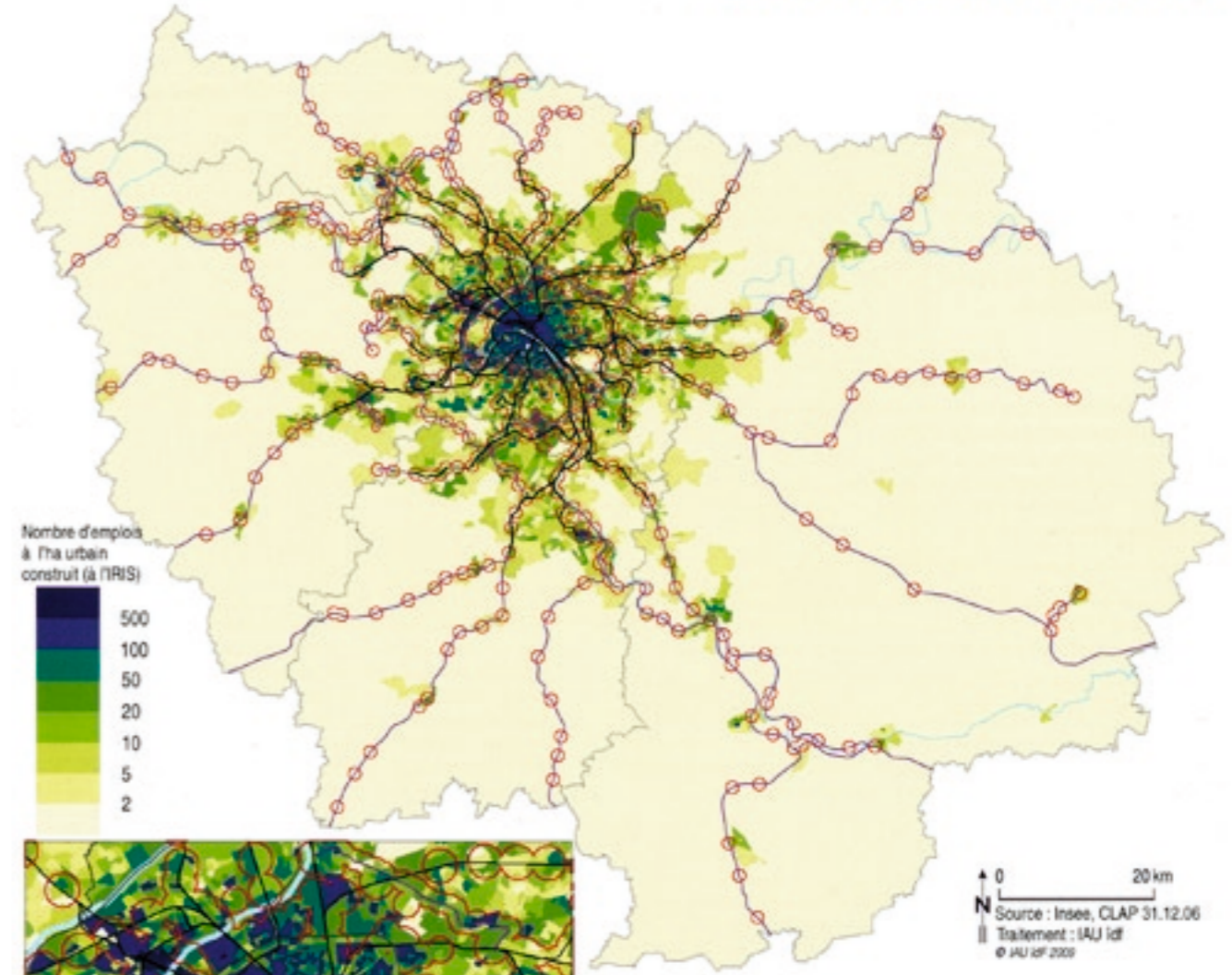
Reasons for this deterioration are:

- A regular increase of the traffic
- The augmentation of connections on the Parisian section (especially on the metro's Line 14) leads to an augmentation of the train's calling time at the stations.
- 3 different materials are running on the line.

In the future, if the transport's network doesn't evolve, the situation might become worse. Five years from now, 50 000 additional jobs are to be created in La Défense, which would automatically lead to a 40 000 passengers increase by 2015. RER A to La Défense would see its traffic increase by 20%.

CARTOGRAPHY

Emploi et transports en commun



Le réseau de transports en commun francilien se compose de la superposition des réseaux isolés du réseau routier : tramways et bus en site propre (Tramways T1, T2, T3, T4, Bus « Trans-Val-de-Marne », Bus « Massy-Saint-Quentin-en-Yvelines »), métros, RER (lignes A, B, C, D et E), trains franciliens, trains grandes lignes. Le réseau de bus n'est pas pris en compte. Seule la notion de desserte des emplois salariés par les transports en commun est considérée et non l'utilisation réelle de ceux-ci par les salariés.

Le réseau de TC est supposé desservir un emploi dans la mesure où la distance entre l'établissement employeur et un point d'entrée dans le réseau est inférieure à :

- 500 mètres autour des stations de tramway et bus en site propre ;
- 600 mètres autour des stations de métro ;
- 800 mètres autour des gares voyageurs des RER, réseau francilien et grandes lignes.

La desserte est donc représentée par un cercle autour de la station ou gare, les cercles étant agrégés pour former la « zone de desserte ». Les salariés des établissements se trouvant dans cette zone sont tous considérés comme étant desservis, les autres non. Dans les faits, certains salariés de ces établissements ne vont pas utiliser les transports en commun alors que des salariés d'établissements situés hors zone de desserte vont eux utiliser les TC. Cette notion simplifiée de desserte des emplois par les transports en commun néglige donc les phénomènes de fréquence et de saturation, variables d'une ligne à l'autre, des possibilités d'interconnexion dans les gares et stations principales ou encore des temps d'approche au réseau.

La densité d'emploi est le nombre d'emplois à l'hectare urbain construit. Elle est calculée à l'IRIS.

Les IRIS (Ilots Regroupés pour l'Information Statistique) forment un "petit quartier", qui se définit comme un ensemble d'ilots contigus. L'IRIS correspond à la commune pour les petites communes non découpées (la plupart des communes de grande couronne). cf. www.insee.fr pour une définition complète.

Emploi et transports en commun
Source: Géographie de l'emploi 2006 en Ile-de-France », Edition 2009; Insee, IAU idF, Apur, Dreif

ECONOMY

6 cities with different and completing elements

La Défense has a tremendous impact over the territory, particularly over Puteaux and Courbevoie. Nonetheless, one can observe that the industrial heritage has lasted (e.g Peugeot in La Garenne-Colombes) but also that La Défense's activities have spreaded on the whole territory.

Nanterre is the city that has known the strongest economic growth in 20 years, especially regarding jobs which have been multiplied by two. The office's area is the 4th most important one in Hauts-de-Seine, after Courbevoie, Puteaux and Boulogne. Nanterre's economy is mainly service-oriented, just like the rest of the territory.

But Nanterre remains the territory's city with the highest unemployment rate (13,4% in 2009, whereas other cities rate is below 10%). Moreover, there are a lot more industrial workers and employees amongst Nanterre's population, far more than in other cities, with an inferior part of middle management and intermediary professions.

There territory is attractive because 90% of Nanterre's jobs are held by inhabitants of other cities (Parisians mostly, then Rueil-Malmaison)

Courbevoie is the city with the highest rate of firm creations in 2009. Courbevoie welcomes more than 90% of small offices (0 and 9 employees), and 72% have no employees at all (« auto-entrepreneur »). Service economy rules over Courbe-

voie with 86% of the implementation, and inside service economy, services for the companies represent 42% of the total activity, and most of these services are directly linked to La Défense's activities.

As in Nanterre, 10% of the jobs are held by inhabitants of Courbevoie.

Rueil-Malmaison is also economically interesting. Rueil welcomes many major companies and many headquarters, especially in the Rueil-sur-Seine district (formerly known as Rueil 2000). Rueil also welcomes many small offices, businesses, and craftsmen.

Rueil 2000 is a beacon for service economy, and has been renamed Rueil-sur-Seine in 2000. There are many international companies headquarters in markets such as: oil, pharmaceutical industry, automotive industry, food industry. There are 70 companies with over a 100 employees. About 1060 service-oriented companies have settled there.

Formerly, La Garenne-Colombes welcomed many factories and industries, but nowadays, it is the territory's city with the lowest job numbers. Most of its industries have disappeared, even though there still are 1200 companies and businesses spread out inside the city, but most of them are hidden because they are located on the ground floors of residential buildings.

Moreover, since 2010, the Champs-Phillipe are inside the EPADESA's intervention perimeter and the area will be the center of a service-oriented development program in collaboration with La Défense.

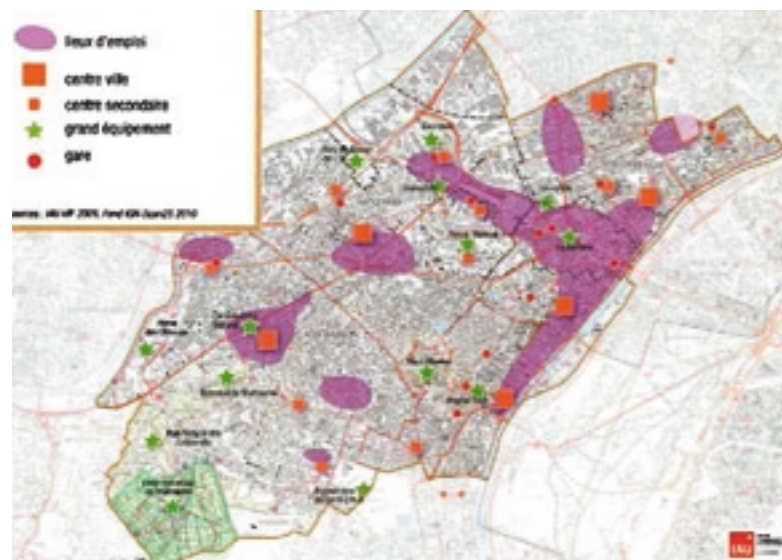
Finally, the territory's economic fabric can be described like that:

On the one hand, services for companies are the first job provider of the area. They go from consultancy to cleaning services or catering.

On the other hand, the industrial sector is important as well, thanks to its headquarters in La Défense or Rueil.

Financial activities are also a part of this economic landscape in La Défense, or Rueil 2000 (aka Rueil-sur-Seine).

Finally, the small companies/industries fabric is oriented towards production and distribution. Pressure over the real estate market has led them to move out of the territory.



The employment areas. Source: IAU



Rueil-sur-Seine's district Source: Flickr CG92

La Défense: A tertiary pole inside Ile-de-France

La Défense was created to answer the 1960's demands for offices in Ile-de-France, and has been very efficient: La Défense is now the second job provider in Ile-de-France after Paris. The SIEP territory welcome 360 000 jobs, and a 3,5 millions m2 offices area (1,7 million jobs in Paris and 16,5 millions m2 offices area).

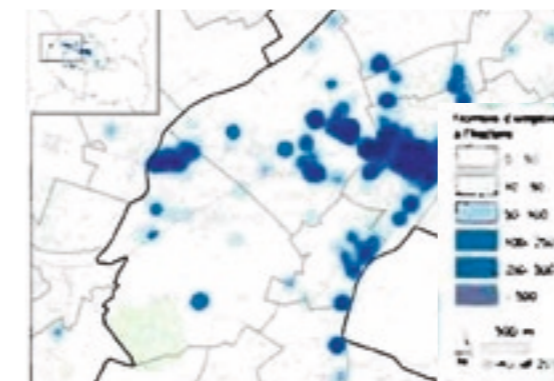
La Défense provides very particular office types in Ile-de-France: very tall buildings (70% of the total), and offices for over 5 000 m2. Thanks to this particularity, Paris was preserved from the construction of towers until now. La Défense is the only area in Ile-de-France to gather office buildings with 50 to 100.000 m2 areas.

La Défense's job density is over 800 jobs/ha, which makes it one of the densest job areas in Ile-de-France. In comparison, Paris has an average job density of 157 jobs/ha and, in Ile-de-France, the density drops to 4,2 jobs/ha.

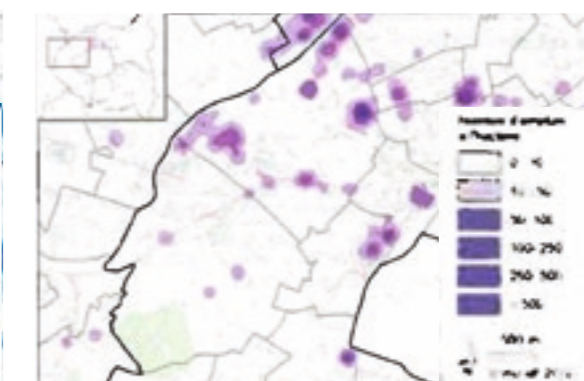
Moreover, this offices are very prestigious because of the symbol that represents « La Défense ». La Défense's rents are therefore the most expensive in the inner suburbs, similar to the Parisian rents. (see next page - Cartography)

Companies in La Défense

3500 companies have settled in La Défense, 1500 headquarters and 15 of the 50 most important international companies.



Office jobs Source: IAU



Industrial jobs Source: IAU



Equipment jobs Source: IAU



Residential jobs Source: IAU

There are 4 main employer types:

- The major industrial companies (energy: Total, Areva, EDF, GDF Suez ; Environment: Suez Environnement ; Communication and Information Technologies: SFR.)
- Finance activities (Société Générale, HSBC, Dexia, AGF, Gan, AXA...),
- Services (Ernst & Young, Mazars, KPMG, Fiducial...)
- SMEs



Employment clusters in Ile-de-France. Source: IAU

180 000 people work in La Défense. A 1/3 of the jobs are low qualifications like cleaning, security, elevator maintenance and 2/3 are middle-management and executives.

Even if there were 3 millions m2 of offices in the towers in 2008, this must be compared to other cities in the world: Hong-Kong has more than 5 million, Frankfurt, over 12 millions and Manhattan over 34 million. With the new generation towers, there is an average 20m2/employee, a company has an average 4 to 5 floors inside a building (RTE occupies 16 floors inside the Nobel Tower), 10% of the tower is devoted to shared spaces and every floor is 1200 to 2000m2 large. The construction's cost for a tower in La Défense is about 250 to 300 million Euros..

Observation: Is La Défense international or not?

La Défense takes pride in being an international business district, worldly renowned and attracting many foreign companies.

Even if the number of foreign companies is quite low in La Défense, one must remember that 48% of the investments are coming from outside France's borders.

On a general basis, France, and mainly Paris and Ile-de-France is the first location for foreigners real estate investments in Europe, and the third in the world, behind the USA and China.

Is La Défense a financial cluster ?

In Ile-de-France, La Défense's business district is playing the part of an activity pole inside a metropolitan system: La Défense is directly connected to Paris, but is also a part of a network with other poles such as Cergy, Gennevilliers, Issy-les-Moulineaux and Boulogne.

La Défense is a part of a completing relationship with Paris's QCA. The QCA is located within the 8th, 1st, 2nd, 9th, 16th and 17th districts. This is a prestigious business district inside Paris's walls with high value-added activities, such as law firms, strategic consultancy, and finance.

