Politecnico di Milano School of Architecture and Society

## **URBAN PLANNING STUDIO – 095990**

Second semester, first year

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# **1**A

March, 13<sup>th</sup> 2015 **READING THE CITY The spatial dimension: dimensions, shapes, growth, renewal** 

FOUNDING, EXPANDING, TRANSFORMING AND SHRINKING THE CITY

The 19<sup>th</sup> and 20<sup>th</sup> centuries were the most intense and creative of the centuries. Many of the very technological advances that today we know also fed **world economic growth** on a scale never seen before.

Cities everywhere have been the engines and the symbols of economic growth and changing economic conditions.

In Europe, a lot of **theories and ideas** were developed to improve the conditions of living cities

By 1914 the ideas were sufficiently developed in most advanced capitalist countries to warrant being given a specific name, such as *stadtebau*, *town planning*, *urbanisme*, *city planning*, *urbanismo* 

### These ideas,

together with national traditions and differences, brought to the <u>European city</u>, as we know it today, with a well recognizable old town center, a more or less designed compact and modern city, new urbanized areas and above all a lot of networks of infrastructures, open spaces, public spaces, pedestrian areas, bicycle paths.

#### The lecture will focus on

studying the different patterns of the different parts of wellknown European cities, recognizing

built spaces, open spaces and networks

...understanding the <u>different traditions and ideas</u> that brought to the physical articulation of the spaces, <u>plans and policies</u> that developed the ideas and <u>typological characteristics</u> that help us today to recognize, live and design all urban spaces.



built spaces, open spaces and networks

The rules of the city

The scales of the city

A balance between:

✓ BUILT UP SPACES
 ✓ OPEN PUBLIC AND PRIVATE AREAS
 ✓ NETWORKS

**Relations between:** 

✓ The inner city
✓ The outer city
✓ The suburbs

A balance between:

✓ BUILT UP SPACES



A balance between:

**OPEN PUBLIC AND PRIVATE AREAS** 

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A balance between:

#### NETWORKS



A balance between:

✓ BUILT UP SPACES
 ✓ OPEN PUBLIC AND PRIVATE AREAS
 ✓ NETWORKS

**Relations between:** 

✓ The inner city
✓ The outer city
✓ The suburbs

The inner city



The inner city



The inner city



The outer city



A balance between:

The suburbs

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A balance between:

The suburbs



# The grid plan

The grid plan, made by streets and blocks for buildings, is by far one of the oldest urban tradition.

Since the ancient Greek world (for the Western traditions), the grid has been used to set and to build human settlements.

Roman Empire, and Roman city builders, used the grid plan to set new urban areas around Europe, to establish Roman possessions and to measure the space.

The first human operation to define his presence on the space is <u>to draw a cross of two lines</u>, one north-south and one eastwest. The crossing point is the most important place for the settlement.









#### Soria Y Mata and the Lineal City

Arturo Soria y Mata (1844-1920) is very well-known in the Spanish-speaking world. His "linear city" ideas and model are often compared and contrasted with Ebenezer Howard's "garden city", and the two bodies of writing and pilot projects are roughly contemporary. Soria y Mata was born in Madrid, lived in Madrid much of his life, and died in La Ciudad Lineal, a linear streetcar suburb of Madrid that he and his associates created as a pilot "linear city".

He established the first tramline in Madrid in 1875, and according to his entry in Enciclopedia Universal illustrada (Espasa-Calpe S.A., Madrid-Barcelona, 1927), "he invented urban telephone networks". In 1894 he got initial approval for a "railway-tram" in a looproute linking Madrid with various surrounding towns and villages, and he was also an advocate of a subway system for Madrid.

Soria y Mata established a magazine on urbanism called "La Ciudad Lineal", and he published booklets called "Ferrocarriltranvia de circunvalacion" (1892) and "La ciudad lineal" (1894). Soria y Mata's linear city was intended to "**ruralize the city and urbanize the countryside**", and his first article developing these ideas came out in March 1883 (15 years before Ebenezer Howard's rather different thesis).

