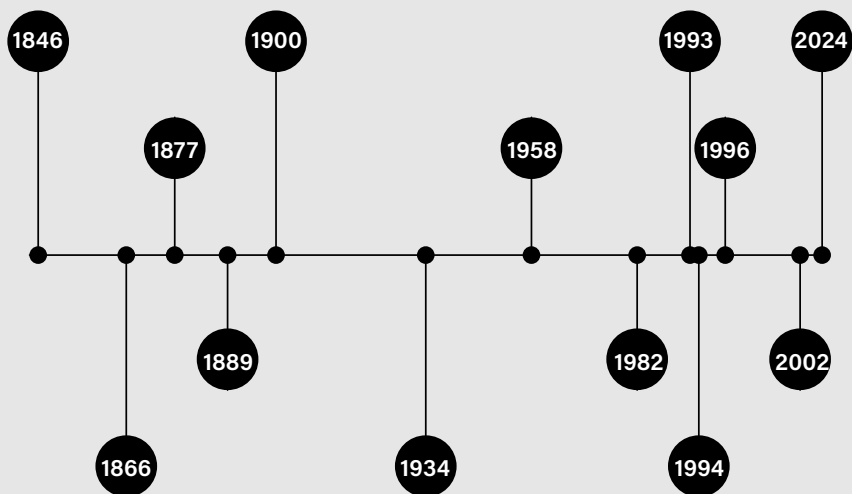




Timeline

1846: inauguration of the first section of the Paris-Nord line in Lille, and the station

1846: inauguration of the Paris-Nord line in Lille and the Gare du Nord

1861 to 1866: reconstruction of the Gare du Nord, by the architect J. Hittorff

1877: modification of the track plan, passage from 8 to 13 tracks

1877: construction of a hall for partial coverage of arrivals

1889: first extension, from 13 to 18 lanes

1900: second extension, passage from 18 to 21 tracks and construction of an annex station

1934: development of the front station and redistribution of tracks

1934: after the closure of the ring roads, the station continued to accommodate suburban trains, hence its name "annex station"

1958: electrification of lines

1977 to 1982: development of the underground station, for the north-south interconnections of lines B and D of the RER;

1993: opening of the LGV Nord and putting into service of the TGV Nord Europe

1994: first Eurostar services, connecting Paris to London-Waterloo via the Channel Tunnel

1996: Thalys goes into service, connecting Paris to Amsterdam via Brussels

1999: inauguration of RER line E and Magenta station

1998 to 2002: "Gare du Nord Échanges" operation

2024: New Gare du Nord project

01.4.3.

Gare du Nord, Paris, France

The main train stations in Paris have been many times transformed, enlarged and replaced during the 19th and 20th century, in order to answer society and technology evolving constantly.

Before being today the busiest non-Japanese station in the world with almost 600 thousand travelers every day⁴⁸ and serving international destinations like Belgium, the Netherlands, Great Britain and Germany, Gare du Nord had a complex history, that we will summarize in three steps:

- Gare du Nord 1 - first a non-built project from around 1830, the "Projet Bourla" that is particularly interesting in terms of typology, ornaments and symbolic that are very characteristic of train stations as an architectural type from that period
- Gare du Nord 1- then the first station built on the site by an architect and Ponts et Chaussées engineer, Léonce Reynaud
- The station as it is today, considered as designed by the architect J. I. Hittorff even though most of the project was probably there before he started working on it
- An upcoming project for the extension of Gare du Nord because of, amongst other reasons, the upcoming Olympics Games Paris 2024

⁴⁸ Data from the French rail company,
https://ressources.data.sncf.com/explore/dataset/frequentation-gares/table/?sort=voyageurs_2016



Figure 85 General base plan for the Bourla project, original Gare du Nord

Creation of the first Parisian stations

In the beginning of the XIXth century, the first train companies were formed, aiming not only at the transport of goods but primarily of travelers. The most daring undertook the line from Paris to Saint Germain, then, two railroads from Paris to Versailles, one on the right bank, the other on the left bank of the river.

Curiosity attracted the crowds. The number of enthusiastic Parisians, surprised the public authorities and proved them the interest and especially the future of this means of transportation, incomparable, not only for leisure and the necessities of daily life, but especially for exchanges between factories and retail places. Stimulated by these successes, new companies were organized in the South of France as well, to run a railroad between Montpellier, Sète and Nîmes as we saw just before.

This marks a slow start for the first tests in France, considered as a country wanting to be at the head of progress but whose private industry was suppressed, lacking faith in progress and taste for risk. In Paris, the first experiences consisted in the construction of "head stations" dedicated to leisure purposes. To make these strange buildings of gigantic dimensions - required by the needs of their operation- accepted, the facades and the halls were filled with various triumphal arches and pediments, decorations of friezes or pilasters, making them look like monuments and therefore more easily acceptable for the population. Thus, hidden under allegorical paintings or sculptures with mythological references, forms and volumes lost their strangeness. Comforted by this familiar reading, the less anxious Parisians became fascinated.

When in 1860, Napoleon III and Haussmann decided to integrate the peripheral districts into the city center; they discovered that the capital was surrounded by a constellation of stations, forming tight nuclei in the heart of a

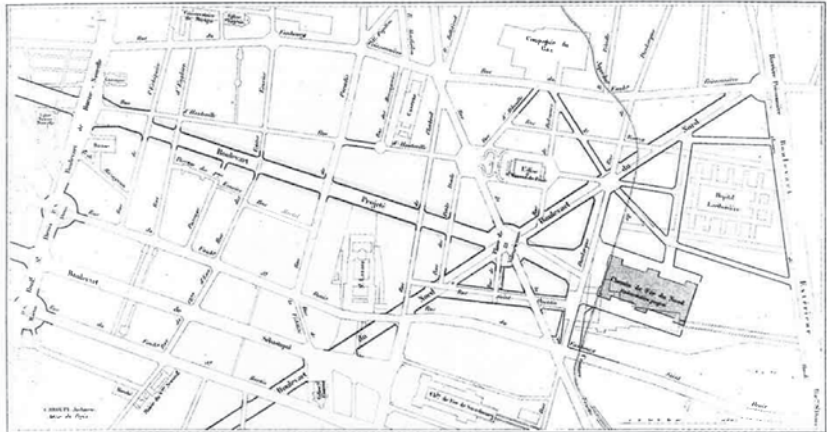


Figure 86 Plan of integration of Gare du Nord I in the Haussmann plan

loose urban fabric. To highlight these sumptuous monuments forgotten in underprivileged districts, their first objective was to free them.

Once laid out, the outskirts of these prodigious complexes, palaces of industry, a reflection of triumphant modernism, it was decided in collaboration with Haussmann to create long perspectives projecting their original and majestic silhouettes to the very heart of Paris. In the case of the Gare du Nord, Place de Roubaix and Boulevard Denain were cleared on Boulevard Magenta.

Following the topography of the river beds or the valleys, the rails came from the four horizons of France, to join the grounds assigned to the stations, to pour passengers and goods or to absorb the reverse traffic.

From their origin, the "head stations" had been rejected from the luxurious districts of the city center, the upper bourgeoisie being frightened by their noise, their smoke, the congestion caused by departures and arrivals. Usually all the "head stations" being reasonable and less ambitious were always warmly welcomed. Considered by commuters as a source of wealth and pleasure, as soon as they were established in peripheral areas, they attracted service agents and workers, various hotels and shops, more or less luxurious transport, bringing travelers and goods from all sides.

"Head stations" have evolved with techniques but also with lifestyle and style trends. Thus we can read about successive buildings on the same land that were built one after another, or buildings in perpetual redevelopment, making it difficult to specify when the first was supplanted by the second. With their monumental facades, their brand new and titanic halls, their innumerable courtyards, their endless access corridors and waiting rooms for travelers of all

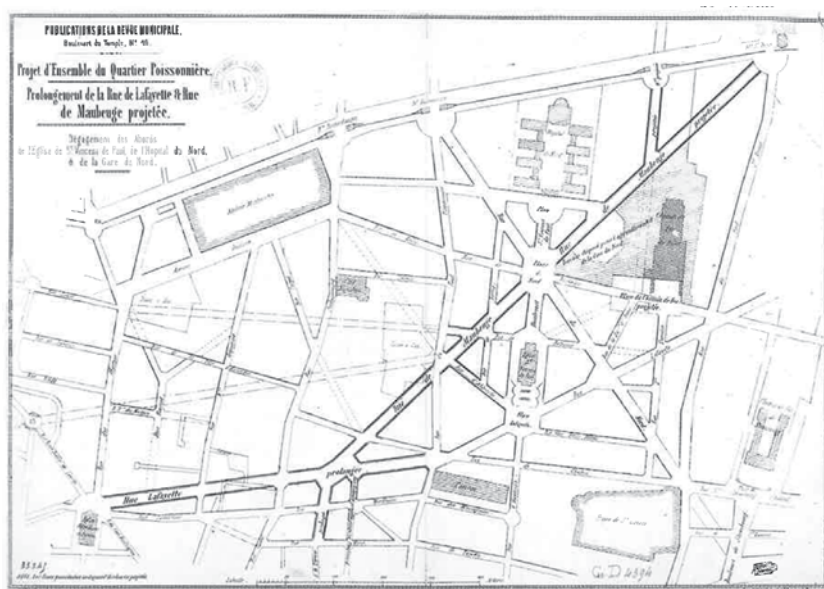


Figure 87 Final implantation plan of Gare du Nord II

classes, these terminals, reflect in their own ways, the art of living and designing the railways, specific to the decade that were built and designed.

Their appearances have varied, not only with the trends of the time, but especially according to their owners and their builders. At the beginning, that is to say in the heroic era when the "head-stations" had the mission to convince the opinion of the safety of the means of transport proposed, everything was about rigor and sobriety. Rational and functional, the first "head-stations" were basically presenting the new techniques. They proudly erected, in volumes of unprecedented scale, their monumental halls.

When they were financed by the State, the engineers took the power in the design and management over the architects. Iron, glass, new materials and latest discoveries prevailed there, giving them a lot of power and fascination. Their presence and arrangement were enough to serve their magnificence. Astonishing, moving and sometimes frightening fearful crowds was possible at a time when the steam engine did not inspire confidence and when professionals were not sure of mastering it.

Then came the time when the technical challenges got solved, the fears forgotten, the populations accustomed to travel by rail, demanded comfort, speed and luxury. The stations having lost their desire for adventure or their imaginary around newness became places where we loved to meet, especially to leave, live and conquer new regions or new ideas. At that time, the whole symbolism around train stations switched in France. Reflection of an original art of living, the stations of the end of the century became an icon trying to attract the traveler. The factory has transformed into a palace. The waiting

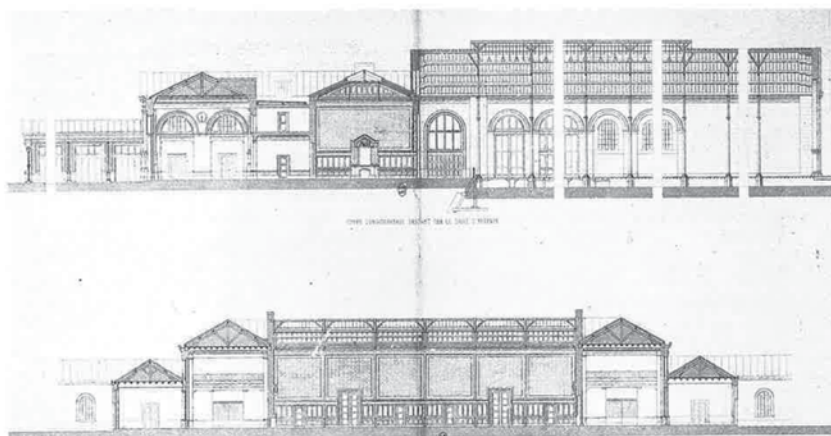


Figure 88 Sections of the project of Gare du Nord I

rooms have become reception rooms. The utility services are arranged in sumptuous spaces.

A project in many phases and options

It's only in 1845 that the railway was conceded to the big bank company led by James de Rothschild. The first project of Gare du Nord was realized by the engineers from Ponts et Chaussées, especially Léonce Reynaud, architecture professor who became director of the engineering school and then architecture professor at Ecole Polytechnique.

Gare du Nord I That first station was placed in Abattoirs Street, in front of the Magasins Street, slightly north from the previous project that never happened. Even though it functioned only for a short period (public opening June, 14, 1846 and then enlargement project in 1859), it had a great influence due to its numerous press releases. An important one was written by Daly (Léonce Reynaud, *Traité d'architecture, contenant des notions générales sur les principes de la construction et sur l'histoire de l'art*, 2 vol., atlas, Paris, 1851-1858; 2e edition, 1860-1863; RGA, T, VI, 1845-1846) in an article about train stations disposals where he reveals details of the interiors organization, of the construction and décor. The construction of the halls was particularly noticed. It combined masonry, wood and steel. We especially admired the hollow metal columns, which had to collect the rainwater and then pour it into the sewers of the city. The second part of Daly's article presents an analysis and description of the waiting rooms and vestibule. The concern for maintaining order among the passengers played a very important role in the layout of the stations. The travelers were divided into these rooms according to their class to await the departure of their convoy. In order to avoid uncontrolled crowd movements and to prevent "travelers with tickets from inferior places seized with



Figure 89 Archive - perspective drawing of a potential hall for Gare du Nord

confusion, from places which do not belong to them", travelers were locked up in waiting rooms whose doors were opened by the agents of the station only a few moments before departure. (Polonceau et Bois, "De la disposition des gares de chemin de fer", *Revue générale de l'architecture*, T. I, 1840). Gare du Nord in Paris had "sliding" waiting room operations, a system illustrated in detail by Daly. In 1847, it was the only railway station in France to have no "guillotine" doors, which were called "modern, fork".

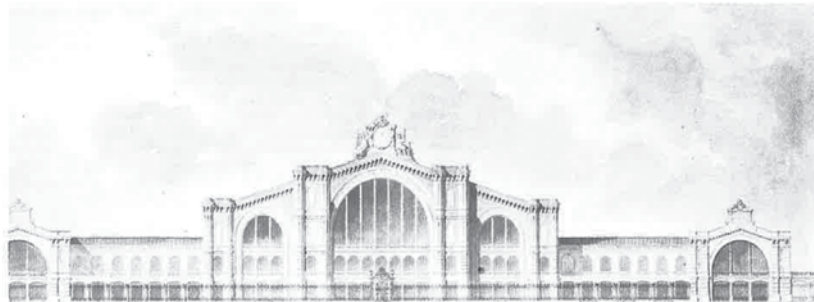
This station had a short life. If historians have rightly explained this brevity by the inability to respond to ever-increasing attendance, we know that the whole was designed precisely to be able to adapt to the increase in traffic. Daly's articles clearly show the importance of these considerations in the design of the station. Indeed, the first Gare du Nord was designed from the beginning to allow the addition of new routes, "flexibility" necessary to meet future needs. Daly, of course, finds the waiting rooms cramped; they were, however, the greatest of the time. It is true that the growth of suburban traffic seems to exceed even the broad forecasts of the engineers of the Ponts et Chaussées.

The architecture of the station has obviously suffered other influences, including those of the station of the Place de l'Europe of the Saint Germain line. As for the latter, we find here a disposition with a central body articulated in glazed arched bays separated from Doric pilasters, and flanked by two wings flanking a courtyard. These are veritable galleries, where shops were arranged for small purchases of departing travelers: "cigars, newspapers, strings, knives and cakes", as specified by Daly.

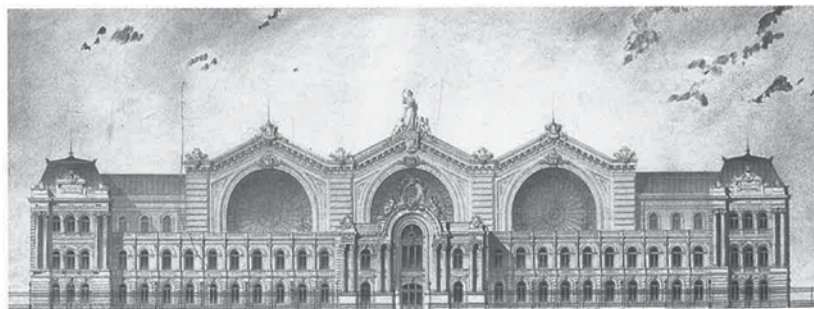
At the time of the construction of the new Gare du Nord, only part of this first ensemble was preserved: the gates closing the courtyard were removed, as well as the wings flanking the courtyard. The facade itself was dismantled stone by stone and transported to be reused in the construction of the Lille station, where it was surmounted by a floor and a clock, but its facade remains clearly recognizable.



«Nelle Gare de Paris Façade de Tête Style Corinthien N° 2» (s.d.) (S.N.C.F., archives de la gare du Nord).



«Nelle Gare de Paris Façade de Tête Style Construction N° 5» (s.d.) (S.N.C.F., archives de la gare du Nord).



«Nouvelle Gare du Nord à Paris. Projet de façade place de Roubaix, Projet N° 1». En bas à droite : «avril 1859». (S.N.C.F., archives de la gare du Nord).

Figure 90 Options and variations for the main facade of Gare du Nord II

Gare du Nord II Given the importance of this station as a Parisian monument, and the celebrity of the architect who is attributed his design (J. I. Hittorff), it is unfortunate that its origins are so confusing and difficult to establish. It is not for lack of information; On the contrary, we have an abundant documentation of the station.

Karen Bowie quickly resumes the chronology that it is possible to release books of Clozier and Hammer, before turning to the questions raised by our own research: the authorization of enlargement was obtained in 1857; a program for clearing the approaches to the station was agreed with the city in 1858; Ohnet and Lejeune worked on the preliminary plans of the station until the recruitment of Hittorff by Baron Rothschild in early 1859; Hittorff apparently worked with more and more independence from the Company's architects on another series of pre-projects, published by Hammer, until the beginning of the works, in 1861. The new station was commissioned in 1864, but definitively completed in early 1865 only.

It seems like the design was a long process that involved the evaluation of many options, partly, as we said before, in order to make the building as flexible as possible for the changes to come. Some reports explain how the Company's requirements have been analyzed in setting a clear program for the architects. The station was to comprise two distinct services, one of the travelers, and one of the administration. Three "options" were possible for their implementation: grouping the two services in a single building at the head of the line; establish front offices at the head of the station, but separated from the passenger service; or completely separate the administrative offices from the public service. Eventually it was decided that isolating the administration part would be a good way to save money, which is the solution that was chosen to be investigated by the architects.

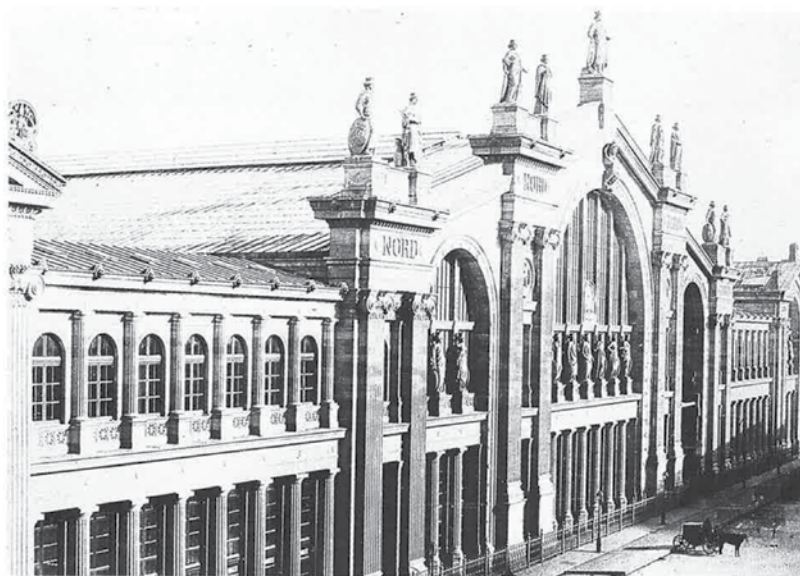


Figure 91 Picture of Gare du Nord II, approx. 1900

Some pre-projects The "Nouvelle Gare de Paris - Bird's-eye view of the surroundings" was probably part of the project sent to the Minister of Public Works (and agreed with the City of Paris?) In 1858. The station included a building of head behind which stood a large hall with three roofs. Although it is very difficult to distinguish the details of the building on this plan, it is possible to see that, while being less elaborate, it resembles in its general part to the "New North Station in Paris, Facade Project on the Place de Roubaix. Project 2, dated March 20, 1959. At that time, the façade project envisaged elements of the "cariatide" or "atlante" type. Even after the withdrawal of the project submitted to the Minister of Public Works in 1858, certain aspects were probably kept for the development of the program that followed the "first formula" exposed by Mr. Couche at the May 11th meeting of the Board of Directors. 1860.

The "Façade Project Place de Roubaix, Project No. 1", dated April 1859, has some elements in common with the "Project No. 2", dated March 1859. If the pavilions of the ends have a floor of less and facades indicating "departure" and "arrival", the party of a framework of ionic columns twinned on high bedrock is maintained. This project was probably designed with the intention of studying the "second option", where the buildings of the administration are distinct from the service of the travelers even if they constitute the principal facade of the station. Two other drawings represent possible solutions for the roof of the hall, and for the internal elevation of the side façade. They envisioned a hall with three roofs, different from the hall with a single roof done by Hittorff.

Note the contribution of the architect in this area that could rather be considered as engineering. This is not surprising in this architect known for his research in covering litters with few points of support (his circuses) and for his curiosity about new building materials. But the question of who should return the design of the hall of the station to the architect or engineers of the



Figure 92 Picture of the creation of Gare du Nord II, approx. 1900

Company, is significant for the history of the architectural-engineering relations during this period.

Another series of pre-projects correspond to research in the sense of the "third formula", which separated the station from the administration services, and which was finally selected.

In these studies, important aspects of Hittorff's facade is already visible: the large central pavilion, crowned with huge creeping cornices, is pierced by three arched windows, separated by monumental twinned columns, which are surmounted by enormous entablatures. Florentines and supported by high bedrock. In the final project, the columns were replaced by pilasters, with the entablature in "Roman Empire" style. This central pavilion is flanked by two galleries ending in smaller pavilions. The architect has a specific style which is characterized by the concern for a high precision and the search for effects of elegance and lightness. Gare du Nord is the first station in Paris that can be described as "monumental". Despite the concerns of "propriety and economy" issued by the directors of the Company, it is also the station most loaded with statuary: its facade offers a real introductory course to the French sculpture of the nineteenth century, with its 23 statues made by 13 of the most eminent sculptors of the time.

A moment in the architecture of train stations

This particular train station's history is very important because it shows indeed a "moment" in the history of architecture: the traditional way of building, aligned with the "Fine Arts" techniques, tends to explode in regards of the new requirements of these ensembles whose layout must be designed depending on various and irreducible activities that do not lend themselves to a

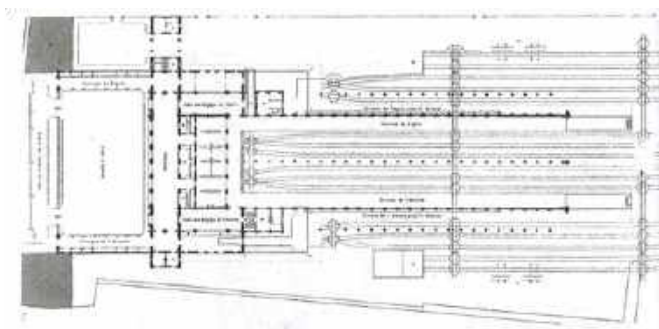


Figure 93 Ground Floor plan, Gare du Nord I

symmetrical and balanced organization. We observe a switch in the hierarchy of priorities when it comes to the design of this type of buildings.

The second station of the North seems to us to express another phase of the wanderings of taste and the aesthetic experience of the public in the nineteenth century. The Board of Directors, in defining the program for the reconstruction of the Gare du Nord, during its meeting of May 11, 1860, declared its willingness to please "the ones who think that the convenience and the economy are the first conditions to be fulfilled by architecture, especially when it comes to industrial construction."

If we can hardly imagine that Hittorff has opposed these criteria, the use of such an architect is nevertheless surprising for the execution of a program thus defined. If it was the President of the Company, Baron Rothschild himself, who took the initiative to call on an architect outside the Company (as is the tradition), and this after three years of study by the architects of the Company is that there must have been a fundamental change in the design of the intended effect.

From being a monument, and icon in the cities, train stations become places of high efficiency and cost savings. In this era of industrial revolution, train stations become this image of bigger changes in the society. From then on, they will reflect much more their primary functions which is transportation of people and goods, but they will also be symbols of industrialization in the choice of materials, repartition of functions, etc.

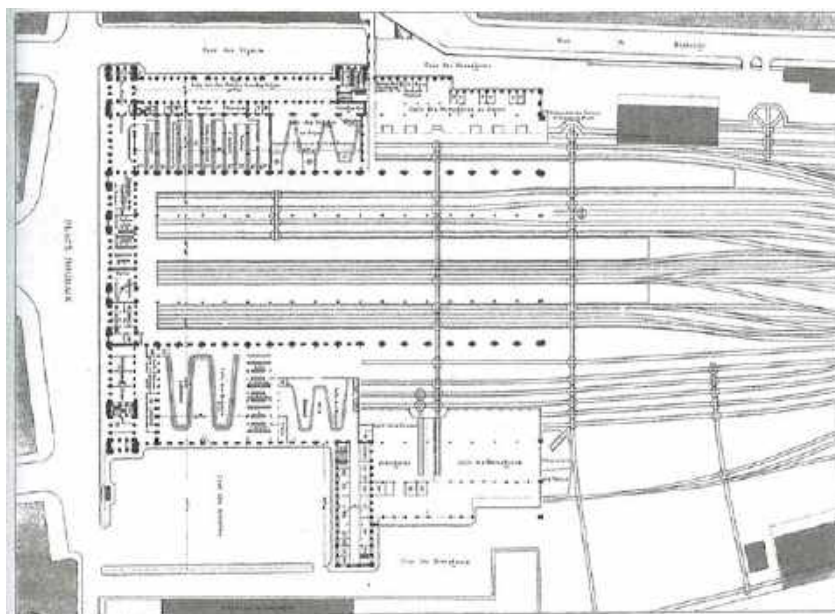


Figure 94 Ground Floor plan, Gare du Nord II

A monumental piece of architecture

Reflecting the modernity of the industrial civilization, the Gare du Nord, considered the most beautiful example of Parisian stations, is characterized by the modernity of its architectural conception.

In 1861, architect Jacques-Ignace Hittorff took over the reconstruction of the Gare du Nord. He draws a U-shaped building typical of the first major urban stations and a monumental facade magnified by the great breakthroughs of the prefect Haussmann. Gare du Nord was criticized in its time for the clumsy juxtaposition of two contradictory logics: the volume that houses the quays and which takes the form of an industrial hangar 200 meters deep and 180 meters wide is associated with a facade of stone with classical vocabulary adorned with twenty-three statues representing the main cities of destination. The central pavilion of the station evokes a triumphal gate with three arches, which has become a new entrance to the modern city. The central nave of the station hall is 70 meters wide and 30 meters high, made possible by the use of metal trusses with a span of about 35 meters, supported by cast iron columns. A new aesthetic, adapted to the purpose of the building, appears.

The Gare du Nord has monumental dimensions: its facade is 160 meters long, its large hall is 38 m high and 200 m long. One of the greatest names in XIXth century architecture, Hittorff, a Greek architecture enthusiast, was commissioned in 1861 by Rothschild to build it in this district remodeled by Haussmann. Neoclassical, the "second" station comprises a central building, bordered by two halls. The main body consists of three huge arched windows, separated by imposing twin columns surmounted by Ionic capitals.

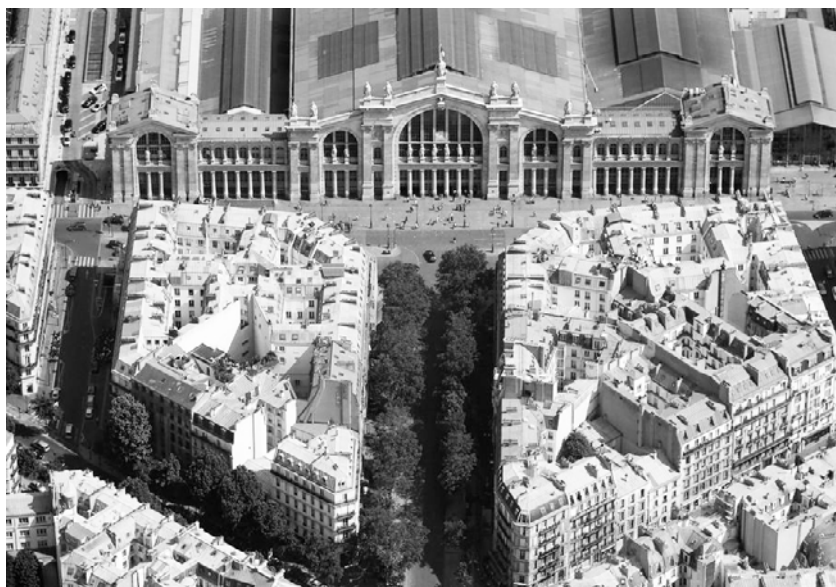


Figure 95 Contrast between the majestic front facade and funtionnal halls of the station

From the top of the "bridge of commands", long interior gallery which runs at the level of the first floor, one could control at sight all the movements of the trains. The station was exclusively reserved for the transport of passengers, freight traffic and repair shops located further north. In the following century, because of a quest for modernity, everything accelerates. In the 1990s, with the arrival of the TGV (fast train), and afterwards the Thalys to Brussels (Belgium), Amsterdam (Holland) and Cologne (Germany). Eventually, the event that gave it another perspective happened with the opening of the undersea Tunnel, the Eurostar between Great Britain and France, inaugurated by François Mitterrand and Elizabeth II in 1994.

The station gets in addition a mezzanine overlooking the docks in the London lobby, for specific access to boarding halls, customs, etc. The Gare du Nord becomes the first railway station in Europe: it welcomed at the end of the XXth century 700.000 passengers a day, each following its itinerary in a real labyrinth. On average, a train runs on the tracks every three minutes. With the opening of the Eurostar, the station enjoyed a huge revival, while maintaining its architecture listed as a historic monument. If the railways belong to everyone, the exploitation of various types of lines (TER, Transilien, Intercités but especially TGV, Thalys and Eurostar) is autonomous, and the harmonization very complicated.

With the increase of number of travelers came a restructuring plan led by the office of Jean-Marie Duthilleul in 1997 called "Gare du Nord Echanges" to improve the connection with the suburban trains RER lines B, D and E. At that time was also developed the nearby car parking and some retail areas. This project had a clear ambition for modernity with the use of materials like concrete, glass and wood.



Figure 96 Access to platforms today - Gare du Nord II

In 2007, a landscape project aimed to gather the users on a front plaza, allowing people to have an easy access to the station by walking but also with bikes, cars, taxis or bus.

A new project initiated by the Olympic games

In 2017, the year in when Paris won the competition to host the Olympic Games of 2024, an article was added to the law on the development of Paris to allow an express transformation of the Gare du Nord. The argument for it was that it is considered saturated and some estimations tell it won't be able to meet the increase in traffic promised by the extension of the RER line E, the development of the Grand Paris Express, in addition to the transfer of air traffic to the train that should lead the goal of a zero carbon emission. A reconfiguration project had been under study since 2014 to deal with it.

SNCF announced on July 9th, 2018 the opening of exclusive negotiations with a group led by the developers of Ceetrus (group Auchan), teamed up with the architects Valode & Pistre and the engineers of Eiffage Construction. The project plans to triple the size of the original building, before 2024: it will increase from 36.000 to 110.000 m². The project, estimated at 600 million euros, was supposed to be completed by June 2023 to reach 900.000 daily passengers in 2030⁴⁹.

New glass structure The project would be financed by a real estate branch of the Auchan group, Ceetrus. Originally known for creating malls in the suburbs, stripping the gateways to cities, the Auchan group today argues to be aiming



Figure 97 Visualisation of new facade - project Gare du Nord 2024

for "living spaces" in the city center and create urban development. Architects are responsible for integrating the main circulation principles established by Arep (architectural adviser of the SNCF), keeping in mind the increasing attendance of 100,000 people per day, with the program of shops and services established by Ceetrus. The public services part is managed by Gares and Connexions, which holds 34% of the Semop over 40,000 sqm, meaning 40% of the total area.