La Défense is often seen and wants to be seen as a « financial cluster » in Ile-de-France, nonetheless, this term might be a little bit of an overstatement. La Défense is not the first financial jobs provider in Ile-de-France: 30% of the Parisian jobs are gathered inside the QCA and 48% of them are finance related or in relation to services for companies. Amongst the 37 international companies whose headquarters are in France, 27 are located in the QCA. Finally, even if La Défense's offices area rises up to 3,5 million m2 today, Paris's total

offices area is 7 million m2. Analysts agree to say that Paris's QCA is more of a political decision center, whereas La Défense is more an economic decision center.

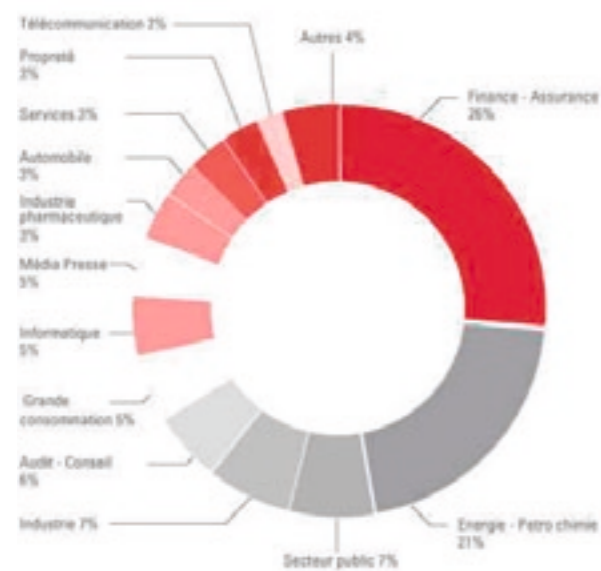
Evolutions

General trend

Nowadays, one can observe that companies are coming back from the outer suburbs to the inner suburbs or inside Paris. Moreover, jobs are spreaded around major poles (« the volcano effect ») : La Défense and Paris's densities are decreasing and their jobs are flowing over their nearby environment. Thus, the inner suburb's job density is slightly increasing.

A residential route that fits the companies needs.

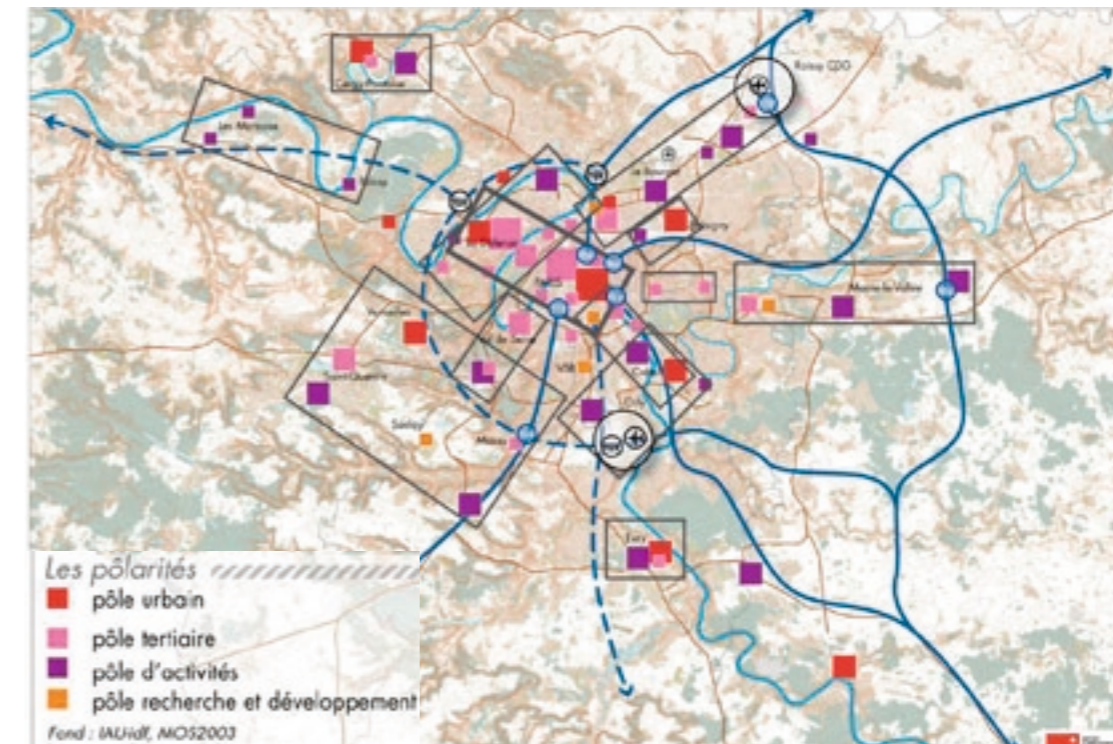
Since La Défense's creation, the real estate market in La Défense has changed. Historical companies have chosen to settle in the outskirts of La Défense: IBM, Orade, SAP, Cap Gemini have moved in Nanterre, Rueil, Colombes... inside cheaper, lower, campus-like offices. On a general basis, a company's cycle can be described like that: first, they want to make a statement and proving their important status by moving into tower-like offices, then, depending on their situation, they look for cheaper and different offices, preferring a different organization inside lower buildings.



Activity sectors in La Défense in 2010. Source: EPADESA



The business district's employees. source : Etude mobilité - EPADESA



Polarities in Ile-de-France. Source: IAU

Moreover, the concentration of financial activities and the reputation that comes along leads some companies to move out in order to be differentiated from the district's financial reputation. Consequently, Crédit Agricole has moved to Montrouge, Crédit Lyonnais to Villejuif and BNP Paribas to Pantin. In the same time, SFR moved to Saint-Denis, Eurocopter to Le Bourget and Veolia (formerly located in Nanterre) moved to its new headquarters in Aubervilliers.

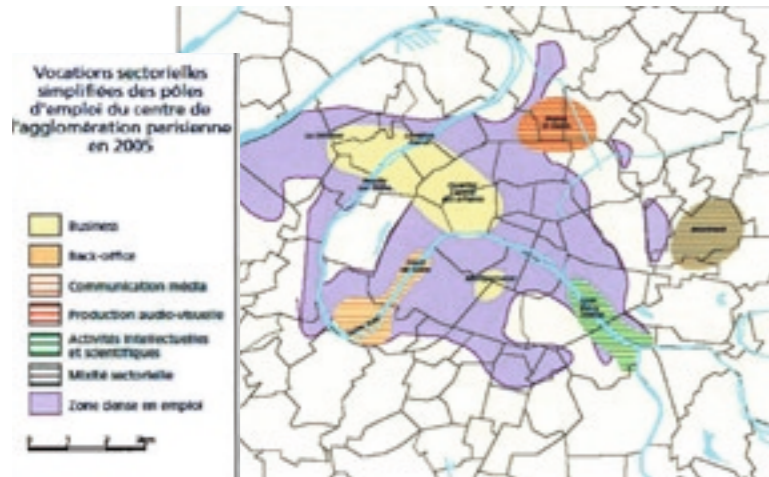
The end of the monopole over large office spaces ?

La Défense is no longer the only provider of large office spaces and towers in Ile-de-France. Many projects are currently being developed, like the Tour Triangle in Porte de Versailles, or the towers of Pont d'Issy. Moreover, other districts are developing modern office spaces near Paris, like Paris Rive Gauche, the Parc du Millénaire, the Masséna area project, GPRU at the gates of Paris, and the docks of Saint-Ouen, Ivry-Confluence, Clichy...