He established the Compania Madrilena de Urbanizacion in 1892 as a means to bring his first linear city around Madrid to fruition -- intended to be 48 kilometers long, ringing the city, with a 7 kilometer radial connection -- but he had major problems selling sufficient shares in the company and raising the necessary capital. Nevertheless, construction began in 1894 and olny one 5 kilometer section was completed in the 1910s -- a linear suburb of fairly dense low-rise housing all along the axis of a combined railway/tramway/boulevard.















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The word "urbanism" was born in the years 1880-1890.

According to the historian A. Sutcliffe, urbanisation at the beginning of the century meant to proceed in the organisation by a *public authority* of all or part of a city of where the land is in the possession of private individuals.

This needed controlling laws.

At the end of the century, urbanisation encompassed theories of the planning of urban space which were developed at that time.

Urbanisation became Town Planning around 1900.

This re-thinking of the concept of urbanisation was imposed everywhere at the same time in the cities of the industrialised world.

There was an internationalisation of reforming action in cities.

*International exhibitions* took place in the major capitals. That of 1867, which was held in Paris, attracted 200,000 visitors.

It was the occasion to publicise abroad the work of Baron Haussmann who had remodelled Paris as a modern city.

Remodelling of Paris 1853 - 1870. The first modern plan

Haussmann was an administrator, appointed prefect of the department of the Seine (which included Paris) in July 1853.

He was not a planner

Napoleon III, the newly proclamed emperor, wanted a capital that would be a showpiece

The population of the city had grown from 581.000 in 1800 to just over a million in 1850.

<u>Paris was an overgrown medieval city</u>, congested, filthy and politically unstable, its citizens feared by most French rulers.

The city was also experiencing inexorable economic pressures for change.



Remodelling of Paris 1853 - 1870. The first modern plan

The emperor wanted (and in large measure, got) a new network of great boulevards, with circulation places where they came together.

Central to the overall concepts was what Haussmann called *la* grande croisée of Paris, which improved north-south and east-west communications.

In addition, there was extensive redevelopment in the very oldest parts.

Haussmann's proposals, largely fullfilled after his time as prefect, included major road improvements in the southern part of the city and diagonal streets in the central zone.





Remodelling of Paris 1853 - 1870. The first modern plan

All this was <u>superimposed</u> on the old arrangement of land plots, streets and alleyways. It was hugely disruptive to the historic environment and to existing interests, involving expensive and complex appropriations of land

The approach had, in theory at least, the great advantage that the new piercing streets created new frontages that had much higher values





Remodelling of Paris 1853 - 1870. The first modern plan

175 streets were opened in Paris during these years.

The most important was the rue Rambuteau in 1838, because it was the first to be cut in the densely interwoven city-centre, which involved compulsory purchase and demolition.

The ancient system of waiting for obstructing buildings to fall into disrepair before forcing the owners to respect the alignment of the street was replaced by a <u>new system of</u> <u>massive expropriation.</u>

The same was done for the street of the Bourse, around the Louvre and the place Vendôme.

Remodelling of Paris 1853 - 1870. The first modern plan

Haussmann was also able to exert careful facade controls on the rebuilding in relation to materials, height and architectural treatment

These gave great unity to the new thoroughfares that were created











Remodelling of Paris 1853 - 1870. The first modern plan

Yet the restructuring of the street circulation system was only part of Haussmann's overall achievement.

Beneath the new streets a new drainage system was installed.

Haussmann can also claim credit, along with the emperor, for several major <u>new parks</u> including the Bois de Boulogne, Bois de Vincennes and the Buttes Chaumont





Remodelling of Paris 1853 - 1870. The first modern plan

In practice, the Haussmann approach to forming new thoroughfares <u>did not work quite as well as had been hoped</u>.

) Acquisition costs increased, mainly because the colossal scale and rapid success of the whole undertaking encouraged speculation

) Nor did Haussmann's appropriation and disposal powers give him as much freedom as they initially appeared to.

In any case, the payback time was inevitably long term, while costs were incurred short term.

The remodelling therefore had to be financed by massive amounts of credit, on a scale that was previously unknown. 5

Remodelling of Paris 1853 - 1870. The first modern plan

# <u>Can we then see Haussmann as the originator of modern urban</u> <u>planning?</u>

In one sense, Napoleon III was quite deliberately echoing a premodern tradition of regal and princely planning.

Yet, even more, he was addressing urban forces that were unmistakably modern and functional.