The architectural ambition is sum up as such:

"To bring the station into the city, and the city into the station"⁵⁰

To the right of the historic building, as a reinterpretation of Parisian passages of the XIXth century, Valode & Pistre offers a large glass nave 300 meters long and 18 wide. "It's a glass gallery, a path of light, an interior street that serves all rail, commercial and cultural activities," explains Denis Valode. Inbound and outbound passenger flows are differentiated as in airports: new gateways spanning routes for outflows, docks for incoming flows. The levels 4 and 5 are a wooden construction (planned for label Breeam), the roof is provided with gardens (7700 m²) and solar panels (3200 m²). To justify this interest for sustainability, the architect says:

"The nineteenth century was the railway stations, the twentieth century, that of airports. In the XXIth century a return to the station thanks to the TGV, but a return to a metamorphosed station in the urban center"⁵¹

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Figure 98 Visualisation of new building - project Gare du Nord 2024



Figure 99 Visualisation of new bike station - project Gare du Nord 2024

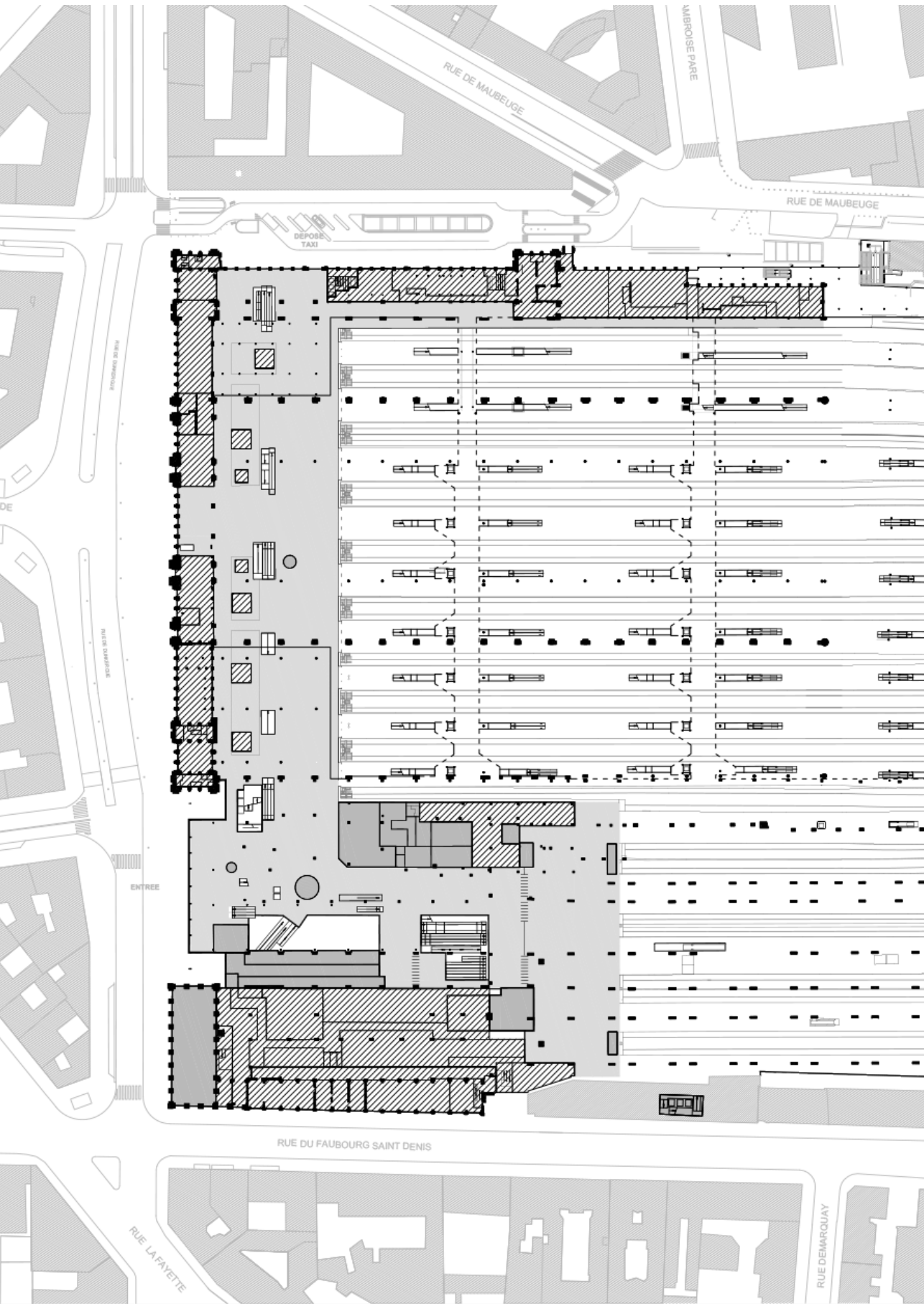
As presented by architecture team, the project addresses a few design rationales:

- reorganize the flow of travelers around a single entrance and exit, as in airports
- multiply the waiting areas by having access to the main lines by footbridges inspired by that of the Eurostar
- ease to communication with the underground station (the RER and the metro)
- promote connections with soft mobility and revive the surroundings of the station as a result

The station will remain a hub of transportation, the bus station (19 lines, with 7 of them being night lines) will be reinvented as an "eco-station" without them being very clear on what it means. A part of the public spaces will be reserved for cyclists, with a bike-station of 1200 bikes.

Additional activities and services in the station A city in the station, the new Gare du Nord will also offer "new, sustainable, intelligent, lively places, like a global player in the urban, that is to say, as a new city district", argues the CEO of Ceetrus. The retail area will increase from 10.000 m² today to 50.000 m² in 2024 taking the shapes of different programs: 40 shops (more than one third of the total surface), restaurants, cultural activities, sports, services. It is as well planned to design a usable roof terrace for sports activities.

"The train / city link is crucial. In this project, the insertion of the station in the neighborhood is smooth taking into



RUE DE MAUBEUGE

AMBOISE PARE

RUE DE MAUBEUGE

DEPOSE TAXI

RUE DE BOURGOGNE

RUE DE BOURGOGNE

ENTREE

RUE DU FAUBOURG SAINT DENIS

RUE LAFAYETTE

RUE DEMARQUAY



RUE DE ROCHOUART

RUE DE MAUBEUGE

RUE DE LA CHAPELLE

RUE DU FAUBOURG SAINT DENIS

RUE DU FAUBOURG SAINT DENIS

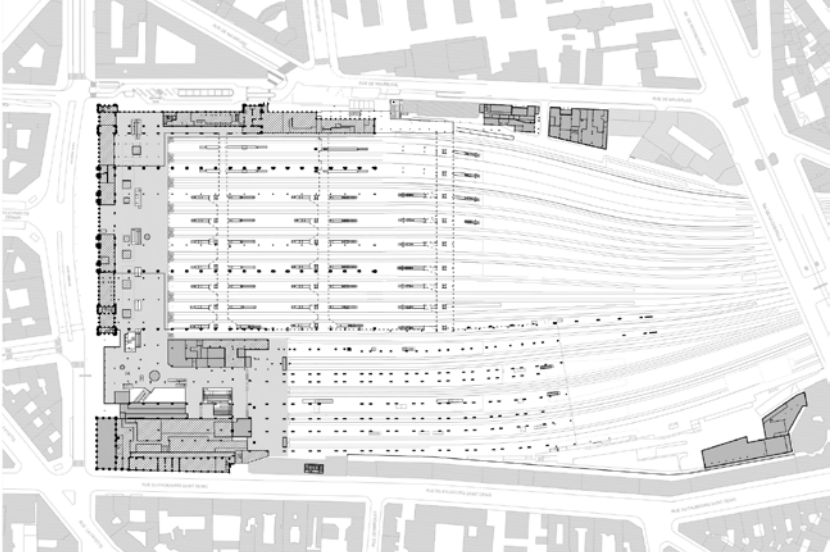


Figure 100 Project Gare du Nord 2024 - plan level 00

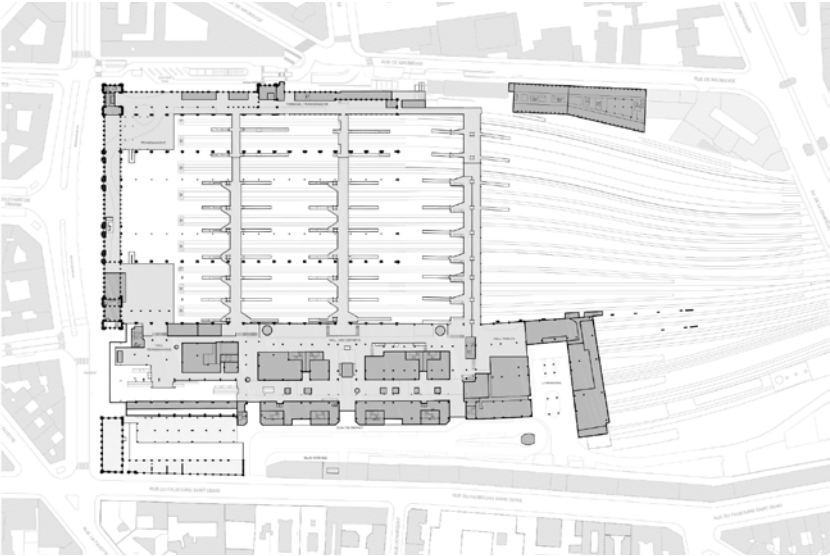


Figure 101 Project Gare du Nord 2024 - plan level 01

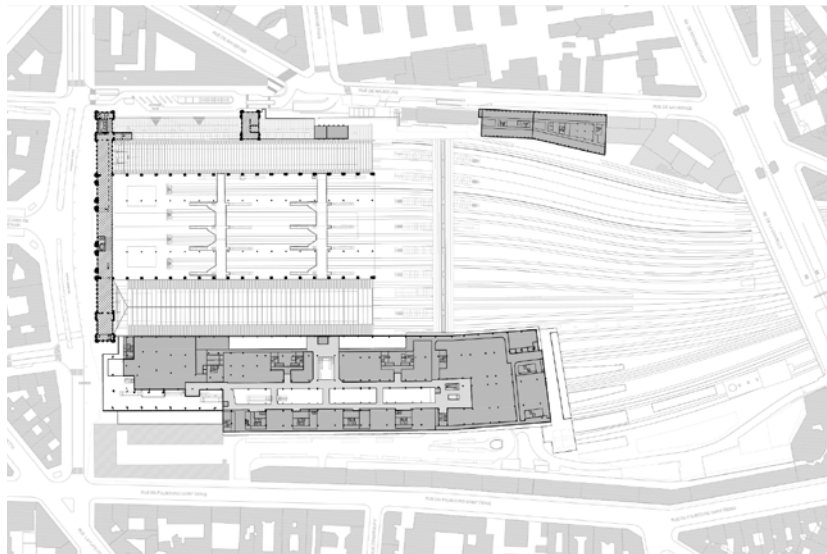


Figure 102 Project Gare du Nord 2024 - plan level 02

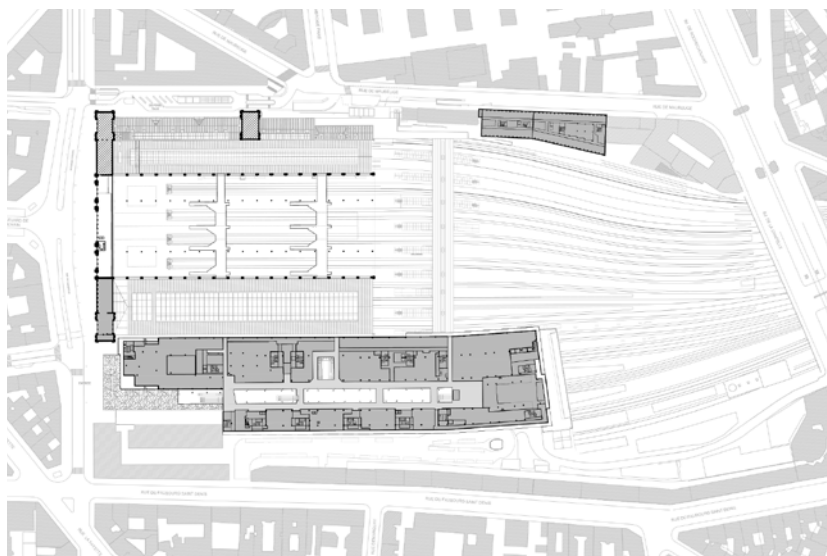


Figure 103 Project Gare du Nord 2024 - plan level 03

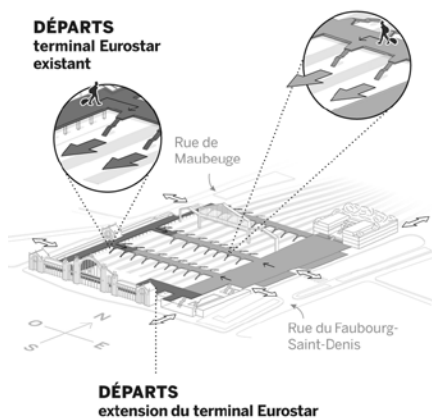


Figure 104 Flows for departure

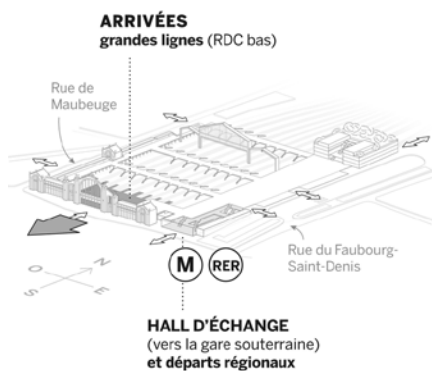


Figure 105 Flows for arrival



Figure 106 Accessibility with other transportation modes - Le Monde

account the inhabitants who live there and are not just passing through"⁵²

It is easy to notice that, despite the attempts of all the parts of the project team (developers, architects, politicians), the project appears like a gigantic shopping mall, without real attention for the architecture of the transportation. Even if the project tries to appear as a public space, the number speak for themselves. Almost the totality of the square meters is dedicated to commercial activities of some kind.

Transit routes and the vehicles they guide will continually act as important factors in the successes and failures of each urban system. However, improvements in the design of the individual station not only have the power to better accommodate those who choose the urban lifestyle, but to improve the quality of life for anyone who visits these dense landscapes. **This research understands the urban environment as a complex machine as it is built from separate systems that interact to produce a unique landscape.** One of the most important systems is public transportation, where buses, trains and subways move people from place to place on a fixed route and planned schedule

⁵² Anne Hidalgo, Mayor of Paris

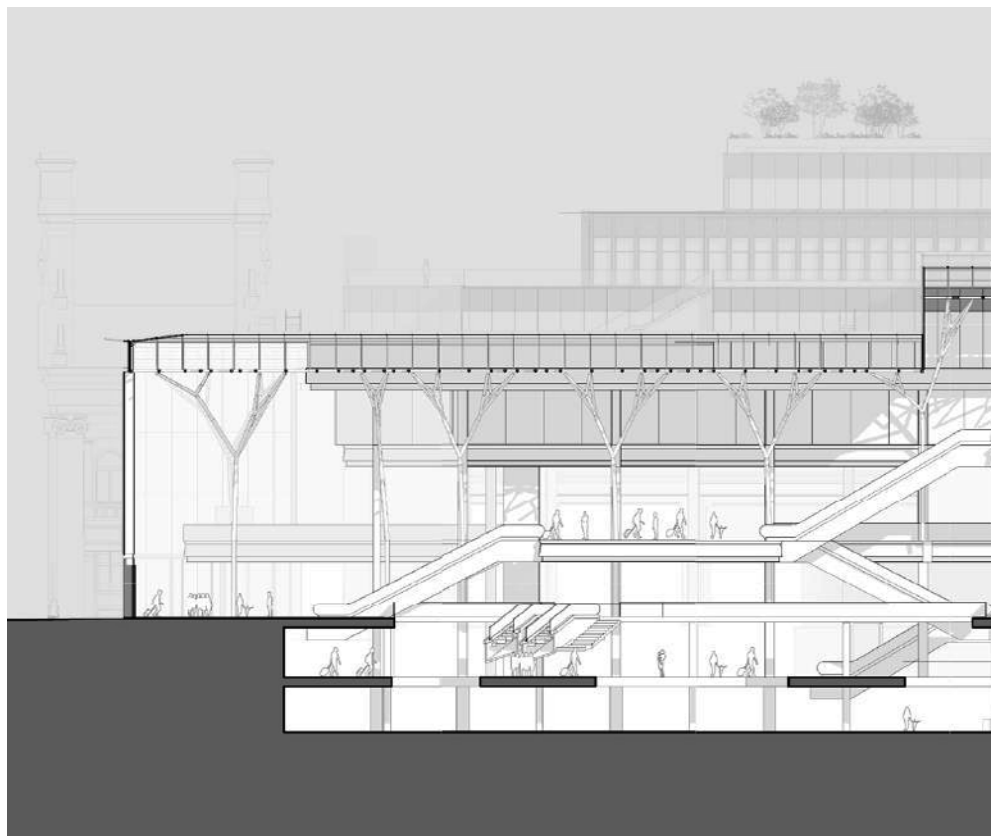


Figure 107 Project Gare du Nord 2024 - longitudinal section

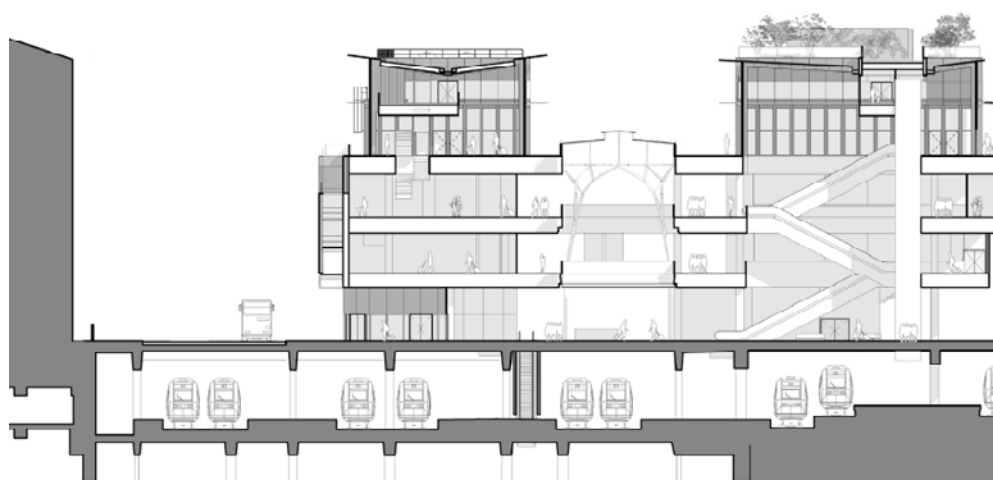


Figure 108 Project Gare du Nord 2024 - cross section

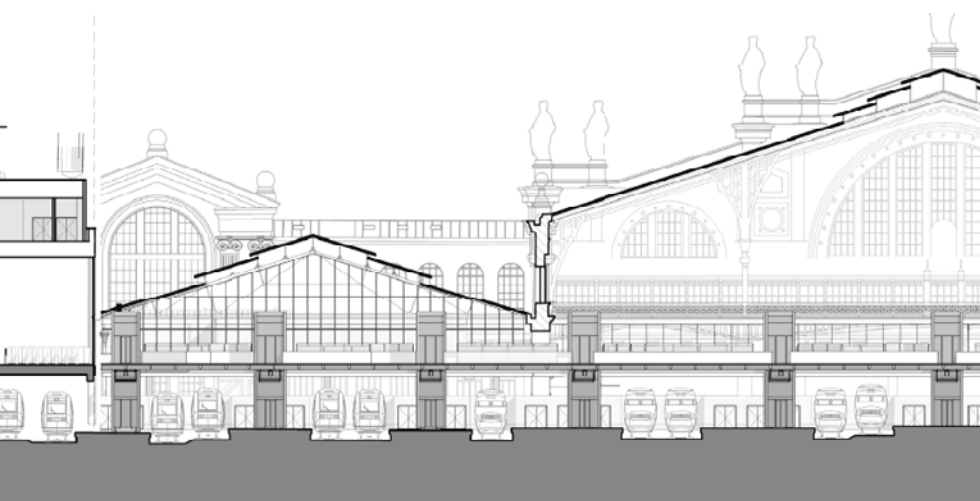
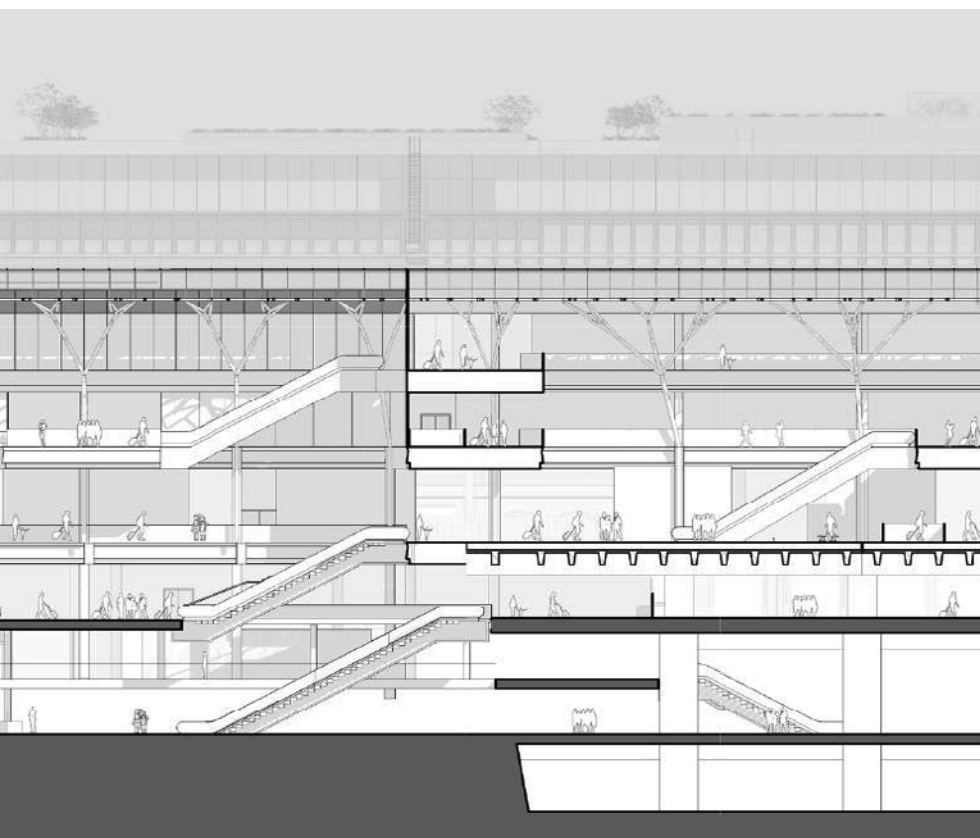




Figure 109 Visualisation of access to the platforms - project Gare du Nord 2024



Figure 110 Visualisation of the halls - project Gare du Nord 2024

Conclusion

When they were built in the XIXth century, train stations had to be accepted by the population and this was achieved by making them majestic, grandiose, inviting to travelling. They soon became icons because many of their features, from the main clock to the big halls, gave hierarchy to the cities and meant chances for discovering new horizons. With the industrial revolution, a wave of improvement and technology challenges hit them and changed temporarily their perception to high-tech places where engineering innovations happened. This phenomenon is visible in the design of stations in various ways. Then, the mid-XXth century marked the glory of cars, the authorities put all their efforts in developing the road network and trains were left for more practical solutions. But as cities expanded, a group of geographers and urban planners became aware of the impact of city planning and began a movement of change of focus, putting it back on public spaces. In this second part, we will therefore study how train station went this time from a purely infrastructural purpose to public spaces for all.

02.

**From
techno-
logical
symbols...**

...to public spaces

Train stations as source for
imaginary impacting users
experiences



Figure 111 Mapping - Montpellier Saint-Roch

To start collecting data with the intention of figuring out whether train stations identities and roles evolve over time in a dense historical city center environment, we will try to answer the following questions by various means that will be explained later on:

- Is there an actual link between the design rationales defined but the architects and urban planners and the needs from the users?
- Does the stations configuration have an impact on the users' experiences of the city?
- Is there a common feeling around a particular train stations that can be captured?
- Is it possible to analyze these perceptions and conclude to more accurate design rationales?
- Does the feeling around one train station relate to a common fact about the railway network?

We have seen before that stations images and goals have been evolving with time going from an object symbolizing industry, to a representation of travel and romance and then became, partly with new technologies and capitalism, a symbol of high efficiency, speed and forefront high-tech. We now start from the hypothesis that the next step in train stations history is a shift of focus towards people, both users but also designers. We base this theory upon the history of geography, the evolution of dogmas around urban planning and the emerging interest of anthropology.

Architecture and Perception

The point of this process around interviewing and gathering information related to our three selected train stations is to understand the present situation and to learn about the upcoming design processes.



Figure 112 Mapping - Norreport Station

"Everything is, I believe situated within a process — everything is in motion, with a faster or slower speed ... it is ... applicable when we are dealing with something personal such as how we perceive a given space, right here and now, or how we will be interacting with another person tomorrow."⁵³

In a subject like train stations, collecting and understanding the users experiences is specifically important, since they are the ones they are addressed to and because they can choose to use other transportation means if they are not satisfied. Train stations represent their main experience, they are the first and the last part they cross when taking a train. Their design can then have a wide range of effects on people's sensorial perception of their surroundings.

The survey process that will help us through this part is supposed to address these aspects. It helps analyzing the links between tangible features of train stations like their visual aspect, the flows they generate, the spaces they provide and how these features are perceived by the users.

⁵³ ELIASSON Olafur, *Vibrations?*, PERCEPTION in Architecture: HERE and NOW, Cambridge Scholars Publishing, 2006.



Figure 113 Mapping - Gare du Nord

Imaginary

For all that, it would be reductive to limit the social function of railway stations to morphological, urban and migratory phenomena, which would leave aside the effects that these have on society, its representations and its practices.

The question of the representation of stations is therefore central: this new building asks new questions around architecture and engineering. Showcases of the railway companies, heads of network, which they must promote, they are also spaces where city dwellers hope that they will attract wealth and promote trade. But at the beginning of the century, nobody really knows what a station should look like. The architects are delayed and unwilling to reflect on this building which breaks so hard with what is the nobility of their art: in the 1840s, only César Daly publishes a few articles by engineers on the architecture of stations in his general review of architecture founded in 1840, and it was not until the great railroads were asked by the railway companies in the years 1850-1860 that the debate began and that early treatises were published by masters of the arts. In the common opinion - that Emile Zola relays in defending one of the paintings of Monet which in 1872 makes scandal, *The Railway, station Saint-Lazare* - it is ugly, a station. It is therefore necessary to have the conviction of a few architects, close to the power and the milieu of entrepreneurs, and a context favorable to a conversion of the gaze, the art of perceiving and looking at the world, so that stations enter the Parisian landscape.

It is only once appropriate, recognized, and anchored in the sensitive landscape of the city that the stations finally produced and imposed new standards: for example, punctuality to the minute; Those of an architecture of glass and steel, open spaces but specialized and distinctly separated. The stations, as they anchor in the city, produce effects different from the cathedrals to which they have often been compared. They concentrate the activities and the men, contribute (with other phenomena) to orient the circuits



Figure 114 Claude Monet - La Gare Saint-Lazare, 1872

of exchange, to classify and to declassify the territories according to their accessibility, to draw, suddenly, fillings and voids on the map, Renewing completely the meaning of the centrality of cities, introducing a world at several speeds of which they become one of the symbols.

Even today, railway stations represent a challenge of modernity, urban identity and mobility. It is only necessary to see the major works of rehabilitation and adjustment of the stations to measure their importance, their centrality. But while in the nineteenth century the stations had to prove their usefulness and their capacity to become urban monuments, today they are asked to "make" urban identity on the scale of metropolis, whereas they are still hybrid places: they have to become one of the markers unifying territories nevertheless very contrasted.



Figure 115 Old ladies reading the sign at Kyoto Train Station

02.1.

The new geography movement changing the way of thinking about architecture and urban planning

Why studying data and people's behavior? According to B. Edwards in his book *Sustainability and the Design of Transport Interchanges*, one of the major tasks of designers when it comes to planning is to establish the transportation modes on different scales: within the cities and beyond. A special care should be given to where to place the hubs and to the impact they will have on the neighborhood they are in. The reason why this is a very sensitive point is that, if the operation is successful, it can create communities and facilitate social interactions at a bigger scale. These hubs also have the potential to be foundations for urban growth with dynamic mixed use and strong people relations. These intense areas are places of flows, where users meet and functions interfere and often are iconic in some way. They show therefore more intensely their success and challenges in the way that they provoke strong emotions and imaginary into people's minds. This is the reason why studying how the hubs are working by gathering data and interrogating the people using them is of high importance. We will here explain how the raise of awareness around people in urban planning happened.

"The ability to connect different modes of transportation, to stitch together flows of transport infrastructure and people, is critical to creating successful communities."⁵⁴

⁵⁴ EDWARDS Brian, *Sustainability and the Design of Transport Interchanges*, Routledge, 2011.



Figure 116 A school girl arriving at the train station of Kyoto, Japan

02.1.1

The emergence of a new geography

As far as research has been able to lead us, it seems that any notion of space related to social value is attributed to C.C. Throwbridge who used the term "imaginary maps" in 1913 to describe the ability to orient oneself mentally from a given point and in a familiar region by the hypothesis of an orientation according to the cardinal points. In fact, he uses "imaginary maps" as a metaphor for a distorted and subjective knowledge of directions in space. This concept of subjectivity related to the field of geography is really an emerging thing since, after the 18th century, science was trying to get away from any kind of believes.

"The following paper presents a study of the reason why civilized man is so apt to lose his bearings in unfamiliar regions. This question of orientation apparently has been neglected heretofore." ⁵⁵

But the actual expansion of interest in new ways of practicing geography takes us back to the 1970s when there were many writings dealing with "living space" as a subject of study in itself, or at least a starting point to other. This trend is identifiable initially in England with, of course, the writings of K. Lynch in *The image of the City* in 1960 which serves as reference, but also the work of geographer P. Gould in 1968 who introduces the term of "new geography" to talk about the changes of this discipline following the great phenomena of industrialization and rural exodus, in particular. He writes in the 1970 in the *New Zealand Journal of Geography* an article called "Teaching and the New Geography":

⁵⁵ TROWBRIDGE, C. C., *On Fundamental Methods of Orientation and Imaginary Maps*, an article from *Science*, Volume 38, 1913



Figure 117 Charles Christopher Throwbridge

"Geography has become more analytical in its thinking and approach in the recent years, and there is a growing determination to make the subject less descriptive and more explanatory."⁵⁶

Thus new trends of thought such as geopolitics, humanist geography and, therefore, the geography of representations also appeared.

In the United States, T.F. Saarinen was one of the first in 1966 in *Perception of Environment* to put in place a method derived from that of psychologists to evaluate the way people perceive the territory in which they live, for economic purposes (the fight against damage caused by natural disasters). This is the example of farmers in the Great Plains of the United States whose ability to assess the risks on their lands and their way to respond to them are questioned. The method was very early materialized by interviews of the persons concerned, based on the presentation of photographs.

This wave is followed by other research in France without having a link a priori. One can tell the example of J. Gallais who, in the early 1960s in *"The Significance of the Village in Sudanian Africa of the West"*, queries the term "living space" and points out the difference between the perception that different African peoples have of their spaces and the one that he himself had of them. He also implements a methodology to try to evaluate and materialize these representations in order to compare them. It consists of different interviews with users, sometimes based on photographs. We can also raise the work of A. Fremont at the same period, on the term "region" which he defines as the set of relations between men and the places they practice, geography being the study of these, he describes. He is keen on exploring new methods to understand these concepts as he describes:

⁵⁶ GOULD Peter. article called *"Teaching and the New Geography"*, in the New Zealand Journal of Geography, 1970.

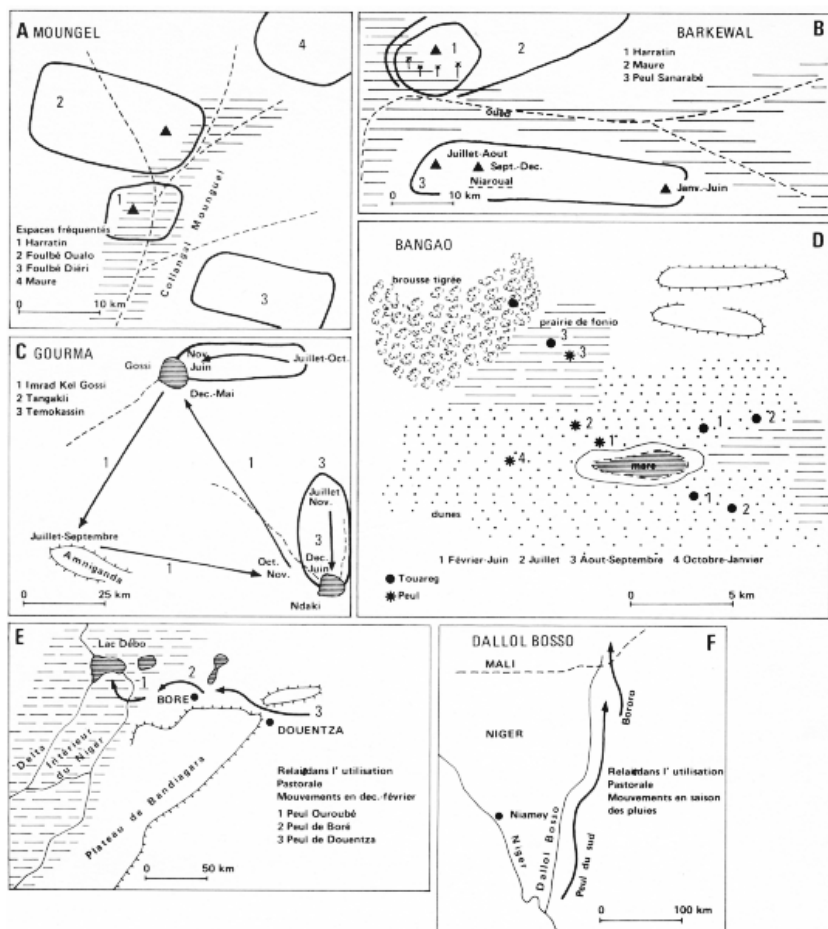


Figure 118 Diagrams from J. Gallais showing the perspection of spaces and movements for some Tuaregs

"To carry out these studies, we had to adopt new working methods. Certainly, we have absolutely not broken with the usual techniques of geography. The observation of landscapes, the study of maps, the use of statistics, the historical survey remained for us essential means of investigation. But it was no longer essential for us to extend these methods by new approach techniques in order to grasp a new objective reality, no longer that of geographical objects as external to the perception of any observer, but that of the same relationships existing between lived reality and those who live it. Thus we were led to familiarize ourselves with new disciplines within the broad framework of the humanities."⁵⁷

Although they work at the beginning only in parallel, the geographers of these currents focus their research on the same ideas: figuring and understanding the links between the territories and their users other than in their purely physical dimension as had been the case until that time.

Kevin Lynch

Our research on the urban imaginary in its practical part, takes K. LYNCH in *The Image of the City* as a reference. He was one of the first to focus on the representation of the city, but what makes it special is the clarity of the results he presents. In prior to the precise understanding of what are the mental maps, he gives his vision of the city. We will try to explain this and give an overview.

⁵⁷ FREMONT Armand, *L'espace vécu et la notion de région*, Travaux de l'Institut Géographique de Reims, n°41-42, 1980.