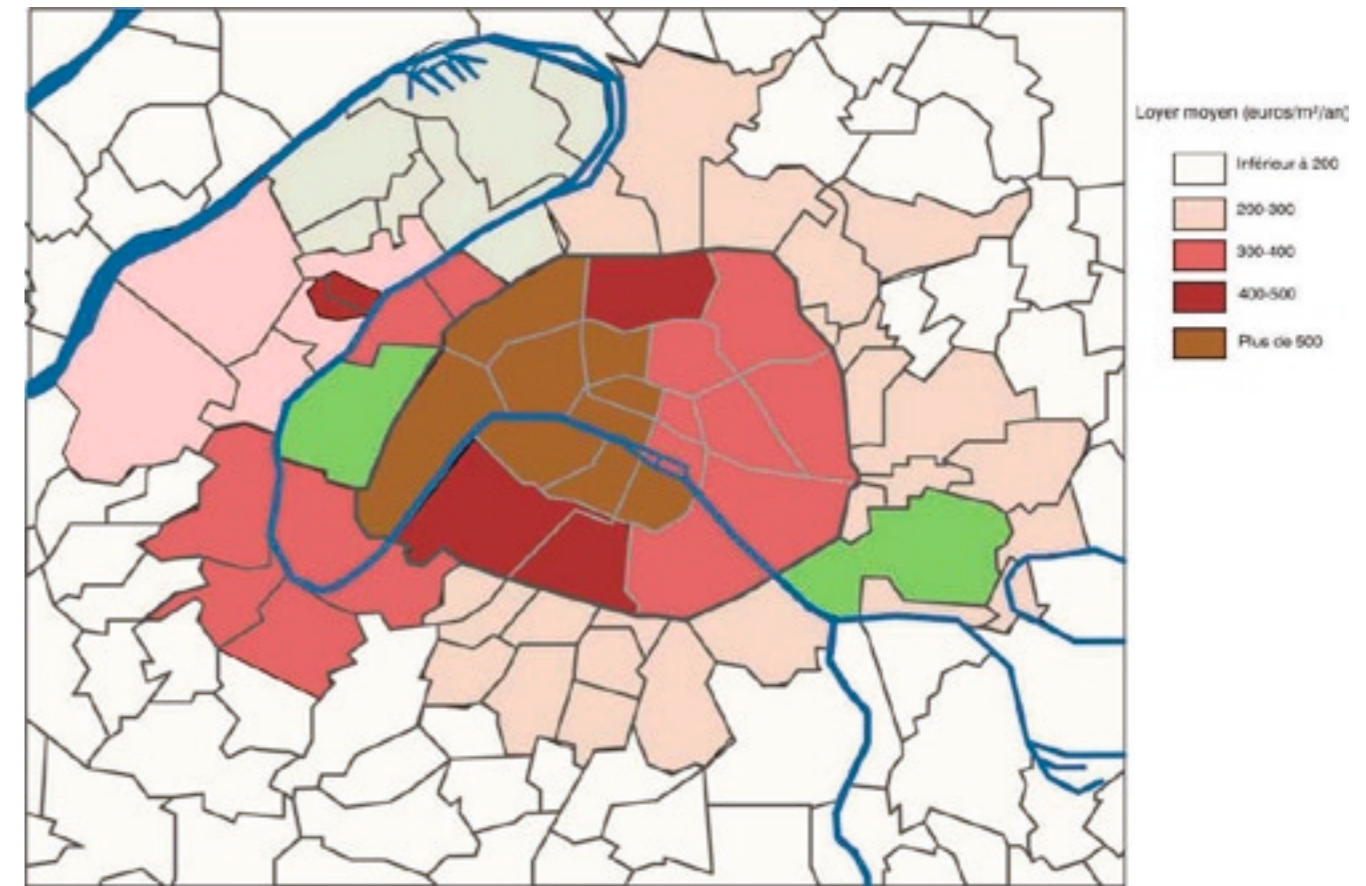
CARTOGRAPHY



Densité d'emplois en première couronne
Source IAU

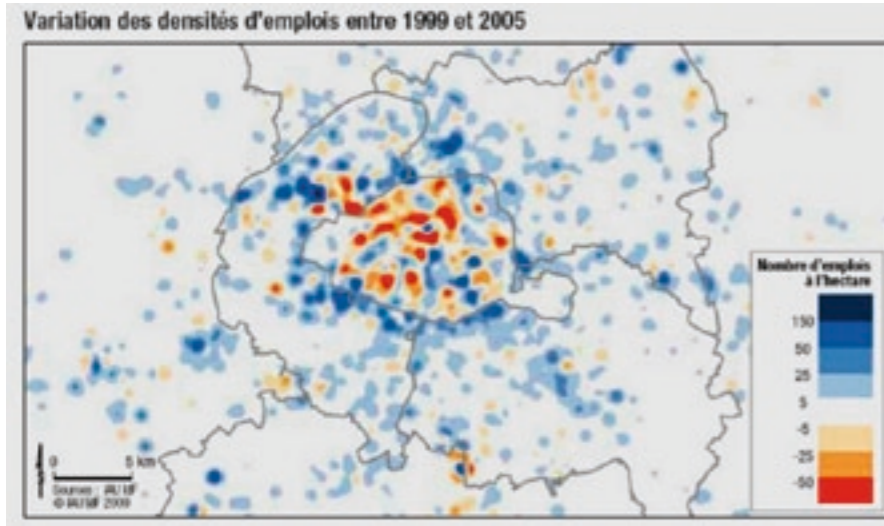


Job density in the inner suburbs.
Source: ARUP

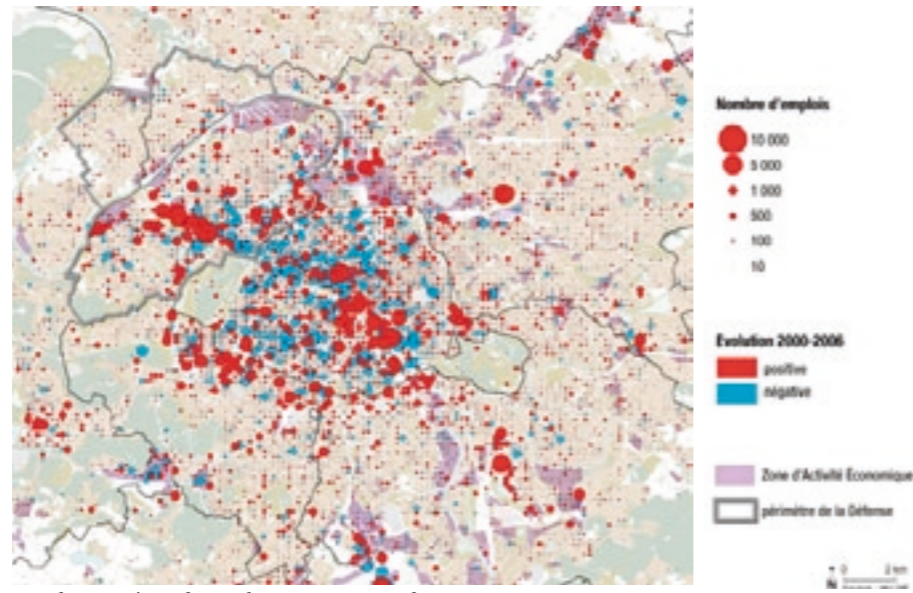


Offices rents in Ile-de-France.
Source : les Ateliers à partir d'immostat.fr

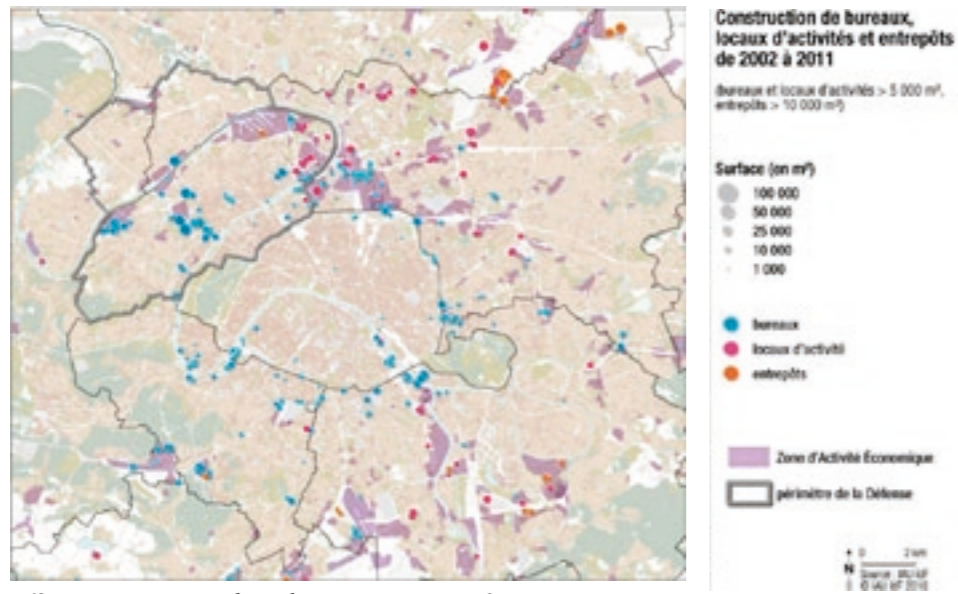
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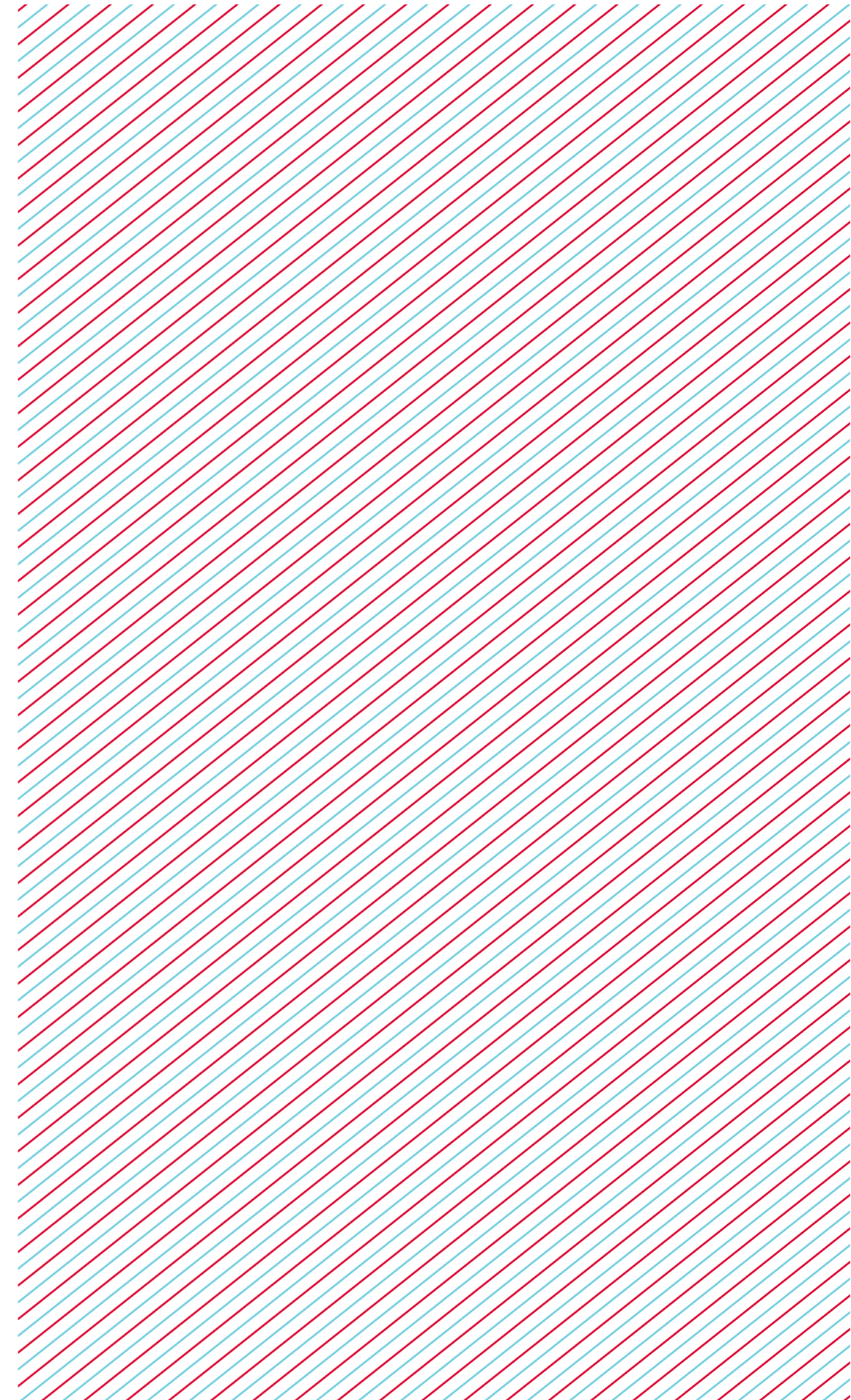
Job density variation between 2000 and 2006.
Source: IAU IdF



Employment's evolution between 2000 and 2006.
Source: IAU IdF



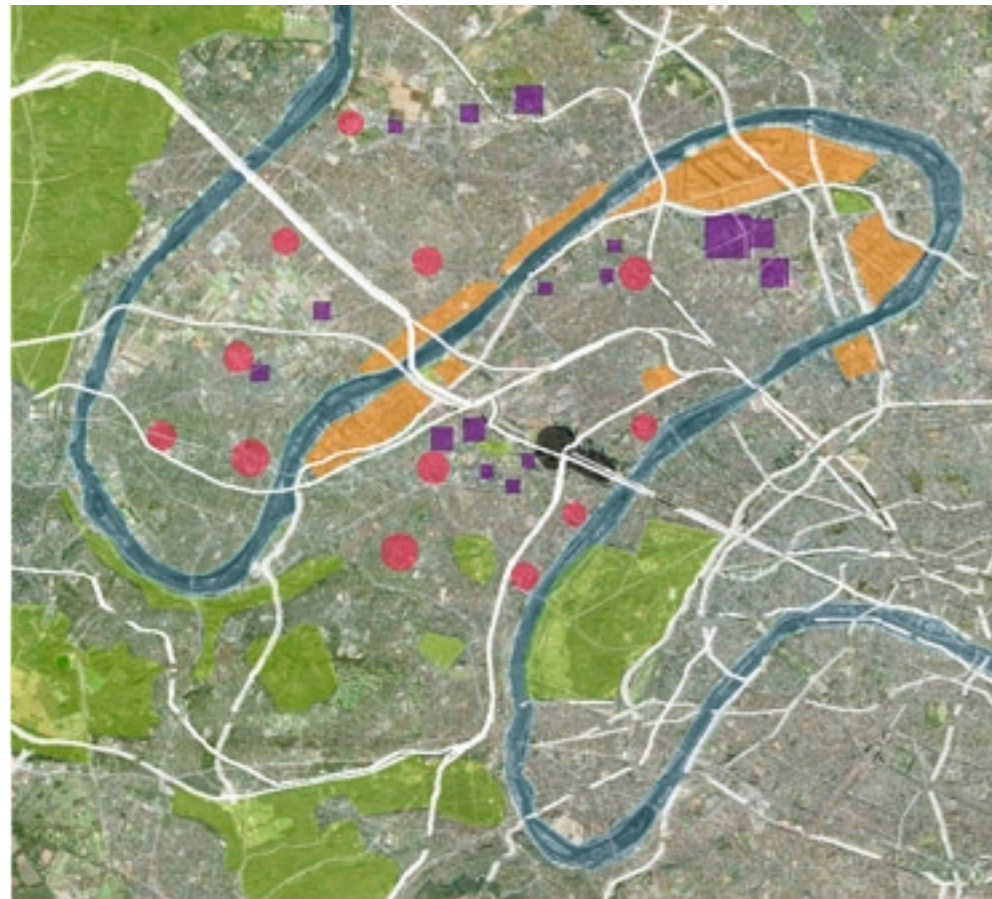
Offices, activity sites and warehouses construction from 2002 to 2011.
Source: IAU IdF



A TERRITORY WITH RICH AN VARIED ATMOSPHERES

The territory cannot be understood with only one picture, there is not a single photograph that could be typical of this territory, which is very varied. Thus, for our « atmosphere notes”, we have chosen to introduce the territory’s diversity with 5 archetypes (the green-blue corridor, the industrial areas, the old city centers, the large housing projects, the infrastructures and the platform). These notes are not objective nor exhaustive, they are impressions about different places of this territory, in order to get a proper first introduction.

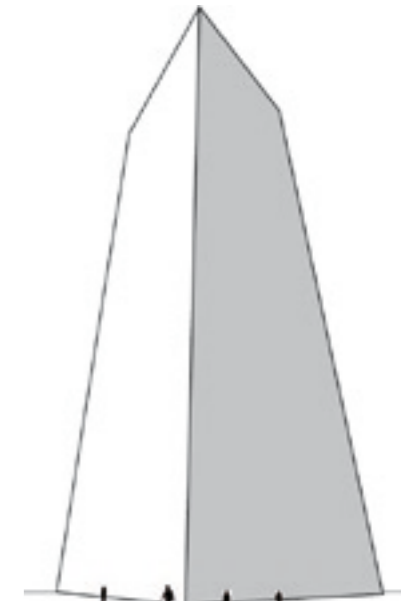
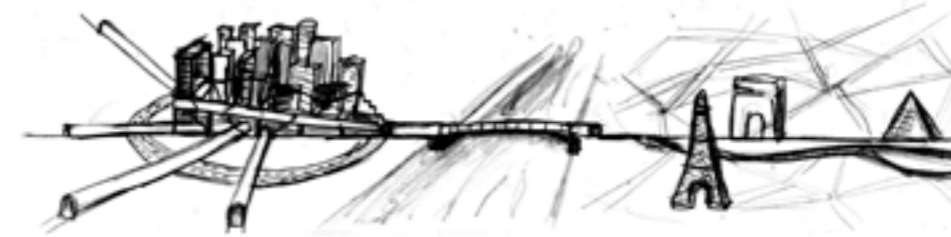
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- centres historiques
- grands ensembles
- trame vert-bleu
- tissus industriels
- infrastructures



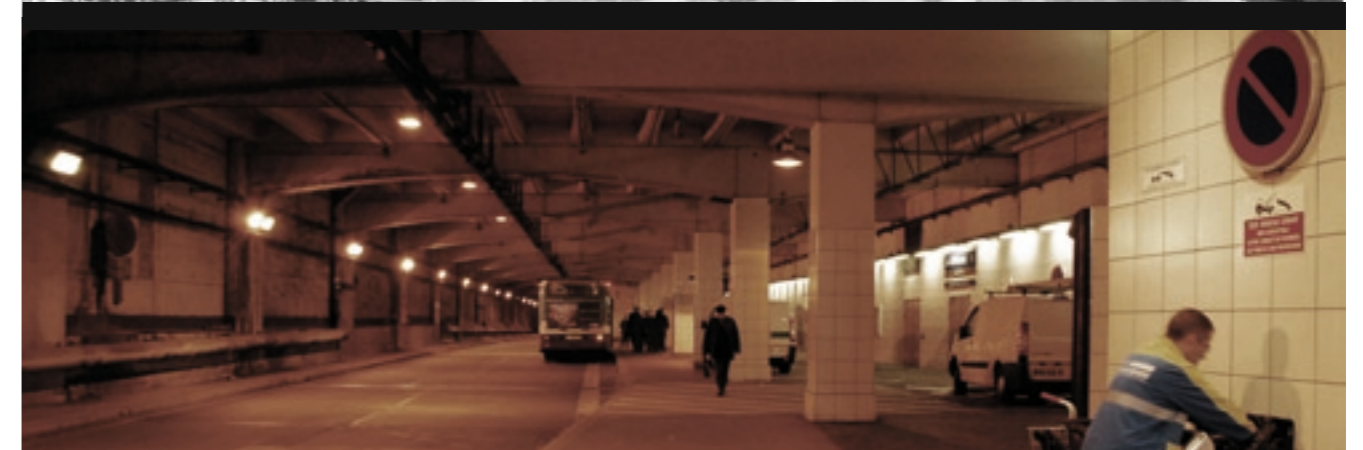
The atmosphere notes's approach.
Source: Les Ateliers

THE BUSINESS DISTRICT'S PLATFORM

The business district's platform has many contrasts and ambiguities. One goes from a dark and grey underground to a white, luminous platform under the wide open sky. There are many signs but one can't help but feeling as if one were inside a maze. People are overwhelmed by the towers and the platform's scale. There is large view over Paris's historical axis while the nearby territory is hidden. Finally, many coloured and bold art pieces are facing a rather grey environment.



The human scale: from the bottom of Areva's tower.



THE CITIES'S HISTORICAL CENTERS.

The cities's centers are an historical heritage of these formerly prospering areas before La Défense started to emerge from the ground. They offer a rather unexpected scenery inside the territory which is overwhelmed by La Défense's platform iconic landscape. Small churches, old city halls, beautiful houses with gardens, markets, and small restaurants are the image of lively, vernacular cities.



Les Ateliers – La Défense 2050 - Beyond urban forms

LARGE HOUSING PROJECTS

There are several large housing projects inside the territory. These projects have been built during the 60's or the 70's, following the modern urban planning trend, and they are now homes for low income households. They are somewhat secluded from the territory, it's an urban fracture. The issue of diversity in the territory is raised by these projects.



Large housing project from outside : car parks and towers.



Large housing project from the inside: pedestrian paths, green areas, playgrounds.