The city that Haussmann fashioned was much more bourgeois and businnes-oriented than it was aristocratic and courtly.



Remodelling of Paris 1853 - 1870. The first modern plan

Haussmann was primarily undertaking a public works program. And public works are just a part of modern urban planning in advanced capitalist countries, but they are rather less than the whole.

They have tended to be seen as one of the 20<sup>th</sup> century planner's bluntest and most expensive instruments.

<u>Planning has, more typically, aspired to a more comprehensive</u> <u>coordination of public and private investment in the urban</u> <u>fabric</u>. It also involved a wider regulation of the use of private land, something which was entirely absent from Haussmann.









Remodelling of Paris 1853 - 1870. The first modern plan

A related point is that, despite Napoleon III's original map (which has not survived), there was evidently <u>no overall</u> <u>master plan.</u>

Individual schemes were conceived incrementally within a very general conceptual one.

Haussmann improvised street lines even while schemes were under way.

In part, this avoidance of any very clear statement of intentions may have been a deliberate tactic to thwart the speculators. Yet it underlined the essentially opportunistic nature of Haussmannism.

Remodelling of Paris 1853 - 1870. The first modern plan

These limitations did not, however, prevent knowledge of Haussmannism from spreading rapidly, and becoming one element of modern planning as it took shape over the following decades.

There were similar schemes in many French provincial cities, most notably Lyon and Marseilles.

<u>During the 1860s</u>, especially in the wake of the 1867 Universelle Exposition held in Paris, the model became international.

Amongst its first, and closest, imitators was Jules Anspach, mayor of Brussels from 1863, who directly sought Haussmann's advice about his own projects for the Belgian capital.











Remodelling of Paris 1853 - 1870. The first modern plan

There were also **many echoes of Haussmannism** in cities as diverse as Stockholm, Birmingham, Rome, during the later decades of the 19<sup>th</sup> century.

More followed in the early 20<sup>th</sup> century, often far outside Europe

Yet these references never produced anything on the same scale as the original , and often different in quite important aspects of detail.

In most cities the main problem was not the already built core. Rather, it was to ensure that urban growth occurred on well conceived lines.


Remodelling of Paris 1853 - 1870. The first modern plan

This leads to the conclusion that Haussmannism was a breathtaking demonstration of the possibility of changing cities on a grand scale.

Except on a rather modest scale, it was not itself a transferable model of exactly how they would be changed.

Urban growth in Europe 1850 - 1875. The German tradition

Planned urban extensions became quite common in continental Europe in the second half of 19<sup>th</sup> century.

Urban growth in Europe 1850 - 1875. The German tradition

The main pretext for their preparation varied.

As in Barcelona, the removal or downgrading of urban fortifications was often important, for example, in the extension of <u>Copenhagen, Vienna, Amsterdam, Milan</u>.

In other cases, urban areas which retained strategic importance were refortified around an enlarged area, for example <u>Lille</u>.

The more general pressures of economic and population growth were also important. These were the main concerns of the wellknown 1862 <u>Berlin</u> extension plan prepared by James Hobrecht.

Urban growth in Europe 1850 - 1875. The German tradition



Urban growth in Europe 1850 - 1875.

The nature of early extension plans varied but essentially they were <u>road and streets layouts</u>, typically revealing some thought about major and minor thoroughfares.

Most gave priority to <u>formal aesthetic</u> rather than functional criteria.

The extension plans were also underpinned by <u>building</u> <u>regulations</u> of varying sophistication.

But full land use and density zoning was not yet present.

Urban growth in Europe 1875 - 1900. The German tradition

The last quarter of the 19<sup>th</sup> century marked a critical phase in the development of modern urban planning.

Everywhere, but particularly in western Europe and North America, <u>there was a noticeable growth of interest in the</u> <u>nature of the city</u>, its problems and how they might be remeiled.

Urban reformist movements

Urban growth in Europe 1875 - 1900. The German tradition

In contrast to the pre-1875 period, most of the key innovations occurred in the newly united nation-state of Germany, or at least in *German-speaking world*.

Echoing British trends, German urban growth went hand in hand with industrial expansion.

The Prussian State parliament, the most important in Germany, passed <u>a new law on street lines in 1875</u>. The effect was to make town extension plans almost universal for all urban expansions.