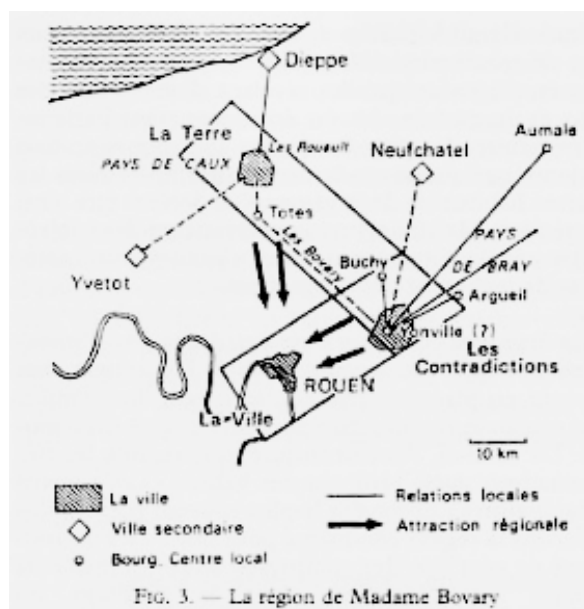


Figure 119 Diagram from A. Fremont where he represents the “region” or lived space of the fictive character, Madame Bovary

His motivation lays in the development of different geographic analysis techniques. Similarly, one of the purposes of his book is to understand how urban form can influence the perception of local residents. It says in fact:

“We will assume that in the current planning process, we should use the form to reinforce the meaning and not deny it”⁵⁸

Thus, we will not take into consideration everything that could influence the imagination, which would be a utopia. For this work, K. Lynch has addressed three specific areas of three US cities: Boston (Massachusetts), Jersey City (New Jersey) and Los Angeles (California). They were chosen for their ease of access, their interest and their specific history. For each of them, the study area is the same, namely four kilometers by two kilometers and a half, so as to compare the results.

This help figuring out what are for him the mental maps. K. Lynch is a pioneer in the use of mental maps. He explains in his book, *The Image of the City* that much of his work consisted in developing a method that could potentially be reproducible and adapted. The difficulty for us, lies in the reliability thereof and the extent to which it can be used as decisional basis. However, the use of so-called classical and objective tools (cadastral maps, detailed maps, aerial photographs, sections, elevations, etc.) is not sufficient to the extent that they do not address their specific problems which leads to necessarily incomplete and superficial results. Lynch, just like Fremont and others, decided to explore ways rather than relying on a solution that would be set in stone.

⁵⁸ LYNCH Kevin, *The Image of the City*, MIT Press, 1960.



Figure 120 Kevin Lynch

The role of vision in the perceptive process

We learned from the new waves that we presented earlier that the link between architecture and its functionality is through the users and their sensitivity. This is often described as perception. Among the authors who deal with the subject of city representation and city spaces are E. Hall, K. Lynch, F. Choay, A. Wallis, C. Levi-Strauss, and U. Eco.

Even though architecture is defined by buildings that are by nature unanimated, it has been proven to be at the origin of a range of emotions from the citizens' perspective. This goes for all types of buildings, but is particularly accurate for architecture dealing with mobility because it is experienced by many people, but also because it carries a lot of meaning related to this motion (ideas of traveling, of moving, of changing landscapes, etc). All the different details of these buildings can become a source of sensation from the overall volume to the range of materials in play or the setup of the entrance for example. These elements are proven to have an effect, good or bad, on the interlocutors through the identity that they create for a specific building.

Secondly, we observe a large tendency to use debates, participation and communication tools in the process of masterplanning. In many countries, this is even mandatory. The goal is to inform of course but also to take people into account and involve them in order to aim for a coherent project. This is why studying imagination plays an indispensable role in understanding and planning spaces.

At the end of the day, this means that understanding user's perception of the different train stations and their environments should give a precise idea on what points are effective and which ones remain challenges. This is a difficult task since this notion includes various mechanisms and is by definition an imprecise science since it has to do with human nature. In order to have a

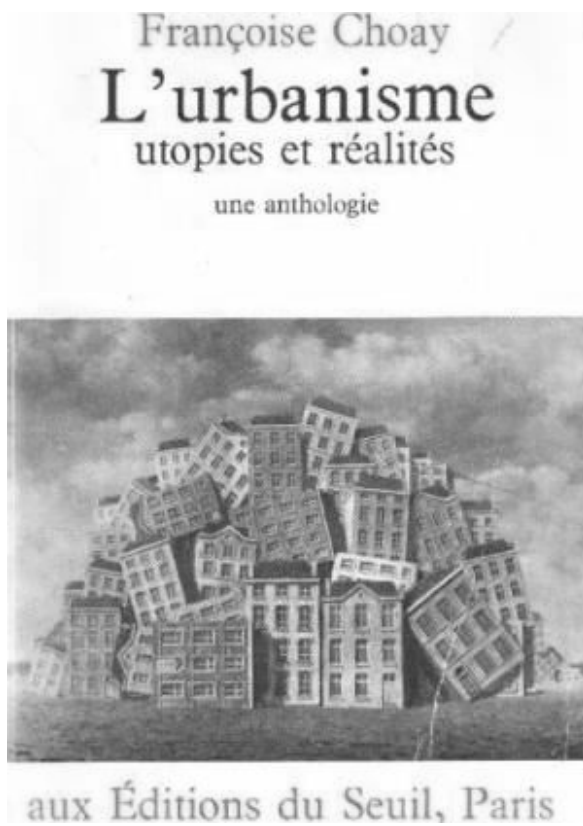


Figure 121 Françoise Choay, *L'urbanisme. Utopies et réalités*. Une anthologie, Paris, 1965

feeling about this very abstract concept, we have based the study on three points which are observation, experience and information.

"Each individual creates and bears his own image, but there seems to be substantial agreement among members of a group. It is this group of images, exhibiting consensus among significant numbers that interest city planners who aspire to model an environment that will be used by many people"⁵⁹

⁵⁹ LYNCH Kevin, *The Image of the City*, MIT Press, 1960.

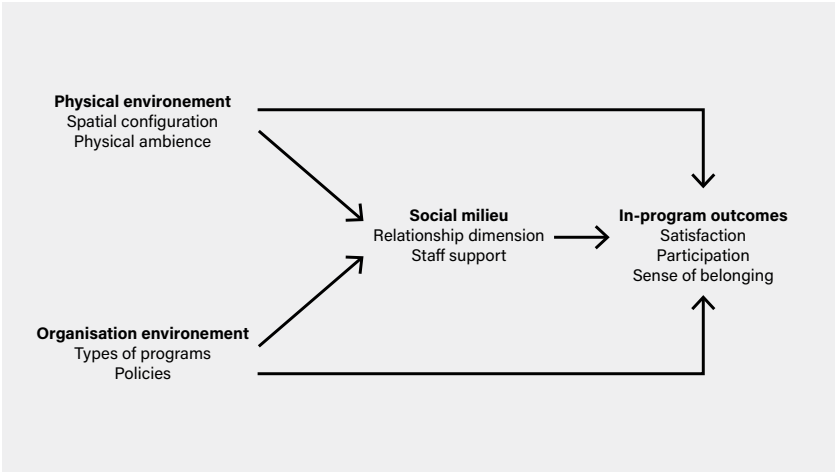


Figure 122 Diagram explaining the social-milieu theory of G.T. Moore

02.1.2

Towards new paradigms of project design

Semiology

G. Moore in the late 1970s, in an article called *"Architecture and Human Behavior: The Place of Environment-Behavior Studies in Architecture"* explained that due to the number of people living in cities, and therefore the lack of individuality, it was difficult for architects and urban planners to take into account the wishes of everyone. Therefore, this new wave in urban planning as described earlier shows the value of using a semiotic approach when it comes to designing train stations and three dimensional interactions in general in order to comprehend the link between buildings and their users. He also wrote in 1985:

"A study of the mutual relations between human beings and the physical environment at all scales and application of this knowledge thus gained to improving the quality of life through better environmental policy, planning, design and education"⁶⁰

To go even further in this shift of paradigms in architecture, P. Schumacher raises the hypothesis of counting abstract notions like emotions and meaning core as components of architecture:

"Where cognitive, sentient bodies navigate space via perception, and act on the basis of signs"⁶¹

⁶⁰ MOORE Gary T., *Environmental Design Research Directions*, New York: Praeger Publishers, 1985.

⁶¹ SCHUMACHER Patrik, *Parametric Order - 21st Century Architectural Order*, Harvard Graduate School of Design, 2012.

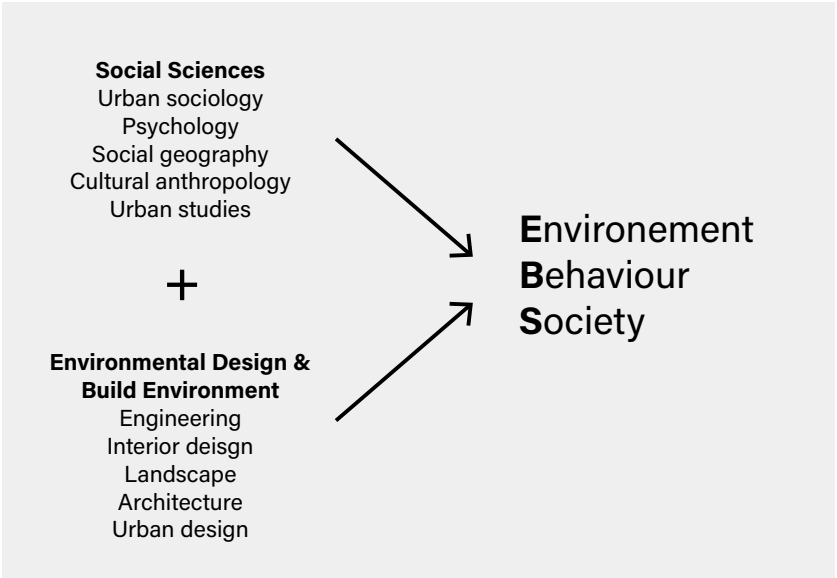


Figure 123 Diagram explaining the intrication between environment, behaviour and society by G.T. Moore

This somehow marks the beginning of the uses of data in the sense that he advises to pay a special attention to flows, movement of population, occupation of the streetscapes - as K. Lynch did in the past indeed- but this time in a more tangible and informative way, relying on numbers. Using this type of tools is not supposed to replace another type of analysis but to supplement it and give it another perspective.

So far we can conclude by saying, as we enunciated it above, that architecture has always been able to put itself in the position of innovation, especially regarding technical, technological and societal advances. Today, facing the great challenges of the 21st century, it is important as an architect to engage in active operational research in order to offer alternatives that reposition the human being at the center of the project. Innovations must go beyond the technical field to build devices and conditions for the production of innovative projects. Innovation is considered as "innovative practice", in the very sense of its definition, namely the introduction into a way of production that challenges new processes and new practices. In the face of economic, technical, technological, environmental and societal changes. Many urban planners agree to say that is no longer enough to adapt, but designers must be able to explore new innovative and experimental fields, both urban and architectural. Innovation and experimentation are then posed as an essential vector of development.

From design to production through users

Architecture, urban planning are acts of sharing because they are at the service of others, be they sponsors, users, citizens. It becomes essential to regain the sense of reaching people not exclusively in the finality of the project but also in it's the research and production phases. It is a process of different research and understanding, aiming at what Europe is demonizing the

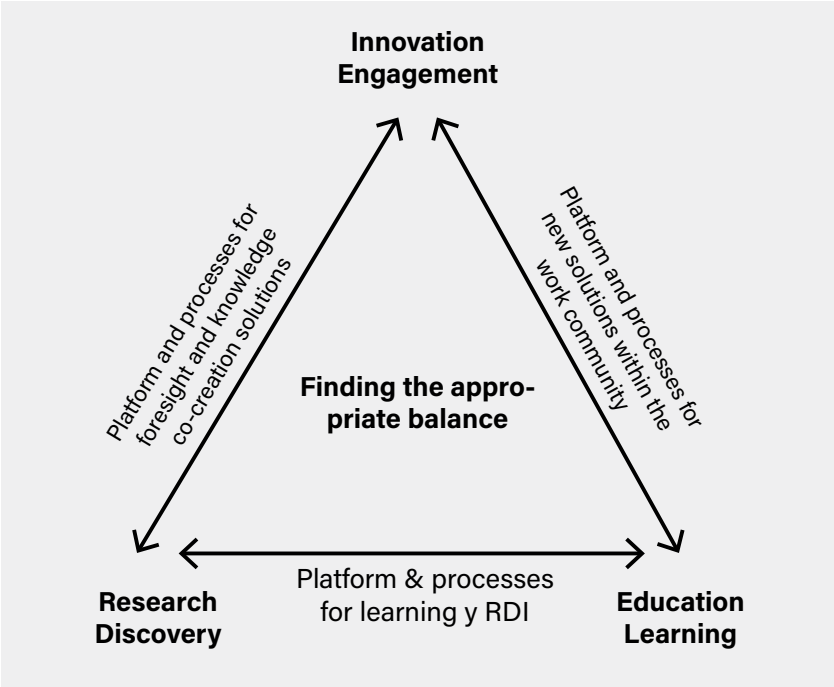


Figure 124 Diagram representing the triangle of knowledge

"Triangle of knowledge" which brings together research, education and innovation policies. Sharing is also at the design stage, based on an open and enlightened participatory dynamic where the role of each is defined and where the expertise and competences of the architect and the urban planner are recognized to fully assume their responsibilities within the society. Sharing also means becoming aware of the scarcity of natural resources in urban and architectural devices aiming at an economy of global means, without search for ready-made recipes, but thanks to territorial intelligence and adaptability.

"European institutions should play a central by creating and disseminating knowledge valuable for society and businesses as well as by linking education, research and innovation. (...) These measures will make Europe an even more attractive place for students, researchers, and innovators, who are the key players in the knowledge triangle, and be a benefit for all citizens."⁶²

⁶² Research and innovation through collaboration with the wider community. Gothenburg 31 August to 2 September, 2009

**ka-
au** Knowledge
Alliance
for Advanced
Urbanism

02.1.3

Participation and sustainable design

Eventually, after putting the focus on people, sustainability is at the heart of today's challenges in architecture and urban planning, as the 17 Sustainable Development Goals of the United Nations show this.

“The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth - all while tackling climate change and working to preserve our oceans and forests.” ⁶³

Sustainability affects many aspects and is particularly related to notions of mobility and urban planning. Here are some examples.

To meet the international ambitions and national commitments of the Paris Agreement nations not only have to create policies but also invest in the green transition. The past 25 years many cities have seen massive investments in the transition to green mobility creating both positive motivations and unpopular inconveniences for private cars based transportation. Still the population

⁶³ <https://sustainabledevelopment.un.org/sdgs>



Figure 125 The 17 goals of the United Nations

growth of the region calls for continuous efforts to change the present mobility patterns.

We know urbanization is one of the largest known threats to biodiversity. The amount of animals and plants living on land in Europe has been reduced by more than 40% in the past 10 years. And as our cities keep getting denser, we experience an increasing pressure on our open spaces to perform as both social meeting places, exercise areas, parking areas, mitigation of storm water, urban farms, air cleaning, cooling of urban heat islands and a source of biodiversity, for insects, birds, plants and trees. Open spaces in dense urban environments are challenged to become multilayered and multifunctional performative landscapes.

Production of concrete has a heavy environmental footprint. 140 kg. CO₂ is emitted for every 1m³ of concrete. Concrete is the most widely used material on earth apart from water, with nearly three tons used annually for each man, woman, and child. Responsible for 5% of all global CO₂ emissions. But when constructed concrete has an exemplary lasting value and offers large structural spans that creates opportunities for high degrees of flexibility in future use. As a large number of concrete structures in urban environments have been left abandoned and obsolete the most common solution has been to demolish, crush and use these structures as landfill while new structures are erected in their place.

Therefore, successful projects reflect changes and innovations in architecture, but at their core display a commitment to designing and developing buildings and spaces for the improvement and enhancement of people's lives.

Sustainability at all scales, from buildings to landscape and master planning is linked to a social aspect, which itself is related to a participative process. So when we talk about new approaches to architecture through sustainability, public participation is key. This wakeup call had been noticeable in many



Figure 126 Paris COP 21

projects all over the world recently where users are more and more involved and taken into consideration. Design and building techniques are changing from country to country but the framework remains the same and can be summed up as follows:

- Phase 1: Schematic design
- Phase 2: Design
- Phase 3: Construction
- Phase 4: Operation

Finding the right moment in the creation process to introduce participation is very important. It should not be too late so that the designers can be able to incorporate their findings but it should also not be too early so the citizens have a frame to have an opinion. Determining the right moment is what is going to make participation profitable and social sustainability successful.

Respond to local issues in a global and environmental dimension.

People are still taken into account in the social aspect of sustainability but the concept goes beyond that. At a time of worldwide globalization, the construction of a territorial anchorage in order to take better place in a global scale is a posture that seems important. Refuting the "architecture object", as well as an isolated and decontextualized "urban layout", a work on the connection makes possible the construction in a sustainable manner of a territory, a site, and architecture. To do this, we formulate the hypothesis, which affirm the need to think cities, metropolises, neighborhoods, architecture in the reintroduction and recognition of their specificities, the territorial anchoring allowing specifying the metropolitan phenomenon in its locality. The locality that is important to us is the one of a dynamic device that gathers the specificities linked to a territory in order to transcend them to a

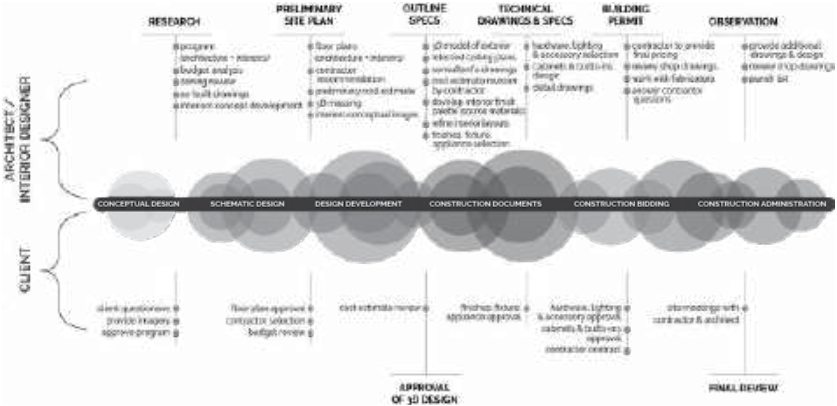


Figure 127 Phases of the building process in architecture

new urban order. These provisions allow for the establishment of a starting point for inscription on a much wider territorial scale. Thus the connections are between several kinds and several scales. It can be territorial by working on the environment; about the energy, by a capacity to rethink this system through the renewable energies of modes of self-sufficiency; Technological by working towards more global fields thanks to the mastery of the BIM, and societal by understanding the impact of new communication technologies on our modes of living. This leads us to question the meaning of what is today commonly called the "intelligent city". It is difficult to evaluate what makes cities "smart", but it sure implies to raise the level of exchanges, networks, energy efficiency, culture and education from an existing city, with its own characteristics and specificities. The city is smart not because it is technological but because it is able to increase its level of services to citizens and to re-examine the modalities of its own governance, thanks to new technologies. Far from utopian posture, it will be a matter of experiencing devices in a reality setting, which again, puts human beings in the center of all these processes.



02.2.

Methodology

After having analyzed train stations according to their physical features both in their context but also in the way they were themselves built, searching about this new wave around geography, sensible and participation goes with defining other innovative methods to study train stations. This would be a method that helps understanding the imaginary, perception and cognitive impact of these buildings on the population while getting them involved.

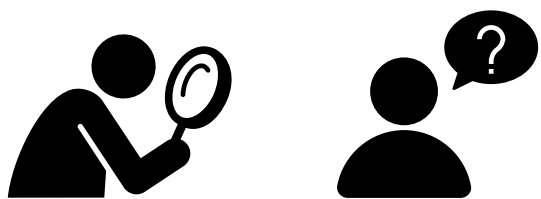


Figure 128 Active VS passive methods

02.2.1.

Description of active and passive methods

Urban planners noticed and experienced in the second part of the XXth century that examining people's behavior in an object's environment (the analyzed object), doing surveys and asking them about their personal experience was a great help into understand and improving the relationships between users and used space. The means that can be used to reach that goal are various but can be grouped into two categories. They can be:

- Active: this means that the surveyor actively meets the users and asks them for their help by asking questions, demands drawings from them or give them small exercises for example
- Passive: in this method, the users don't notice the presence of the surveyor who observes flows, count the number of travelers, looks into people's journeys for example

The advantage about these methods is that they classify the results in 3 families:

- Data collection informs about behavior: flows and behavior of users
- Experiences with professionals help understanding semiotic studies: legibility context
- Interviews of users give insights on sensible analysis: imaginary, personal responses, emotional impact

In order to get a scope of evaluation s wide and accurate as possible, we used a mix of different methods, that are focusing on different points. Some of the methods are very active, some are almost totally passive, some are very objective and some are highly subjective.

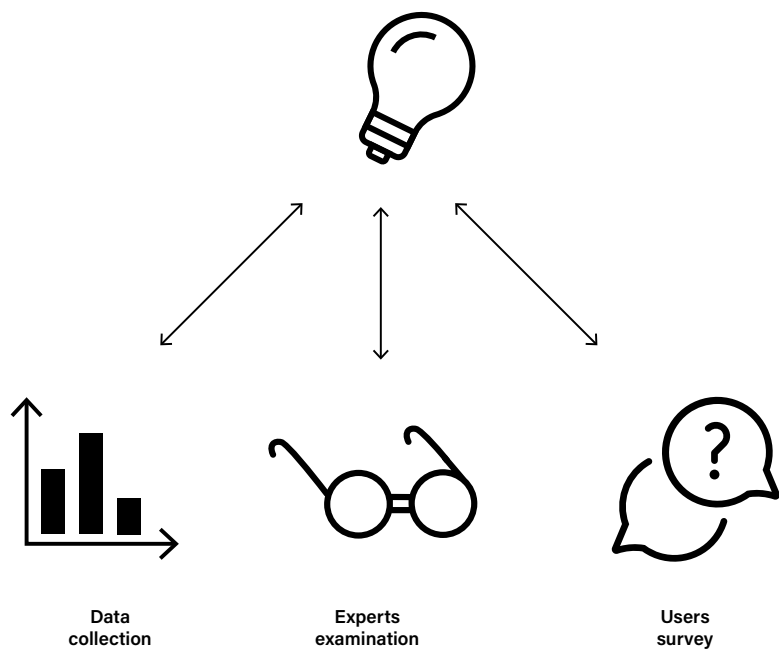


Figure 129 The three aspects of our process

The first part of the study is pure data collection. The way to do it was both observation and counting the number of people and their routes but also gathering and analysis of data, if available. The motivation behind it is the thinking that the numbers we will collect are a consequence of the design decision.

The second section is done in collaboration with what we call “professionals” which is a term to describe people who belong to the field of urban planning somehow. They are thought as being people who are more likely to identify behaviors, point at public spaces features and understand qualities of an area. This section was made with the help of the methods given by the Gehl Institute.

The third section is an interview process made with a wide range of users with both interviews and survey method, with an outcome being a vast quantity of sincere and accurate material to be analyzed. This time, we used a technique based on the work of Kevin Lynch.

The last but not least step of that part of the study is the evaluation of all these results, which is a really tricky part. Even though the multiplication of results leads a priori to an interpretation being as close to reality as possible, it is difficult to make the numbers talk for ourselves. But the easiest way to do it is to keep in mind the aims behind this evaluation which are:

- To gather data on users' propensities regarding the layout of the station that we analyzed in the first part of the thesis
- To provide the insights about their design inside and outside from an expert point of view
- To sort out sensitive and imaginary information concerning usability, accessibility and comfort in the eyes of the users themselves

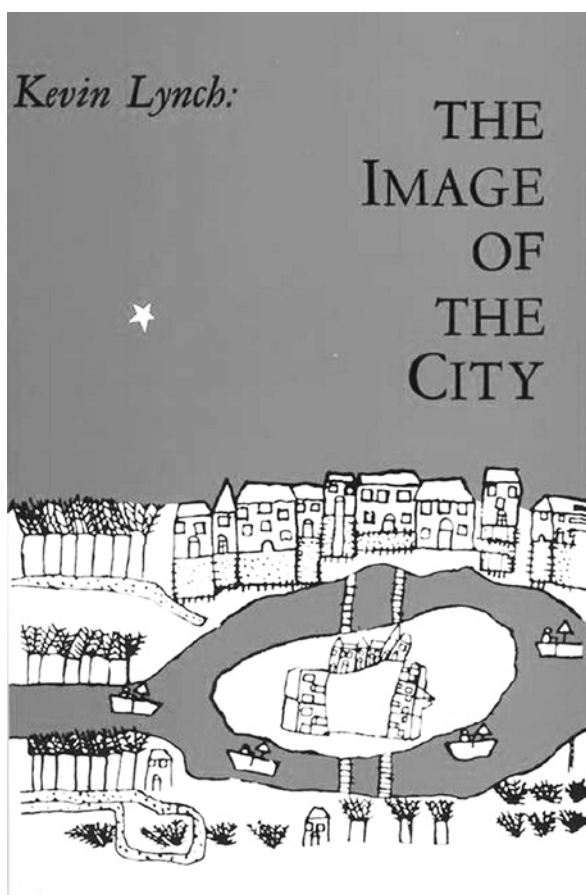


Figure 130 First edition of the book *The Image of the City* by Kevin Lynch

02.2.2.

Kevin Lynch's method

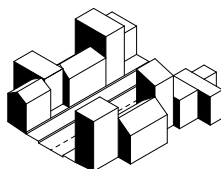
His approach

Our research on the urban imagination, in its practical part, took as an example that of K. LYNCH in *The Image of the City*. He is one of the first to be interested in representations of the city, urban journeys, urban forms, but what makes it special is the clarity with which it presents its results. Prior to a precise understanding of what mental maps are, he gives his vision of the city, laying the foundations. We will try to explain this and give an overview. But first of all, it is important to clarify that for him there is a basic consideration in this work:

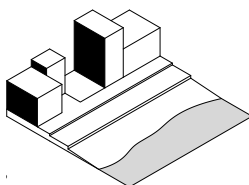
" The work was done in the conviction that analysis of existing form and its effects on the citizen is one of the foundation stones of city design, and in the hope that some useful techniques for field reconnaissance and citizen interview might be developed as a by-product "⁶⁴

This statement is at the origin of all his approach and his motivation lies in the development of techniques of geographic analysis. Likewise, one of the aims of this work is to understand how the urban form can influence the perception of local residents. We can read indeed: "We will take it for granted that, in current urban planning, it would be necessary to use the form to reinforce the meaning and not to deny it" 2. It is not a question here of questioning this assertion but of keep it in mind during future work. Thus, we will not consider the entirety of what could influence the imagination, which would be a utopia, but the physical aspect of the city. For this work, K. Lynch looked at three

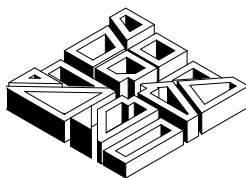
⁶⁴ LYNCH Kevin, *The Image of the City*, MIT Press, 1960, p.14.



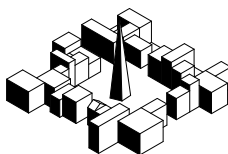
The path



The edge



The district



The landmark



The node

Figure 131 The city elements as described by Kevin Lynch

specific neighborhoods in three American cities: Boston (Massachusetts), Jersey City (New Jersey) and Los Angeles (California). They were chosen for the ease of access, their interest or their particular history. For each of them, the study perimeter is the same, namely four kilometers by two and a half kilometers, so that we can cross and compare the results obtained.

Much of his methodology consists in analyzing the results of initial investigations, prior to the real work of mind maps. One of its main conclusions concerns the important elements that make up the city and its imagination, essential for the formation of a mental image. He divides them into five categories, namely lanes, boundaries, neighborhoods, nodes and landmarks. As you can guess, the tracks are the places where local residents move, they are an opportunity for them to observe and memorize their environment, to understand what are its elements and how it is organized between them. They can be materialized by streets, roads, tracks. If they take the same linear form, the limits are the opposite of the tracks, they are not used by residents. Thus, they can be taken as benchmarks but are not practiced as such. As a "negative" pathway, it plays a fundamental role in creating an image in the minds of people. They can take the form of rivers, walls or railways. The districts have a different, two-dimensional shape. They are never clearly demarcated, more than the forms generally represented by the mind. According to K. LYNCH, they represent, with the channels, the most characteristic elements of reference and the easiest to identify by the greatest number. The nodes are specific elements in the city accessible by residents. They are at the intersection of other elements such as tracks, but also voids at the convergence of several neighborhoods. What characterizes them is the fact that they bring together, on a small space, becoming a centrality. Finally, it distinguishes the reference points, of the same nature as the nodes, but one does not "penetrate" them. In physical terms, they are visible and identifiable objects that can range from street furniture to a brand store, a tree. They can be of different sizes, near or far, accessible or not. He insists on the importance

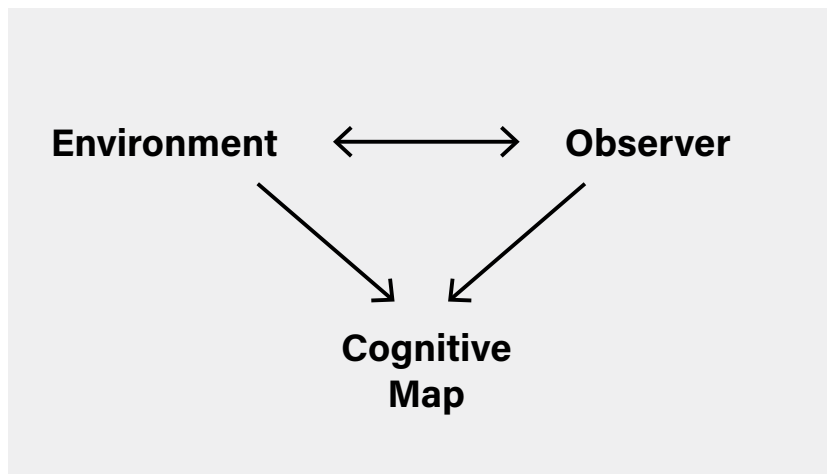


Figure 132 Kevin Lynch's approach

of these elements to which the residents refer massively, with great confidence.

"Most people structure their city, with variations between the individuals following that they are predominant ways or neighborhoods. Moreover, it doesn't depend only, it seems, of the individuals but also of the city considered."⁶⁵

Subsequently, K. LYNCH specifies that all these elements only make sense if we analyze them in relation to each other: "these elements are only the raw material of the image of the environment at city scale"⁶⁶. Firstly, he recommends thinking of these elements as a whole and not isolated. For example, taking into account a road network instead of each independent route from one another makes it possible to understand the hierarchy of the zone considered. In the same way, the analysis of a neighborhood has meaning only if we compare it with others linked because alone, its characteristics are not by definition. In a second step, we can take the elements in pairs, and understand the phenomena resulting from their association.

This can lead to three main types of situation: they coexist without any particular bond; they consolidate each other or they weaken each other because they are in competition. To illustrate this, it is enough to imagine a monument which, by itself, can make the peculiarities of a neighborhood disappear. Conversely, this same monument may be in alignment with an important crossroads, the two then responding and operating in interaction.

⁶⁵ LYNCH Kevin, *The Image of the City*, MIT Press, 1960, p.64.

⁶⁶ LYNCH Kevin, *The Image of the City*, MIT Press, 1960, p.83.

The last step is to think of an overall scheme, which is not easy. The studied area can now be called "locality"⁶⁷.

There is another level of discernment of these elements which is their structuring. K. Lynch speaks of four levels of "structural precision"⁶⁸, from the freest to the most tense. The first concerns very unstructured elements, like units gravitating in space without anchoring. This situation makes any intervention very difficult due to the lack of logic to which to relate and also the inability to justify anything. Then, we pass to a level where the elements are linked with each other by the only criterion of the distance which separates them. Basically, it is their relative position that defines them, the real distance being secondary and dispensable. The next level is that of real links between the parties, but links that are either poorly identified or weak by their flexibility or deformability. Finally, when the links are multiple, the nature of the links becomes stronger and stronger and these are what he calls "rigid".

It is important to go through all these stages during the urban analysis because all the constituents of the locality are interdependent and skipping a link in the chain of scales could impair understanding. This shows the difficulties inherent in the analysis of the urban form but its method has the merit of framing things and limiting the angles of research while scanning a maximum of possible situations. Added to this complexity are the variations in analysis due to the point of view, constant changes (time of day, work, politics) and the specific characteristics of the observer.

⁶⁷ LYNCH Kevin, *The Image of the City*, MIT Press, 1960, p.87.

⁶⁸ LYNCH Kevin, *The Image of the City*, MIT Press, 1960, p.88.

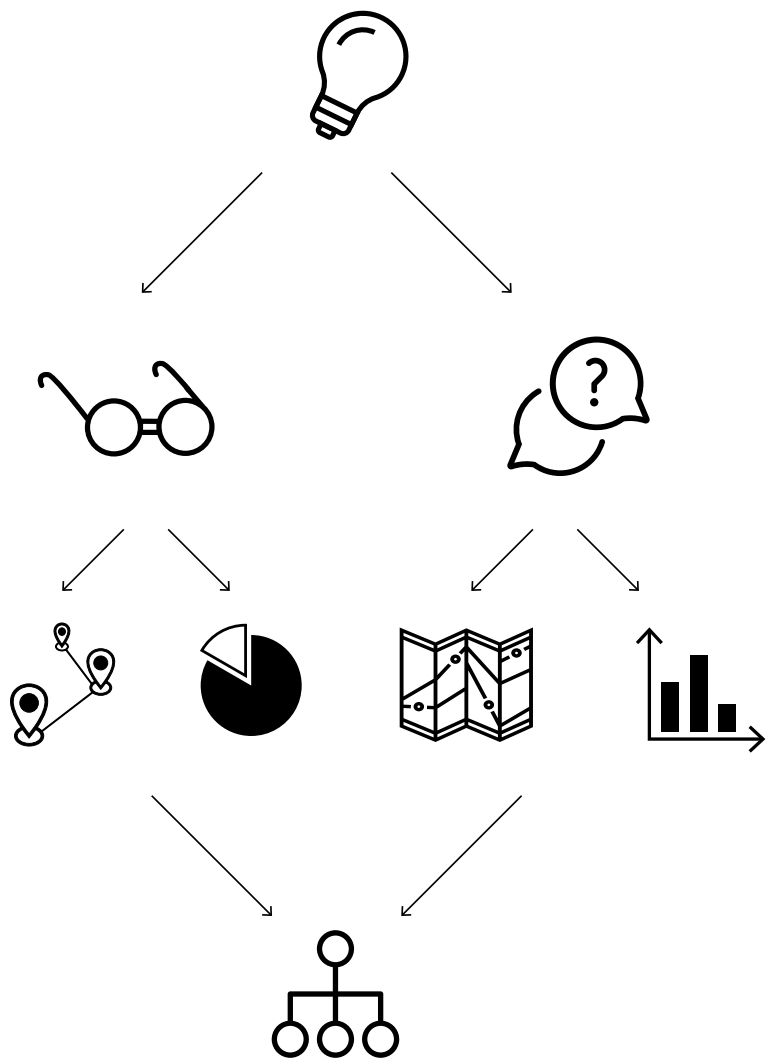


Figure 134 The method of Kevin Lynch

The method

Now let's take a closer look at what mind maps are. K. Lynch is one of the pioneers in the use of mind maps. He explains in his book, *The Image of the City*, that a large part of his work consisted in developing a method that could potentially be reproducible and adaptable.