THE GREEN AND BLUE CORRIDOR

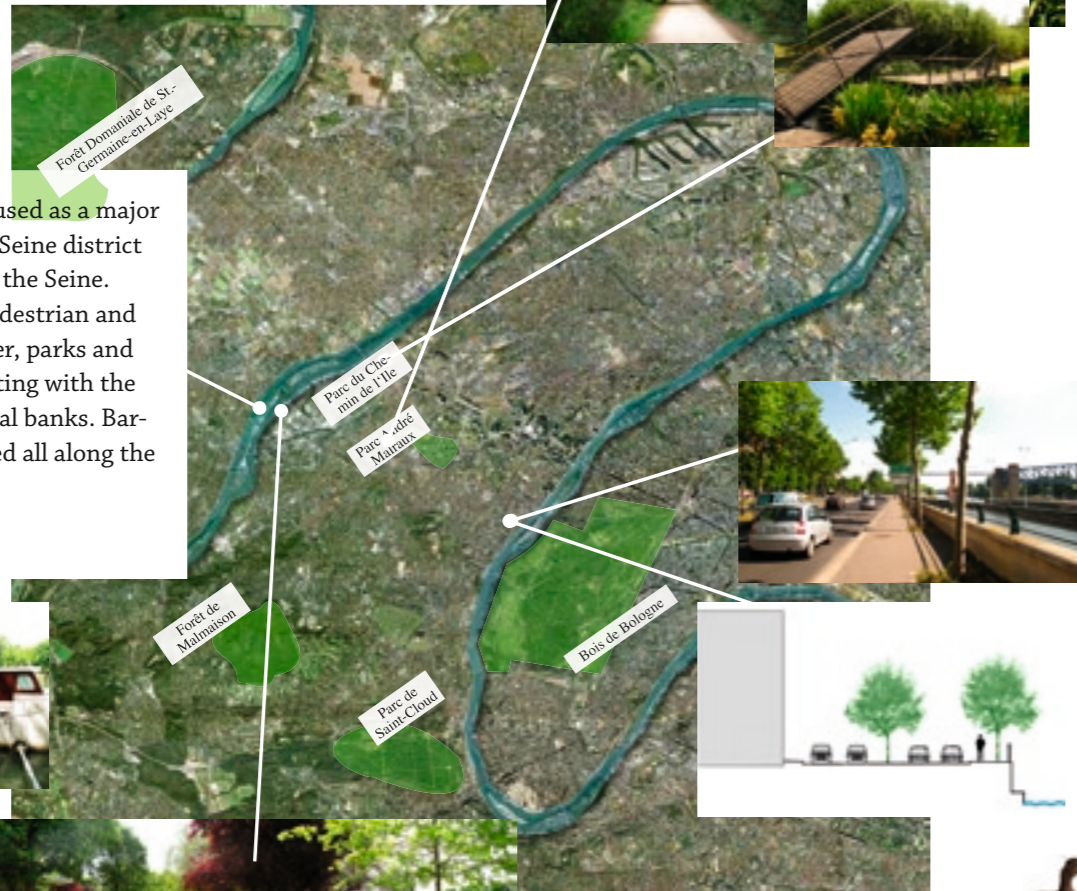
Banks are a major part of the territory's landscape, but they are all planned very differently.

Nanterre's banks are a spectacular mix of wild nature and industrial areas. The park of Chemin de l'Île is a perfect example of the transformation from an area devastated by industrial infrastructure to a creative park.

The André Malraux park is a mix of nature with a view of La Défense's towers.



In Rueil, the river is used as a major asset : The Rueil-sur-Seine district has a direct access to the Seine. There is a path for pedestrian and joggers along the river, parks and residence are interacting with the river thanks to natural banks. Barge-houses have settled all along the bank stroll.



In Suresnes and Puteaux, there is an important local road next to the bank.

Almost inaccessible and rather unsightly, the bank is nonetheless a settling area for illegal, flimsy housing (e.g tents).



INDUSTRIAL FABRIC.

Industrial areas are developing near the rivers, away from sight. Box-like architecture industries can be found along large streets, behind walls or wire fences. Inside this area saturated with warning signs (danger, electricity, security rules, machines...) cars and trucks are replacing pedestrians. Insignificant green areas can be found along the roads to soften this rather grey area.

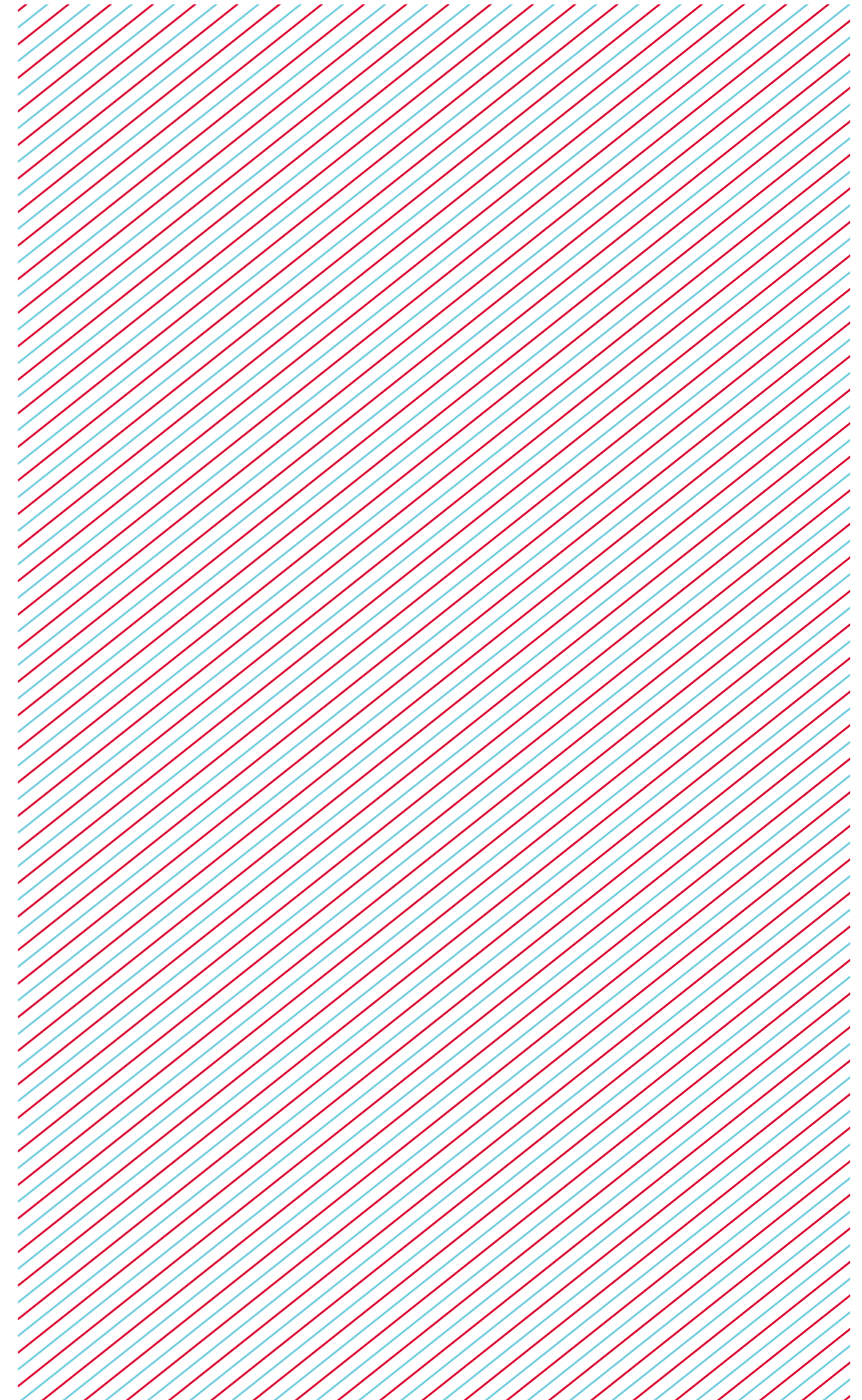


TRAFFIC INFRASTRUCTURES

Inside this territory, where many scales are found, infrastructures are the obvious landmark of the ambiguity of this local and metropolitan territory.

In La Défense's platform, the infrastructures are separated from the other underground urban functions. In the other part of the territory, the infrastructures are out in the open and more often mixed with the rest of the environment. This sometimes create separations inside the environment.

Les infrastructures sous la dalle de La Défense



YOUR FUTURE

ON-GOING PROJECTS AND STUDIES.

Reflecting on the metropolis's future : a defining moment

50 years after the great projects and visions for Paris and Ile-de-France, Paris's agglomeration is yet at another defining moment of its history. Reflections and initiatives are multiplying in order to shape the future face of the metropolis.

In 2007, President Nicolas Sarkozy announced his wish to launch an international architectural consultation in order to « study a prospective urban and landscape diagnosis » on the « Grand Paris » on a 20, 30, even 40 years term.

In 2008, 10 international and multi-disciplinary teams led by architects, have been selected to take part in the consultation, including Richard Rogers, Jean Nouvel, Studio 08... The consultation has been led under the authority of a "leading committee" made of 14 government, regional, and mayors representatives. The teams presented their proposals during an exhibition at the Cité de L'Architecture et du Patrimoine in 2009.

Since 2010, the International Workshop for Grand Paris is continuing the reflections that were launched by the consultation. This mission is in favour of debating, researching, taking initiatives

and making proposals for the Grand Paris. The workshop brings a new vision, making La Défense the new financial cluster of Paris.

Grand Paris was a decision coming from the government and is now completed by a local initiative, the Paris Métropole structure, created



After two failures as a candidate city for the organization of the Olympic Games in 2008 and 2012, Paris and the metropolitan area are seeking for another large scale project in order to reinvigorate the region.

in 2009. It is an organization gathering several collectivities (towns, intercommunalities, departments and regions) of Ile-de-France. It is not another administration level but a debate and research structure.

Today, only the transport projects on the metropolitan scale have entered an operational phase.

These urban planning and architecture projects are happening along a reflection on the capital's region governance. The current project is to create the Grand Paris structure, which would be the merging of the department of Paris and the inner suburban departments.

On the territory, there are many tertiary real estate projects, following the example of the business district. By 2015, all these projects's produc-



The different planning projects for the territory.
Source: IAU

tion will be superior to the total of Ile-de-France's average production which is 600 000 m². Moreover, the offices constructions are mainly inside the EPADESA's territory, as opposed to only 5% of the housing construction projects. Thus, these new projects will bring forth new discrepancies in the job and housing sectors in La Défense's area.

Many projects have been launched on the territory. This panorama is a way to get a general overview of the projects.



The Hermitage towers.
Source: <http://www.ladefense-seine-arche.fr>



The Phare Tower
Source: <http://www.ladefense-seine-arche.fr>

La Défense's regeneration scheme

In 2005, after a government initiative, EPAD launched a reflection in order to regenerate La Défense's stalling development.

This scheme first plans to work on the towers:

- Destruction and reconstruction of the obsolete towers.
- Construction of 300 000 m² of new office's space.

The plan's second axis is to turn La Défense into a real, mixed district, a lively district, by day an by night. 100 000m² of housing will be built, and the ring will be transformed into a "human" boulevard (according to the plan's words). A reflection has also been launched on La Défense's urbanity, and several architects have been consulted to give a new life to this urbanity, whether its an operation on the platform or by opening the ground floors of the buildings on the ring.

This regeneration plan is also about developing the transport connecting La Défense to the region.

Finally, the regeneration plan seeks to promote a new image of La Défense, an image of excellency, throughout sustainable development and strong architectural gestures by renowned architects.

Within the frame of the plan, there are two iconic projects: the Hermitage towers and the Phare tower.

Hermitage towers

The Hermitage towers are a twin towers project located on the Seine's banks, created by the British architectural agency Foster+Partners. They should be erected in 2016 and their 323m height will make them the tallest towers of EU.

A first 93-floors tower will welcome a palace, a thalassotherapy center and panoramic view apartments. A second 91-floors tower will welcome offices and apartments. There will also be a contemporary art gallery, a 1300 seats concert hall. The towers will be erected over a large platform surrounded by shops and restaurants. This plaza will be completed by an urban park next to the Seine and a quay that will be created after the RD7 road service.

The construction of these towers requires to des-

tract social housing projects. The estimated selling price of the Hermitage Towers will be around 12 000 Euros/m² and their construction will cost 2 billion Euros. According to recent articles, their finance montage is not yet complete.

The Phare tower

This project was conceived by the Morphosis agency, and is apparently an example in sustainable development. Its top is equipped with several windmills which will provide some of the building's energy, and the "double-skin" front will allow a better ventilation in order to lower the energy consumption.

The tower will be located between the CNIT, with a direct connection to it, and to the ring, which will be transformed into an urban boulevard. It will be 296m high, with 70 floors and 6 infrastructure levels under the platform. The general shape of the tower, curvy and organic, is different from the orthogonal shape of La Défense's towers.

The whole project will welcome 8000 people on a 130 000 m² surface. The project's cost will be approximately 900 million euros.

After all, the two iconic buildings in La Défense, the CNIT and the Grand Arch are not towers.

Expanding to the West.

Arena 92

The goal of the Arena 92 project is to create a sport and leisure facility that would architecturally link the Grand Arch and Nanterre's terraces.

This project is due to be delivered in 2014, and is financed by private investments for 205 million Euros.

The project's originality lies within its multifunctional abilities and its capacity to evolve. Within the 110 000m² large area, there will be a rugby field that can be transformed into a 32 000 seats entertainment hall and a 30 000m² area of office



Arena 92
Source: <http://www.ladefense-seine-arche.fr>

space. The stadium will have a retractable roof and its capacity will vary between 32 000 seats (sport events) and 40 000 seats (entertainment events).

The stadium will be the home of the Racing Métro 92 rugby team, and will be a venue for concerts, conventions, operas...

The architectural project's main characteristic is a concrete shell covered in glass and metal scales that allow the natural light to penetrate inside the building and to project the name of the events in a coloured light outside the building.

Le Faisceau et les Groues

Le Faisceau is one of the last remaining site allowing a major development inside the territory. With a hundred hectares area, it has an important rail brownfield (47ha), a road (RD94), which are located in the north of the Terraces, next to Courbevoie and La Garenne. Le Faisceau, going from La Défense to the Seine is a border between the business district and the residential districts.

New transport projects are going to deeply transform the territory (extension of the RER E and transformation of the current station). Architects and urban planners teams have studied the possible futures for the territory. These studies are now being discussed to launch an operational phase, but the main features of this project remain unknown.



Aerial picture of Nanterre Préfecture between La Défense and Paris.
Source: <http://www.ladefense-seine-arche.fr>



Park of Chemin de l'île and Nanterre's paper factory.
Source: <http://www.ladefense-seine-arche.fr>

The Chemin de L'Île Park

Further West, on the Seine's bank in Nanterre, a new urban park has opened since 2006. The spirit is to reconcile the city and the nature in a territory scarred by heavy infrastructure (two bridges, supporting a motorway, and the RER are crossing over the park). This area has a potential for projects and still has some industrial brownfields (paper industry).

In the cities outside the EPADESA's sector

Eco-district in Suresnes

Suresnes has decided to regenerate the Carnot Gambetta district (52 ha), which is the most populated area of the city (8400 people). This 3 years long regeneration program represents a 5million euros investment, and will promote the concept of



Architect's drawing of Suresne's eco-district.
Source: <http://www.ladefense-seine-arche.fr>



Theater in La Garenne Colombes.
Source: <http://www.ladefense-seine-arche.fr>

the eco-district. The people's awareness about the environment will be reinforced, the old buildings will be replaced and the infrastructures will be improved.

Balance is the key word of this project: balance between new constructions and regeneration, between different functions (housing, services, offices), between built areas and open areas, and social diversity.

La Garenne Colombes: A new entertainment venue.

In the heart of the Champs Philippe district, La Garenne Colombes plans to move its concert venue to a different location. On the architectural level, the project is neo-classical and very sober, with an inspiration taken from the Champ Elysees Theater and the Palais de Tokyo in Paris.

The concert hall will be built on two levels, and its internal organization will be inspired by traditional theaters. In addition to that, it will be a low consumption building.

On the metropolitan scale

Scheduled transport projects

Several projects are planned to smooth the existing transport saturation.

Extension of the RER E (Eole): The RER E stops at Gare Saint-Lazare and will be extended to Mantes-la-Jolie, calling at La Défense. This project should lower RER A's traffic by 15%. The cost would approximately be 2 to 3 million Euros, by 2020.