Urban growth in Europe 1875 - 1900. The German tradition

Municipalities had automatic compulsory purchase rights for the new streets in the extension plans, and permitted the costs of building, draining and lighting the nex streets to be passed to the frontage owners.

Many municipalities prepared extension plans on the pattern of the 1862 Hobrecht plan for Berlin, and permitted very highdensity development.

There where mountains of criticisms from reformers.

Urban growth in Europe 1875 - 1900. The German tradition

**Reinhard Baumeister** 

first textbook on modern urban planning

Town extensions: their links with technical and economic concerns and with building regulations

1876

He was a professor of civil engineering and a planner of urban extensions.

The book defined two principal tasks:

to produce new housing and to expedite circulation

Urban growth in Europe 1875 - 1900. The German tradition

Theorisation of ideal solutions was absent.

There was a scientific and functional basis offered to guide urban development in matters such as streets and major roads

Urban growth in Europe 1875 - 1900. The German tradition

# Camillo Sitte

Town building according to artistic principles

1889

Sitte's essential argument was for a more organic approach to urban planning

He was inspired by the morphological qualities of historic towns in Europe, mainly those formed in the medieval period.

His ideas can be seen as the antithesis of highly formalised layouts with grand avenues and vistas

Urban growth in Europe 1875 - 1900. The German tradition

The quality of organic historic towns arose precisely because of subtle variations around common features.

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# **1B**

March, 13<sup>th</sup> 2015 **READING THE CITY The spatial dimension: dimensions, shapes, growth, renewal** 

FOUNDING, EXPANDING, TRANSFORMING AND SHRINKING THE CITY

Cerdà and Barcelona

Another powerful contender for the title of first modern urban planner is **Ildefons Cerdà** 

A Catalan engineer, Cerdà produced the highly distinctive plan for Barcelona's Eixample (extension) beyond the former city walls in 1859.

He published in 1867 the *Teoria General de la Urbanizaciòn* (general theory of urbanisation), one of the first modern attempt to theorise urban planning.

Cerdà and Barcelona

Despite this, and very unlike Haussmann, Cerdà has been a rather neglected figure. Recently, however, his reputation has been restored and he is now far better known internationally than ever he was during his lifetime.

Cerdà exhibited many qualities that are associated with the values of the modern urban planning movements of the early 20<sup>th</sup> century.

A trained engineer, he possessed high technical skills, yet he combined these with a great visionary quality.

Cerdà and Barcelona

Once Barcelona's walls were down, a plan was needed to develop the land beyond them and connecting the city with the other suburban smaller cities (*Gracia* among them).

The city council held a competition for projects and proposals in 1859.

Cerdà didn't win the competition, but orders came from Madrid that the plan to be adopted was the Cerdà's scheme.

Cerdà and Barcelona

Cerdà decided to <u>ignore the overcrowded old town center</u> and to develop a totally new, modern and rational scheme for the city beyond the demolished wall.

Two of the Eixample's main avenues along a <u>geographical</u> <u>parallel</u> split by roads crossing perpendicularly.

His central aim was to overcome social problems by using <u>quadrangular blocks of a standard size</u>, with strict building controls to ensure that they were built up on only two sides, to a limited height, leaving a shady square or garden in between.

Cerdà and Barcelona

The recreational open space with open sides to the blocks was to guarantee the houses the maximum amount of sun, light and ventilation.

The housing blocks were to be orientated NW-SE to ensure all apartments received sunshine during the day.

Each district would be of 20 blocks, containing all the community shops and services.

# Cerdà and Barcelona



Cerdà and Barcelona

The most characteristic feature of Cerdà's plan is the 45° angled corner of each block.

The idea behind this was to ensure more fluid traffic in all directions, above all for public transport.

It was mainly the steam tram that Cerdà had in mind, and it was its turning radius that determined the angle of the corners of the buildings.

# Cerdà and Barcelona



# Cerdà and Barcelona



Cerdà and Barcelona

The humanistic side of the engineer is reflected in the way, rather unusual by that time, **Cerdà scientifically analyzed many theoretical aspects, for istance urban and housing standards**.

A new conception of the urbanisation process

Coherent design of streets/blocks, public/private spaces, utility networks, public/private transportation, considering as well the subtle link between housing economics and issues of social integration.