"Develop a technique for the visual analysis of a city, which can predict the likely collective image of this city."⁶⁹

The difficulty, as we will see later, lies in its reliability and the extent to which it can be used as a basis for decision-making. However, the use of so-called conventional and objective tools (cadastral maps, IGN maps, aerial photographs, sections, elevations, etc.) is not sufficient insofar as they do not address specific problems and their possibilities are therefore endless. which leads to a necessarily incomplete and superficial result. LYNCH has chosen to explore leads rather than counting on a fixed solution.

"The mental maps that are shared of streets and landmarks. These are analyzed in terms of identity (its recognition as a separable entity), structure (the spatial or pattern relation of the object to the observer and other objects) and meaning (for the observer, whether practical or emotional)"⁷⁰

His method is divided in two steps, two different types of analyzes. First, this is what he calls a "systematic review" and then an "interview".

The first examination is led by specialists, specialists of geography and urban cities challenges, trained to visual recognition. Each mission is to explore one

⁶⁹ LYNCH Kevin, *The Image of the City*, MIT Press, 1960, p.169.

⁷⁰ LYNCH Kevin, *The Image of the City*, MIT Press, 1960.

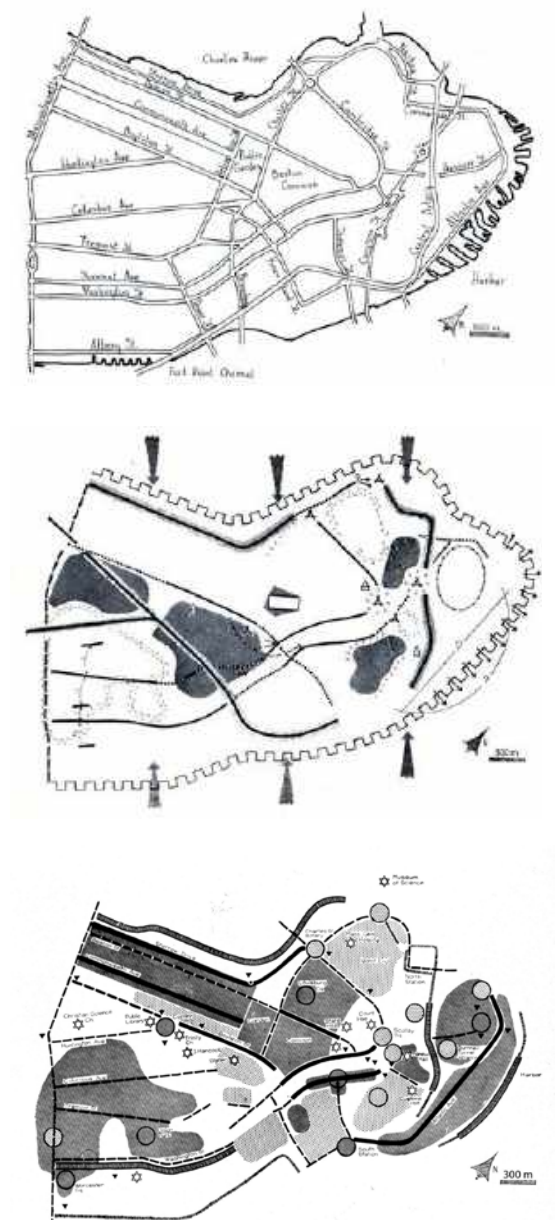


Figure 135 The three aspects of Boston after Kevin Lynch's analysis

of the three studied areas, accurately and the most substantially possible which takes about three to four days. This process results in a hand-drawn map for each professional participant, choosing their own representational codes of the various components of the map. Following this work, all the maps are collected and someone has to put the information together: scaling and collection to put in a common graphic chart (line thickness, symbols, colors). This step, explains K. Lynch, is fast and easy because of the professionalism of respondents who not only have design bases, but are also trained in visualization and plan representation, scale concepts and codes. This first step serves as a reference for the analysis of the city. It makes it possible to have a perception of the major elements (ways, limits, districts, nodes, points of reference) as well as their hierarchy and the relationships which they maintain and thus begin to understand them in order to put forward hypotheses as for the functioning of the study area. This step is a prerequisite for interviews in the sense that it helps to orient questions, avoid unnecessary questions and focus on points that seem to be sources of problems or specific issues. After analysis, K. LYNCH specifies the interest of this type of exercises whose results happen to be very close to those obtained during the second stage, the interviews. In his book, *The Image of the City*, he presents the maps from the work of the examiners, after graphic standardization. From a general point of view, these seem to be moving towards common directions, but we note that they focus on specific points which they do not necessarily share. The aim of the first part of the exercise is to obtain subjective information, although it is informed in a search for completeness and transversality.

The second stage in the creation of mental maps is the so-called "interview" phase, which consists of systematic questioning of a sample of the population living or regularly practicing in the area studied. K. LYNCH very clearly explains the purpose of the phase in three points, the most representative of which is:



Boston, Massachusetts



Jersey City, New Jersey



Los Angeles, California

Figure 136 The case studies of Kevin Lynch

"To know the collective image of the cities in question basely, to be able to compare with the results of the field survey."⁷¹

To summarize the course of it, it is about asking the person in front of you to answer questions, first general then more and more focused on the urban space that we are trying to analyze. In a second part, people are asked to draw a freehand map of the area studied, with the elements that seem to them most characteristic. Finally, they are asked to describe with precision the different paths they take when they cross this area, whatever the purpose. This interview is followed by a second phase for those most interested, phase more oriented towards visual recognition based on photographs, to identify, place in a certain order. As during the investigation by the specialists, there follows a work of pooling of the oral data on the one hand but also of deciphering of the cards on the other hand. The responses collected are classified so as to deduce statistics. Then, a person trained in representation draws a map where they place all of the oral responses in graphical form. The maps, after having all been scaled, are dissected and an attempt is made to deduce a "balance sheet" map on a neutral background where the elements are reported in the form of symbols, for example the size may depend on the frequency with which they were identified in the responses.

"As in any small pilot study, the purpose was to develop ideas and methods, rather than to prove facts in a final and determinate way."⁷²

⁷¹ LYNCH Kevin, *The Image of the City*, MIT Press, 1960, p.166.

⁷² LYNCH Kevin, *The Image of the City*, MIT Press, 1960, p.117.



Figure 137 The components of the data collection

02.2.3.

Adaptation and update of the method

The aim of this research is to evaluate how train stations status have been evolving with time. We managed to identify one big change that represented a switch of focus from pure design to design for users. Therefore, it is interesting to see the correlation between the design objectives of the architects and the requirements from the travelers.

Just like K. Lynch initiated it in his book, we define three aspects of train stations impact, that we will address with three different analysis methods. This part about our cases studies about Montpellier, Copenhagen and Paris is an updated and reinterpreted version of the initial work that Lynch did in the 1960s.

I have used various media according to the facts I wanted to gather. For the data collection I used a camera to film the flows, and then I marked them on a floorplan. I also had an phone application to help counting the number and type of people according to gender and age.

For the examination with the professionals, I had a notebook, I recorded some parts and took pictures. They also gave me their notes.

For the interviews, I recorded them and took pictures. I printed the questionnaire and gave it to the users. I presented pictures we took with the professional of the points that seemed of importance. I also printed maps from Google Maps at different scale (from city to building scale depending on what was asked).



Figure 139 Jan Gehl, Danish architect and urban planner

Data collection

Data collection is a very broad term to describe an analytical method in order to understand the different features of a given place. It includes various possible features but I will focus here on the people using the place I want to describe – the train stations and their direct environments. I started this exercise having in mind a potential outcome that would be some statistics about the number and type of users and a mapping of the chosen perimeters with the flows of people.

We are aware that this is only a part of a more global method to learn about the place, data alone don't have any meaning and can easily be given the meaning we want them to. They will therefore be used in complement to an understanding of the context and its history (see part 01 of the thesis), and some talks and interviews that will be exposed a little later. The perimeter to take care of is a significant decision when looking into the data, both because it can make it really difficult if it's too large but also because it should be big enough to represent the social activity influenced by the stations. This is why, for each station, our entire approach is based on three levels of details from very wide to very close: the urban level, the district level and the building level. Eventually, the time spent collecting the data is a good guaranty of quality, the more time you spend and the more accurate the results. What's important isn't to go really often, it is to spend a long time while I do it, which is why we did for each station three sessions of three hours of observation. As we will describe later, it was essential that each session was marked with its specific hour, weather, location, and date, and that there were pictures to report the conditions.

Our first task has been to count the number and type of people using and passing by the station during different hours and their ways. The point was to know how many in general and if that number was changing over time. It informs as well on the accessibility of the place and on how the intermodality

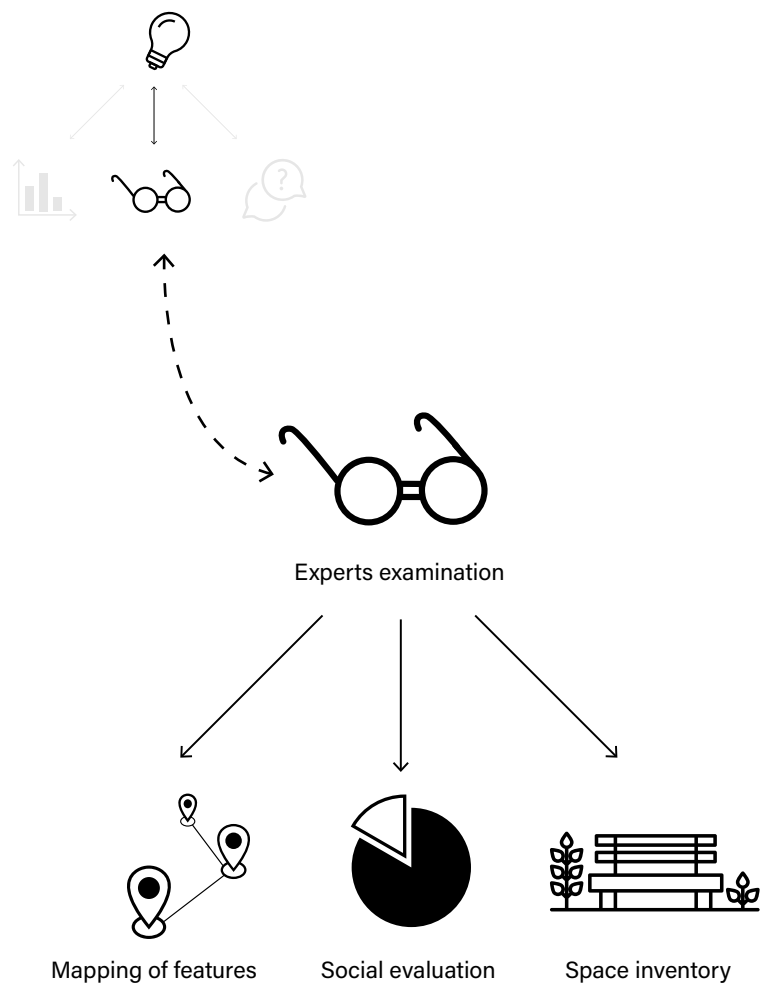


Figure 140 The components of the experts' examination

works. Secondly, I also tried to guess the gender and age range of these people in order to understand who was use the stations, if there were some big disparities and if so why that was the case (was it a matter of accessibility? Of safety feeling? Of personal experience?).

After researching on different ways of doing that, I ended up using the following procedure. I stood in some of the main accesses to the station area, where there is a lot of flows of people either walking standing or doing something. Then I imagined a circle of 1 meter around me and tallied the people passing in that circle. I repeated the same exercise at three different distances from the station:

- Inside the station
- On the station plaza
- 300 meters away from the station

Of course these two techniques (number of type of people) are not perfectly representative but their variety makes them as close to a reliable average as possible.

Examination with professionals

The second step remained which is the "examination" of the area by trained persons. As an architect, I first chose to perform this step myself, at the very beginning of my investigations, before performing further research in order to keep a fresh eye. My approach was the one of an architect, having lived in the three cities investigated – Montpellier, Copenhagen and Paris - and practicing the stations occasionally. For convenience, this work has been carried out by one person in the beginning and I was then joined by some fellow professionals. Eventually, it of course was important to question specialists

- 1 Map the location of seating using the symbols provided and write how many below:

	Benches	# _____
	Moveable Chairs	# _____
	Café Seating — Private	# _____
	Other Seating (not chairs or benches)	# _____

- 2 Map the location of vegetation using the symbols provided:

	Tree
	Planting

- 3 Map the location of shade/shelter using the symbols provided:

	Awning
	Umbrella
	Arcade

- 4 Map the location of bike parking using the symbol provided:

	Bike Parking
---	--------------

- 5 Map the location of trash and recycling bins using the symbol provided:

	Trash/Recycling Bin
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-  Lighting

- 7 Map the location of areas to play using the symbols provided:

	Playground / Areas that invite play
	Sports Facility

- 8 Map the location of water features (fountain, lake, etc.) using the symbol provided:

	Water Feature
---	---------------

- 9 Map the location of public art (statue, mural, etc.) using the symbol provided:

	Public Art
---	------------

- 10 Map the location of walking/wheelchair obstacles using the symbols provided:

	Surface (broken paving, driveway, etc.)
	Object (pillars, seating, etc.)

- 11 Map the location of physical boundaries using the symbols provided:

	Boundary (fence)
	Boundary (wall)
	Boundary (planting)

- 12 Map the location of street crossings using the symbol provided:

	Crossing
---	----------

Figure 141 Place Inventory support, Gehl Institute

having an idea of the urban and architectural challenges. This enabled us to standardize the answers and get a common basis.

The "tools" I refer to are the research methods developed by Jan Gehl, the Gehl practice, and/or Gehl Institute. Jan Gehl is a famous architect, urban planner, scientist and professor emeritus from Copenhagen. Since 1966 and after being inspired by Jane Jacobs in Canada, Jan Gehl has worked on his urban life studies, which today form the basis of urban development in several of the world's major cities. He is often described as being one of the wave of humanist architects. His challenge over the last fifty years has been to create human-friendly cities, and this has made him world-renowned in those circles. He wrote many books, amongst others *"Life Between Buildings"*, *"Cities for People"*, *"Public Spaces – Public Life"*, *"How to Study Public Life"* and most recently *"People Cities"*. One of his most famous quotes, that is very demonstrative of his philosophy is this one:

"First life, then spaces, then buildings – the other way around never works."⁷³

His tools that I worked with are today free of use and were made after years of tests, experience and updates in the office of Jan Gehl in Copenhagen. For these reasons, it appeared to me as a good occasion to test them on my subject of train stations. I got the chance to meet some of the architects working there who gave me the opportunity to use their phone application as well. It was also a great asset to use with the professionals since some of the vocabulary that is employed is pretty specific and makes much more sense for people who are used to it. I of course did not use all of the tools available and

⁷³ GEHL Jan, talk at the Roca London Gallery, 9 January 2019.

INVENTORY THE SITE

Investigate whether the space has design elements or program elements that are likely to invite diverse publics and foster social interaction. These features may not be obvious during your first visit. Use your best judgment or ask someone who uses the space frequently. Also note any spatial elements that might hinder interaction.

PHYSICAL FEATURES OR PROGRAMMING THAT INVITE INTERACTION + DIFFERENT TYPES OF USERS

- 1 Does the place offer a variety of places to sit and rest?

☐ No ☐ Yes _____
How many?

- 2 Does the place offer things to look at / nice views?

☐ No ☐ Yes

- 3 Does the place have a slope or steps that are nice for sitting?

☐ No ☐ Yes

- 4 Does the place have gateways or well-defined entrances?

☐ No ☐ Yes

- 5 Does the place offer areas for exercise?

☐ No ☐ Yes

- 12 Does the place offer areas for team sports?

☐ No ☐ Yes

- 6 Does the place have a playground or kid-friendly play space?

☐ No ☐ Yes

- 7 Does the place have a multipurpose lawn? (i.e., a lawn big enough for frisbee or picnics)

☐ No ☐ Yes

- 8 Does the place have a multipurpose plaza? (i.e., a plaza big enough for markets or demonstrations)

☐ No ☐ Yes _____
How many?

- 9 Are there fixed food and drink vendors in the place? (Including food carts.)

☐ No ☐ Yes

- 10 Are there a variety of active ground floor businesses adjacent to the place — including food and drink vendors?

☐ No ☐ Yes _____
How many?

- 11 Does the place have tables for eating and socializing?

☐ No ☐ Yes

- 13 Does the place have public restrooms?

☐ No ☐ Yes

- 14 Does the place have good lighting at night?

☐ No ☐ Yes ☐ Not sure

PHYSICAL FEATURES THAT HINDER INTERACTION

- 15 Are there any unnecessary permanent fences / barriers?

☐ No ☐ Yes

- 16 Are there any off-limits areas?

☐ No ☐ Yes

- 17 Are there any extreme grade changes, uneven paving, or other barriers for people with limited mobility?

☐ No ☐ Yes

- 18 Are the only food or shopping options very expensive or only accessible to high-income people?

☐ No ☐ Yes

Figure 142 Social Space survey, Gehl Institute

chose amongst them three that appeared to be the most accurate for the understanding of the space. These are called:

- The Place Inventory
- The Social Space Survey
- The Twelve Quality Criteria

The first one is called by the Gehl Institute *"The Place Inventory"*. This is a combination of mapping exercise with a series of symbols to place and a questionnaire to define the quality of some of the space's features on a scale from "No" to "Absolutely". I did this assignment myself and gave it to my fellow architects to fill in during our common visit. It is described as such:

"The Place Inventory is a tool for studying the physical features of a public space and how these features shape the experiences of visitors."⁷⁴

Both parts should help giving an idea of how the station and its surroundings *appear and are perceived*.

The second means, *"The Social Space Survey"* was thought in this goal:

"The Social Space Survey was developed to address difficult questions: how can public spaces better serve more people? What role can design play in the process of bringing people together across difference? The tool encourages us to think critically about what's happening

⁷⁴ <https://gehl.institute.org/tool/place-inventory/>

Protection	Protection against traffic and accidents. Do groups across age and ability experience traffic safety in the public space? Can one safely bike and walk without fear of being hit by a driver?	Protection against harm by others. Is the public space perceived to be safe both day and night? Are there people and activities at all hours of the day because the area has, for example, both residents and offices? Does the lighting provide safety at night as well as a good atmosphere?	Protection against unpleasant sensory experience. Are there noises, dust, smells, or other pollution? Does the public space function well when it's windy? Is there shelter from strong sun, rain, or minor flooding?
	Options for mobility. Is this space accessible? Are there physical elements that might limit or enhance personal mobility in the forms of walking, using a wheelchair, or pushing a stroller? Is it evident how to move through the space without having to take an illogical detour?	Options to stand and linger. Does the place have features you can stay and lean on, like a façade that invites one to spend time next to it, a bus stop, a bench, a tree, or a small ledge or niche?	Options for sitting. Are there good primary seating options such as benches or chairs? Or is there only secondary seating such as a stair, seat wall, or the edge of a fountain? Are there adequate non-commercial seating options so that sitting does not require spending money?
	Options for seeing. Are seating options placed so there are interesting things to look at?	Options for talking and listening/hearing. Is it possible to have a conversation here? Is it evident that you have the option to sit together and have a conversation?	Options for play, exercise, and activities. Are there options to be active at multiple times of the day and year?
	Scale. Is the public space and the building that surrounds it at a human scale? If people are at the edges of the space, can we still relate to them as people or are they lost in their surroundings?	Opportunities to enjoy the positive aspects of climate. Are local climatic aspects such as wind and sun taken into account? Are there varied conditions for spending time in public spaces at different times of year? With this in mind, where are the seating options placed? Are they located entirely in the shadows or the sun? And how are they oriented/placed in relation to wind? Are they protected?	Experience of aesthetic qualities and positive sensory experiences. Is the public space beautiful? Is it evident that there is good design both in terms of how things are shaped, as well as their durability?
Comfort			
Enjoyment			

Figure 143 Twelve Quality Criteria, Gehl Institute

in a space, who's spending time there, and whether its design and program elements can be improved to foster more openness and inclusion."⁷⁵

This is a rather complete and complex task that starts with a worksheet that examines whether the station has structure components or elements of program that are probably going to welcome various publics and encourage urban life. Then, it is asked to the professionals to draw some characteristic points in the following classes: attractor or magnet, its perimeter of influence and elements that foster densification of people flows. This step is much more personal and subjective than the pure data collection but that's what makes it interesting, especially when used with architects or urban planners. This gives an idea of what makes a good public space in the mind of people who are educated in this direction. That is also likely to show variety according to which generation or culture the person belongs to.

Lastly, we used *"The Twelve Quality Criteria"* that is not a quantitative but qualitative study. It is divided into three chapters which are Protection, Comfort, and Enjoyment. The reasons for these choices are multiple. First, the protection word is thought in the sense of buffer against city disruption like the weather for example, because it gives a justification for the citizens to use a space or not. For the same reason is thought the comfortable aspect for different positions and situation, so we can see if the stations are welcoming or initiative to, amongst other things, stay, enjoy or sit. At last, enjoyable areas will in general offer encouraging, beautiful and tactile encounters, that are at the right scale so users don't feel confused in their environment. For the Gehl Institute:

⁷⁵ <https://gehl.institute.org/tool/social-space-survey/>

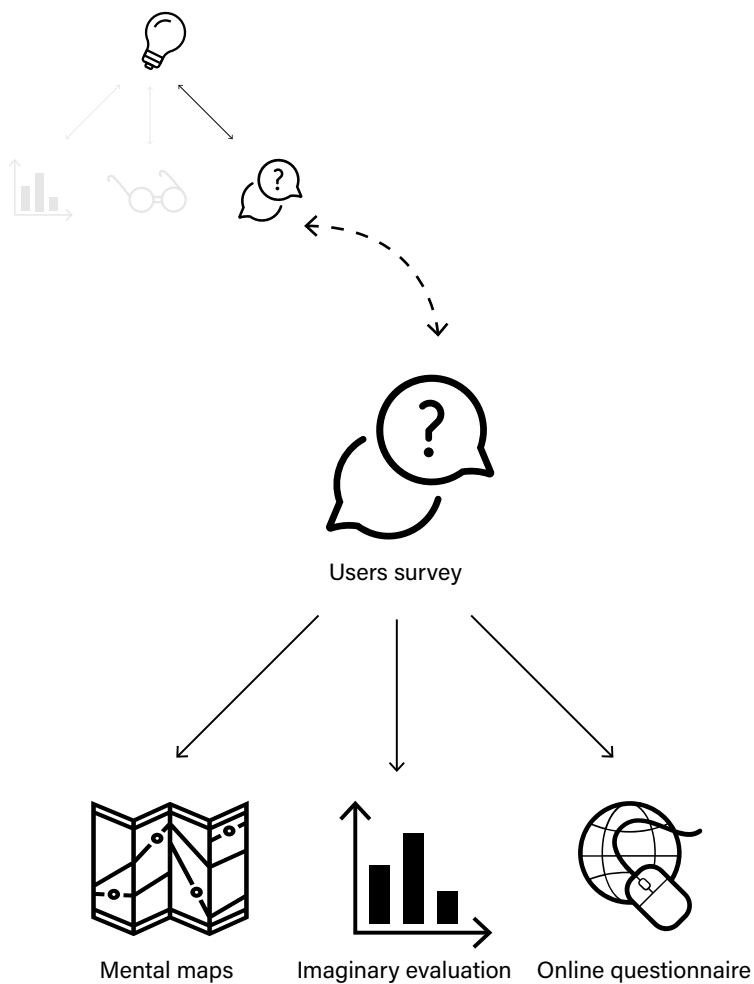


Figure 144 The components of the users' survey

"The Twelve Quality Criteria is a tool for researching how public spaces are experienced by their users. More specifically, it's used to evaluate whether different features of a public space are protective, comfortable, and enjoyable for people spending time there."⁷⁶

Users interview

The third step is the interview. I have started by doing face to face interviews which were a great tool, very informative but also very time consuming and it happened to be difficult to motivate as many people to spend time with us and discuss the subject. After a first round, I then decided to carry out an intermediate assessment of the responses. The goal was to assess whether I got coherent results and whether they go in the direction of a common thought. This having been the case for us, I wanted to experiment with another technique called "indirect" mind maps. The previous questionnaire has been adapted to make it an online version that people could easily fill out. The approach allowed to target a larger population and the software used (Google forms) makes it possible to obtain statistics. The settings relate to the second phase of the questionnaire, after having noticed during the first phase that certain questions were not clear to the interlocutors as to the context they were questioning.

For obvious reasons, the important part of this phase is the interlocutors. It was essential to aim for a mix of profiles from all points of view: age, sex, socio-professional category, residence, etc. Here, I ended up debating with three

⁷⁶ <https://gehlinstitute.org/tool/quality-criteria/>

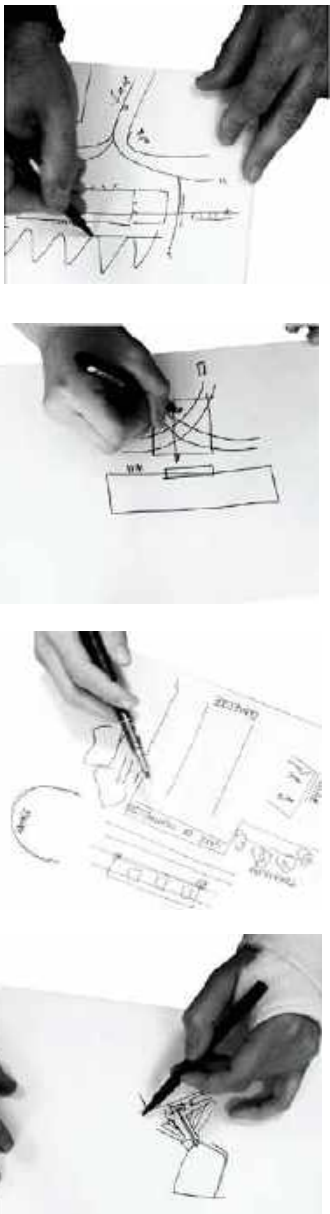


Figure 145 Mental maps drawings with users

types of people. Firstly, I wanted to reach persons living in what has been defined as the station area. They practice it every day, without necessarily experiencing the station itself in its primary use. It was assumed that they could have a practical perception, precise in a certain angle. Then I chose to target people using the station regularly, whether or not living in the city. These are people who have a practice of the area almost opposite to the previous persons in the sense that their only goal is to use the station to travel, to go from point A to point B while the former is "forced" to use this area in the sense that it is their starting point. But the station is not their purpose, it is part of a route. This enables us to have a global vision in its various aspects.

In total 136 people have answered between January 2015 and November 2018. 58 of them have gone through the "direct method" and 78 responded to the online questionnaire, the "indirect method". These results can be considered as representative if I take as a reference other survey operations in the context of urban projects or those presented by K. Lynch in his book. Of course I can maybe regret a lack of heterogeneity in terms of the age and profession of respondents. The scope of the invitation to the interviews was mainly word of mouth, or reaching out through social media which explains this repartition.

The interview phase was certainly an important part from a time and interest point of view, and the interpretation of the results has been all the more delicate. First, it was important to sometimes cross-check the questions and share the results in order to derive meaningful statistics. The results were organized into four main categories.

The first category concerns the physical elements related to the station in general, then to the one in question. The purpose of these questions was to obtain short, simple answers that are easy to represent in the form of a plan.



Figure 146 Interviews with users

The second category concerns the journey and the report of the persons interviewed at the station. This is about assessing the behavior of people when they need to go there. One can thus get an idea of the zone of influence of the station and the modes of transport of which it is the modal carry-over. On the other hand, this also makes it possible to know the habits of people with regard to their practices of the station and to compare them with the new project

The third category is visual recognition. Interlocutors were asked to recognize photographs taken in the district of the station and to place them back where the shot was taken on a map. The answers make it possible to see what attracts the eye of the residents and what is easily memorized.

The fourth category is more general asks the interlocutor about his opinion on the stations, his experiences of these and questions their vision of these places for the future. It should be noted that most of the time I will get the same type of answers and, on the contrary, I will not find some more significant examples simply because people have never had the opportunity to practice these places.

The last way of restoring the information was the graphical representation of the mental maps. I chose to stick as much as possible to K. Lynch's method by drawing three maps: one from our own analysis, an outcome of the answers to the internet questionnaire and one as a summary of the maps drawn during the interviews. This makes it easy to compare the results and the card itself was an opportunity to return to the essence of exercise.

TRAINING



GARE DE MONTPELLIER SAINT ROCH

Cette interview a pour but d'évaluer la manière dont les usagers des gares les pratiquent, comment ils les ressentent mais également la manière dont les gares s'intègrent dans la ville et leur rôle urbanistique.
Vous vous apprêtez à répondre à une série de questions, il n'y a ni bonne, ni mauvaise réponse, l'important étant votre spontanéité et votre sincérité. Cela ne doit pas vous prendre plus de 20 minutes.
Merci d'avance !

* Required

Veuillez décliner vos noms, âge, activité et lieu de résidence (ville et quartier). *

LA GARE

Ou'évoque pour vous la gare de Montpellier ? *

En 3 mots, comment décririez-vous la gare de Montpellier au sens physique et matériel du terme ? *

Nous aimerions savoir quels sont, à votre avis, les 3 éléments les plus caractéristiques de la gare de Montpellier.
Indiquez ceux que vous trouvez les plus faciles à identifier et à garder en mémoire. *

Figure 147 Online questionnaire

02.2.4.

Categories and variables

The whole point of this research project on the imaginary generated by stations is to investigate a method to evaluate this concept. Our approach is a reinterpretation of what's used by K. Lynch. The main frame can be kept, while adapting some parts of the content as the rewriting of certain questions. During these first three years of research, I could think about a new method and start applying it to people using the stations of Montpellier Saint-Roch, Copenhagen Nørreport Stations and Paris Gare du Nord.

After gathering all the info from the three approaches describes above, I will then base our deductions on the comparison between these different types of exercises, keeping in mind that this can't be fully demonstrative of everybody's opinions. Of course this link architect-user is depending on many factors such as location, size, politics, environment which requires a specific approach for each case. What's best for one place can be a bad solution for another and so on. In this logic and to be realistic, I am hoping to be able to give away advices and good practices but no general cases. Our ambition actually isn't to explain pre-made solutions but inform on a potentially successful process around designing train stations in the future. Each of our three methods imply different traits and therefore are confronted to diverse types of variables that i took into account and will describe underneath this section.

Data collection

During this phase, the outdoor conditions obviously have a major impact on the results, it was consequently important to write them down and to analyze the results separately in order to understand each challenge and propose solutions that work accordingly. i expected it to have an influence on the

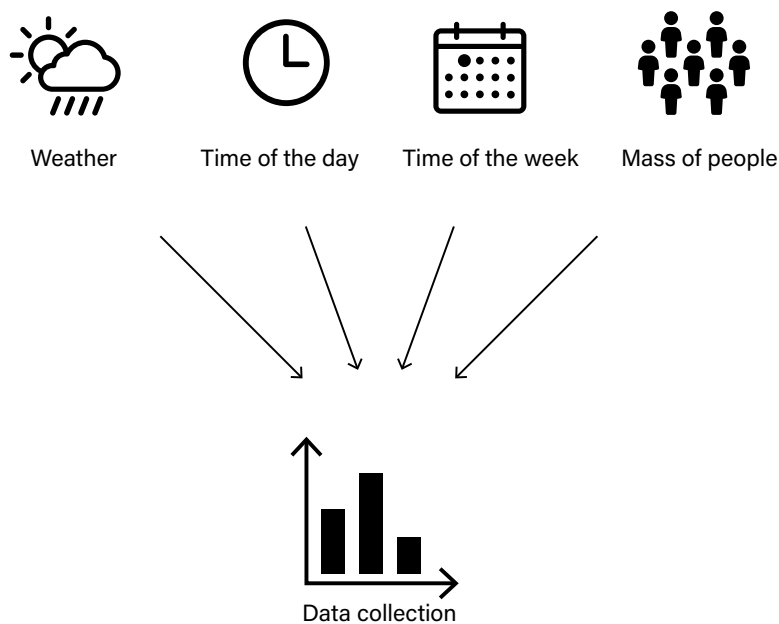


Figure 148 Features influencing the data collection

amount of people passing, on the people's behavior and on their journey. Indeed, people can be influenced by bad weather and decide to take public transportation instead of walking or biking, they might use different paths that could be protected from the rain or the sun. They could as well decide to use another way if they feel like the place is too crowded, etc.

Another factor that can be linked to these conditions is the peaks during rush hours, and also the low traffic the rest of the time. For instance, I can observe many different behaviors, not related to a travelling activity during these windows of time that are interesting to file. This gives as well information on flexibility and adaptability of the space when it's not used for its primary function but also on efficiency and allows us to compare stations with one another.

Eventually, data was amassed from Mondays to Fridays because I tried to focus on people's habits and to avoid anomalies coming from infrequent events. These special events were anyways studied (such as big holidays and shopping Saturdays for example) but were placed apart since they only inform about the capacity of the stations to orient and absorb big masses of people.

Professional examinations

The data collected in the methodology study aims to generate information that may lead to an improved understanding of behavioral determinants in transportation-oriented architecture. Stations were chosen for analysis based on qualities such as distance between station platform and street, station proximity to landmarks, size of connected transportation networks and recognized modes of transit, artistic expression in design that exceeds the basic requirements for the implementation of a service and the feasibility of a researcher being able to accurately observe traveler habits.