Réseau Rapide Automatique Grand Huit or Arc Express automatic metro projects: The Grand Paris Express and Arc Express projects have been publicly debated, and will serve the business district with a connection with the RER A and Eole. Thanks to these new transport networks, La Défense will be connected to Roissy CDG and Orly airports. The north sector of the Arc should cost 2 billion Euros and the south sector, 3 billion Euros.

Interconnection with the TGV: A TGV station which will serve Normandy will be built in the Groues sector.

Improvement of the North-South axis: Extension of the tramway's Line 2 to Bezons and connection of the Line 1 with Nanterre Université.

On the long term, RER E, Arc Express and the reorganization of La Défense's hub will theoretically led to an 80% increase of the transport capacity, mainly towards the East and the North.

Beyond the technical problems raised by these new equipments, the projects cost raise a question regarding the sustainability of La Défense's tertiary pole as a model.

5 lignes et 82 stations

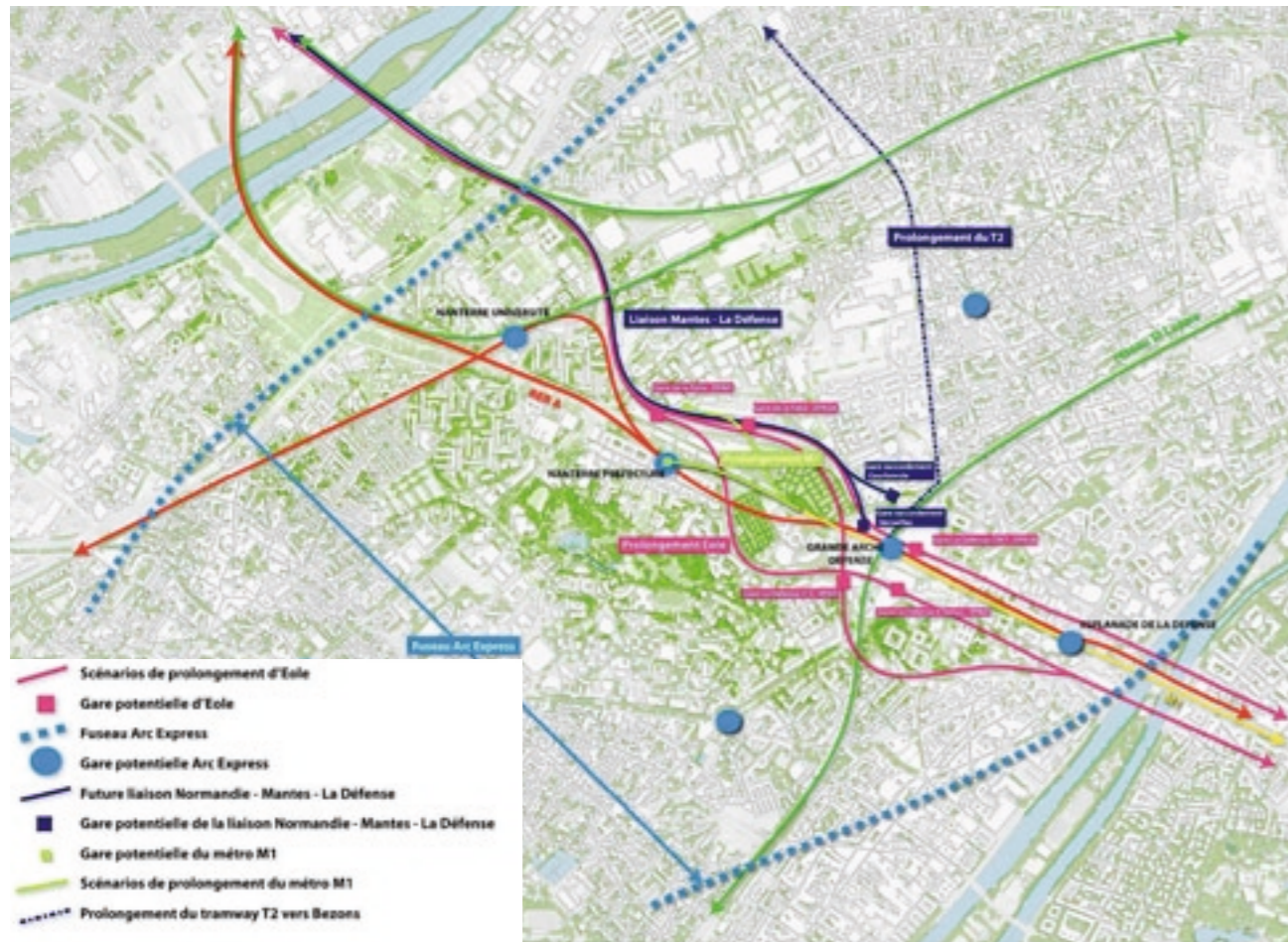


Schematics for the future Grand Paris Express.
Source: Le Monde

CARTOGRAPHY



On-going projects
Source: EPADESA



On-going projects and their territorial impact.
Source: Rapport Lelarge

CHANGE FACTORS

What will be our world's reality in 2050? When will our waste become resources? The ARUP has developed and created a deck of cards to introduce us to the 50 major questions and change factors that could be essential regarding our planet and our society's development. The cards cover subjects such as: energy, waste, climate change, water, demography, urbanization and poverty.

Those cards inspired us, and we wish to introduce a selection of subjects that we feel are very important for La Défense's development. But the selection is simply a gateway to lead you to develop your own thoughts and reflections and must not become a limit for your research.



ageing population ARUP



agriculture ARUP



carbon finance ARUP



congestion ARUP



shelter ARUP



techno-reliance ARUP

POPULATION AGEING

Because the birthrates have decreased, and medical techniques have improved, the older people's part in the population should increase in our societies. The age pyramid now tends to be reversed, especially in the developed countries. UNO forecasts that by 2030, people over 50 years old will represent half of the Western population. The 50 year olds life expectancy will rise to 40 years. In 2050, the 65 year olds and over will represent 28% of the EU's total population.

The population ageing is not specific to industrialized countries. It also concerns emerging countries such as China for instance. The current birthrate is 1,5 children/woman, and there is a 25% drop generation after generation.

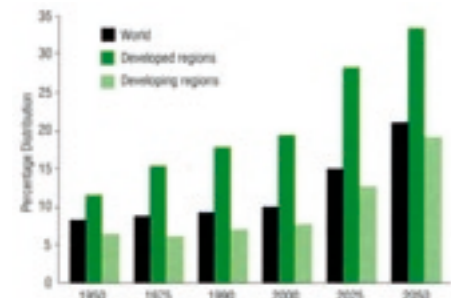
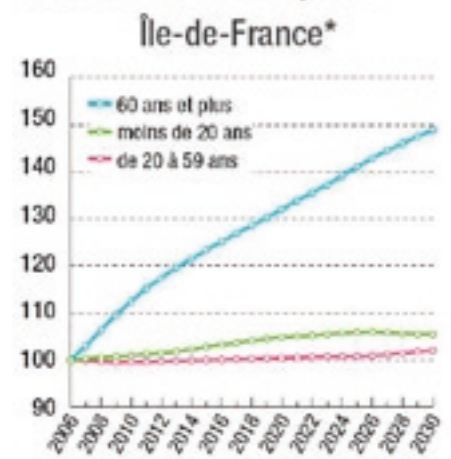


Fig 2: Proportion of people aged 60 and over, 1950-2050 (UN, World population ageing, 2002)

60 year olds proportion 1950-2050
Source: Drivers of change, ARUP

La croissance de la population francilienne traduit avant tout celle des 60 ans ou plus



Population forecasts by 2030
Source: Insee-IAU

Population forecasts in Ile-de-France.

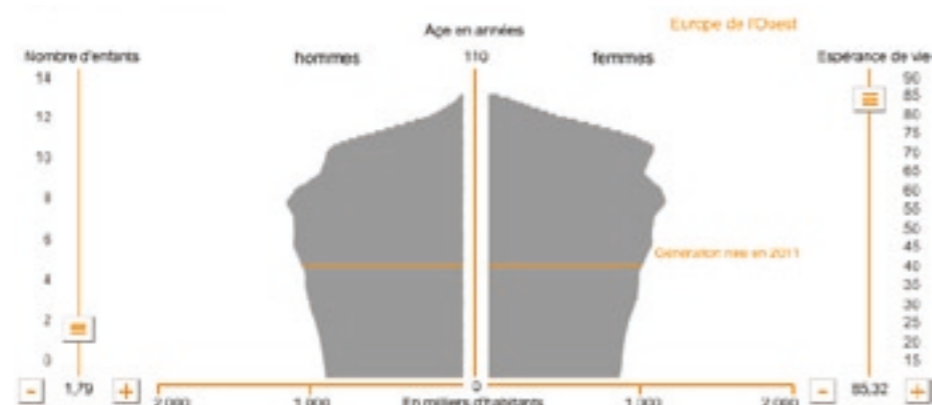
By the 1st January 2030, according to these last 15 years's demographic trends, Ile-de-France's population should rise to 12,78 million, 1,25 million more than in 2006. Within these additional 1,25 million people, three-quarter of them will be 60 or over.

According to the INSEE and IAU's forecasts, the demographic growth will be slower and slower every year. Between 2006 and 2010, the population will increase by 0,51% per year, and only by 0,34% per year at the end of the period, between 2026 and 2030.

Migrations are keeping Ile-de-France's population young. They are a limit to the population's growth and to its ageing.



Western Europe's age pyramid in 2011
Source: www.ined.fr



Western Europe's age pyramid in 2050
Source: www.ined.fr

Retired people's territory and competitiveness: new economic rules.

Health care and social care for older people require specific investments and efforts. Are these investments and efforts compatible with a policy of economic competitiveness for the territories?

Is the modern city fit for older people?

Population ageing in urban areas result in a global reflection on the territory's planning: adapted areas, proximity, etc... How can the urban planning policies adapt to the population ageing?

Age diversity: a solution against older people ghettos?

Older people have specific needs regarding public infrastructures and policies – security, health care etc... - and the territories are likely to specialize themselves, even inside cities. After promoting social diversity, is it time for age diversity?

HOUSING

A major challenge for well-being.

Without a decent place to live, it is very challenging to become a productive member of our society. The lack of affordable housing means that low income households are more likely to live in bad quality houses, even informal or illegal houses. In 2005, one city dweller out of three lived in a «slum» (meaning it at least lacked one essential housing quality, e.g sewage system, water, decent space.)

Housing has become expensive in the world. Between 1997 and 2004, average housing prices have increased by 60% in the USA, by 90% in France, by 131% in Spain, by 147% in the UK, by 195% in South Africa. In high income countries, the housing cost can sometimes be 2,5 or 6 times higher than the average annual salary, and in lower income countries, it can be 10 to 12 times superior. Housing selling costs have doubled over the last 15 years in France whereas the rents have increased by 30%. Consequently, households debts have dramatically increased.

According to the INSEE's figures, the number of people living out in the streets in Paris is at least 8.000. But according to some NGOs, this number doesn't include all the homeless people and the people who live in precarious houses in Paris, because it is extremely difficult to properly count a moving, rather « hidden » population.

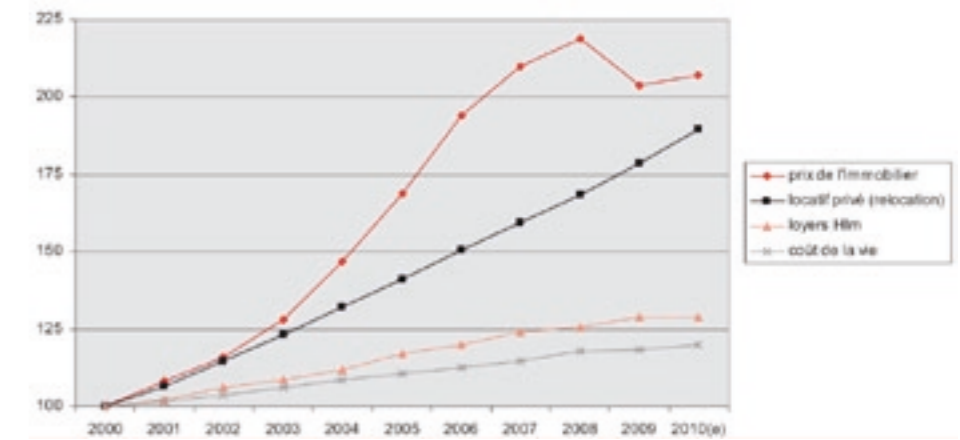
Ile-de-France's urban planning institute (IAU) has recently said that, on 1st July 2010, 406 000 households were expecting a social housing in Ile-de-France whereas the region only has 75 000 available houses, a number that has never been so low in history. With a very high demand, the waiting period before being granted a social housing has reached 5,4 years, as opposed to 3 years in 1978.

50 years after Nanterre's slums have been closed, they are back in Ile-de-France.

« Aubervilliers. Paris's suburbs. Here, industries are blossoming upon the Canal Saint Denis's banks. From afar, the Stade de France cuts the horizon, like a symbol of a once triumphant nation. Hard-working workers come and go, depending on the day's schedule. The Tziganes live here permanently. Dozens of precarious slums spread from the city's cement factory to the remote banks of the canal. Dozens of unsanitary, sordid no man's lands, where the forsaken have settled. Men, women, children, all of them outcasted. People from Romania have tried to create a home out of twenty demolished trailers. The RER train passes over their head in a deafening din. Ten, twenty, thirty times a day. It

is almost impossible to ear one's self in this decibels flood. No one here seems to worry about one's future. Precariousness is a daily struggle. In this forsaken land, every clan, every family, every village settles in one area and refuses to mingle with the others. » (Extract from an article, Le Figaro, April 2006)

On the studied territory, along the Seine in Suresnes/Puteaux, there are precarious houses as well.



Increase of the real estate prices in France.
Source: L'état du mal-logement en France 2011, Fondation Abbé Pierre



4 years old slum in Ile-de-France - August 2009.
Source: Eric Garault/Picturetank

TRAVELLING

Individual motor transport

In 1970, there were already 200 million cars over the world, but this number has risen to 800 million and should double by 2030. The Peak Oil combined with the necessity to improve the urban air's quality could lead us to change our way of life in the cities and dramatically change the suburban urbanization's scheme.

According to Newman and Kenworthy, a more sustainable urban environment means an increase of density. (see chart)

The issue of traffic congestion.

Congestion is an overwhelming urban experience in developed countries as well as in developing countries. In the United-Kingdom, traffic congestion causes an annual cost of 20 billion Euros for the economy. One of the most iconic example of this congestion is Beijing's 2010 traffic jam that lasted for 10 days.

Paris is the most saturated city in Europe, according to a study over 6 countries (France, United-Kingdom, Germany, Belgium, Luxembourg and the Netherlands) led by INRIX. It is closely followed by London and Germany's Rhur basin. The study also showed that drivers lose 70 hours a year during traffic congestion. Nonetheless, Parisian traffic has dropped by 24% since 2001.

An increasing personal mileage.

Our journeys are beginning to change. In 2004, the number of pedal strokes was 6% less than in 1992. Many of those who have either walked or rode a bike previously now use their car for the same journey. Furthermore, a quarter of those car journeys is less than 2 miles.

Ivan Illich, the intellectual, has calculated in the 70's that when one added the average time spent at work in order to afford the cost of the car and the related expenses, with the time spent driving the car, the average car speed was 6 km/h. Indeed, during the 70's, an American would spend an average 1600 hours in his-her car and would only cover about 10000 kilometers a year.