Cerdà and Barcelona

Extension's implementation, mainly through legal and financial regulations linked to the development process, was done in such a way as to allow the different social levels to live together in the same building:

Quality apartments on the first and second floor with back gardens for owners and high income families

Upper level apartments, more modest but subject to the established standards for workers

Cerdà and Barcelona

This model implies equal access to the same neighbourhood and commercial facilities.

It is a fundamental part of an implicit social contract between the industrial upper class and the working class, which has clearly contributed to smoother relations and the removal of radical conflicts.

Catalonia particular situation: from 1900 to 2000 the region tripled its population, while that of the rest of Spain hardly doubled

Cerdà and Barcelona

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# <u>The modern city</u> Cerdà and Barcelona



# Cerdà and Barcelona



Cerdà and Barcelona

1855 was the year when the Government authorized the demolition of the walls of the ancient city, and also when the engineer Ildefons Cerdà drew up the blueprint of the Extension Plan of Barcelona.

The plan was based on the excellent <u>topographic map</u> of the city and its neighbouring territory, drawn up under the engineer's own direction.

# Cerdà and Barcelona



# Cerdà and Barcelona



Cerdà and Barcelona

The smoothly sloped plain was for centuries artificially kept free from any kind of urbanisation due to military reasons, only gathering by Cerdà's time some traditional towns (Sants, Sarrià, Gracia, Sant Andreu, among other smaller ones), which today constitute the core of the different boroughs in Barcelona.

The Extension plan was basically conceived by Cerdà as an antidote to the extremely high density "that kills", of near 900 inhabitants per hectare, and resultant unhealtly living conditions.

Cerdà and Barcelona

Once Barcelona's walls were down, a plan was needed to develop the land beyond them and connecting the city with the other suburban smaller cities (*Gracia* among them).

The city council held a competition for projects and proposals in 1859.

The city council actually preferred the scheme developed by Antoni Rovira i Tras, for long straight streets radiating out fanlike from the old city center.

For reasons that have never been explained, orders came from Madrid that the plan to be adopted was Cerdà's plan. The city council had disliked Cerdà's scheme because it ignored the old center of the city.

Cerdà and Barcelona

Cerdà has surveyed and drawn the city's first accurate plans in 1855. He was also influenced by the problems of El Raval, concerned with the cramped and unhealthy contitions of workers'housing and the high death rate and crime that he saw resulted from this.

Cerdà surveyed the working-class way of life in the 1850s and found that a diet of bread and potatoes, enhanced with the odd sardine, was all an average family could afford.

Observers blamed the cholera epidemic of 1854, which clamed 6,000 lives, on overcrowding in insanitary conditions. Disorder, disease and riots were a regular feature of the long hot summer of 1854

Cerdà and Barcelona

Cerdà loved straight lines, and his idea was to place two of the Eixample's main avenues along a geographic parallel split by roads crossing perpendicularly.

# Cerdà and Barcelona






Cerdà and Barcelona

Cerdà's central aim was to **overcome social problems by using quadrangular blocks of a standard size**, with strict building controls to ensure that they were built up on only two sides, to a limited height, leaving a shady square of garden in between.

This recreational open space with open sides to the blocks was to guarantee the houses the maximum amount of sun, light and ventilation.

The housing blocks were to be oriented NW - SE to ensure all apartments received sunshine during the day.





Cerdà and Barcelona

The regular streets were built 20 metres wide.

Gran Via was 50 metres wide

Passeig de Gracia was as much as 60 metres wide

For Cerdà, the function of the street was for communication and the movement of traffic.

Places to go - the street's grid

Places to stay - the block's grid









Cerdà and Barcelona

The Eixample was planned using an extensive grid-iron pattern.

The grid, with wide roads and bevelled street corners was designed for the easy passage of the steam tram along each street.

The most characteristic feature of Cerdà's plan is the 45° angled corner of each block.

The idea behind this was to ensure more fluid traffic in all directions, above all for public transportation. It was mainly the steam tram that Cerdà had in mind, and it was its long turning radius which determined the angle of the corners of the buildings.







Cerdà and Barcelona

The plan intended a kind of <u>garden city</u> in which two sides of each low-rise block would be left open for small parks and greenery.