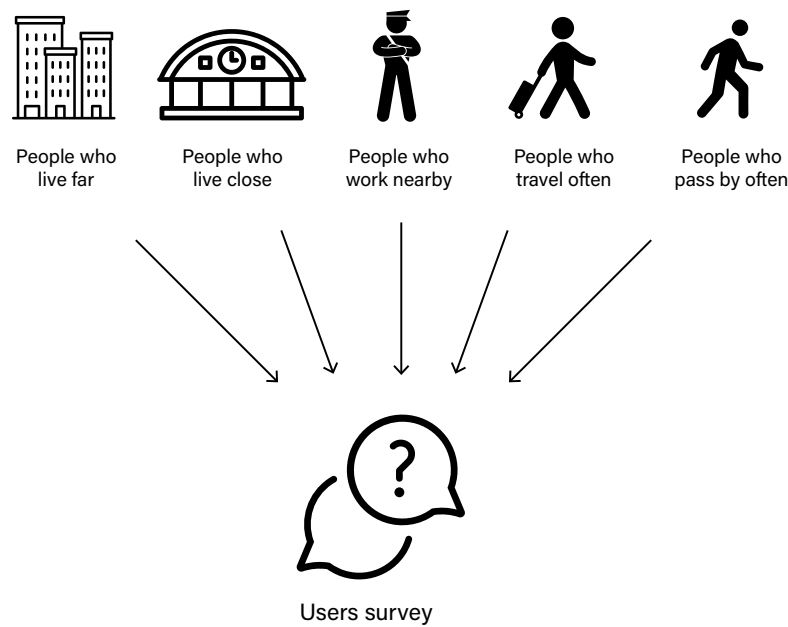


Figure 149 Categories of people interrogated

To achieve this part, I arranged site visits with professionals (architects, urban planners, politicians, developers) used to each area to get information that is as objective and documented as possible. I aimed for comparable results by choosing similar hours, days and if possible weather conditions for each stroll around the stations. I will then focus on the stations and its environment without having to take into account other factors. After experiences, this seemed to be the most accurate way to compare stations with each other.

Users interviews

I had to be aware that an interrogation process on a certain number of people, as many as they can be, will never embody the entire population. But it is anyways a good tool for us to get a grasp on a variety of opinions regarding stations requirements and have an idea of hierarchy within them, from the user's perspective. Another aspect is that within the range of persons that I interrogated, not all of them have the same background and relationship to travelling for one, but also to the station building for two. I expect their apprehension of the different aspects to vary according to this, so I decided in data collection to compile separately the people who:

- live in the city but not close to the station
- live close to the train station
- work in/nearby the station
- travel often
- who don't travel often but pass by anyways

I expect people with the same experience to have the same needs, so classifying them will help defining them and improve accuracy.

Hello, please decline your name, age and activity and place of residence.

1. How you practice the train station of Montpellier Saint-Roch? How often? For what purpose?

2. What does the Montpellier station mean for you? How would you describe the Montpellier station at the physical and material sense of the term?

3a. Please, please give me clear and complete information on the track you follow usually when you practice the railway station. Represent yourself in this route and describe the following elements you would know, hear, feel along the way and indications that a foreigner needs. Important is the material description of things.

3b. Do you feel any special emotions about some parts of your path? How long does it last? Would you know the special places of your track?

4. We would like to know what, in your opinion, The most characteristic elements of the Montpellier station? They may be large or small but indicate that you find the easiest to identify and keep in memory.

5. Can you draw a quick plan of the station. Do as you if you have to describe it quickly abroad by indicating the main features. The purpose is not to make a precise and exhaustive drawing.

6a. Could you show me on a plan where is the district of Montpellier station and what are the frontiers?

6b. Could you indicate the northern direction on this plan?

7a. The last exercise consists of visual recognition. Here are several photographs of the station of Montpellier but also other cities. Can you identify it as much as you can? Which indices helped you?

7b. Can you dispose them to the corresponding location on the card

8a. Do you think the Montpellier station is a place where your road is easily? What do you identify the parties?

8b. Among the cities you know, what are those that have good orientation? Why?

8c. How important do people have the orientation and possibility of recognizing the elements of the city?

Thank you!

02.3.

Case studies

The sense of belonging, which is an ultimate goal to give the population for urban planers, is a difficult concept to grasp. It can be visible, though, on the mental maps they can provide use. Public transportation and landmarks influence them a lot and help understanding what is the imaginary driven by the train stations, in our case. They can of course be of many kinds, but it seems obvious that there is a consensus when they are identified several times which confirms their importance and the interest of clearly pointing them out.

Eventually, surveying tools are great assets to understand how public landscape, buildings and programming can either promote or prevent social relationships and inclusivity. These are ways to engage with the community as a first step to consider needs and drive a future design. It makes great sense to catch their visions of things since they are the ones spending their lives in the area, notice every detail or at least the ones that matter to them. Gathering this information from different people with various backgrounds helps getting the whole picture and starting to understand the interactions within the complexity of that topic.

For all these reasons we went out and asked several people, professionals or not about the way they saw our three study cases.

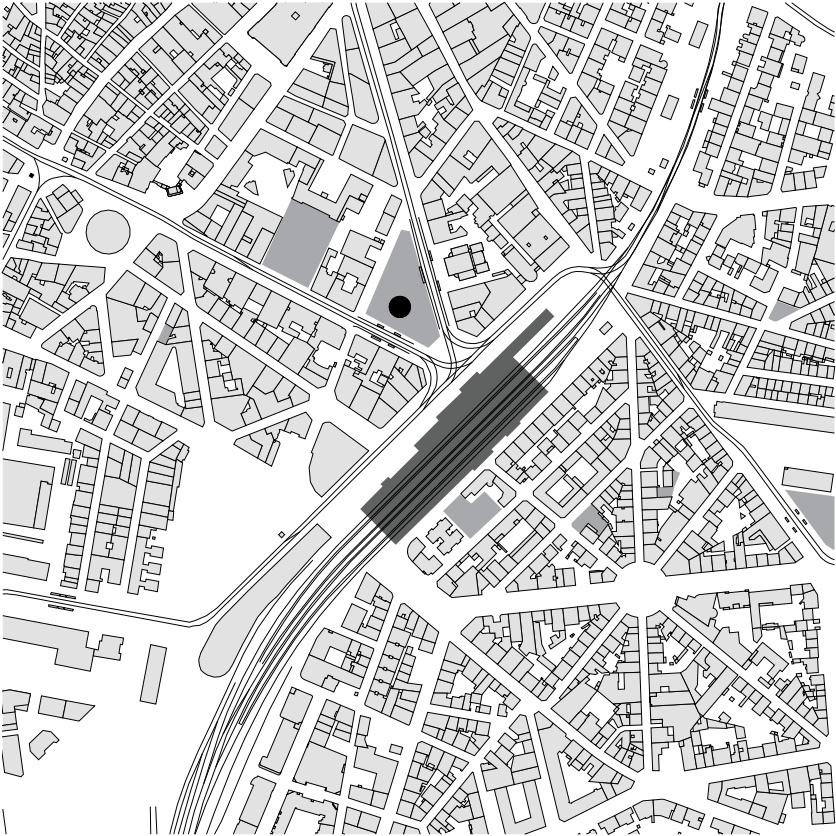


Figure 150 Mapping of the area Montpellier Saint-Roch

02.3.1.

Gare Saint-Roch, Montpellier, France

Montpellier was the first city where we applied these different methods that we explained earlier. It was a test without knowing, at that time, that we would apply it again in other places. Having lived and studied there for 8 years, it was a great way to get started, since I knew the area so well myself.

Data collection

The data collection was pretty easy since there are so many shops and restaurants but also covered places around the station where I could stay for a while. I gathered data on three different days, on a Monday, Saturday and Sunday, each time for a three hours session. During each session, I was alternating between 8 different spots that were estimated the main accesses to the station (like the tram stops or parking entrances for example). It happened in October 2014. Two times the weather was sunny but windy, and another time it rained a bit. I did it at three different hours of the day, 7-10, 12-15 and 18-21.

Experts' examination

The experts' examination happened with 2 people. The first person was a 45 years old geography and urban planner, teacher at the Architecture School of Montpellier. The second person was a 35 years old architect, working in Montpellier. We did it by walking around the station as planned.

Users interviews

In total 54 people answered between October and November 2014. 18 of them have gone through the "direct method". We interviewed them in a room where they were recorded and filmed from two different angles. We could talk to 6 people in 3 days. 36 answered the online questionnaire, the "indirect method".

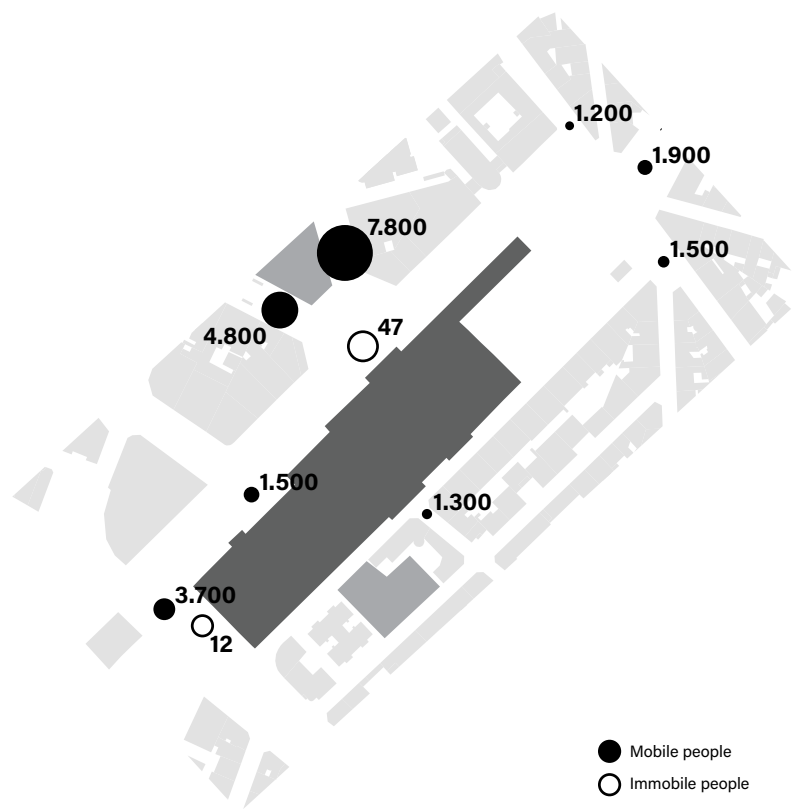


Figure 151 Count of people in the area

Data collection

Count of people

Referring to the SNCF open data, the train station of Montpellier Saint-Roch counts almost 7.1 million travellers every year and 11.5 million are counted the people using the public transportation and the facilities without taking a train. After counting during these three times three hours sessions, we did an average per day that, according to the Gehl's Institute advices can be considered rather accurate. The average daily count for Montpellier Saint-Roch station area is approximately 24.000 people passing by. Almost one third of these people were recorded around the tramway station for the lines 1 and 2 coming and 20% around the other tramway station, for the lines 3 and 4. 3.700 people average were counted around the new nave plaza, which represents 15% of the flow, and most of these people were coming by car, either from parking lots or through a drop-off. Only 5% of the people were accessing through the East-South façade, and this tendency will be confirmed in the interviews. This number is even lower than the persons walking along the tramway lines, coming from the mall Polygone (around 8%).

Type of people

Montpellier is a young metropolis that counts many universities and schools. Since we counted people both on Sunday evening and Monday morning, we identified a large group of people estimated between 17 and 35 years old. These were the same people using the public transportation or walking to the city center (Ecusson). Another large part of population was the 65+ years old person, who also seemed to use the tramway a lot. We didn't count so many people biking, especially not with city bike, even though there is a bike station by the tramway station. Only few people were sitting as well, the ones who did were placed at the terrace of coffee shops. This can of course be explained by

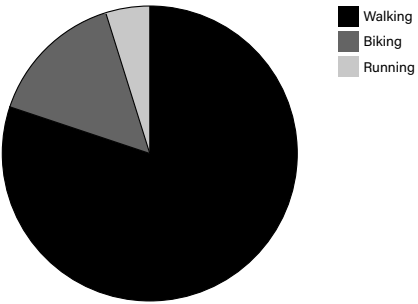


Figure 153 Repartition of mobile people counted in the area

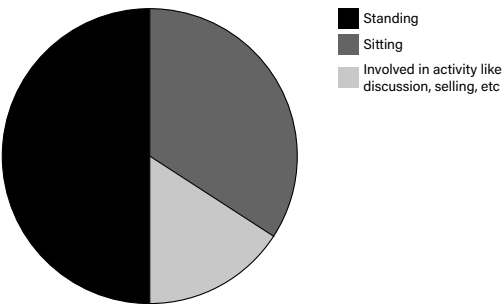


Figure 152 Repartition of immobile people counted in the area

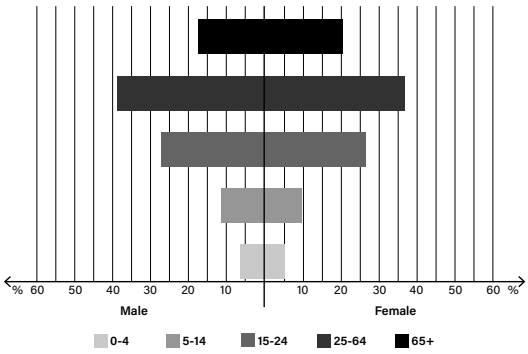


Figure 154 Estimated age range of people counted in the area

the lack of sitting features around the area, we can notice anyways that some young people used the large stairs as seats around lunchtime. We also counted a fair amount of people giving away newspaper or making advertisement, but exclusively at rush hours.

Flows of people

Then we tried to evaluate, by filming and drawing on a map, the route and the report of those people seen passing by the station. We were trying to evaluate the behavior of people when they needed to reach the station and when they just had to pass through the public space. One can thus have an idea of the zone of influence of the station and modes of transport of which it is the modal shift. On the other hand, this also allows to know the habits of people with regard to their practices of the station and to compare them with the new projects.

We could realize very quickly that a large part of the users reaches the station by feet with public transportation. They tend to practice the station in the same way, that is to say that they reach it by tramway from the lines 1, 2 but also more recently 3 and 4 in order to enter through the station the historical front square. It is recalled that 70% of the people questioned declare to enter the station by the historical facade which is the former main entrance. Another lower proportion of pedestrians were reaching the station through the Pont de Lattes' new footbridge that leads to the Northern edge of the nave. Most of these people arrived from either The Polygone mall, and walked along the tramway rails, or from the street coming from the Rue du Pont de Lattes. A very small amount of people would access the station though its South-East façade on Rue des deux Ponts, even though people get the choice to use stairs of elevators to access directly the main hall, under the nave.

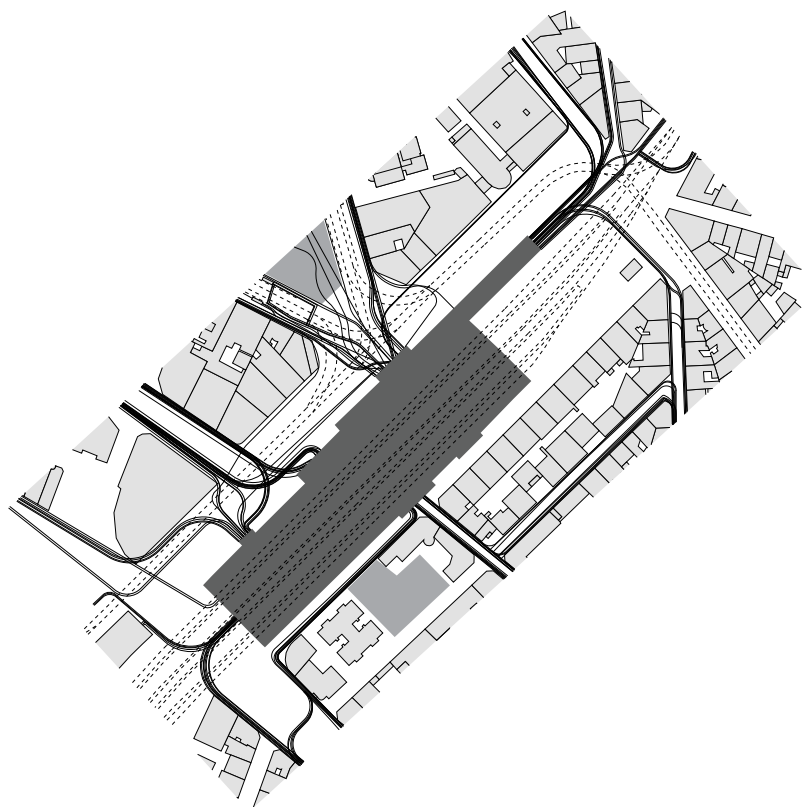


Figure 155 Mapping of the flows in the station area

The rest of the people arrive to the station by car, either private car or with taxis. The new taxi station and the drop-off area are right in front of the new façade of the station, by the nave, on the Pont de Sète. The persons using their own own can park in the parking house "Parking Saint-Roch" on the other side of the bridge and reach the nave by foot by crossing that same bridge. The persons interviewed seemed pleased with this solution in terms of accessibility, even though they regret having to pay for parking.

This pattern is a clear move to re-orientate the flows towards that entry point and induce a movement of people in the long direction, on top of the tracks.

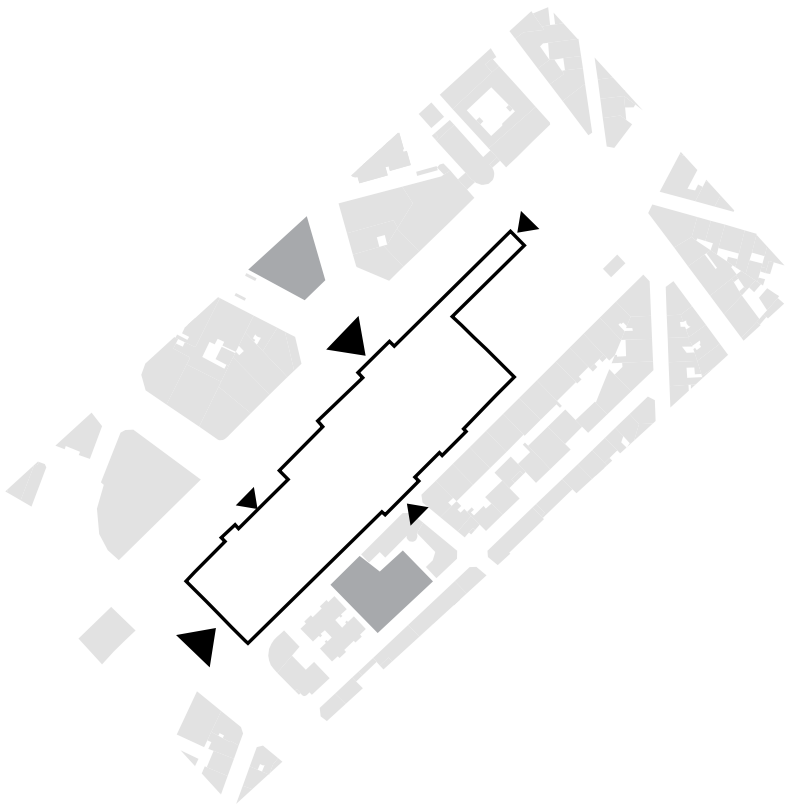


Figure 156 Mapping of the area from the experts

Professional examination

Landmarks and substantial elements

The professionals were first asked to give us their opinion about the substantial elements relating to the station of Montpellier Saint-Roch. This includes potential iconic elements, urban furniture, lighting or other feature they could find of importance. The purpose of these questions is to get short and simple answers that are easy to represent in the form of a diagram and to map the area to maybe explain the flows or spot some variations.

With regard to the image given by the architectural object that is the station, many testimonials converge towards its massive and mineral aspect, in similar proportions as its transparent and luminous aspect. After studying its history, we can relate this to the two main stages of its construction. Indeed, the historic part of the station was in stone, of classic style and characteristic by its colonnades, while the project of J.M. Duthilleul is based on a transverse glass nave. The answers are therefore surely revealing the link and relationship of each interlocutor with the station.

The description of some specific elements complement this understanding as well. Indeed, many components relating to both facades (old and new) are very much mentioned in the answers. For the historical façade, the architects interviewed talk about the stone colonnades, as well as the characteristic clock standing above the old entrance. When it comes to the new design, the main shape of the roof structure appears to be the most noticeable element in their mind. That can be understood from two point of views. First of all, the design of this new structure is rather dramatic, looking like one shape made out of white steel and glass. The pointy nave reminds of religious buildings that gives it an iconic and impressive feeling. Second of all, it's dimensions are dramatic, with the highest point at 27m. It is a clean design, reminding of a gate to attract people and communicate the fact that the main entrance to the



la pharmacie de la gare



le Rockstore



le Polygone



le Macadam



la brasserie de la Gare



le pont de Sète

Figure 157 Pictures of some landmarks defining the station area

station has switched. This image of the new station that gets stuck in people's mind, just as much as the stone columns used to do it when the old station was used that way.

The specificity about the Saint-Roch station is the fact that urban features are called landmarks as often as actual architectural elements. The plazas and parks around seem to be real structural elements for the neighborhood. For example, we were able to record:

"When people leave Montpellier by the train, they cut through the little square (Square Planchon) to get directly information about the status of my train and the platforms, but not in the evening it depends on the time of day because it can be a bit dangerous."⁷⁷

Landscape

Both front plazas are also mentioned as landmarks. Again, there is this opposition between old and new station. It is important to notice that the plaza, in that case, are not featured for the shape, materiality or appearance and in general, but for their purpose. The forecourt of the old station was described as a place where a "dance of tramways" happens whereas the new station place, on the bridge makes one with the drop off and taxi stops area.

Another element remarkably stuck into the professionals' minds when listing the markers of the station area is the restaurant Mc Donald's. Its placement is pretty prominent in relation to the old station's gate, facing it at 45 degrees. It has a very well-known appearance with bring colors and logo that everybody

⁷⁷ Nathalie, 32 years, has a shop in the city center of Montpellier

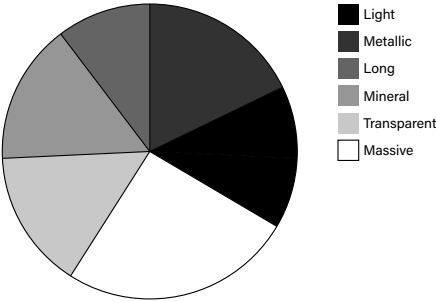


Figure 158 What are the main characteristics of the station?

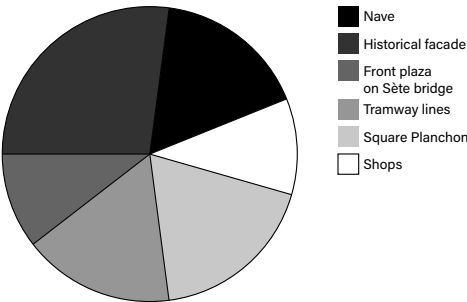


Figure 159 Which element of the station do you consider as a landmark?

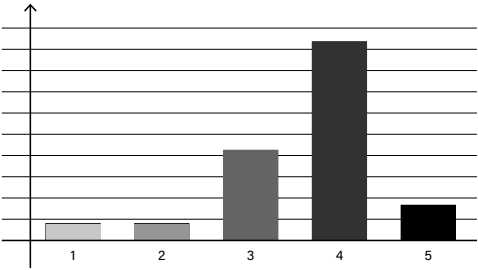


Figure 160 How would you rate the visual environment?

can distinguish. Furthermore, many people go there to get a snack or coffee before or after taking the train which make it associated to their mind when talking about the train station.

These examples teach us that landmarks don't need to be related to some iconic or grandiose architecture, but that they are often related to a specific purpose and an identifiable program. Landmarks stand out because of what they remind people or because of how they make them feel.

Context and city scale

The imaginary of an endless city, devoid of any constraint or limit is an aberration. In fact, in most French cities there is a phenomenon of segregation or even "zoning". This fragmentation of the internal boundaries of the city is a translation of the radical and rapid metamorphosis of the cities of which Montpellier is an example. Moreover, as K. Lynch says, the theme of boundaries is like a vital subject. Stations are moving elements, very special in cities and we often hear about the "station neighborhood" and in rather pejorative terms. In order to get a grip on the perimeter of influence of the project, we found it interesting to ask interlocutors where began and where stopped the district of Gare Saint Roch in Montpellier.

On a larger scale, some nodes and landmarks were mentioned, less frequently in the responses of the interviewees but still remain amongst the most cited, such as the bar Rockstore, the forecourt of the Pont de Sète, the pharmacy of the angle between the rue de Verdun and Avenue Henri Frenay, Comédie Opera, Polygone, Antigone, Les Halles Laissac, Esplanade du Corum. Note that these elements are further away from the station in terms of distance (400m). These are elements that are more of the type "monuments" or "icon". They are undeniably part of the landscape of downtown Montpellier and we

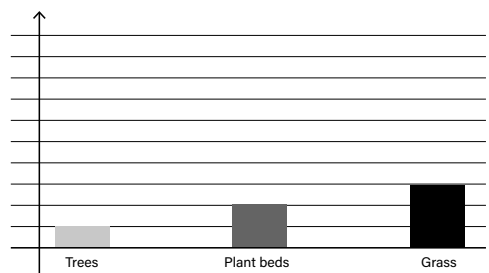


Figure 161 How strong is the presence of vegetation?

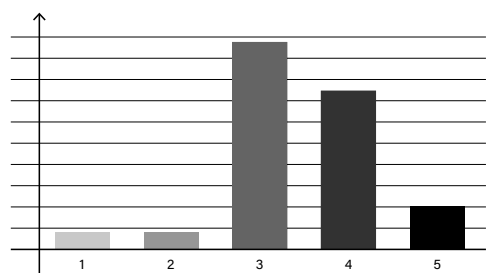


Figure 162 How would you rate the clarity of gateways or well-defined entrances

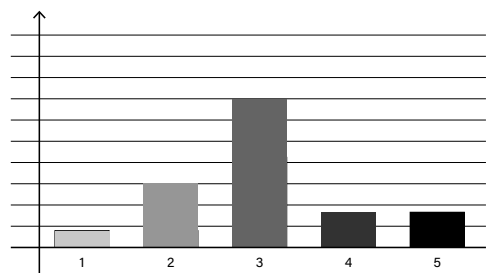


Figure 163 How clearly do you identify the different sections of the station?

can estimate this is the reason why they were cited second, people certainly thought about emblematic elements in an area that they considered not close but not far from the station.

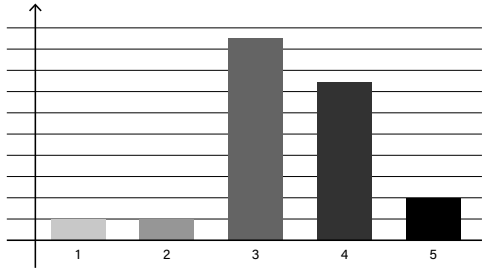


Figure 164 Is it easy to find your way inside the station?

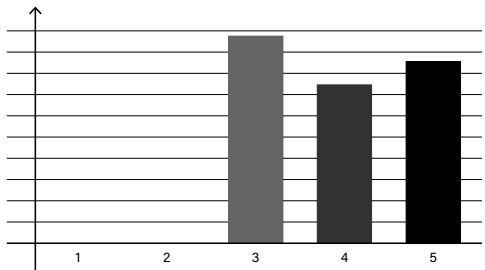


Figure 165 Do you feel safe in the area, overall?

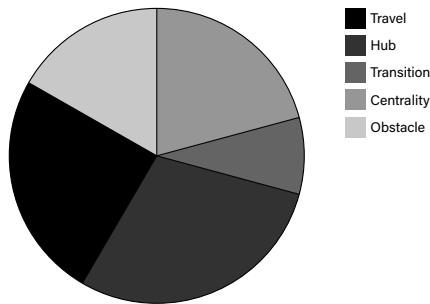


Figure 166 What does the station represent for you?

Users interviews

Questionnaire

It is immediately quite clear that for most of the persons we talked to, the station evokes travel and mobility in general, meaning bigger scale movement (from a city to another). At the same time, what is particular about Montpellier is the high proportion of people (34%) who evoke notions of intermodality or transition. We imagine that this is due to the strong presence of trams and buses around the station.

A part of the interview was focused on visual recognition. The interlocutors were asked to recognize photographs taken around the station and put them back to where the cliché was taken on a plane. The answers allow seeing what attracts the eye of the local residents and what is easily remembered. We can realize that the urban imaginary is sometimes based on elements that are not very academic, but it is interesting to be aware of them and to study them. We also note that the station seems to return a double image, almost as many people (respectively 25 and 17%) consider it either as a centrality in the city, or as an obstacle.

One of the key questions to understand the integration of the station in its context was "Can you show on this map the limits of the station neighborhood? ". After a first movement of surprise and hesitation, the residents have, for many of them, estimated the place of the Comédie as the northern limit of this neighborhood, others stopped at the square Planchon. With regard to the East and West facades, once again the two bridges are clearly barriers, beyond these we do not really know what is happening, except for the presence of a parking is difficult to access. This is confirmed by the visual recognition whose answers are mainly false in this area. Finally, and most surprisingly, the south of the station of its islets with the typical architecture of the center of Montpellier make 60% of respondents' part of the

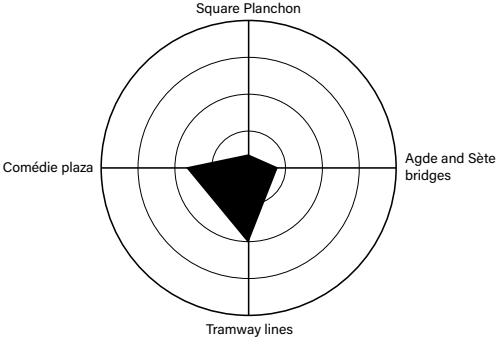


Figure 167 What would you draw first if you had to draw the station?

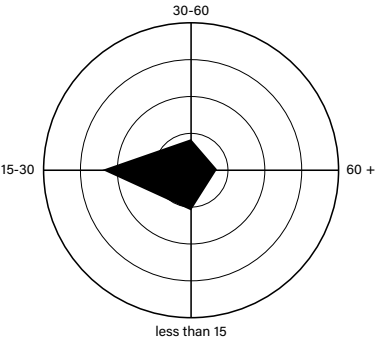


Figure 168 How long does it take you to reach the station? (in min.)

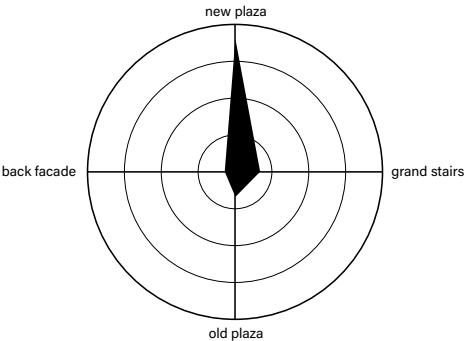


Figure 169 Where do you enter the station?

station area and they are also often shown first. This is surprising because this area was very little drawn or mentioned earlier in the interviews. It was almost omitted and the photographs representing it posed big problems during the identification. Indeed, and this is the case for the photograph of the south facade of the station, it is not only that the residents were mistaken in the examination of the image but although they did not have the slightest idea of what it could be, sometimes going so far as to think it was another building.

To go in this direction, it is important to mention that in 25% of cases, the southern limit of the station area was confused with the south facade of it. It should be noted that for 17% of respondents, Montpellier Saint-Roch station is considered an "obstacle".

The last category of questions category consisted in a broader approach, asking the interlocutor more about his opinion on the stations, his experiences of them and questions their vision of these places for the future. It should be noted that most of the time we will obtain the same type of answers and, on the contrary, we will not find some more significant examples, simply because people have never had the opportunity to practice these places.

Mental Maps

We asked the users to draw a map of the station and what they thought belonged to its surroundings. For the ones we couldn't meet or who answered the online questionnaire, we asked "if you had to draw a map of the station, what would you draw first?". The results obtained following this question have been represented as hatching on the plans and can be considered as structuring elements around the station. These are striking by the regularity in which they have been observed in the Place de la Comédie, the square Planchon, the bridge of Sète, the bridge of Agde. These four places were

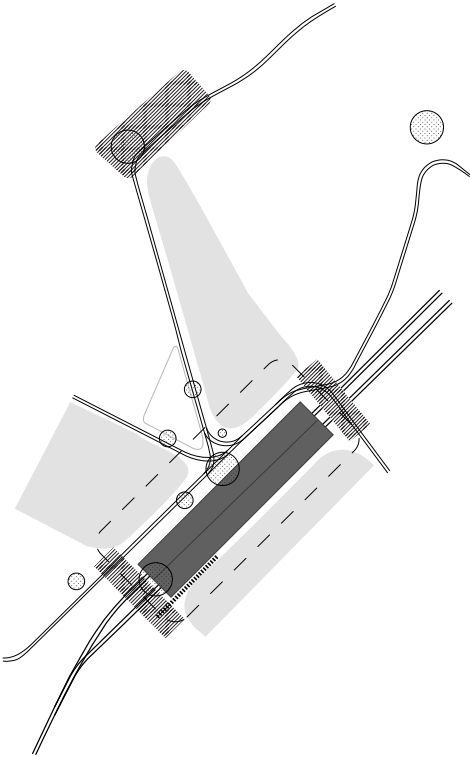


Figure 170 Mental maps from the direct method

represented in more than 75% of the cases and three of these in 83% of the cases. This shows the elements with which the interviewees estimated the station in direct link. The Place de la Comédie is considered complementary to the station and this is explained in particular by the street connecting them, as we will see. Then, the station clearly appears as an in-between. After drawing a rectangle representing the station, we often drew a bridge at each end without necessarily knowing their name. These two bridges are characteristic of the configuration of the Montpellier station where the rails are at the same level as the street, which requires this type of crossing. They were built very early, in 1930, which reveals their importance and their necessity. Unlike these, the areas to the east and west seem very blurred. Finally, the square is a recurring element in the minds of residents and is also an urban element historically linked to the station. It should be noted that in the investigations of the trained person, Place Carnot, south of the station, is also considered as a structuring element. It is at the intersection of many streets in this fairly regular fabric and really appears as a node, a central landmark linked to the station by different frames. This is a small part of the city, unlike the whole fabric north of the station.

In general, it has been rather difficult to introduce respondents to the concept of "landmark", it was necessary to go through devious means such as "when you think of the station, what image comes directly into your head?" or "about what element can you tell a stranger that if he sees it it means he's at the station?". However, once this point is clarified, the answers were quite eloquent and many of them were in the same direction. This allows us to consider the answers as relatively reliable.