The major issue of freight transport.

The amount of goods carried by maritime ways have been multiplied by 10 since the 60's, and the number of air passengers have doubled every ten years. Air transport carries over 600 million people a year. In order to grasp the issue of mobility, one has to realize that the progression of the international flows volume is twice as fast as the world's production every year.

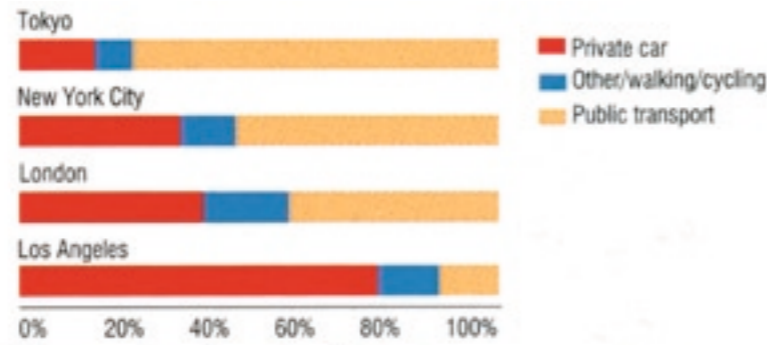


Fig 2: Transport mode comparison [Urban Age, London School of Economics]

Transport comparisons Source: Drivers of change, ARUP

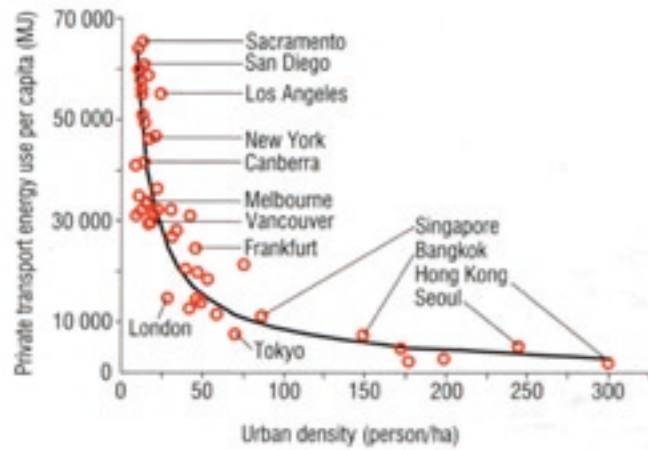
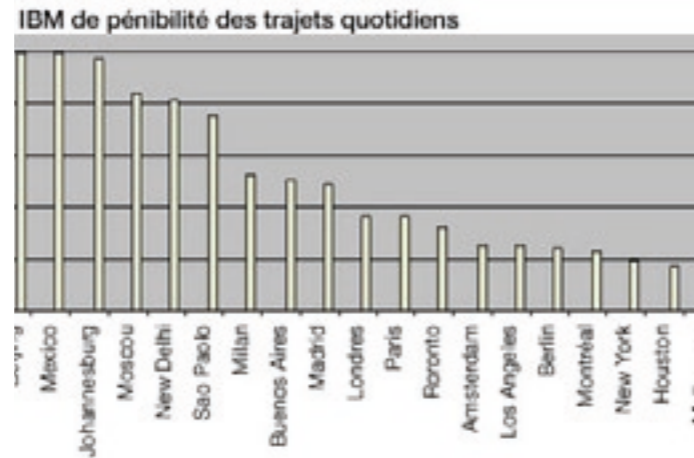


Fig 2: Relationship between urban form and transport energy [Based on Newman and Kenworthy, 2000]

Relation between urban shape and transport's energy. Source: Drivers of change, ARUP



IBM's stress Index for daily work travel. Source: IBM

DEPENDANCE AND VULNERABILITY

Technology dependence

Urbanization means to switch from a rural dependence, where natural resources are fundamental, to a dependence on built environment and technology.

Urban environments become more and more vulnerable today - whether its because of technology dependence or because of malevolent acts such as terrorism.

Tall buildings are maybe the most technology dependent and their number should dramatically increase inside urban areas. Between 2001 and 2012, the number of skyscrapers constructions are almost equivalent to the number of all the skyscrapers built during the whole 20th century. Urban transport systems are also technology dependent - If the systems fail, the population's everyday life is importantly disrupted. Energy shortage (power outage) have already shown this vulnerability. Over the last years, large buildings and transport systems have also been targets for terrorist attacks.

Paris's electricity failure in 2006 has impacted 15 million households in Western Europe. The scenarios for the next flood in Paris also show the technology dependence of the metropolises.

Food vulnerability

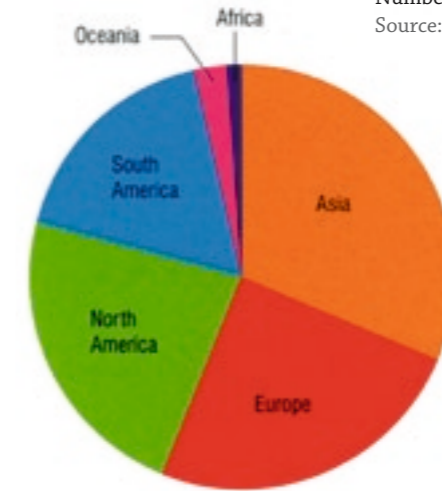
The urban areas development has been possible thanks to the increase of the farming productivity, which created food surplus. Yet, many cities are dealing with unbearable supply for most of their food. In London, the ingredients of the typical sunday roast for four people has travelled more than 24 000 miles. This on-going practice is clearly opposed to many developing cities in the world, whose development was based on a local food supply tradition.

Urban agriculture - farming, live stocking, transformation and distribution of the food inside and around the urban area - improves food security, especially for the low income households.

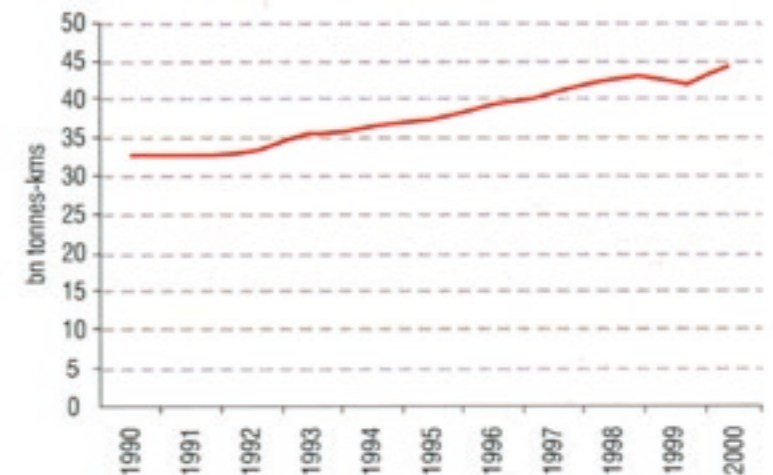
According to the FAO's forecasts, about 800 million people are dependent on urban agriculture. In some cities, almost two-third of the households have an urban farming activity. It is clear that flower gardening and live stocking in urban areas can be very productive. For instance, commercial live stocking in these areas produces 34% of the meat production's total and about 70% of the eggs production. Urban farmers can reach a productivity that is 15 times higher than rural farmers on a similar size area. Urban farmers are ideally located to enjoy the city's underexploited resources ; e.g brownfields, waste, treated residual water, as well as the workforce.

City	Number of skyscrapers		
	1999	2006	2012
Dubai	2	21	90
Miami	5	7	71
Las Vegas	2	3	27
London	2	9	24
Tel Aviv	2	3	16
Busan	1	9	13
Abu Dhabi	1	4	8
Madrid	1	1	6

Numbers of expected IGH in eight cities. Source: Drivers of change, ARUP



Numbers of achieved IGH per region. Source: Drivers of change, ARUP



Food, drinks and tobacco transported by over 3,5t trucks in Great-Britain. Source: Drivers of change, ARUP

AN INCREASING PRESSURE OVER ENVIRONMENT

The urban ecological footprint

The ecological footprint is a measurement of human demand on Earth's ecosystems in terms of global hectares (gha)/per person. One hectare represents the amount of biologically productive land and sea area needed to regenerate the resources a human population consumes and to absorb and render harmless the corresponding waste

IN 2003, Earth's biocapacity was 11,2 bn gha, corresponding to 1,8 gha per person – but the average ecological footprint was 2,2 gha.

Two-third of the Earth's ecosystems are now severely damaged, mainly because

of the urban consumption and waste treatment.

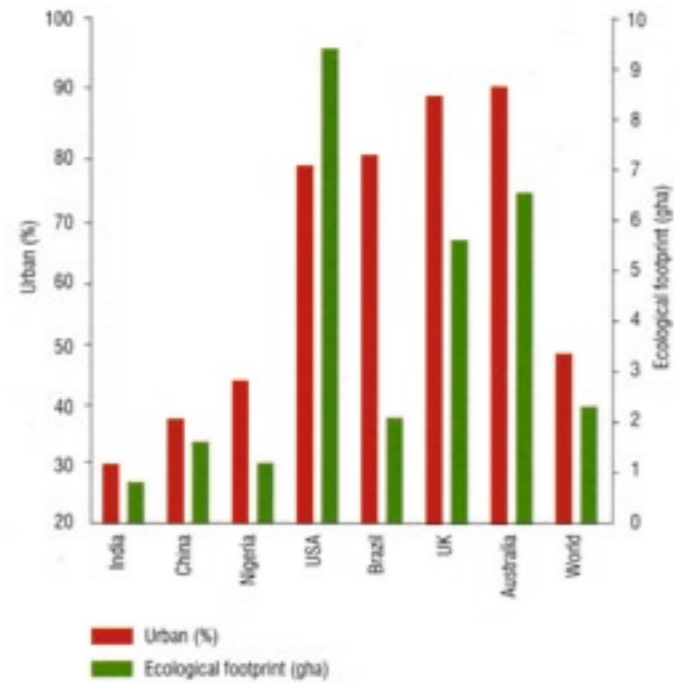
It is a general knowledge that the urbanization will endure. But the water depletion and the long-distance water transport's high energy cost could stall the urban growth. For instance, 400 cities in China are already facing chronic water shortages.

France and Paris's example

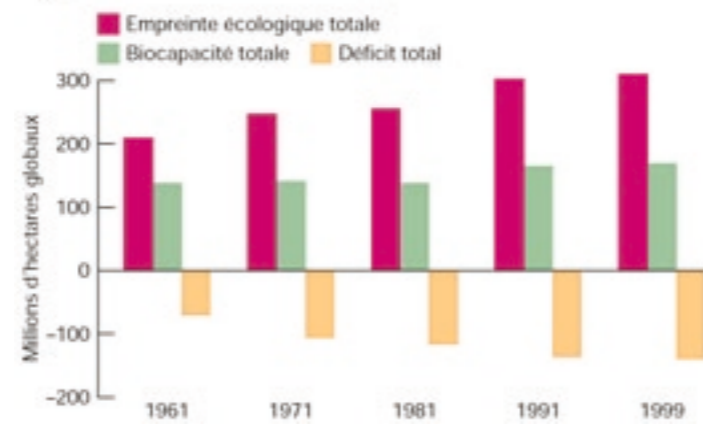
France's ecological footprint has increased by 48% in less than 40 years. In the meantime, population has only increased by 27%. Since 1961, built lands have increased by 59%, which is a clear sign of urbanization and of a more intense road networking.

The most important augmentation comes from the energy footprint, which is the area that is needed to absorb the country's CO2 emissions. This footprint has more than doubled since 1961 (+134%, and stands alone for 58% of France's total ecological footprint). These findings put an emphasis on France's obvious necessity to diminish its ecological footprint.

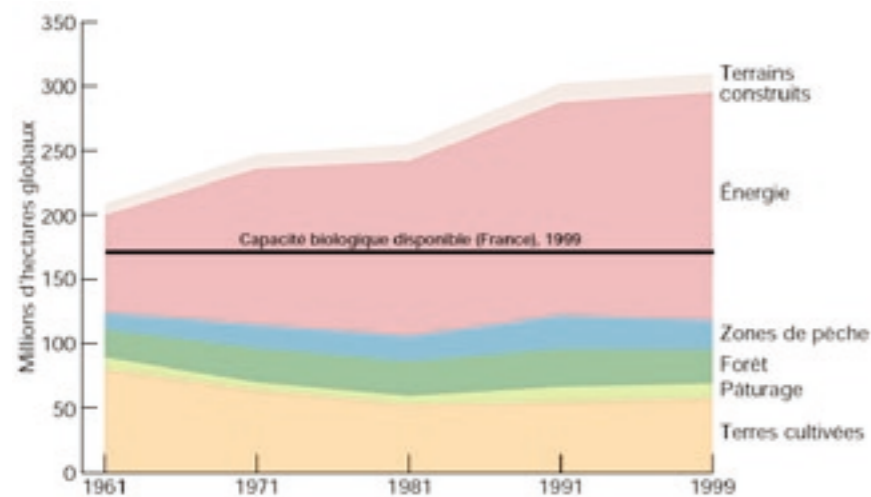
Paris's area is 10 539 hectares for a population of 2,15 million. A Parisian's ecological footprint reaches 12 838 000 gha, which exceeds their biocapacity by 313 times (41 000 gha, 0,02 gha per person). This result shows the weight of the ecological footprint on Paris's environment, given that the city is enterly dependent on an external procurement for ressources and waste absorption.



Ecological footprint and urbanization level of the countries. Source: Drivers of change, ARUP



France's ecological status. Source: Drivers of change, ARUP



France's ecological footprint. Source: WWF-France et Redefining Progress

Biodiversity

France, including overseas departments, ranks 5th regarding endangered species with 263 species, whereas USA has 831 endangered species, Australia has 488, Indonesia has 388 and Brazil has 274. France is the 9th country in terms of endangered plant species.

The 5 main causes for the disappearance of biodiversity are directly occurring in France (metropole and overseas): degradation of natural environments, overexploitation of natural resources, invading species introduction, pollutions, climate change.

PEAK OIL AND RAW MATERIALS

The world's oil consumption has constantly increased since the middle of the 80's by 1,5% a year, but an increasing number of geologists forecast that traditional oil deliveries will start to decrease in a few years. Numerous existing oil fields are depleting and fewer new oil sources are discovered.

33 out of the 48 oil producing countries have lowered their production in 2007. If the production follows the current rhythm, oil resources will be depleted in 47 years (IEA, 2006), the gold, tin, silver and lead stocks will be consumed in 13 to 22 years. (UGSC and BRGM).