The sides of the blocks measured 113,3 metres and covered 12,370 squares metres, of which at least 800 square metres were to be gardens.





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# **1C**

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Cerdà and Barcelona

In the twentieth century, with increasing populaton pressure, and the need for car parking, most of these open areas were developed and infilled.

Most of the blocks were increased in height to a uniform eight floors by developers intent upon maximising their incomes.

Today the population density of l'Eixample is one of the highest in the world.







The large urban facilities in Barcelona had to find a way of fitting into the grid, allowing easy access for everybody, without interfering with the functionality of the whole.

Each district would be of 20 blocks, containing all the community facilities, shops and services.

Cerdà and Barcelona

For more than a century, the city has systematically adopted the trend to embrace complete block units into a larger unit,

one (several goods markets...)

two (prison, Central University, Hospital)

three (Antoni Gaudi's Holy Family Sanctuary)

four (ancient polytechnic university, parks...)

nine (Sant Pau hospital)





Cerdà and Barcelona

In the event, though, this idealised use of urban space was scarcely achieved, for the private developers who actually built the Eixample regarding Cerdà's restrictions on their property (and profits) as pointless interferences.

While the Cerdà's more visionary ideas were largely lost over time, the construction of the Eixample did see the development of a specific type of building: the quality apartment block, with large apartments on the lower *principal* floor. The top floors contained apartments with roof gardens.







Cerdà and Barcelona

The larger blocks today have been converted into offices and multi-family dwellings.

Old-time residents of the district have to mix with newcomers such as banks, hotels, offices and shops.

The Passeig the Gracia makes up the heart of the Eixample.

The right of the Eixample contains most of the more distinguished architecture since it was the first area to be developed, with many buildings designed for the wealthy textile merchants.

Cerdà and Barcelona

The left of the Eixample was built slightly later than the right and is more residential and even working class in places.

It is more liberally sprinkled with general city services such as the Hospital, the Escola Industrial, the Prison.

The area has two very large markets, the Nonot and the Mercat de Sant Antoni, touching onto the Raval.

Cerdà and Barcelona

Over the past few years the city has begun trying to implement Cerdà's idea for green public spaces behind the buildings.

The organisation responsible for this project is called **Proeixample S.A.** 

It is a joint venture of the city of Barcelona and Catalan Banks.

When part of the block becomes available, Proeixample takes the initiative. The design and layout costs of the parks are paid by development and sale of the remainder of the land for apartments or public services.

Cerdà and Barcelona

The advantage of this method is that it doesn't cost any money The disadvantage is that it is a very slow process.

Eight squares have been laid out and another ten are planned.

The ultimate goal is to create one patio-garden for every nine blocks.

But in order to achieve that, 20 inner courtyards must be recovered. The patio-gardens contribute only modestly to the increase of public space in the Eixample. From 1.6m2 per resident, the number has gone up to 1.7m2.



Cerdà and Barcelona

A chain of successive permissive building regulations, only broken in 1976, thanks to the land use metropolitan plan still applying today, have brought the Eixample density far beyond Cerda's initial perspectives.

But, recent physical proposals such as the Olympic Village or the industrial restructuring on the Eixample's east side are shown to be able to be easily fitted into the same scheme.

Cerdà and Barcelona

In preparing for the 1992 Olympics, significant modifications and improvements were made to the city structure.

In order to house the athletes an Olympic village was constructed on a coastal site to the north-east of the city.

The Olympic Village apartment blocks were designed along the lines originally envisaged by Cerdà.








Cerdà and Barcelona

The Cerdà plan covers 1300 hectares of rectangular blocks, more or less 14% of the present municipal surface area. It has been implemented in different stages, from the start of industrialisation in Catalonia.

It is seen by many scholars as a consistent framework which has conferred to the city not only an individual personality, but also a special ability to accomodate changes in social structure, economy or land use regulations throughout time.

Cerdà and Barcelona

More than this, it has proved to be a framework able to produce dynamic impulses as well as be responsible for much stability in the urban system, while keeping its basic spatial functions.

It makes the urban system develop as a coherent whole in the fields of productivity, competition and internal cohesion.

That has something to do with the creative forces emanating from the strong interaction between some crucial elements starting in the middle of the 19<sup>th</sup> century.

... the birth of a new industrial bourgeoisie...