In a second time, many drawings were organized according to the reinforcements, meaning the traffic lanes. 60% of the interviewees draw or believe they want to draw their plan of the station from the frames, 15% from

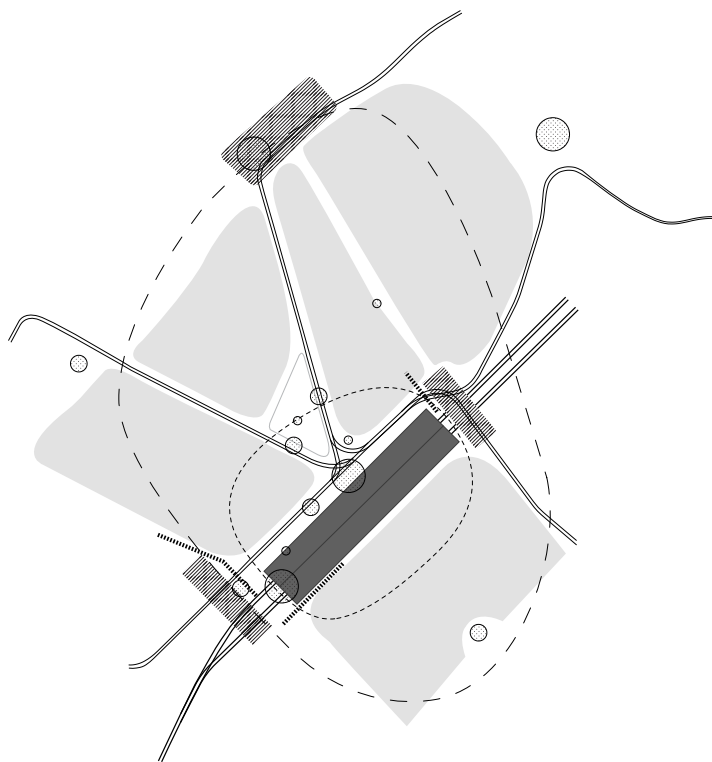


Figure 171 Mental maps from the indirect method

the buildings, and 25% from specific landmarks. The way in which they have been represented is very striking.

First, railways were drawn in about 50% of cases. Their position appears as a real fracture in the drawings because most of the time, the drawings are quite precise in the North while the South is left empty. This feeling of barrier is reinforced by the fact that in the drawings of the interlocutors, they are represented by lines (often punctuated or hatched) out of context, on a white background.

Then, in many drawings we could notice the lines of tramway drawn. 60% of people started by representing tramlines (directly after the station) and for 85% of them, this started with line 1, the portion going from place de la Comédie to the stop Du Guesclin. Public transport is a determining factor for access to the station. Nearly three quarters of residents say they access the station by tram and this is probably the reason why they represent so massive: it is for them associated. In addition, its service is facilitated, we heard many times: "When you arrive, you leave the tramway and then all right! ".

We were told several times that the position of the tram stops was ideal, except that we must then cross a "rail tram broom"⁷⁸. Thus, the representation of public transport lines as frames in the maps is linked to their practice. We understand that in practice, residents know what line they must take to get to their destination without necessarily remembering his name, other than "flower tram" or "blue tram" for example. The representation in these maps is therefore directly related to the perception of local residents and not to their knowledge. Except for their intersections on the forecourt of the historical

⁷⁸ Carroll, 30 years old, student in urban planning



Figure 172 Travellers at Montpellier Saint-Roch

entrance to the station, the tram lines are never seen as cuts in the urban space. Rather, they are links, especially between Place de la Comédie and the train station. There is a great visual breakthrough that is Maguelone Street, characterized by its proportions, its architectural style and its palm plantations. During the visual recognition, one of the photographs represented her and she is the only one who obtained 100% correct answers.



Figure 173 Mapping of Nørreport Station

02.3.2.

Nørreport Station, Copenhagen, Denmark

At Cobe Architects, I was working, on *Our Urban Living Room*, and was assigned the study of Nørreport Station. I decided to make it part of my thesis.

Data collection

The data collection was made using the phone app developed by the Gehl Institute. I gathered data on three different days, on a Monday, Wednesday and Saturday, each time for a three hours session. During each session, I was alternating between 8 different spots that were estimated the main accesses to the plaza, in April 2015. One time the weather was cloudy and windy, the other times were rainy. I did it at three different periods, 7-10, 12-15 and 18-21.

Experts' examination

The experts' examination happened with two people, at different times. The first person was Jan Gehl himself, since he gave an interview with Dan Stubbergaard for the edition of the book. The second person was a 35 years old architect, who was project manager when Nørreport Station was designed and built.

Users interviews

In total 59 people have answered between April and May 2015. 24 of them have gone through the "direct method". We interviewed them in a room where they were recorded and filmed from two different angles. The rest were mainly architects who answered a questionnaire, either online or on a distributed piece of paper.

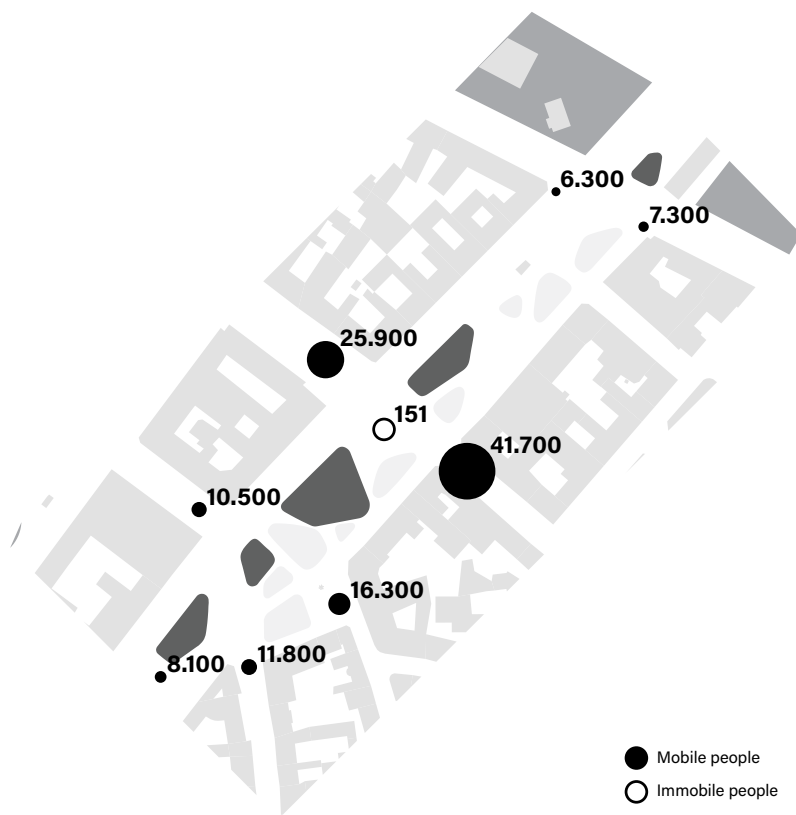


Figure 174 Count of people in the area

Data collection

Count of people

Nørreport Station is the busiest train station in Denmark, with more than 250,000 people bustling through it daily. According to the open data website of the city of Copenhagen, a little more than 128.000 persons out of these 250.000 are actually using it as a station, for the purpose of taking a train, a bus or a metro. Half of the people counted were located on the Frederiksborggade axis, either on the North side or on the South side of Nørreport Station. This axis is also the place where we found almost all the immobile people, at the center of the plaza, close to the main roof. These people were either waiting or sitting on some of the bench around the ventilation pipes. This appeared to be a very used meeting place for people.

Then, along the other sides of the plaza, the flows of people are distributed almost evenly with 12% to Fiolstræde, 10% to Nørregade south, 10% to Nørregade north. We notice nevertheless only 10% of people coming from the Eastern accesses all together (both pedestrians and by bike). We will see later that this can maybe be explained by the effect of barrier that the wide street of Gothersgade is making and interrupting the continuity of the plaza.

In Nørreport, as well as in the rest of Copenhagen, we count a large amount of people biking. The plaza is a large bike parking with 2.500 parking lots, so many people come to park their bikes here to switch to public transportation of enter in the pedestrian city center. In the Copenhagen region, 84% of the inhabitants possess a bike and 68% bike at least once a week⁷⁹.

⁷⁹ <https://www.opendata.dk/>

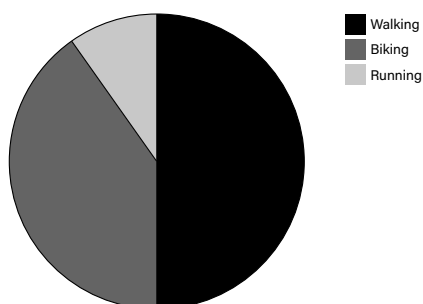


Figure 175 Repartition of mobile people counted in the area

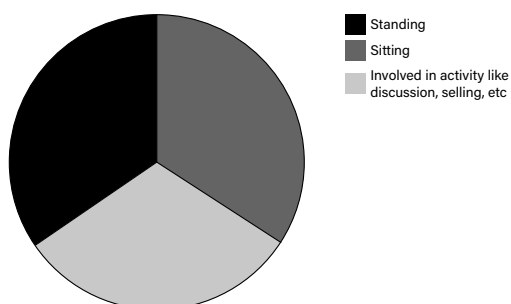


Figure 176 Repartition of immobile people counted in the area

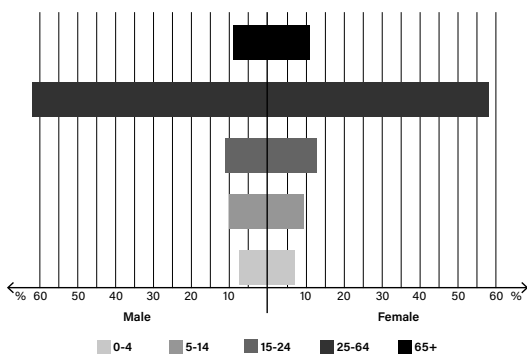


Figure 177 Estimated age range of people counted in the area

Type of people

The age range estimated around Nørreport Station follows quite closely the one from the Copenhagen region, with a large domination of people between 24 and 65 years old. This is also a place where we can meet many infants and children and we noticed that public transportation is used a lot by people with a stroller. This can be understood since parents can't transport their kids on their bikes before a certain age, therefore we see many of them around a big public transportation hub like Nørreport. For the same reason of incapacity to use the bikes, we spotted as well some elderly persons around the bus stations. Unlike what we observed in Montpellier, these people were not sitting or using the plaza as a meeting space. As in many similar hubs, we spotted people asking for charity and groups from different organizations trying to catch pedestrians' attention.

Flows of people

The users' journeys are precisely what drove the architects design as they base their approach on the assignment on their understanding of our people use the space today and will use the station in the future. The idea behind that part of the study is therefore to compare the vision and wishes from the designers to the actual way people use the station and its surroundings.

The people we interviewed are using the station mainly to take the train or the metro. A good amount of them is also coming to Nørreport station to catch a bus, since the station is a large hub where many lines have their terminus there. Their journey to reach the station is rather short, under 30 minutes for 86% of the persons interviewed! Within this large amount, more than half actually used less than 20 minutes which, compared to the scale of the city is a fairly short time. This could be explained by two factors. First of all, Nørreport occupies a central position in the urban network of Copenhagen, it is considered as the knitting point between all the neighborhoods: city center,

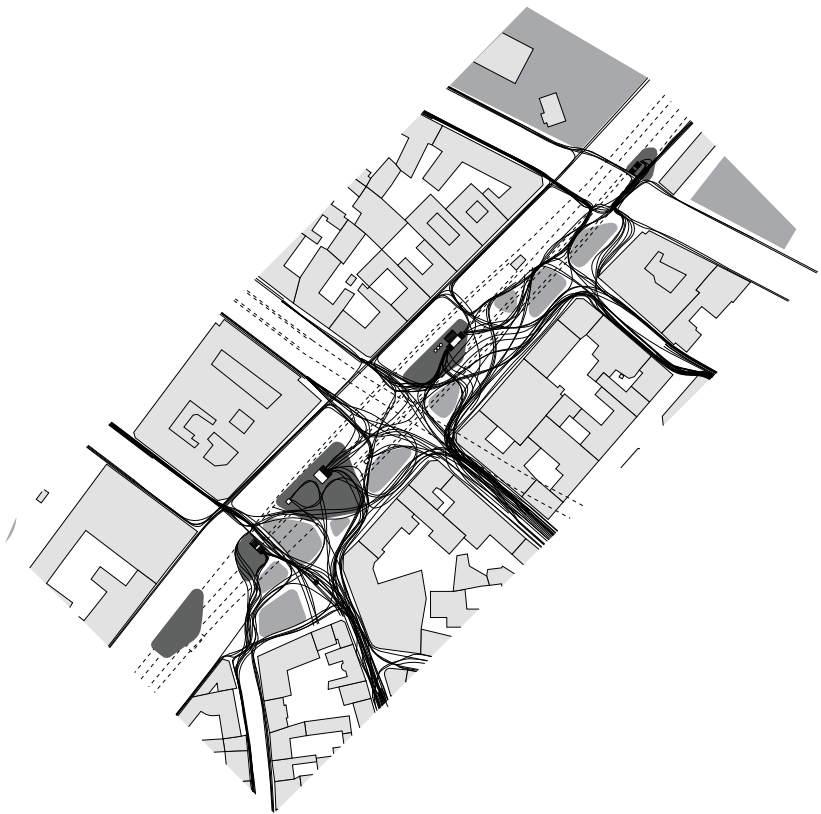


Figure 178 Mapping of the flows in the station area

Amager, Vesterbro, Nørrebro and Østerbro. Indeed, due to the radial organization of the city, all of these neighborhoods are placed at a roughly equal distance to Nørreport. The second reason is the use of bicycles. Most of the people told us that they mainly reached the station by bike and left it there, except if they were doing long trips that meant leaving their bike parked for too long, which represents a risk of theft. The fact that there are so many bikes in one place seems like a factor facilitating robbery and degradation of bikes, especially at night. This subject represented a large part of the discussion we had with the users. It shows how much of a hub the station is. It is now so clear that people switch transportation modes out there and that it is the main reason why they go to Nørreport station and not any other stop, it is because so many options are available out there. The station is close in times and distance to many Copenhageners and it offers a lot of possibilities to travel within the city but also further away.

The outer part of the station went through a renovation process, but the rail was already there. Therefore, it was decided for cost but also functionality reasons that the access to the tracks underground would remain the same. The architects decided to build roofs and pavilions on top of the access to mark them, make them visible for the users and protect them from the weather. There are two main accesses from the center of the plaza, one on the East and one on the West side. These lead to all train lines but also two lines of metro, M1 and M2. In addition to that, there are three other trains and elevators going down, but that only serve some of the lines. Analyzing the answers, we realized quickly that there are radical differences of journey and accesses between the people who are used to the station and the tourists of the ones who only come occasionally. For "the regulars", the station's design is very efficient, clear and simple. It seems easy to find its way and people prefer to use the secondary accesses (further away from the main plaza) to avoid the



crowd to and reach directly the destination tracks. They consider it as better than before, less time consuming and stressful. The experience from the persons either visiting or being foreigners is radically different. Almost all of them only use the two main accesses in the center of the plaza and shared their confusion regarding what type of transportation they should use and where to entry them. People have a hard time figuring out the differences between Intercity trains, Regional train, S train, etc. This aspect doesn't have much to do with the station design, but the signage, because it is under these massive roofs is hard to find according to some people. They point as well having a hard time choosing which ticket machines they should refer to, since some are place above ground and some are under. We figured that another reason for this confusion also has to do with the fact that the station doesn't present a mail hall, that guides to the different transportation modes. In the case of Nørreport station, it is the outdoor plaza itself that acts like this hall, which is the wish of the architects and an innovative gesture in regards to the history of train stations, and some people don't seem to be used to that new way of thinking. Some get confused by the fact that, once you go down, you are already directed towards one specific train of metro line instead of going through a redistribution space first.

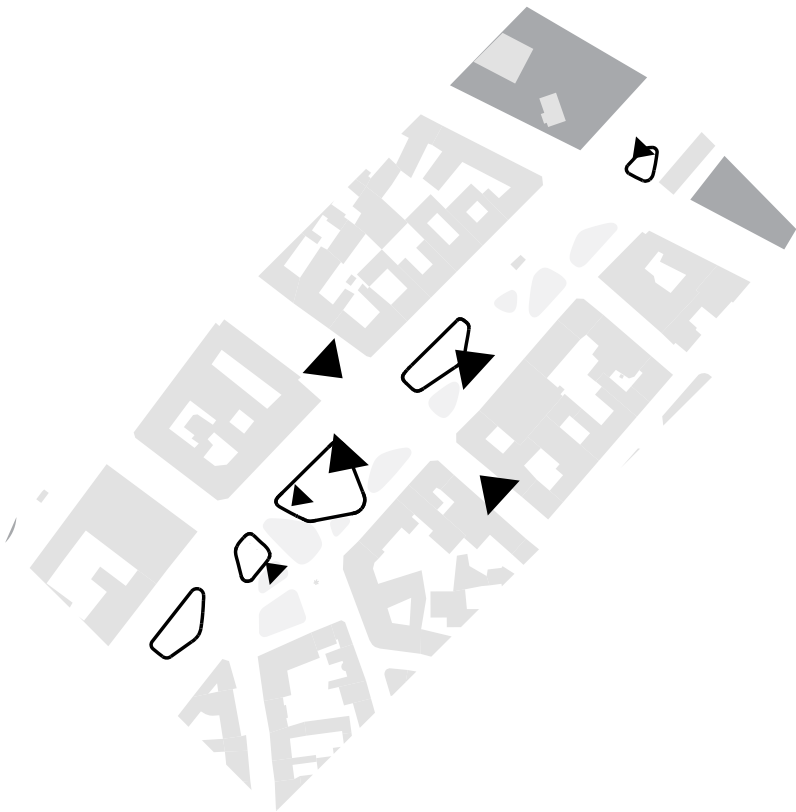


Figure 179 Mapping of the area by the experts

Professional examination

Landmarks and substantial elements

What was striking while doing the examination about Nørreport station was the uniformity of the answers. This being said, it does not mean that one elements were enhanced more than others but a few (five or six) were almost the only ones being raised.

Asking about symbolic elements relating to the train station, the old, red, "NØRREPORT STATION" sign came back really often in the answers (more than 62% of the time). In addition to that, it seemed clearly associate it to a positive feeling, almost linked to some sort of melancholia from the past, even though –and we will tackle that later– many people were unhappy with the way the station looked and functioned in the past. Both the historical aspect but also the warm and bright color seemed to be reasons why it was so worth of notification.

Another remaining element from the past caught some attention in the people interrogated, the old telephone booth. As we could expect it, most of the people naming this element were old enough to have experienced the station at it was before and were therefor able to point that element as a part of the station area. For the others, they seem to not even think about it, and this could be explained by the shape of this element which is rather small, from the same style as the old buildings around and free standing in a corner of the plaza. Otherwise, it is seen as a nice gesture, as one says:

"I think it shows a lot of solidarity that architects have still chosen to preserve some of the place's history in the old

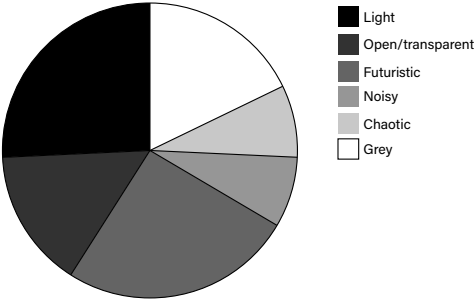


Figure 180 What are the main characteristics of the station?

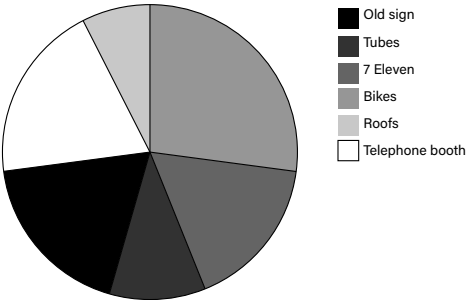


Figure 181 Which element of the station do you consider as a landmark?

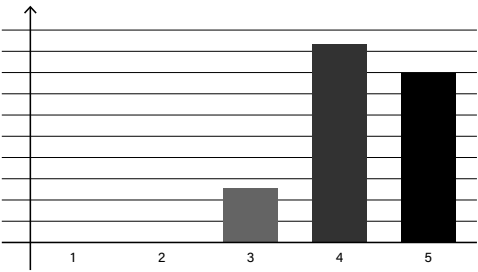


Figure 182 How would you rate the visual environment?

**telephone tower and the original typography." Sigrid,
student of the Landscape School**

Then come the elements from the new projects, and the roofs are the ones grabbing the most intention. The word "roof" is the term used by the architects to describe the built elements, even though most of the people choose to use the word "pavilion" to describe them. They appear to be elements marking the accesses to the underground, and people are appreciating their greater number than in the past. When it comes to materiality, the words "grey, dirty, cold" came back many times. This is easy to understand due to the use of concrete and aluminum for the structural columns.

**"There is a tendency all over town to build everything in
concrete. It looks nice here but also uniform, and the
materials are cold and rejecting." Mikkel, student at the
Architecture School KADK**

Another architectural element is the ventilation columns that are spread out on the plaza. They are not particularly described as columns –probably because of the imposing dimensions- but more in relation to their feature, wanted or unwanted. Some of the columns address a seating area with some benches around them, on some other we can find many (illegal) advertisement posters. Their material in tempered glass that are lit at night is also a reason for them being part of the symbolic elements of the station.

Of course the bikes, and the system used to park them came many times in people's minds, when they have to name characteristic elements of the station (in 35% of the cases). The requirements from the competition in number of bike parking were really heavy, pushing the architects to look into many options of how to organize and, and to be creative in the design of the "beds". Even though most of the respondents greet the final design with positive

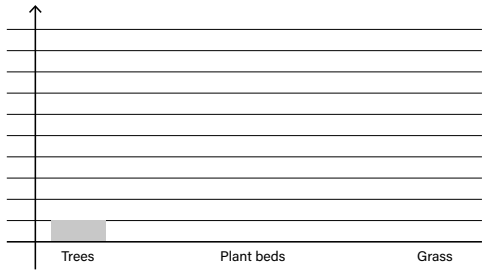


Figure 183 How strong is the presence of vegetation?

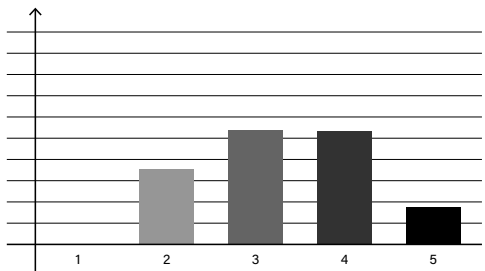


Figure 184 How would you rate the clarity of gateways or well-defined entrances

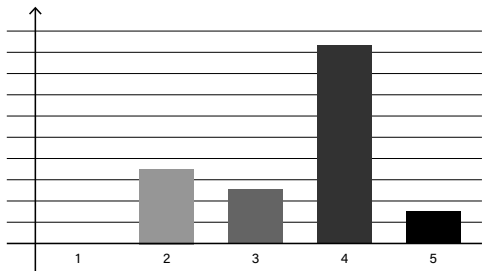


Figure 185 How clearly do you identify the different sections of the station?

comments, some criticize the fact that there are too many and that it is hard to find your own bike for example. This answer did not come as a surprise because bike occupy a wide space on the plaza but also because the solution chosen by the architects is rather innovative and creates curiosity. Another reason for the bikes interest –and we will develop that later- is that many of the people using the station also used their bikes to reach it.

The last element is not architectural but has to do with the roof, it is the 7 Eleven store that is inside the main central pavilion. This is a rather usual shop where people can get snacks, magazines, gadgets but also buy tickets and train subscriptions. It is placed next to the main stairs leading to the underground and has a round shaped glass facade that make it really visible from various angles and from a far distance thanks to its luminous sign. Thereby there are two reasons why this element resonates in people's head. The first one is its function: most of the people probably had to use it for various reasons related to their train experience. The second one is its placement in the space, both in relation to the outside (central on the main plaza) but also to the inside (adjacent to the access to the trains).

Functions and urban furniture

As mentioned previously, these 5 elements (light signage, roofs, columns, bikes and shop) represent more than 90% of the answers to the question "Which element of the station do you consider as a landmark?". This shows how important they are in people's minds as we just explained it but it also shows how minimal and efficient the design of the station is, prioritizing only the essential elements and functions of the train station.



Figure 186 The bike beds at Norreport

Feelings and environment

As we could expect it, the results of our investigations about people's feelings when experiencing Nørreport station are in line with their journey and the way they use transportation. Again there are two main tendencies to identify. The first bunch of people interrogated who are Copenhageners would use words like "open, light, transparent" to describe the space. They mean it in a very positive way, in opposition to their memories of the pre-renovation Nørreport. This confers to the station qualities like good overview, accessibility and in general security and freedom. As the picture shows, these adjectives probably come from the general approach of the project and from the choices of materials. By choosing to organize the station as pavilions and rooves, the architects minimized the built area and multiplied the numbers of spaces, allowing views and circulation in-between them, giving some lightness and softness. Almost all the facades are glass or reflective materials, which enhance that feeling of openness and let people see through most of the pavilions.

On the other hand, the confusing journey of some of the other persons reflects in their sensible reaction to the space. We could hear words like "noisy" or "chaotic". The station is a hub where many bus lines come and go, and –as we mentioned before– it does not have an indoor main hall. Users passing by Nørreport are part of large flows of people in different directions and are confronted to the noise coming from the circulation of cars, taxis and buses. Despite a large part of people many using their bikes, Nørreport has a major concentration of motorized vehicles because of its articulated position in the city. Even though the architects tried to control the flows in the way they drew the project, the station still has many entry and exit points which are at the origin of numerous flows of people. This can confer a feeling of chaos to ones who are unsure about where they are leading towards, especially in rush hours.

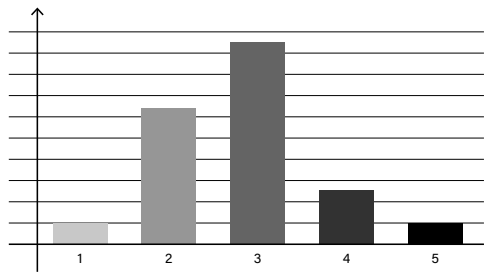


Figure 187 Is it easy to find your way inside the station?

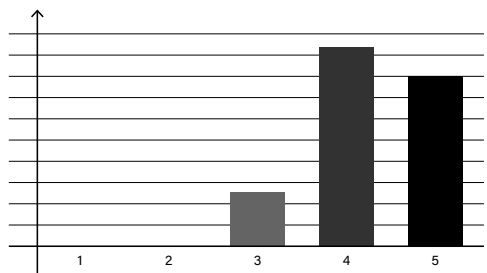


Figure 188 Do you feel safe in the area, overall?

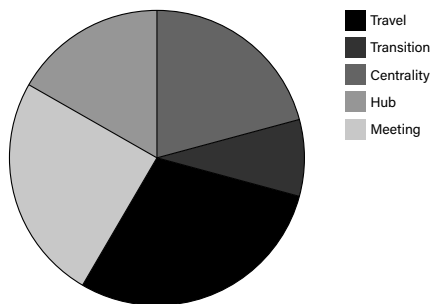


Figure 189 What does the station represent for you?

Users interviews

Questionnaire

The representation of the concept of Nørreport station for people in Copenhagen was slightly different from the answers we got in Montpellier. Indeed, nearly 30% of the people considered Nørreport Station as a meeting space, and 23% came up with the word “hub”. The station was much more considered as a place of centrality than a place of transition, even though it is originally thought for transportation. This can pretty easily be explained with the configuration of the project being first and foremost a plaza, a public space project. We could feel that people were driven by this idea of flows when they first imagined the place in their mind.

“It’s nice that there are more exits and more space. Back in the day, it could get a little claustrophobic during rush hour, when everyone was packed in, nose to elbow. The spreading of the different pavilions across the area makes it a lot more transparent and easier to get around, and at the same time, it has made Nørreport more open and soft. The space has opened up and that makes Nørreport a pleasant place to be. The design of the new Nørreport is in contrast with the beautiful old buildings around it, but it would have been strange, anyway, to design Nørreport to blend in with the old buildings, since you’d never be able to capture the soul of the old stuff. The new Nørreport is starting to develop its own soul and personality, and it feels like a natural part of Copenhagen. We often use Nørreport as a meeting place and a place to hang out, and we have had a hard time finding a place to be, when so much focus is on commuting and transit.” Lene, teacher at the Danish school on Gothersgade

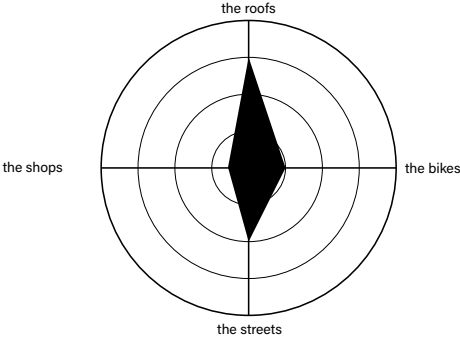


Figure 191 What would you draw first if you had to draw the station?

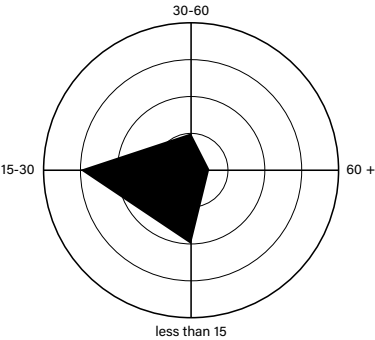


Figure 192 How long does it take you to reach the station? (in min.)

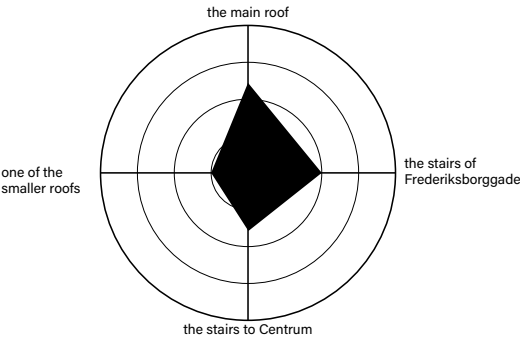


Figure 193 Where do you enter the station?

A lot of the feelings expressed by the men and women we talked to are associated to the architectural expression of the station area. The most common words that we picked up are "grey, cold, light, futuristic". The "futuristic" term was used in metaphor between the roofs and spaceships. This is probably coming from their round angled shape and soft edges. The palette of materials is using a range of grey colors, in different tones and materiality which make the station look like an infrastructure and doesn't compete with the historical buildings around it.

"I think it is truly lovely what has happened at Nørreport. They should have done this a long time ago. You've got plenty of space and it is good to move some of the traffic away. It is much easier to find your way around and it looks much better. I really think the place has been done justice. Nørreport may look a little futuristic, but when it has been done this well, I don't mind." Lars, lives in the suburbs of Copenhagen

The step of picture recognition was highly successful in some ways and very confusing in other ways. When came up picture about the edges of the plaza and of the main streets accessing it, we registered almost 100% of right answers. People could recognize every corners, every shops and small landmark. The task become more complicated when they had to differentiate the new buildings from each other, the "roofs" as we called them earlier. Even though some had shops in them, some were leading to the train tracks while others were for the metro, people got really disorganized and made many mistakes identifying them on the plan.

Many people made this remark that once they park their bike, it is really difficult to remember where they put it, which shows that they have a hard time figuring out a hierarchy in the space. One element helping and considered as an orientation reference though, is the axis of



Frederiksborggade, which is considered as an entrance point to the city center, since, from Nørreport and on, it becomes only pedestrian.

"It needs some green. [...] I think we were much better at building in the old days. The historic neighbourhoods have way more charm with their beautiful details and warm materials. Today we build too fast and everything is about money." Sara, studies in Erasmus in Copenhagen

What makes the success but also the trigger of the plaza is the coherence but also uniformity of its design. The proportions are similar all around the area of the project. The material palette monochromatic and the signalization is considered as minimalistic.

Mental Maps

Again for the Nørreport, we asked the users to draw a map of what they considered the station area, in plan, from their memory. The results were rather univocal. About half of the people started by drawing the plaza, as a long rectangle which, again shows its rather strong and clear limits. Then, more than $\frac{3}{4}$ of the users drew either the roofs, or the bike areas as a first think. The main roof was the one at the crossing between Frederiksborggade and Nørre Voldgade, enhancing that axis again but also because it has many function, such as a shop where we can buy tickets, food and some toilets. About one third of the people drew as well the ventilation columns, and they were almost always related to the fact that they have sitting benches around them. The streets leading to the plaza were drawn half of the time, and the city center as a reference point was also there in about 50% of the cases. There wasn't much accuracy in the placement of the different elements, both roofs and bike parking in terms of numbers or size but people made a point noticing

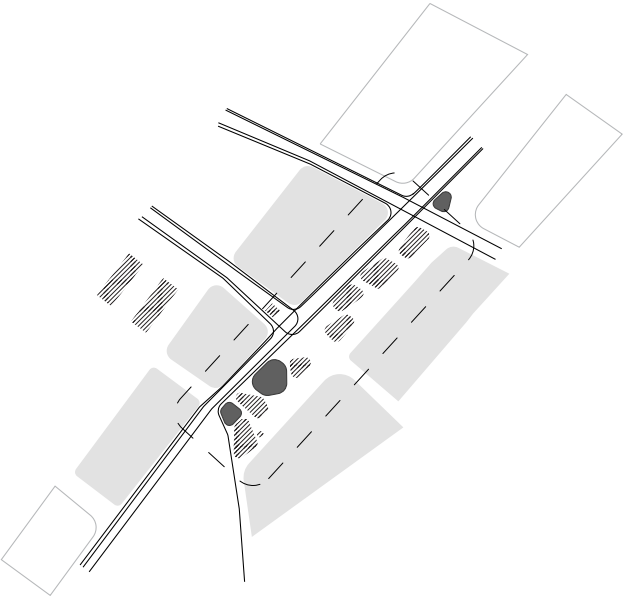


Figure 194 Mental maps from the direct method

that the bikes were on the city side while the roofs were mainly on the road side.