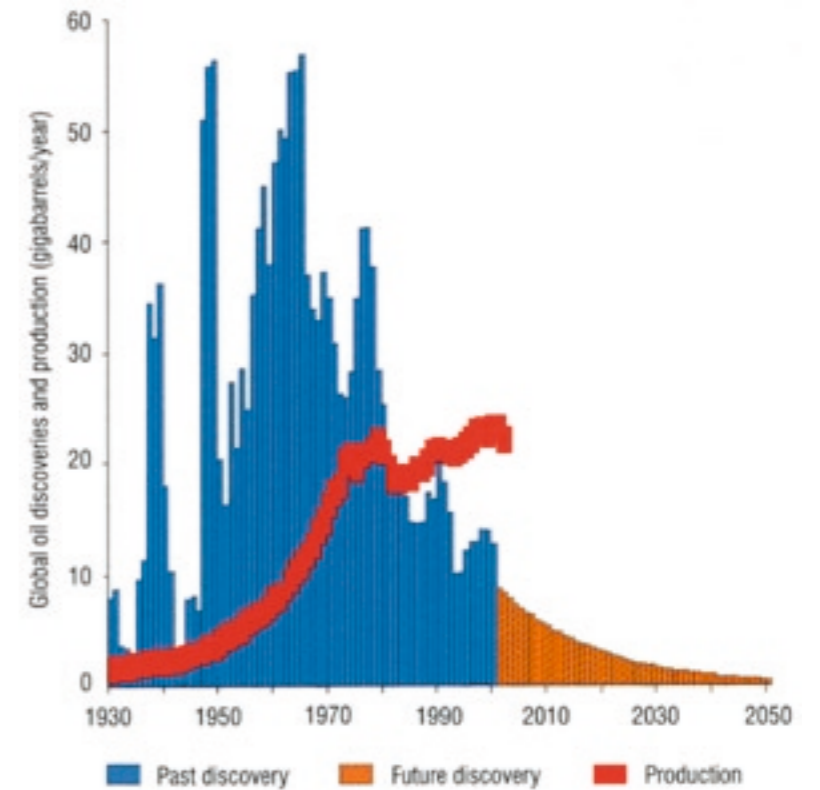
The Costs rise

Even if the forecasts have a margin of error, the rise of oil and other resources costs seems inevitable in the short and medium-term. Illustrations clearly depict that the energy consumption and demand per person rise alongside the economic development.

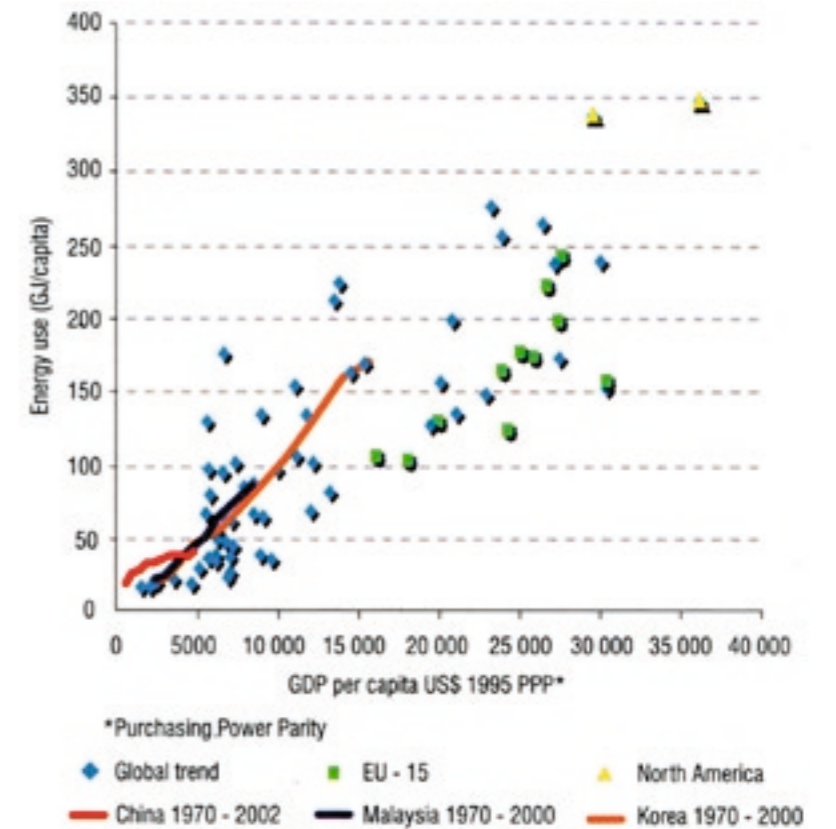
In emerging countries, oil needs grow incessantly and will continue to pull the world's oil consumption up. In the meantime, providing countries don't seem to be able to significantly increase their production capacities. The exploitation of other energy sources, like shale gas and oil hold many risks for the environment. Biofuel production could lead to conflicts between biofuel and food production for the world population and also constitute a menace for the biodiversity. New energy sources (sustainable) are developing but cannot yet replace fossil energies.

The rise of energy costs is not only specific to transport, but also concerns housing. Thus, in France, 3,4 million households are facing « energy poverty », 87% of them are in the private housing sector. 3 main causes are responsible: low income, bad thermal quality of the house, and difficulties to pay the energy bills.

Given these issues of production, distribution, costs, in addition to the environmental impact, the safest and quickest solution is to promote a decrease of our oil and energy consumption by all means.



World discoveries and oil production. Source: Drivers of change, ARUP



Income and energy consumption in 2000. Source: Drivers of change, ARUP

ECONOMIC CYCLES

After analysing the economic cycles, some observers like DATAR, say that we are currently in a post-Fordism economy.

Therefore, three main characteristics of this new economy emerge:

- The end of the material object's importance.
- The separation of the production area and the consumption area.
- Finally, the rise of a multi-scale dimension.

With the on-going changes (raw materials, climate change...) this post-Fordism cycle will face many struggles. It is not sure that the separation of the production and consumption areas will keep on given the transport cost's augmentation.

With the youth protesting in Portugal and Greece, and pro-degrowth activists fighting for the social life quality's growth, a new cycle seems to appear.

The economy's evolution on the global and local scale.

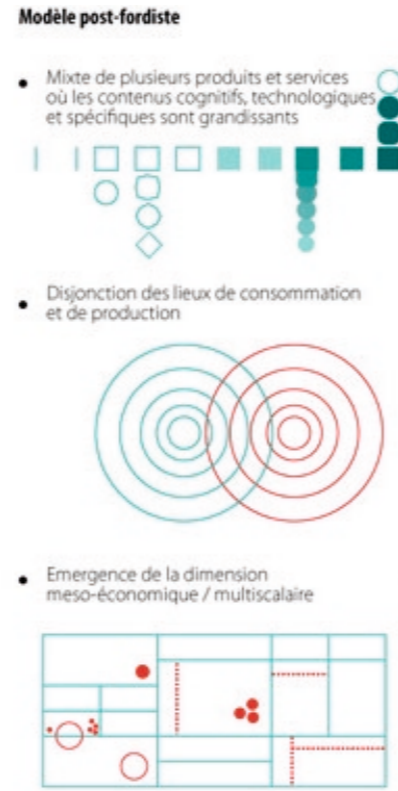
Initially, La Défense was meant to be a cluster for major French companies, but it has become a pole for French companies gone global. It is a tertiary area, and the future evolutions of the work methods will create new urban shapes and change those workplaces and their relations to their urban environment.

Seeking for its local grounding, the business district is facing the global economy's evolutions and seems to take its distance from the local area. The world's economy is no longer grounded in the local scale but seems to be made of constant flows, crossing in some precise locations (Geneva, Singapour...) and therefore creating local wealth. An island-like economy, whose wealth don't really spread outside these major economic crossroads.

The augmentation of the data exchange is tremendous and the digitalization of the information will go on. New stocking and data exchanges services, the « clouds » systems, will increase the datas availability, regardless of our geographic location. After a period of being sedentary workers, will we become nomadic, technology dependent workers, with a constant dread of the next power outage?



Fordism and Post-Fordism models
Source: DATAR



Internet connections in Europe
Source: www.chrisharrison.net

THE CLIMATE CHANGE

The climate's threshold effect.

Global warming has consequences over how the climate and the thermal machine « Earth » function. Yet, these effects are not proportional given the threshold effects: an increase in the temperature can lead to catastrophic outcomes.

There are 3 outbreak thresholds:

- The release of the methane stocked inside the permafrost (the permanently frozen soil in the North pole) exponentially accelerates the greenhouse effect.
- The melting of Antarctic increases the water level.
- The ocean conveyor belt's stop, a maritime flux which goes from the North Pole to India in a thousand years journey and comes back in a hundred years.

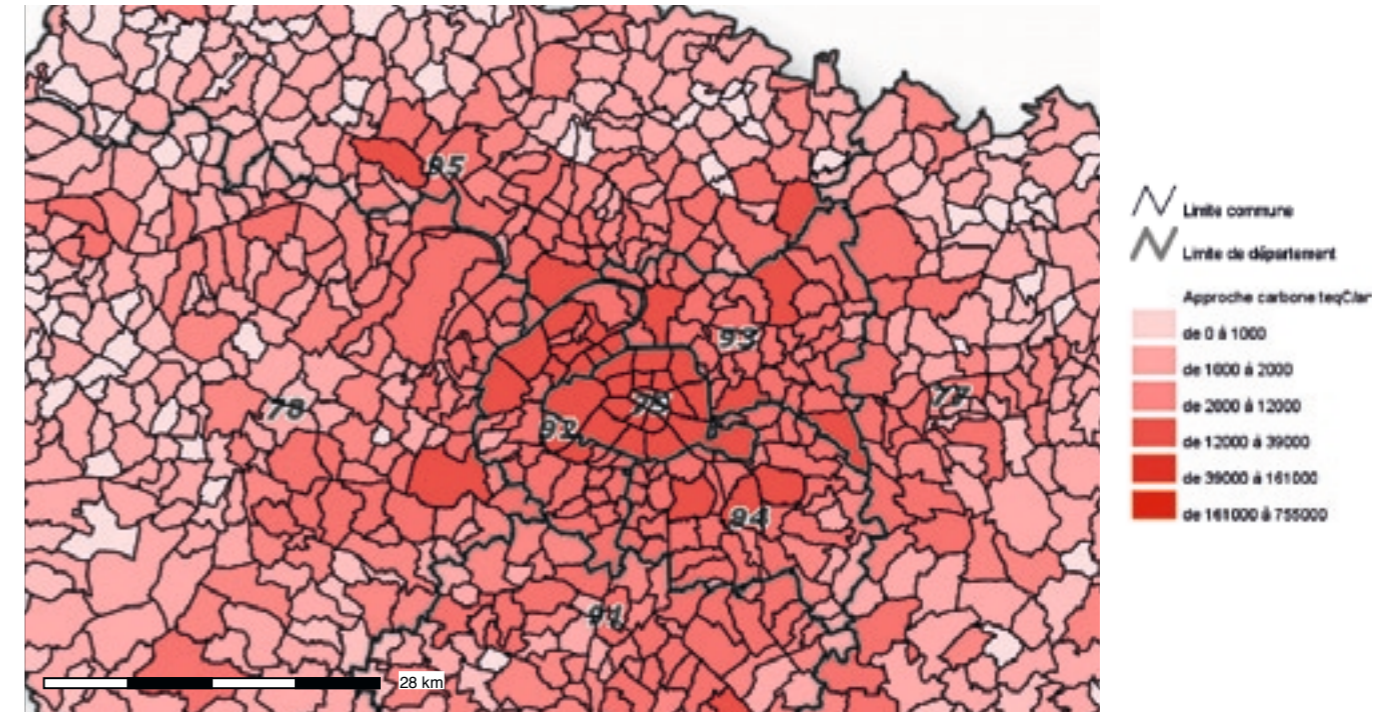
News are not good. Last May, several newspapers, such as The Guardian, have quoted IEA forecasts that show an increase of the greenhouse gas emissions in 2010, at an historically high level.

Thus, hopes to maintain the global warming below critical thresholds are now very thin.

This dramatic rise means that the goal to keep the temperature from increasing by 2 degrees Celsius (and scientists stress that it would potentially provoke a « dangerous climate change ») is now an « utopia », according to IAEA's chief economist Faith Birol. It also shows that the most significant global recession since 1980 only had few impact on the greenhouse gas emissions, defying forecasts.

Greenhouse gas emissions in Ile-de-France

Green house gas in Ile-de-France are made of 90% of CO2 but also of methane and nitrous oxide. AIRPARIF says that Ile-de-France's emissions in 2000 were over 55 million tons Carbon Equivalent, 9,1% of the nation's total emissions. Therefore, we can say that six tons Carbon Equivalent are produced per year and per person in Ile-de-France, as opposed to the national average: 11. (source : sdrif).



The carbon approach per city in Ile-de-France.
Source: DREIF

The non-industrial combustion (heating, hot water, mainly in the residential and tertiary sectors) is the principal cause of the three main greenhouse gas, with 43% of the emissions. The transport sector (27%) ranks second, followed by industry and energy production (20%), and agriculture (8%).

Today, the average household's CO2 emissions are 17 tons/year.

The global warming's consequences in Ile-de-France

In Ile-de-France, global warming could provoke more powerful and regular extreme climate phenomenon such as droughts, heat waves, typhoons... The 1999 typhoon, the 2003 heat wave and the 2004 drought (February 2004 was the driest month in over 100 years) are exceptional, recent events which have impacted the region and can be read as signs of a climate change.

In 2100, IDF could have the same climate than Cordoba.

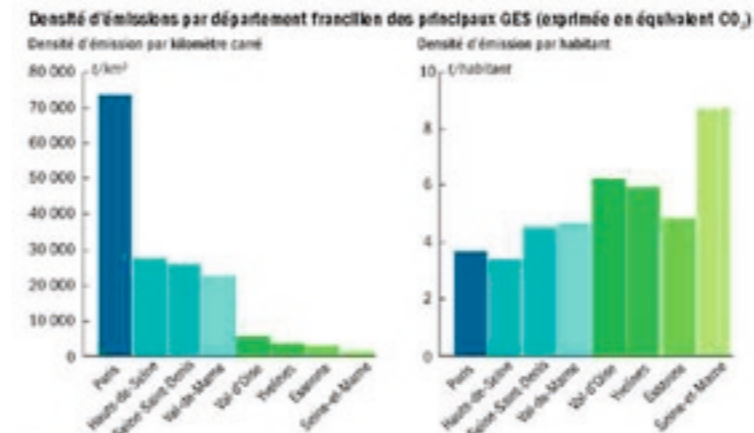
The energy consumption in IDF

The final energy consumption in Ile-de-France in 2002 is lower than the national average (2,67tep/person), but it is swiftly increasing since 1990: +8% between 1990 and 2002, as opposed to the 6% national increase.

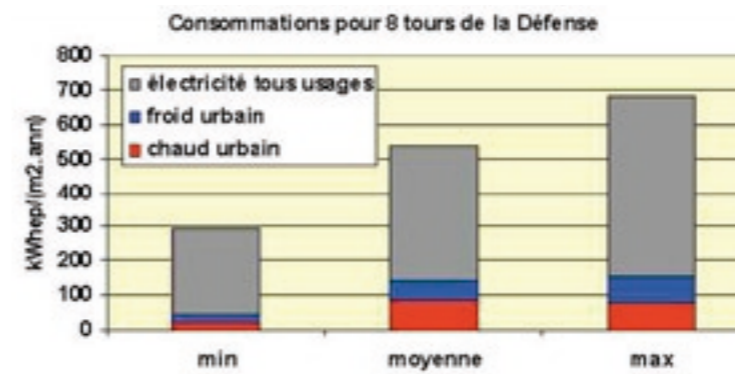
As the „energy intensity“ index shows us, (see tablechart after), Ile-de-France's energy consumption is twice as inferior as the national territory's consumption, for an equivalent GDP. The weight of IDF's industries in the final energy demand (7,5%, mainly gas) keeps on decreasing, which is a result of the continuous progress of its energy efficiency and of the deindustrialization.

Nonetheless, the residential/tertiary sectors demands (more comfort, air conditioning...) and the transport's demands (increase of leisure travels, vehicle's weight, air conditioning...) are increasing. The 2002's final energy consumption was 49,2% in the residential/tertiary sectors (28,4% residential, 20,8% tertiary), mainly for electricity and gas, and 42,4% for the transport sector (22% of local transport and 20,4% for air transport). Furthermore, IDF is 95% dependent on exterior energy.

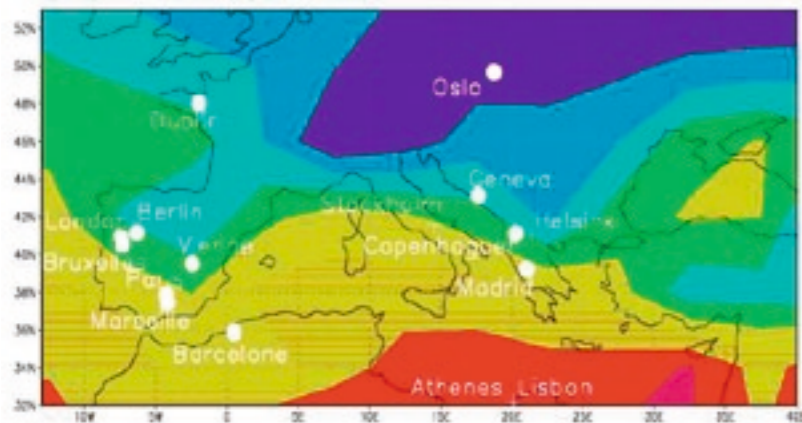
In France, electricity's production produces close to 0 geCO2, when its coming from nuclear or water power plants, and 900 when its produced by fossil fuel power plant (the latter are only used during peak hours). But the nuclear power plants CO2 emission numbers don't include the CO2 that's produced to extract the uranium, the uranium's transport, the power plant's constructions or their dismantlements...



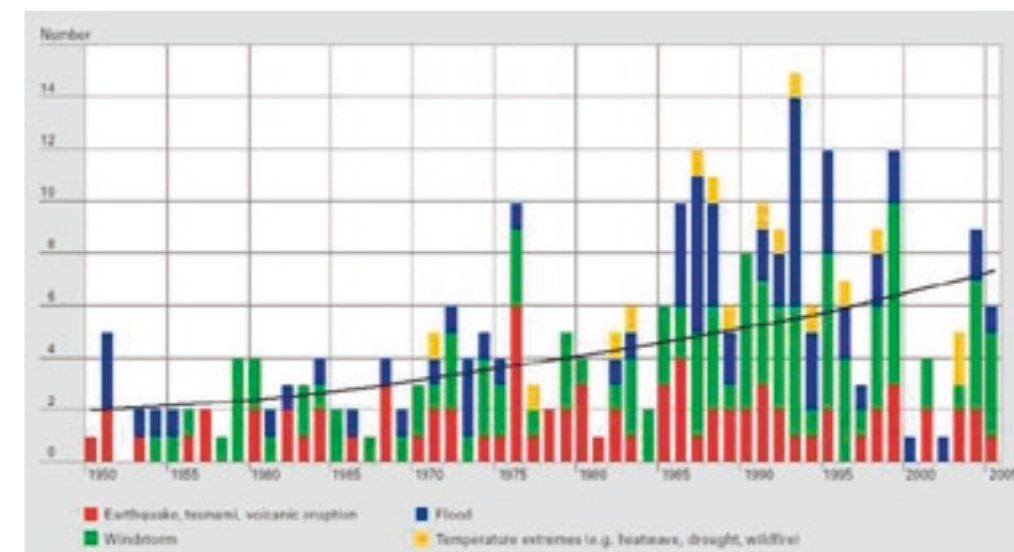
Source : S. Hallegatte <http://www.agroparistech.fr>



The consumption of 8 towers in La Défense.
Source : S. Hallegatte <http://www.agroparistech.fr>



Source : S. Hallegatte <http://www.agroparistech.fr>



Source : S. Hallegatte <http://www.agroparistech.fr>

APPENDICES

EMPLOYMENT'S GEOGRAPHY IN ILE-DE-FRANCE IN 2006 », EDITION 2009

Edition 2009; Insee, IAU idF, Apur, Dreif

The central business districts

Higher metropolitan functions of the region are gathered inside the heart of the agglomeration. The QCA (Paris's central business district) and La Défense have a high service jobs density which is also developing inside the agglomeration.

The main center business clusters can be identified by their total job density, and other indicators, such as the salaried employment's volume, the executives density and salary, the number of major companies and headquarters of over 100 employees, their specialization level. They also welcome an important offices space area.

In the agglomeration's center, there is also:

The two major metropolitan poles, the QCA and La Défense which sprawled over the nearby cities ;

Tertiary and specialized poles such as Front de Seine and Val-de-Seine, Lyon-Bercy-Tolbiac, the Montparnasse Pole

Future tertiary clusters: Plaine Commune, Bagnole-Montreuil, Malakoff-Montrouge...

Paris's QCA gathers 467 000 jobs, 28,4% of the Parisian's jobs over less than 8% of the city's territory. The perimeter covers all of the densest job areas in the West of the capital, which gathered in a geographical continuum. This area concentrates the high value-added intermediation jobs of the capital, especially the management and coordination jobs. Its an evolving perimeter and its spreading effects are

permanent. There are 19 districts or neighborhood parts spreaded over 6 « arrondissements » (1st, 8th, 9th, 16th and 17th). These six districts have 650 104 jobs. With the addition of the 15th district, there are 787 667 employees.

This territory's average density is 583 jobs/hectare (189 for Paris and 4,5 for the region). The densest area welcomes 39 000 employees per hectare. 53 islets have an over 2000 jobs/ha density and the more important ones are located in a space between the south of the rue de Chateaudun and Saint-Lazare, in the West of Boulevard Malesherbes and of the Rue Royale, in the North of Boulevard de la Madeleine, Boulevard des Capucines and of the rue du Quatre-Septembre, in the East of rue Montmartre, between the 2nd, 8th and 9th districts. This important density is built around political decision sites (Elysée, Matignon) and economical (Bourse de Paris) and leans on the presence of major companies headquarters. This territory concentrates a large part of the financial jobs, services to companies, but also has an important part of luxury activities such as textile, and clothing (Haute-couture is very important) or hotels (luxury hotels and hotel and restaurant employees).

It welcomes one third of the companies who hire a 100 or more employees. According to Fortune Global 500's ranking, the QCA and Paris's south districts (15th and 16th) welcomed 27 out of the 37 major international headquarters located in France in 2005.

A qualified workforce, the nearness of

political, institutional and private power centers, a top-quality public transport service are the reasons why high-value added activities tend to concentrate inside this area and mainly in the metropolitan-center's business triangle.

Finance activities and services to companies are the main activities and make the core of the QCA's economy, with 223 900 employees, corresponding to 48% of the salaried jobs counted in that cluster. (weight of the 2 sectors in Paris = 32,5%).

Like in the rest of the capital, there are more women in the QCA than in the region (51% against 47%). Nonetheless, the social map of the territory's jobs shows an over-representation of CEOs, craftsmen and merchants, as well as executive compared to the rest of the Parisian territory. Thus, if the QCA gathers 28,4% of the Parisian jobs, it also gathers 37% of the CEOs, craftsmen and merchants, as well as 35% of the capital's executives.

The district of La Défense/Seine-Arche is the result of the public authorities policy during the 1950's. It has become one of Europe's most important business district and welcomes the headquarters of major European companies such as IBM, Total, Areva. The district is mainly covering the two OIN operations (National Interest Operations) of La Défense and Seine-Arche 2, but the effects of its sprawl are forcing the perimeter to evolve. The district gathers 147 000 employees.

La Défense (4) gathers 115 000 jobs (5) and over 3 million m2 offices area (6). In the center, the job density is over 800/ha.



Densité d'emplois en première couronne
Source IAU

The district welcomes 0,5% of the job providing companies of Ile-de-France, but this proportion rises to 3,5% for the over 100 employees companies headquarters of the merchant sector. The company's administration, a transversal category that groups the « management, tutelage and representation activities in relation to the possession or the control of the social capital » is very important: 11% of the employees (2,1% in IDF). This grounding is a characteristic of La Défense's part as an economical decision center. The district has a very important services to companies activity (40% of the district's jobs and 4% of IDF's jobs in that sector), and finance activities (respectively 27% and 11%). Computer science activities represent 14% of the district's jobs (16 400 jobs) and finance intermediation, including bank activities (Société Générale, Fortis, BNP Paribas), 16,4%.

Seine-Arche gathers 32 000 jobs, 22% of them are in insurance activities, 10% of the region's jobs in that sector.

La Défense's area progressively sprawled over the nearby cities (jobs and offices space). It is in the center of a job cluster regrouping all or parts of Puteaux, Courbevoie, Nanterre, Colombes, La Garenne-Colombes, Levallois-Perret, Neuilly-sur-Seine, Suresnes and Rueil-Malmaison. This cluster is « organized around the business district » and « has a high middle management and executive jobs density as well as services adapted to international companies's decision centers ».

These nine towns welcome 50 3000 jobs, 9,5% of the region's total and an important offices space : 6,6 million m², 14% of the regional space. The employment rate is rather high, with 1,58 job/active resident against 0,94% in IDF (9). The social portrait of the jobs is varied: executives and middle management represent 44% of the employees, 15% of the executives working in IDF. The 10 main merchant companies regroup over 50 000 employees and the job cluster welcomes 134 companies of over 500 employees, 20% of IDF's total. On this scale, the situation is varied and the towns show differences. Courbevoie, Puteaux and Nanterre welcome La Défense/Seine-Arche, which represent 76% of the jobs in Puteaux, 58% of Courbevoie's and 34% of Nanterre's. These cities are focusing on services to production,

but Nanterre is different with the importance of public administration (préfecture, conseil général, CPAM, University). Neuilly-sur-Seine and Levallois-Perret are making the transition to Paris's QCA and the services to companies are important (Ernst&Young, 1100 employees, Aspirotechnique, 1800 employees). There are also more specific activities like Publishing (Hachette Filipacchi in Levallois) or Perfumes and Cosmetics (Chanel, Yves Saint-Laurent, Clarins in Neuilly). Suresnes and Rueil-Malmaison welcome the headquarters of Dassault, Novartis, Unilever. Companies administration services provide over 7 000 jobs, pharmaceutical industry hire 3 900 people (1/8 of IDF's employee in the sector). Colombes and La Garenne-Colombes, next to each other, are less connected to the business district and are focusing on production. Many high-value added technologies activities are in Colombes (Thales, Snecma, Alcatel). La Garenne-Colombes welcomes Peugeot's technical center and its 3 000 employees (R&D, including CAD)

QCA and La Défense have an international status and are working in a tight and permanent relationship. Together, they represent half the regional jobs in insurance, financial intermediation, professional services, finance and insurance auxiliaries, and more than a third of the pharmaceutical industry, CS, and companies administration jobs. The QCA and La Défense seem to be completing each other: Paris's QCA shows an important specialization for professional services (accounting, legal and consultancy activities) and an important presence of businesses, hotels and restaurants, which make it very attractive. La Défense is focusing on financial intermediation, insurance, telecommunications, CS, and companies administration.

Other identified tertiary poles are less dense than the QCA and La Défense:

Le Front de Seine - Val de Seine covers part of the 15th and 16th districts in Paris ; Lyon-Bercy-Tolbiac covers part of the 12th and 13th districts. Montparnasse in Paris ; Plaine Commune in Seine-Saint-Denis ; Bagnolet-Montreuil.

(1) Activities or functions allowing traffic of goods, ideas, production, information and knowledge treatment, the organization and coordination of the economy.

(2) In 2006: La Défense's OIN on Puteaux and Courbevoie's territory, planned by the EPAD ; EPADESA is in charge of Seine-Arche's OIN.

(3) The perimeters for the job data analysis are defined by grouping the « Regrouped Islets for Statistical Information » (IRIS). The selection is made to approach the OIN's perimeter.

(4) La Défense's area corresponds to EPAD's perimeter (IRIS grouping)

(5) Within the immediate suburb, the Faubourgs de l'Arche sector (ZAC Danton) welcomes 13 000 employee, but is not counted.

(6) Source : EPAD.

(7) 18,3% including IBM, which is registered under « wholesale merchant ».

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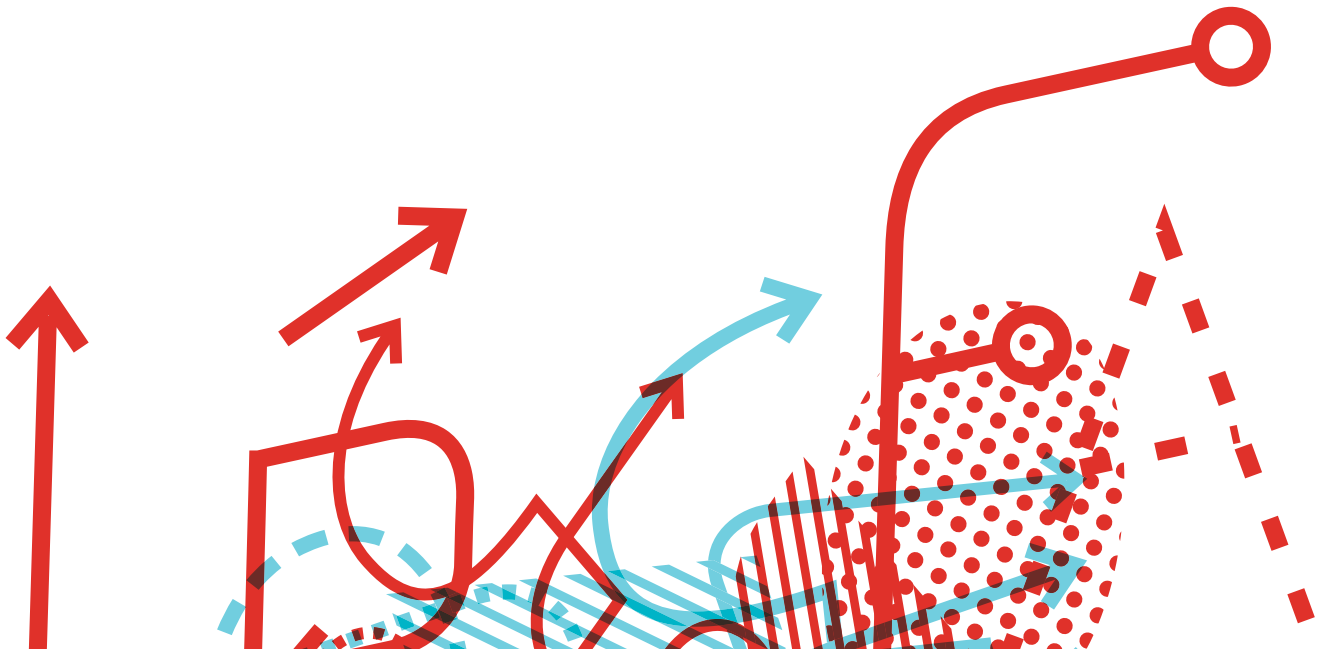
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