"Nørreport has a spaceship-like quality and there is something futuristic about the place. But these are the things that make it feel lighter. The roofs are raised high and the façades are made in glass. This makes Nørreport seem open and gives it a certain lightness and brightness. It is really not too bad.

I can barely remember what Nørreport used to be like, but then I didn't spend much time here and only saw the place in transit. Back then I couldn't see Nørreport as a place I would have wanted to spend any time in, but now I can and I do, sometimes. Nørreport has become open, and becomes there are few walls blocking the eye, I have a good overview and I can see what goes on." Søren, has lived in Copenhagen for 45 years

The main attractor that is not part of the station square itself but was mentioned and drawn many time was the access to the metro with the big stairs and elevators going down. These appeared especially in relation to Torverhallerne which are food halls in two steel and glass buildings that are very popular and open on the public spaces. Their plaza also has a direct access to the underground metro station.

When it came to asking them to define the limits of the station area, the way Copenhagen is organized made their task rather easy. Indeed, the city is divided into neighborhoods than are separated by wide streets leading to the city center and, actually, Nørreport. Therefore, to the North and to the South, the limit is very clear in people's mind and, funny enough the street has the same name and it is Nørre Voldgade. This shows that Nørreport Station plaza

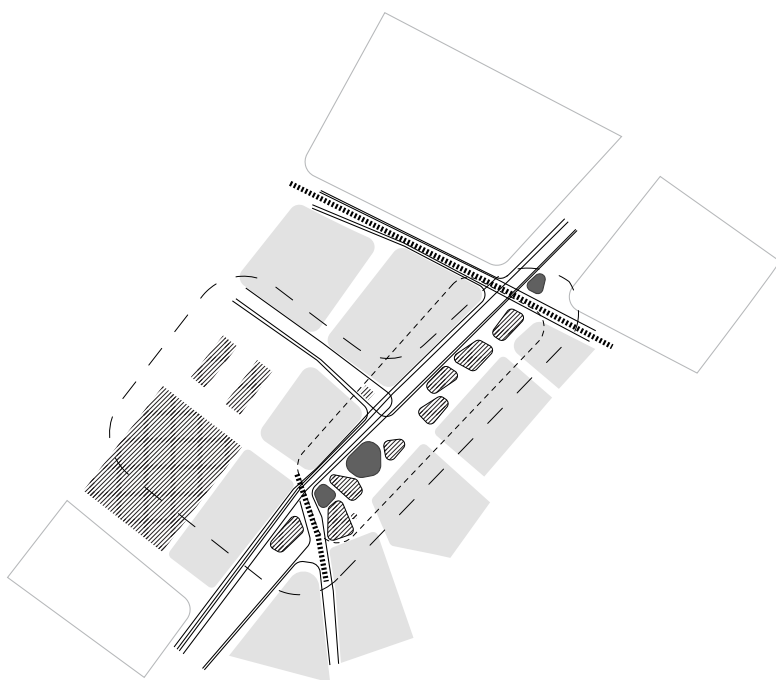


Figure 195 Mental maps from the indirect method

is basically an enlargement of the street. About the other direction, there are two main groups of answers either Frederiksborggade (leading to the North), Gothersgade (to the West) and Nørregade (to the East). Technically this group is wrong since the station and its features (roofs and bike parking) continue after these axes, even though it is really true that they act like real barriers in the space). The other group of people, which was aware of that common thought and was not willing to make the mistake, was very confused and didn't know where to place that limit. Most of the people therefore made it really blurry, drew it through the parks, or placed it very far away from the actual station plaza (more than 500m away). This confirms the analysis of the professional considering the side streets as a real fracture in the fabric in that direction and enhancing a clear unbalance in the way the flows were organized, with a dominant one in the direction of the city center.

It is interesting that people place the limits where the pavement is actually changing, without being aware of it, like for example the line along the façade of the buildings towards the city center (where McDonalds is).



Figure 196 People hanging out at Norreport station

Conclusion

This way of thinking the space inside out and putting the public spaces and circulation first seems to be quite successful in terms of journey efficiency and building quality. The space that is left is highly flexible, gives the opportunity to be used in different ways and literally puts people first. It also appears to give a positive experience to the users, even though it requires a little bit of adjustment in the mind of some. The main point about that type of approach is hierarchy. Even more than in the case of more traditional station design, it seems that organizing the build -and specifically the unbuilt spaces- very clearly is a major condition for the success for the project.

Professional interviews

"The area at Nørreport is in need of radical revitalisation in a process that tackles bicycle parking and traffic issues to create a train station and an urban space that is a pleasant experience for people to use on an everyday basis."

Ritt Bjerregaard, Former Lord Mayor of Copenhagen

Statement from the competition brief in 2009

"It takes some traffic for the great festival of the city to really pick up steam: I love the noisy throng of the automobiles, bikes, buses, trucks, taxis – as well as the pedestrians running the red lights and jumping for their lives. If you're hanging on a barstool by the window at Café Dolores, you can physically see the release of pressure when commuters just spray out of the underground. And, yes, it smells of urine and the rusty bikes are piling up and you're constantly accosted by toothless beggars and busybody world-improvers while fast food wrappings flutter around your feet, of course they do, given that we're in the middle hurricane and not in the prim comfort of the parlour. Nørreport is too much, but anything less would be too little. The place is not meant for lingering, but just to feel the rush for the minute and a half that it takes to pass.

When I see in the plans for the renewed Nørreport, that the part of Nørre Voldgade which is closest to the city centre is to be closed off to motor traffic and replaced by a 'safe' pedestrian zone, I fear that kettle will go off the boil, in favour of a lazy fog of people tottering around in flip-flops and soft-serve ice cream. And when I read in the same text that the area is to be planted with trees (and moss, go figure) in order to create "an inspiring city space," all I can think is: Oh, come off it! Nørreport is an inspiring city space, a paved lightning strike of a transit zone in which, thank God, no moss grows and which neither

is nor should be recreational, but which is nevertheless only a few steps away from as many as three parks. And if you walk to the platform and get on an S-train, you will after 7 minutes be seeing green, all the way from here to the West Coast. Why is the word "green" so sacrosanct that all arguments must cease whenever it is brought up, and why can't we have one small piece of compact urbanity in Denmark, a country which, with this one small exception, is already one giant lawn? Remember that in this country we really only have four or five proper cities, only one of which is a big city and that in this one big city there are only a few places where the energy explodes and the atmosphere is condensed into the truly metropolitan, the way we know it from places such as Tottenham Court Road in London, Belleville in Paris or Union Square in New York. Nørreport is one place like that. As we know now, from other ever-so-well-designed new building projects, an urban atmosphere is not the sort of thing you can plan for, but something which, over the course of many years and thanks to the fortunate confluence of a thousand more or less random factors, can — maybe — emerge and grow out on its own."

Søren Ulrik Thomsen, Danish Poet

**From the essay "Tribute to Nørreport" from photographer
Klaus Holting's book, Nørreport Station.**

"Generally, we've been lucky with the transformation. Nørreport works well as a whole, and the choice of materials is amazing. I like the simplicity of the project, and I think it shows a lot of solidarity that you have still chosen to preserve some of the place's history in the old telephone tower and the original typography.

The rebuilding itself has been hugely chaotic. It was a rough period, but all is well that ends well.

Nørreport is one of Denmark's main traffic hubs, and for that reason, the people who come here are a mixed bag. We have a lot of regulars, but we also get a large number of passers-by.

Nørreport is a place where you're in transit, in motion, and people tend to be very purposeful when they come here, but if Nørrebro is to be perceived as a city space, you need places to sit down and watch life pass by. Our bodega is one of the few places with outdoor seating and when the sun is out, people come streaming in. At the moment, most people drift over to Israels Plads, if they're planning to stay out a little longer. I often find that people have some waiting time between their trains, and they're looking for a place to kill that time.

One of the strengths of the new Nørreport is that no matter where you stand, you can get a sense of the entire area.

Therefore, we're a little worried about the current situation, where people are starting to set up stalls, cluttering the city space. It's a little too much county fair for my liking. What's next? Are we getting a carousel or a roller-coaster? I'm surprised that more thought is not put into those temporary stalls. Everything had just started looking so nice and suddenly some guy comes along and sets up shop, a straight-up eyesore which ruins the whole idea of transparency in the city space.

I don't really feel that I am missing anything from the old Nørreport. It had gotten much too run-down. Copenhagen has changed – a lot more of us are taking the bicycle, and you had to address that situation. It's a completely different time than it was back in the 60's when I went to school here. You had to make some changes.

Earlier on, they tried placing the bike racks one on top of the other, but it eventually became clear that the upper rack was never used. It was a genius move to lower the racks instead, as it's created a lot more space and a better view.

We still have a problem with traffic, however. Both motorists and bicyclists have a fairly anarchistic approach to traffic and the way you get around. They park wherever they want to and they drive against traffic in one-way streets. Maybe people haven't fully adapted to the idea of Nørreport as a city space. People get that you're not allowed to park on Strøget (pedestrian zone and the main shopping street in Copenhagen), but they don't understand that this place has, in fact, also become a pedestrian zone.

It is a good thing that they are trying to limit car traffic in the city, but it is a difficult balance to strike. Some of the area's residents can't even park their own cars in the streets where they live, and I think this is where things are starting to get a little problematic.”

Lars Brandt, Daily manager at Nørreport Bodega since 2013

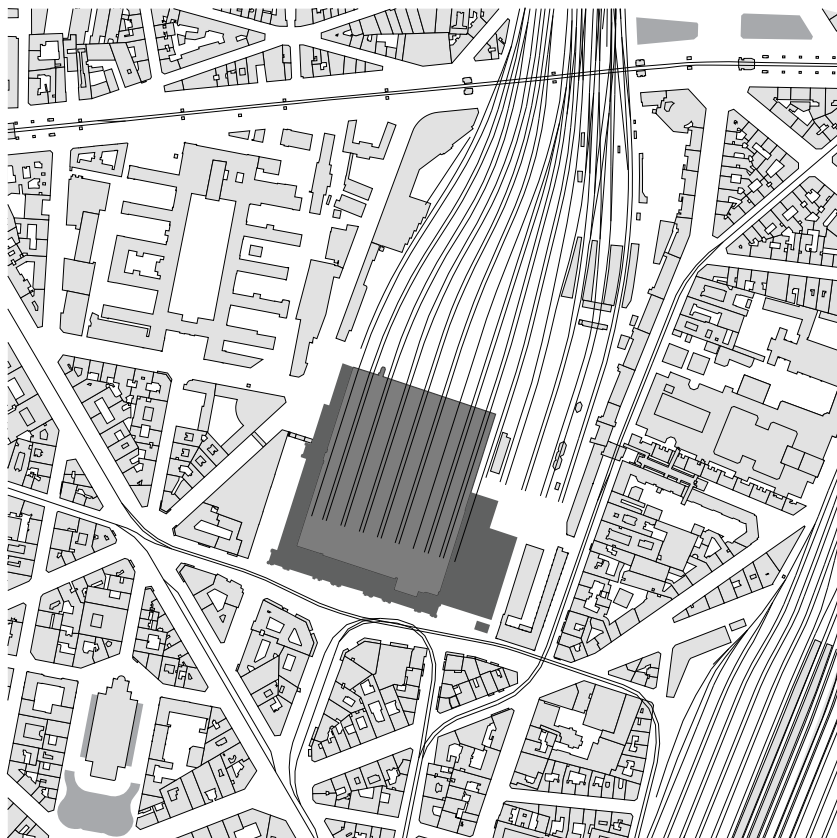


Figure 197 Mapping of Gare du Nord

02.3.3.

Gare du Nord, Paris, France

After hearing about all the discussions in the media and on the architecture scene around the new project of Gare du Nord 2024, we decided to use it as our third study case and started the investigations. They were during the consultation phase of the project.

Data collection

The data collection was the most difficult of all three cases, due to the fact that so many people pass by every day. I couldn't, due it to the connections with the metro and RER because of the amount of people so I focused on the public spaces around the main façade of the station. I gathered data on three different days, on a Monday, Tuesday and Saturday, each time for a three hours session. During each session, I was alternating between 8 different spots that were estimated the main accesses to the station. It happened in February 2019. During the three days, the weather was cloudy and a bit rainy. I did it at three different hours of the day, 7-10, 12-15 and 18-21.

Experts' examination

The experts' examination happened with two people, at different times. The first person was a 30 years old architect who is born and raised in Paris. The second person was a PhD student in urban planning, working in Paris for 5 years.

Users interviews

In total 23 people have answered between February and April 2019. 9 of them have gone through the "direct method". We interviewed them in a room where they were recorded and filmed from two different angles. We could talk to 6 people in 3 sessions. 14 answered the online questionnaire.

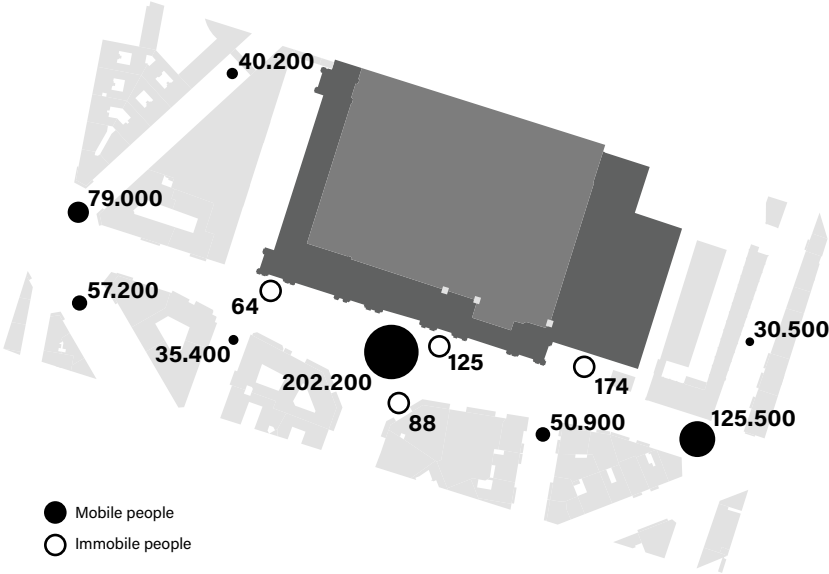


Figure 198 Count of people in the area

Data collection

Count of people

As we said before, the count of people around the station was very tricky. First of all, this is because the amount of travellers is so large that it is hard to keep track, even with a simple phone application. Second of all, the people that we met were somewhat hostile and suspicious of me taking pictures and observing, so I had to move often. Anyways, we learnt from the previous experiences that the important part of it is not the absolute number but their relateness, the proportions between each other. This case study was very striking. Almost 90% of the persons were counted along the axis of Rue de Dunkerque, which is the line of the old and new façade together. The last 10% were almost equally spread between the East side (bus station hub) and the West side (direct access to international train). This count shows a very efficient repartition of people, according to their use of the place, with a main entrance playing its role.

Type of people

The type of people was really cosmopolite, with a wide range of ages, which is not surprising for a city like Paris.

Most of the people were walking, and about 30% came or left by bike. This is a great number showing the politic of the city of Paris to put the accent on biking and to give access to city bikes. The type of people was really cosmopolite, with a wide range of ages, which is not surprising for a city like Paris.

We will develop later the fact that a large amount of people, not in direct link to the main façade but in the streets around it, were standing and doing some

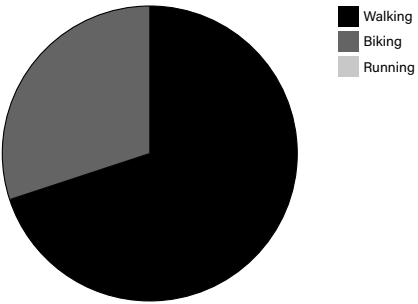


Figure 200 Repartition of mobile people counted in the area

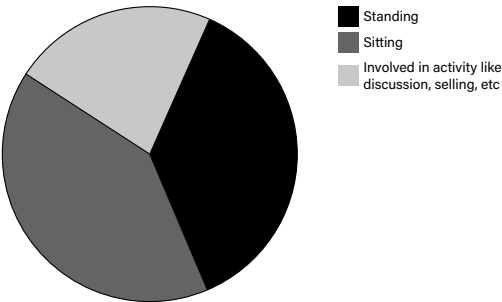


Figure 199 Repartition of immobile people counted in the area

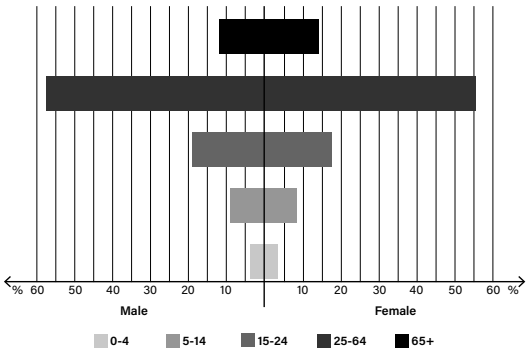


Figure 201 Estimated age range of people counted in the area

kind of business or activities. Almost nobody was sitting, except the people being at the many coffee shops on Boulevard de Denain. There were as well some temporary gatherings of people around the Theatre la Boussole is something was playing, as well as some flows generated by the Theatre des Bouches du Nord on the other angle of the station.

Flows of people

Most of the flows, if not all of them have been recorded on the Southern part of the station and its closest streets. This can be elucidated by a variety of motives that we will demonstrate thereafter.

The front plaza of Gare du Nord is rather small and consequently well integrated in the urban fabric. It is short, concentrated around the entrances so these areas gather a lot of people going in and out of the station. Its accessibility has even been improved after leveling works that were done in 2011.

The bus station is a place of many flows since 13 lines have a stop at Gare du Nord. There is at the East of the station a polarization of bus stop that seems to work well and people come and go between bus and train pretty easily through the front plaza. We noticed anyways a few people looking a little confused about where this pol was since it's not very well integrated in the network.

The study from Apur⁸⁰ counts 2.300 parking spots in the direct proximity to the station. The two closest ones that gather 1.700 spots are often saturated but

⁸⁰ Atelier parisien d'urbanisme, <https://www.apur.org/fr>

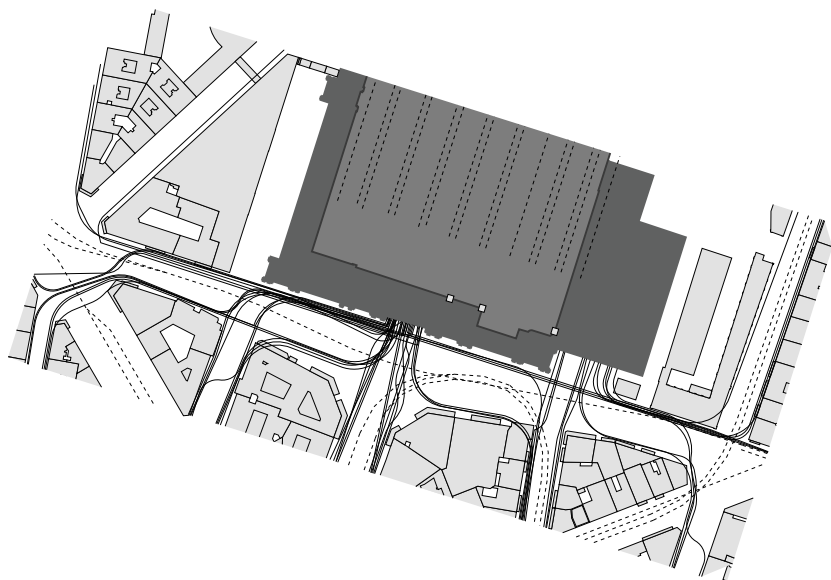


Figure 202 Mapping of the flows in the area

there are much more possibilities a little further, which is also why we can count so many pedestrians closer to the façade of the station.

A great effort was made about bike path with the reinforcement of existing axis and the creation of new ones between 2008 and 2011. For example the Magenta and Sebastopol boulevards have large and practical paths. Even though some bike parking facilities are being built, we could count many bikes in direct closeness to the main façade. Using bike is probably a habit that comes step by step in the Parisians lives.

The organization of the taxis is efficient with a rapid access and a minor obstruction on the public spaces. This is a key element since about 15% of the station users shift to taxis coming from Eurostar and Thalys⁸¹. The taxi traffic is located on the West side of the station, close to the international access, which explains why we found many people around that area.

One flagrant aspect of the population patterns around Gare du Nord is the presence of many homeless people. In a study from 2010⁸², we read that 600 persons are homeless and located in that area, 100 of them being under 18 years old. They also talk about a strong presence of immigrants, and persons having a place to live but being on a precarious situation. Gare du Nord, as many large metropolitan train stations, is a place of migration, of mixed and marginalized population. This reports enhances the fact that in this area, we count more than in other stations cases of wandering, addictive behavior and prostitution, especially male. This is partly due to a "mass effect" that has been going on for many years. This has an impact on the flows since a large part of them has nothing to do with transportation, whatsoever.

⁸¹ https://www.apur.org/sites/default/files/documents/quartier_gares_nord_est.pdf

⁸² Study «Conduites addictives, errance, prostitution à l'intérieur et aux abords des gares du Nord et de l'Est, Paris, 10e», <https://www.federationaddiction.fr/etude-conduites-addictives-errance-prostitution-a-linterieur-et-aux-abords-des-gares-du-nord-et-de-lest-paris-10e/>



Figure 203 Travellers at Gare du Nord

Another characteristic pointed by Apur has its importance when it comes to flows; it is the large implantation of retails in the area. They sum up 4.7 food shops for 1000 inhabitants, which is way higher than the average of Paris (3.2/1000). This is a great asset for the area, even though they are concentrated on the Southwest part of the station. They are described as being of small to medium size, popular and with strong local specialization. This is great to give a feeling of belonging to the population, give a feeling of human scale and create a neighborhood life.

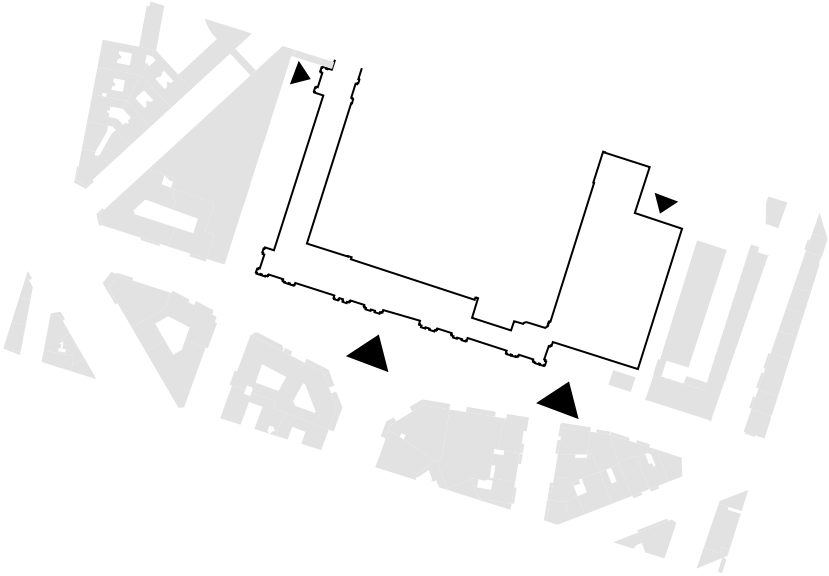


Figure 204 Mapping of the area from the experts

Professional interviews

Landmarks and substantial elements

Fortunately, the professionals who assisted us analyzing Gare du Nord already had a rather clear idea about the history of the place which helped a lot understanding and spotting the different landmark in this very vast building. Of course a lot of their attention was taking by the two main elements that make the station: the historical façade and the halls that are adjacent to it. This contrast, typical from the XIXth century station construction, really caught their attention and occupied a lot of their reports. They described quite thoroughly the main façade, listing the columns, the clock and of course the statues, talking about the colors and materials. The strict rhythm was also something that they estimated as a source of strong identification of the station, together with this arch shape and half circle glass piece in the center. All these elements, that almost belongs to some religious type of architecture are of course very strong markers of the experience of arriving at the station. The size and the monumental proportions have a major impact on the travelers, making the building really impressive and belonging to the overall Parisian identity.

The halls, that have a very different architectural expression and belong more to an industrial character are also part of that travelling experience. The columns are decorated simply and placed according to a regular grid, supporting the single pitched roof. Their material, in cast iron, painted in this typical Paris dusty grey adds up to the Industrial Revolution feeling. Some pieces of furniture, like the light poles, were kept and are part of the heritage experience. The experts pointed out that this was particularly important, since many of the travelers arriving at Gare du Nord are coming from abroad. The combination of these features helps putting them right into the French Paris mood.

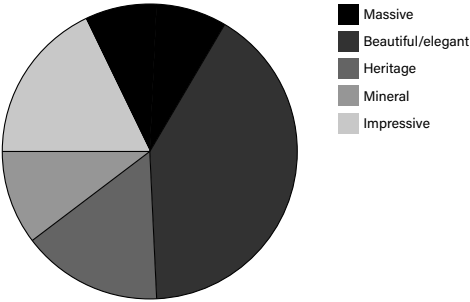


Figure 205 What are the main characteristics of the station?

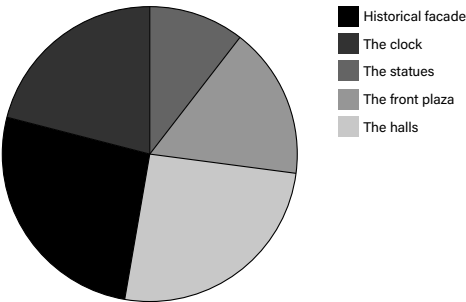


Figure 206 Which element of the station do you consider as a landmark?

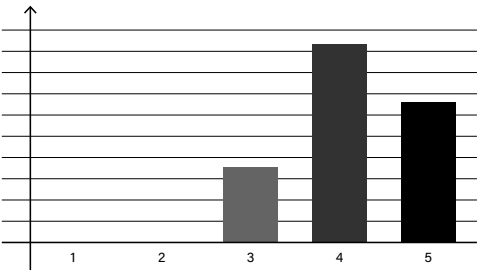


Figure 207 How would you rate the visual environment?

The East side addition to the station that marks the new entrance is very bright and light, has a wide glass façade and features a definitely contemporary look. This piece is like a first step, an introduction to the upcoming renovation works which appearances seem also in line with this glassy exterior.

Functions and urban furniture

This leads us to the different functions that were spotted around the station. Overall the station felt very commercial, with many large international brands such as Starbucks, etc. This feeling is even enhanced when we get closer to the access to the metro area. The feeling of messiness brought by these colorful pieces of advertisement is greater with some of the shops being hosted into small booth, which architecture has nothing to do with the station building itself. Neither the front plaza, nor the main hall have many places to wait. We can find places that are protected from the sun either and the hall is very windy, cold in the winter and hot in the summer. One nice feature from the station is this mezzanine level that offers a beautiful overview and gives the opportunity to avoid waiting in the middle of the crowd. The disabled people have a chance to wait in a dedicated room, handled by SNCF if they specifically ask for it. There is no specific function in the outdoor public spaces, they are bare mineral areas where people pass by, get dropped off or park their bikes. The experts insisted on a clear wish to avoid people's gathering which is a common thing around train stations in France, and even more accurate in Gare du Nord. They explained it first with the scale of that station, so many people come and go every day that without solution to redistribute them quickly, the entire area would be a total chaos. Secondly, Gare du Nord is known for being a very multicultural and poor neighborhood where a lot of prostitution and drug dealing happens already. The municipality wants therefore to avoid giving more opportunities to support these practices. Lastly, and this is even more accurate these days, the big Parisian monuments are

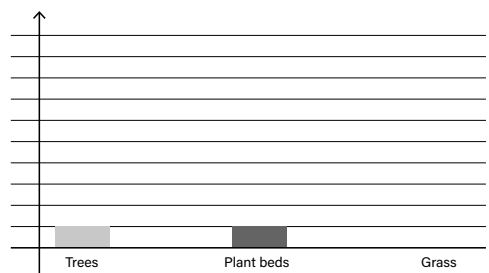


Figure 208 How strong is the presence of vegetation?

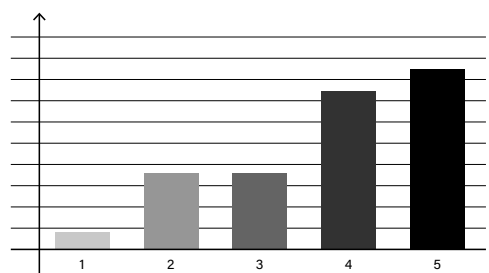


Figure 209 How would you rate the clarity of gateways or well-defined entrances

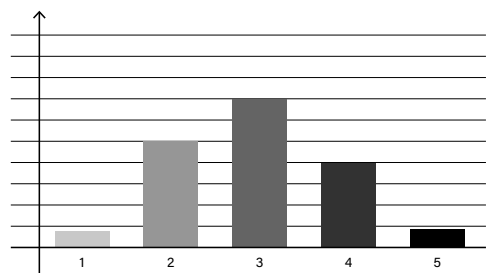


Figure 210 How clearly do you identify the different sections of the station?

places of rally in case of demonstrations which often lead to behavior of city damages, so the less the spaces are enjoyable for people, the less they are likely to stay for a long time.

In other terms, the station area is no considered as a place to enjoy the city but as a place of efficiency, to let people move with a specific agenda, from A to B.

Scale and context

The scale and influence area of Gare du Nord is difficult to handle, both because Paris is a very large metropolis but also because the station itself drags so many travelers every day. It is very hard to talk about a limit in the same way we did for the two other stations since it's related to a metro and RER station as well which make its impact extremely wide. This is proven by people's answers that show how long it takes them to reach the place, two or three times longer than the average in Copenhagen for instance.

That being said, Gare du Nord is a typical case of front side / back side situation which is of course largely due to the fact that it is a "head-type". Here all the attention is placed on the main historical façade and the back is left for the numerous rails that will lead the trains to their final destinations. The South limit to the station area is often identified as the rue de Dunkerque, and both side are the adjacent streets, with the buses on one side (Rue du Faubourg Saint Denis) and the metro on the other side (Rue Maubeuge). The easiest way to point at a North limit is to mention the bridge crossing the tracks, the Boulevard de la Chapelle.

It would also be very accurate to note that on its Eastern side, the station has a larger influence radius since it's placed so close to Gare de l'Est. Indeed, both mobility hubs tend to merge their flows, functions and population.

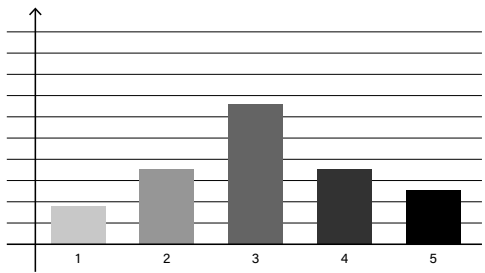


Figure 211 Is it easy to find your way inside the station?

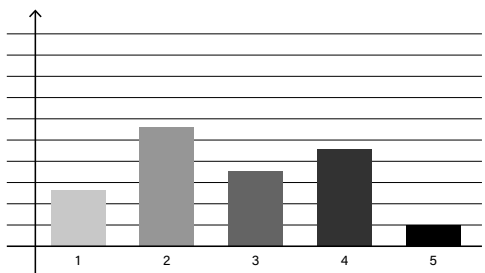


Figure 212 Do you feel safe in the area, overall?

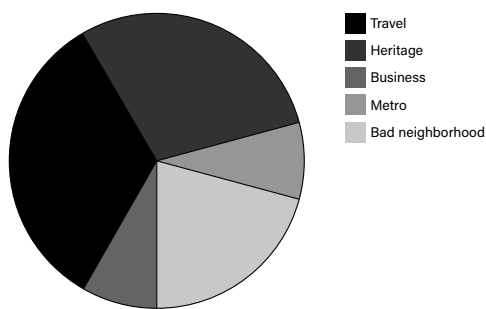


Figure 213 What does the station represent for you?

User survey

Questionnaire

When talking about Gare du Nord with the users, a mix of opinions was palpable. This was related to the many function the place has, and the ideas were linked to how that specific person was mainly using it. We could distinguish as a first thing the people who used the station to travel, outside Paris, by train, Thalys Eurostar etc. These gave answers close to what we gathered in Montpellier for instance, relating to concepts of travel, holidays etc.

Then, most of the people we interviewed were using the station through the metro, either passing by or connecting to another line and specifically to the RER B, D or E (B crosses the Paris region from North to South). These people brought up a vocabulary correlated to business, crowd, traffic because that's the way they experience that place, they rarely come up to the actually hall and platforms.

Lastly, we had the people who live in that area and pass by on their way too somewhere, not as a destination. They don't have a very high opinion of Gare du Nord as an area, but some could still see the building as an interesting architectural piece. The thing was that many of them, since they experience it so often at eye level, don't see the building anymore and only the impact it has on the urban space. This makes their point of view very interesting and informative. As we pointed earlier, many illegal activities are happening around their so the insecurity feeling came a few times in the answers, even though the inhabitant were also really proud of enhancing the cultural diversity and liveliness of the La Chapelle neighborhood.

Overall we can say that the experts were really spot on the elements that would be a source of imaginary for the users.

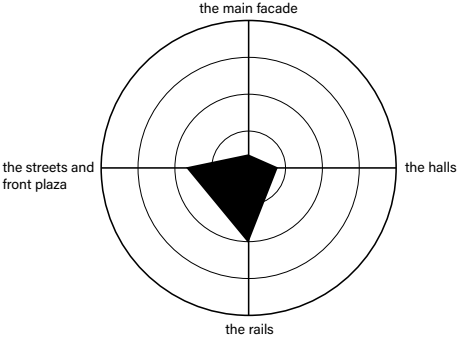


Figure 214 What would you draw first if you had to draw the station?

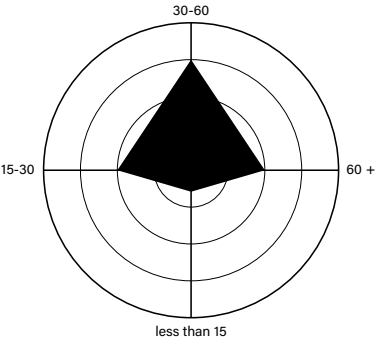


Figure 215 How long does it take you to reach the station? (in min.)

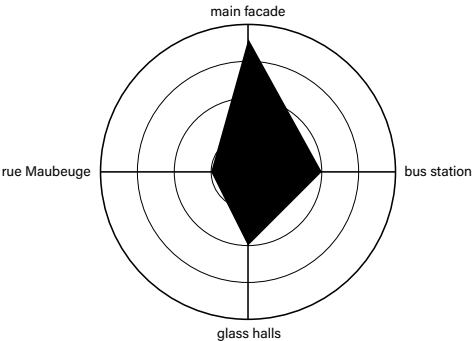


Figure 216 Where do you enter the station?

Mental maps

The mental maps exercise was really tricky for the Gare du Nord episode. People were extremely confused, even when it came to only place the North right. Of course we could sense a large difference between Parisians and close inhabitants.

As often in this exercise, almost all people started by drawing what they identified as the old building of the station, even a significant number of people made a semi-circle shape in plan that probably refers, in their imaginary to the 3 majestic arches of the façade. In none of the case was drawn a differentiation between the stone building and the steel halls behind. We could just see a building and then rails starting from it and going in the Northern direction.

The second step in 90% of the cases was drawing the front plaza, as the projection of the station, which is a very accurate move. Then, parallel to this plaza was the main axe, Rue de Dunkerque, even though only a few people actually knew the name of that street.

It was interesting that the urban fabric on the South of the station was drawn in either 2 ways. Nearly half of the time, users drew the Boulevard de Denain ending around the middle of the station, which is accurate. They often did it rather wide and symmetrical, as if they wanted to enhance its importance. The other 50% of the persons drew an urban fabric that was very symmetrical as well, but the center being occupied by an urban block and not this street. This marks some confusion even though the base will be the same: giving this feeling of a strict and neat network, in accordance to the style of the façade of the station from the XIXth century.

The Boulevard Magenta that is a wide artery with bikes, cars and bus and linking to Gare de l'Est was placed on many of the maps. This structuring

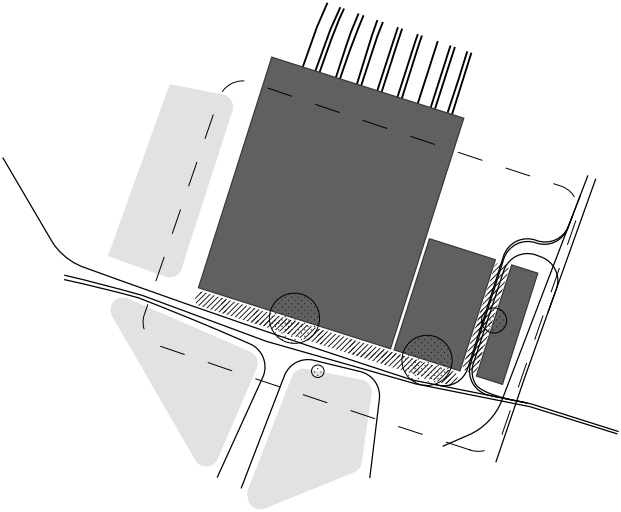


Figure 217 Mental maps from the direct method

elements seemed to have a strong impact on peoples minds, probably because it represent a landmark for them and a way to orientate themselves.

As we pointed out before, some people put the accent on all the different function we could find in the area, especially retail related.

Lastly, in about 30% of the cases, people vaguely drew something on the Northern side of the station, either to mark the metro station La Chapelle, the theatre or the bridge. These are basically strong elements of the urban landscape that related in some way to the history of these specific people.

New project

What was interesting about studying Gare du Nord was that a new controversial project is about to start. The new urban planning laws imply public concertation and participation in the process and we had the chance to participate to one of the meetings, the one where architects, developers and landscape architects presented their project on March 20th, 2019. This was extremely helpful and educational about the citizens' opinions and priorities.

We will for this exercise focus on the architectural response. We enumerated earlier the objectives of the city when they launched the competition. The consultation was divided into four themes being architecture, vegetation, volumes and heritage.

Here are the stakes from about the architecture theme:

- a fluid station that responds to the increase in traffic
- a satisfactory relationship between the underground station and the surface station
- a lively and safe station

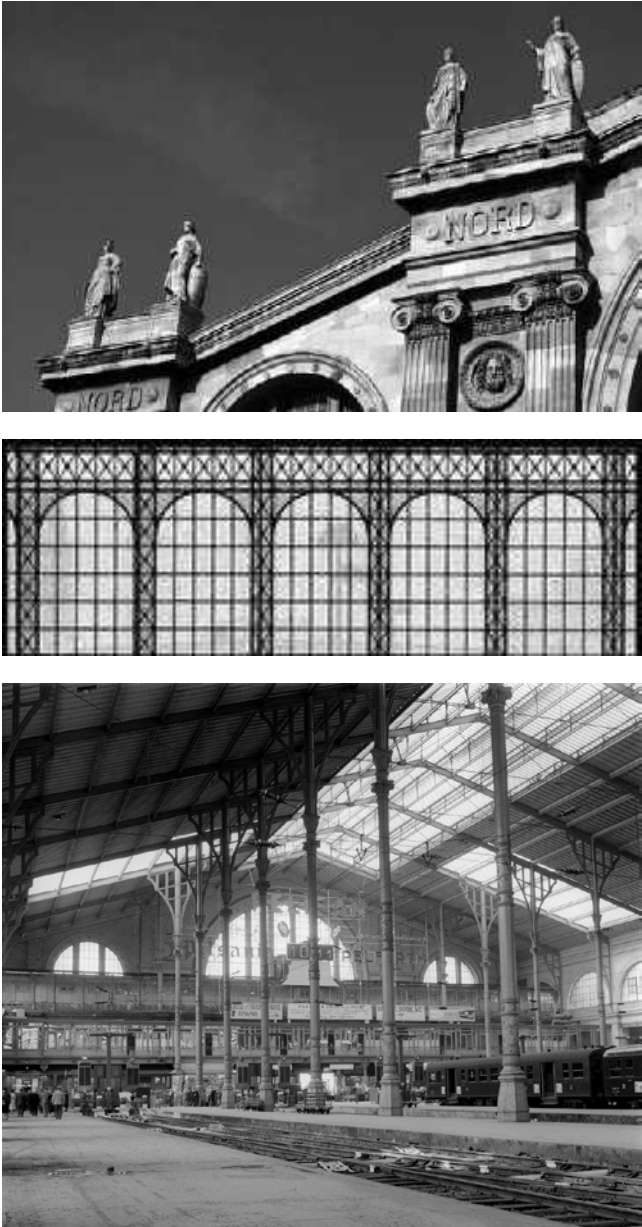


Figure 218 Pictures of some of the landmarks

We could anyway hear in the crowd:

"No market research has been presented to justify the installation of businesses." J. Laudy, user

"I would like to know if an improvement is planned between La Chapelle and the Gare du Nord." G. Laudy, user

"I would also like to point out that the inhabitants of the suburbs who pass through the Gare du Nord are not represented in the project." P. Bousquet, user

About the vegetation, the landscape architect M. Desvignes explained that the project provides for a real new green space in the city, with an area of 7.700 m². It includes two major challenges:

- Take into account technical constraints to optimize access
- Create a living environment that makes sense from an ecological point of view and capable of anticipating particular climatic conditions

Access to level 4 is via two main entries: from the forecourt and from the center of the station. Both are made accessible for people with reduced mobility.

At the north end is a terrace almost 200 meters long. It is a thermophilic meadow of great durability. Flowering plants will no doubt be added. The

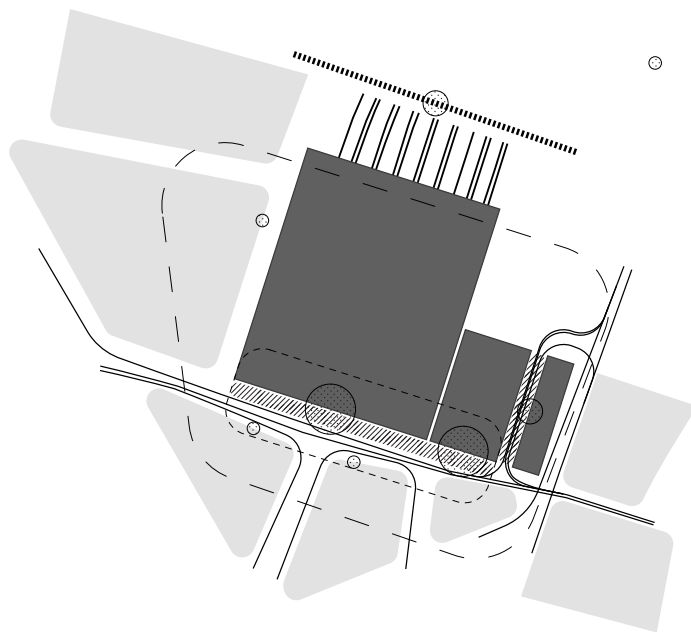


Figure 219 Mental maps from the indirect method

furniture and play elements will be integrated into this structure. On the south side, we find the same device. We will therefore find on this level a public terrace with restaurants, clearings with a view of Paris, a pond, play elements. On the roof terrace, the thermophilic meadow system is reproduced. There are also climbing plants.

Despite these statements, some people said:

"The project will triple the surface of the current station. The arrival of shops will disrupt life in the neighborhood. In addition, I consider that the materials used are "cold" and would like to know how plants will grow on concrete surfaces."

D. Marty, user

About the volumes, the main architect, D. Valode, explains that the height of the volumes is regulated by the local plan of Paris and that the size of the building is actually smaller than the authorized envelope. The current project has a smaller footprint than what was originally planned. In its highest part, the proposed building is lower than the current station. In addition, it is located at a distance that varies from more than 20 meters to 35 meters from residential buildings. In addition, on the question of sunshine, the buildings being oriented north/south, they will be sunny morning and afternoon.

Anyways, this is a theme that concerned the users a lot, this is shown by various questions such as:

"Why are the dimensions of the project so large?"

P. Roussereau, landlord in the building n. 193



Figure 220 Images of the architecture consultation with the users

Lastly, heritage was a vast question, answered as well by the architect who explains that the chosen materials will be traditional materials: iron, glass, stone. The large nave will thus be made more readable. On the East facade, work is carried out with the French Heritage Architects to find a balance between old and new. Heritage enhancement also aims to welcome tourists in a pleasant way.

Again, many interrogations were raised as shows:

"I think that the facade which overlooks rue du Faubourg Saint-Denis is not successful. Furthermore, I believe that the trail trail is a gadget." P. Bousquet, user

During consultation meetings with neighborhood associations and local residents scalded by the prospect of this "monster project" (it should start in 2020 and continue, starting in 2022, at the same time as the nearby Lariboisière hospital), voices have been raised to denounce certain confusion between travelers and consumers. Requests have been heard, such as to protect the views of the neighborhood on the Sacré Coeur or build a building outside the station to accommodate homeless. In general, users asked for anything that can slow down the gentrification dynamic driven by high-end retailers carry for international travelers, future occupants of offices and co-working spaces and wealthy Parisians. Eventually a column was written and signed by many French architects to denounce the fact that the project was mainly oriented toward retail activities, not related to transportation challenges that were actually not so relevant. They regret the fact that this gives a project that has a random architectural expression and related neither to the existing station from Hittorff, not to its context. The project has been suspended in the meantime.



Figure 221 Images of interviews of people passing by Gare du Nord about the new project

03.

Conclu- sion

This part of our work is the opportunity to cross the results from the analysis of our three case studies: Montpellier Saint-Roch, Nørreport station and Gare du Nord. Since we approached them with the same criteria, from tangible and imaginary points of view, we are hoping to learn by understanding the link and implications of design on sensitive response.

From this understanding, we will come up with some general theme and recommendations, that seem to be successful on the users experience and well functioning of train stations.

Lastly, after reviewing the different step in the train stations history, we will wonder what is next, using the upcoming project of Gare du Nord 2024 as a base for our thoughts.

MORPHOLOGY

STATION TYPE BEFORE RENOVATION

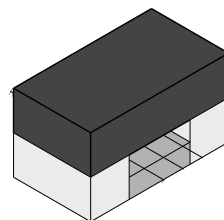
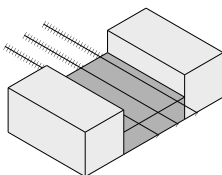
STATION TYPE POST RENOVATION

Montpellier Saint-Roch

The train station changed type with the last renovation, going from a double-sided, underground to a bridge station.

One of the biggest move was the design of this nave, creating a new iconic facade and giving the station a light, glassy feeling.

The project looks like a literal addition, superposition on top of the old building without really reusing the codes from the past.

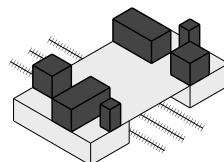
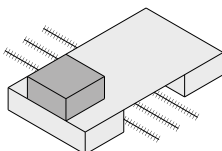


Norreport station

This is an underground station that remains as such. The difference is in the pavilions, instead of a main ones, the new project has several, all over a new plaza gathering the bike parking.

The materials are unified in a palette of grey, putting the emphasis on the shapes and flows.

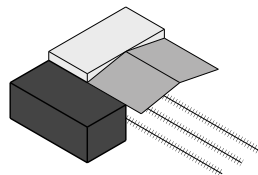
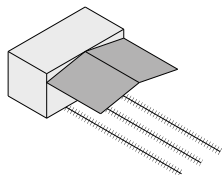
The main asset of this project is the public space it creates, that is very well scaled and flexible.

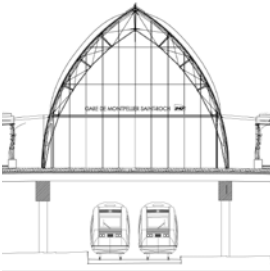
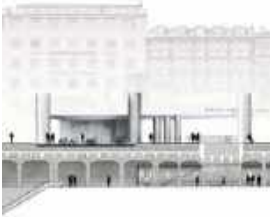


Gare du Nord

The station is well known for being one of a kind in the history of train stations. The architecture is very ornamental with grand proportions, arches and a lot of glass, almost cathedral-like.

The new project is a volumetric addition to it, which is understandable because of the head-type but with a generic architecture to it that doesn't relate to the original one at all.



MAIN FACADE ASPECT	MATERIALS BEFORE AND AFTER RENOVATION	POSSIBLY ICONS
	Before Stone Glass Steel After Glass Steel New plastic material	Old project The structured old facade The clock The square Planchon The front plaza New project The nave
	Before Steel Glass After Glass Concrete Granite	Old project The red sign The telephone booth New project The ventilation tubes The shops The roofs The bike beds
	Before Sandstone Glass Cast iron After Glass Concrete Granite	Old project The structured old facade The clock The halls The front plaza New project The tree columns

FUNCTION- NALITY

Montpellier Saint-Roch

The new project challenges the functionality a lot. The architects wanted to switch the main flows but this resulted in a lack of hierarchy, since it was just added to the previous station. Eventually it looks like two systems are running parallel to each other. Lastly the project is not very large but offers a lot more retail, mainly focused on travelling activities. The station works well as a hub.

Norreport station

In terms of area, the new project is quite large. We can notice that only a small part of it is dedicated to retail, and a lot to public functions. The division in small buildings makes it look smaller than it is. The flows were the starting point for the architects and we can feel it today, as travellers come and go easily on the new plaza. Again, a lack of hierarchy needs to be pointed at.

Gare du Nord

The new building seems like an excuse to create a lot of activities and more retail in particular (25% of the total area). This is especially tangible since these functions don't seem travel related and led by a group of developers coming for the mall business.

The first motivation of the project was supposed to be the capacity to welcome more flows.

AMOUNT OF USERS AND CONNEXIONS

7 123 630 users for travel

11 307 349 users for hub

6 tracks

130 trains per day

Connected to

6 tramway lines

7 bus lines

46 756 500 users for travel

60 225 000 users for hub

4 tracks

565 trains per day

Connected to

2 metro lines

10 bus lines

6 local train lines

249 978 244 users for travel

277 300 314 users for hub

28 tracks

2130 trains per day

Connected to

3 metro lines

3 RER lines

14 bus lines

AREAS AND FUNCTIONS

Project area

4 600 m² new building

1 500 m² for retail

2 floors

Functions

Ticket sale

Information

Retail

Toilets

Project area

10 500 m² buildings

1 000 m² for retail

2 500 parking lots for bicycles

1 floor

Functions

Ticket sale

Shops

Toilets

Project area

45 000 m² new building

11 250 m² for retail

5 floors

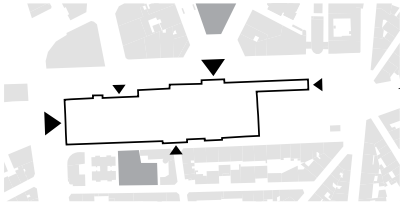
Functions

Ticket sale

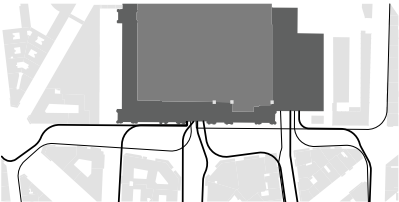
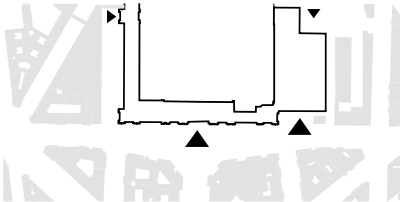
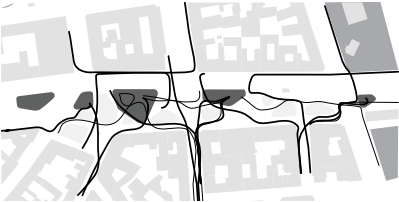
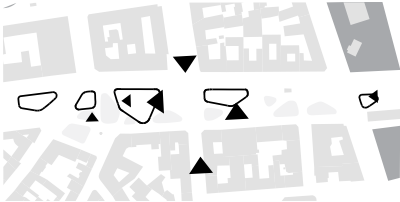
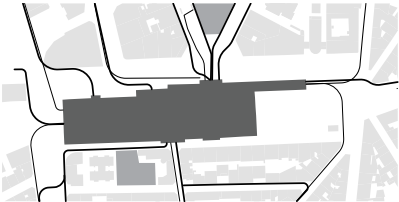
Shops

Toilets

ACCESS AND
ENTRANCES



MAIN
FLOWS

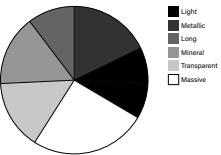


PERCEPTION

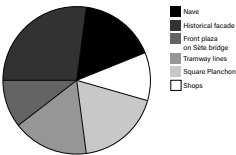
Montpellier Saint-Roch

The new nave is an element that sticks in users' minds even though most of their imaginary is related to the expression of the old building. One of the main architectural move was to reorganize and give hierarchy to the flows. This creates a division between people using the station the 3old way and the ones using the new way" which explains the lack of clarity.

STRONGEST CHARACTERISTICS

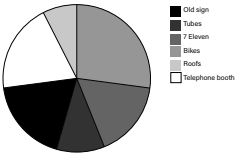
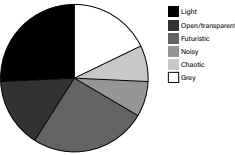


IDENTIFIED LANDMARKS



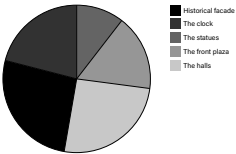
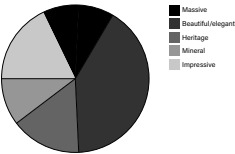
Norreport station

The concrete roofs are really identified in people's attention, as much as the bike parking solutions, even though many regret the uniformity of the space that was a wish from the architects. The station tends to lack hierarchy even though people seem overall satisfied with the project, its apparence. It makes us think that good design could compensate for functionality.

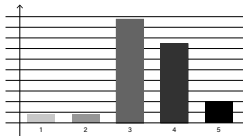


Gare du Nord

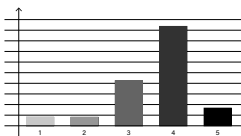
People value heritage a lot. Professionals, politicians and users in general are highly unsatisfied with the project of the new station. This seems partly due to the design which doesn't take the heriatge into acocunt. This also partly comes from the functions, as a wake-up call against a general move of commercialisation of all buildings and a market taken over by developpers.



**CLARITY OF
ACCESSIBILITY**



**EASE OF
ORIENTATION**



**RATE OF VISUAL
ENVIRONMENT**

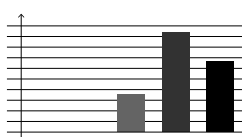
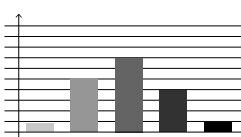
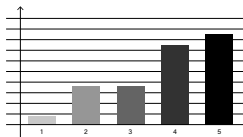
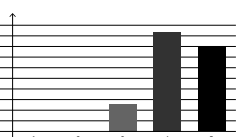
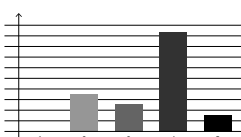
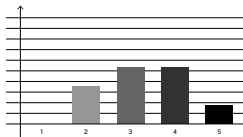
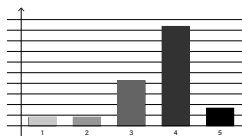




Figure 222 Meetings with the users

Advice for design rationale

Analyzing the design features for train stations, from big to small scale and figuring out the social connections they created and the perception the users had from them, gave us tools to understand some trends in the design of train stations. This also pointed at some weakness and challenges. All together, this helped us defining some design rationale for future projects of renovation of train stations.

Crossing data and fact with sensitive perspective was key to get a full picture; therefore our advices will be based on the various facets of the architectural object that is a train station inserted in an urban fabric. This includes features related to their morphology, their functionality and their perception.

Of course one of the main guaranty of success relies on adapting the project to the context it lies in. Anyway we could find some common good practices that seemed to help aiming for it. The main themes that emerged from this analysis are the following:

- the first theme, and this is due to the development of public transportation in city center, is connection. This is about how to make the station part of a bigger network and how to make it have a great impact at a bigger scale. This can be connection between different modes, from station to station or between the building and its neighborhood.
- the second theme is based on visual aspect and translucence. We noticed how primordial it is for users to have an overview and a clear journey through the building. This means visual links within the station but also between the indoor station and the outdoor. From what we could hear, it seems that a simple and clean design could be a good tool to investigate.



Figure 223 At Norreport, the roofs making the transition to the tracks

- the last theme reflects the changes in the way projects are made today, revolving around flexibility. Train stations are vast areas made for interactions between different entities and people, so making them as efficient as possible appears to be a priority when designing it comes to designing. This is especially true in societies moving so fast and for buildings that, as we saw, are highly sensitive to those changes.

The few advices provided thereafter are of course not exhaustive and should be taken for thoughts, as a starting point to more specific ideas.

1. Fluidity between inside and outside

We had the chance to analyze different types of train stations, some were very self-oriented (Gare du Nord), some were very much oriented to the outside (Nørreport), and some branded as being in-between (Montpellier). This taught us a lot about the impact of this bias on the way the place is going to perform.

The first and obvious qualities of a transversal thought between inside and outside include notions of security for users, easy circulation in and around the station, good indoor environment and of course a facilitated integration in the immediate context.

The survey with the users and the examination from the experts at Nørreport informed that the connections inside/outside due to the materials (glass) and the typology (pavilions) gave that feeling of being in a public space. Very often words like "light" and "safe" came back to us. It seems especially appreciated due to the fact that the main part of the station is underground which gives the users an impression of being in a place that is filthy, unhealthy and unsafe. They therefore put a price on entering or leaving the station through a place that has fresh air and is close to city facilities. Indeed, often the limits of the



Figure 224 The new hallway at Montpellier Saint Roch

station were described as a part of the city, which shows the great integration it has in its context.

Indeed, even though Montpellier Saint-Roch presents some disadvantages, the nave was often described as “engaging” and “calm”. We would easily put this on its lightness, big ceiling height and openness on both sides.

On the other hand, even though Gare du Nord is really appreciated from the outside, it has a very strong, impressive and hermetic façade. Probably also because if the halls, some travelers regret the darkness of the place. They don't even get the advantages of being so enclosed since a lot of wind comes in and makes it cold.

In general, train stations being gates to the city, we understand that need for fluidity and important connections to the outside, meaning, the context. This can be achieved by many means, being some smaller scale buildings, a multiplication of gates, a special attention to edge zones or, as described, a high transparency in the buildings.

2. Clear journey from entrance to train

Lets not forget that the first purpose of train stations is for the travelers to reach their train. The purpose of designers should be, for the users to make this journey as easy and enjoyable as possible, and for the stations managers, to have it efficient and well-organized.

In addition to this A to B journey, a various range of amenities should be placed strategically in order to be accessible without disturbing the flows. This goes both for people leaving who need to be guided to their train and to people arriving by train who need to be redistributed to the city or other transportation modes.



Figure 225 Access to RER at Gare du Nord

Another aspect that is tricky is that -from people's feedback- a central gathering space is what makes a station, a station in their imaginary, while a simple specific way to the platform is also imperative. The difficulty is in the passage between these two kinds of spaces.

The importance of that point is visible on the flow mapping. People obviously use the biggest entrances, and the ones who use to station often, use the ones that will make their journey the shortest or easiest possible.

When there is a direct view on the platforms, like in Montpellier, it is even better for the users who name platform A many times. This allows them to have a clear goal and makes it look closer.

For most of the people, the choice of entrance is linked to the distance from the gate to public transportation or to its architectural greatness that will provide its identity.

The experts criticized the fact that in many stations, a lot of elements were disturbing the flows that had to do with happenings unrelated to travel, such as shops, advertisement, etc. Unblocked views at eye level and clear guidance should be a priority when designing station interiors.

As we said before, this goes as well for a clear journey to metro, tramway, buses, etc. The survey showed that most users access the station through one of these means, which explains the significance of the path between them and the entrance or the platforms. This is even more relevant when we hear that most people choose to use a particular transportation mode because of how practical it is and not because of how enjoyable its service is. It shows that, indeed design is central, but practicality is even more.



Figure 226 The large halls at Gare du Nord before the retail booths

3. Flexible areas

Throughout their journey, users will pass by a series of spaces and we could understand clearly that their hierarchy and definition were essential. The elements of the program should be placed strategically and allow for change.

We know very well all the changes cities are going through at rapid speed, partly because of a need for sustainability. These have main consequences on transportation and we don't know yet which functions will soon be obsolete, and which ones will need to be added. Therefore, thinking the space as an evolutionary system, with structural solutions that can support diverse programs, light conditions that fulfill many requirements and an accessibility that is adaptable should be a primary concern.

Hierarchy was one of the least successful aspects of Nørreport station according to the users. Indeed, they seem to wish for primary functions to be clearly identifiable since they are the ones most of them are aiming for. This goes with notions of accessibility and ease of use. Working on the scale, on specific features, or signage for example can achieve this. Even though we should aim for flexibility, in between functional changes, the spaces that are offered to the users should be defined. Anyways hierarchy doesn't have to do with a special function and will remain necessary, however the program might evolve.

4. Visual and physical comfort

The last part relates to the user's experience. After gathering all the survey information, it seems that the notion of good environment often has to do with both visual and physical notions. We will sum this up as giving a light environment and providing fresh air in the station. These two qualities should be able to prevent all the negative feedback type "dirty", "messy", "dangerous"



Figure 227 Montpellier Saint-Roch at night

etc. In general, the goal is to offer a comfortable and safe experience to the users as a base, in order to give them a chance to enjoy other design features.

A special attention given to lighting can also become a tool to guide the users or to catch their attention on a special element. This recommendation handles both natural and artificial lighting. We noticed that very deep rooms like it is the case at Gare du Nord, were associated with some kind of discomfort, expressed in various ways. Even though the nave system can be criticized in Montpellier for overheating and other reasons, it has the quality of bathing the large corridor in sunlight and this was palpable in the surveys' feedback.

A particular choice with professionals of artificial lighting solution is of great significance. For example in Nørreport station, each one of the bike stands has a little light on the top which, firstly, gives a special identity to the plaza at night and secondly leads the users towards the place they parked their bike. In Gare du Nord, the light poles in the halls that are in the same style as the cast iron columns add to the experience and give an immediate "Paris-feeling" to the travelers when they arrive. In Montpellier there is a special back lighting on the heritage façade that is quite dramatic and enhances the features like the columns and the arches. We also observed a big difference in the flow mapping exercise between day and night which shows how great a tool lighting is when it comes to guide crowds efficiently.

Ventilation was never addressed directly by the users but they talked about indoor climate a lot, which is nowadays solved with that kind of system. They also talked about bad smells sometimes and a problem that is recurrent in train stations: it is too windy. Because of their very purpose and configurations, stations halls tend to catch the winds and not to be insulated at all. These are places that typically are too cold in the winter and too warm in the summer. Fixing these issues appears to be a potential huge improvement for the users experiences.



Figure 228 The ventilation pipes at Norreport Station

Overall, and this is a general comment, a solution to one challenge that could be used as an opportunity for another improvement, seems like the best of way of thinking and designing in general. The ventilation pipes at Nørreport station are a great example. They have the role of ventilating the underground tracks, and needed to be going out on the plaza level, at various points and to be of great size. The architects took that necessity as a chance to incorporate lighting and benches and these pipes today came back many times as landmarks in the users survey.



Figure 229 Ceetrus group

The train stations tomorrow: public spaces or commercial malls?

Will Gare du Nord become the symbol of the transformation of train stations?
Is it setting a new way of renovating train stations?

We saw it earlier, around Gare du Nord is planned a redevelopment project planned for 2024 in order to triple its surface area by quintupling commercial spaces, which reminds of strategies that airports are using.

SNCF, the French national train operator, in debt of fifty billion euros, has decided to follow the model of airports, which today earn much more money with their retail areas than with passenger traffic. In Paris, Gare de l'Est, Saint-Lazare, Montparnasse, Austerlitz have undergone similar transformations since 2012.

"With 700,000 passengers per day in infrastructure planned for 500,000 people and the prospect of a 30% increase in the number of travelers within ten years, redevelopment is essential at Gare du Nord! It is rather clever to make pay for these works by private investors; SNCF could not invest 600 million euros!"⁸³

The stations of large city centers: an opportunity for shopping centers.

The Gare du Nord project was entrusted in July 2018 to Ceetrus, the real estate subsidiary of the Auchan supermarkets. It revolves around a SEMOP (mixed economy company with single operation), which allows the subsidiary of the large distributor to benefit from a long-term lease of fifty years to operate the

⁸³ the SNCF Gares et Connections subsidiary



Figure 230 Tribune written in the newspaper Le Monde

Gare du Nord. Ceetrus bears the entire financial risk estimated at 600 million euros, of which 150 million euros will go directly to the SNCF funds. In return, the Auchan group intends to benefit from the very large flow from the Gare du Nord and benefit from the very good results of shops located in stations).

At Gare du Nord, by 2024, commercial spaces should therefore increase fivefold. But the SNCF ensures that it is not just a commercial operation: co-working spaces, hotels, welcoming the most disadvantaged are also planned in the project, with a crèche, a room for show, sports grounds, shower baths. The idea for the Gare du Nord is to give a "new generation place of life" for travelers but also for residents.

But that does not convince the elected representatives of Paris. After a meeting at the end of June 2019, they refused to give their authorization for the installation of the new shopping center in the station. They denounced an oversized commercial offer, lacking in variety and which attractiveness has not been proven.

Heritage sacrificed?

If most of the defenders of the railway and architectural heritage say they are satisfied with the work carried out at the Saint-Lazare station or at the Gare de l'Est, the projects in progress at Gare du Nord provoke an outcry. In a column published in *Le Monde*, famous architects, urban planners and heritage specialists protested against the project, which they considered atrocious.

"I hate in this project that we lose all the poetry of the station. Everyone has station stories made of hope, despair, and desire. There, it will no longer be possible.

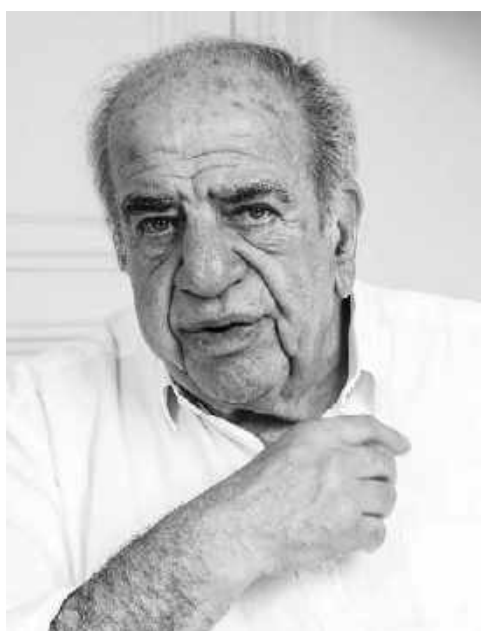


Figure 231 Roland Castro

The project will no longer even let you enter through the main door but through an emergency door on the side. All this to force you to stroll through a formatted commercial area that you could find anywhere in the world. We will arrive in Paris and it will be like arriving anywhere! It's monstrous!⁸⁴

The original architect, Jacques Ignace Hittorff, was a great specialist in perspective and color, he was also a pioneer of cast iron columns and halls, which explains the registration of the building as a heritage monument in 1975, which motivates the hatreds of some specialists:

"You really seem to be dealing with ignorant people who only think about money; that heritage, like the Ministry of Culture, has no weight in the face of financial interests. What's the point of having so many heritage laws if most real estate projects hijack them?"⁸⁵

"There have always been retail in stations, but today's redevelopments have reversed. They are no longer shops to help users travel: travelers are used by shopping centers and the historic heritage is vandalized."⁸⁶

⁸⁴ Roland Castro, architect co signatory of the article

⁸⁵ François Loyer, architectural historian

⁸⁶ Karen Bowie, station historian



Figure 232 The look of the project Gare du Nord 2024

What about elsewhere, in small stations in small towns?

What is concerning is that SNCF's strategy can apply on other places. They justify their choice. The commercial investments made in the major stations of Paris are supposed to finance investments in equipment but also in the majority of the 3000 small stations that have no commercial attractiveness.

"Thanks to the operations of Parisian stations, we were able to free up 20 million euros for small stations."⁸⁷

In this context, and with buildings that are so sensitive to society evolutions, we can wonder what is the future of train stations going to look like.

From infrastructure to shopping malls?

⁸⁷ the SNCF communications department

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October 2018

- > Revisioni / General reviews

March 2019

- > Open Tables

April 2019

- > Revisioni / General reviews

December 2019

- > Revisioni / General reviews

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