

Barcelona

Leading the way out of the crisis?

*Antoni Vives, Deputy Mayor
Vicente Guallart, Chief Architect*



Ajuntament
de Barcelona

Catalan Observatory - LSE, February 22 2012

Senkan 高楼迷广州版
www.gaoloumi.com

Crisis, what crisis?

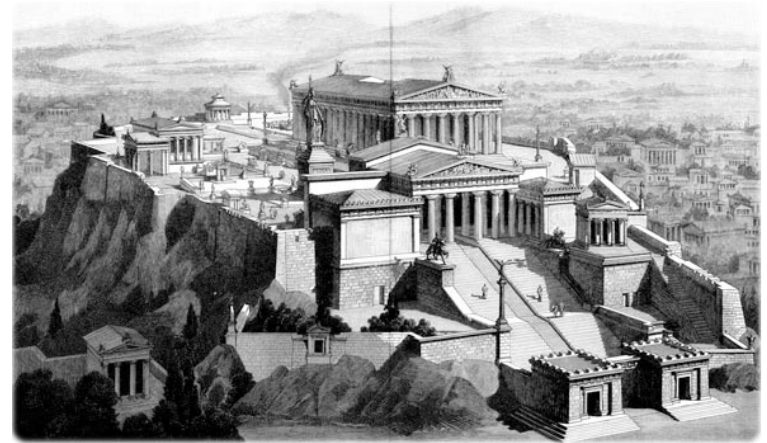


Zhujiang - North Tianhe

Thucydides, History of the Peloponesian War

Book 1, Chapter 3, LXXI

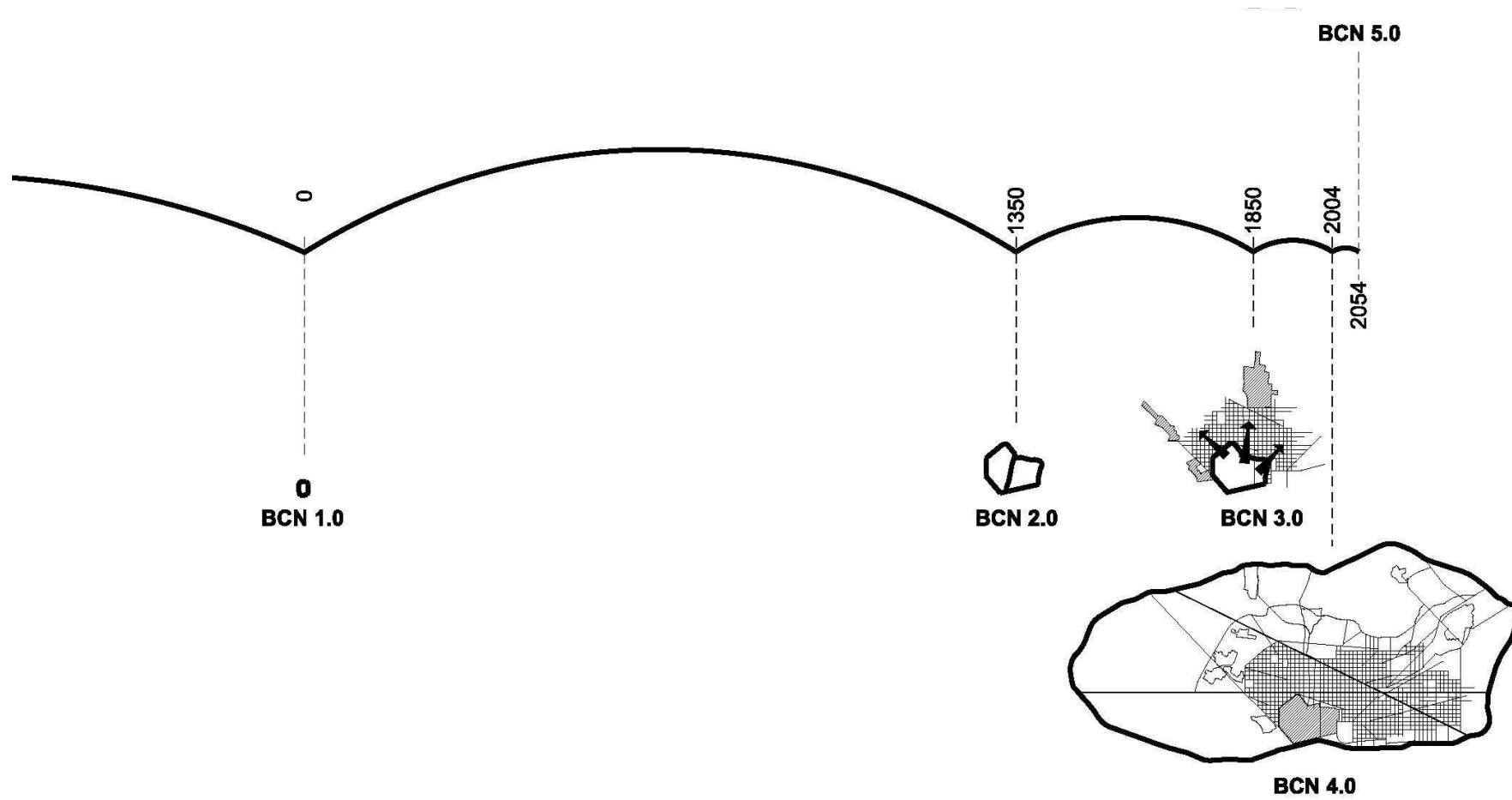
Such is Athens, your antagonist. And yet, Lacedaemonians, you still delay, and fail to see that peace stays longest with those, who are not more careful to use their power justly than to show their determination not to submit to injustice. On the contrary, your ideal of fair dealing is based on the principle that, if you do not injure others, you need not risk your own fortunes in preventing others from injuring you. Now you could scarcely have succeeded in such a policy even with a neighbour like yourselves; but in the present instance, as we have just shown, your habits are old-fashioned as compared with theirs. It is the law as in art, so in politics, that improvements ever prevail; and though fixed usages may be best for undisturbed communities, constant necessities of action must be accompanied by the constant improvement of methods. Thus it happens that the vast experience of Athens has carried her further than you on the path of innovation.



Barcelona 5.0

production, talent & networks,
regenerating the cities of the future

TOWARDS BARCELONA 5.0





1350-1705



1716-1854



1855-1920



TODAY

Barcelona, a history of
production, socialization and
changes

LE PLAN DE BARCELONNE
ET DE SES ENVIRONS.

*Tres-exactement levé sur les Lieux par un Ingenieur
en 1766. Mis au jour
à Amsterdam par Nicolas Visscher, avec Privilege.*

PLATTE GROND DER STERCKE STAD en CASTELL
BARCELONA.

*In de omleggende Plantsoen, naan t'Orpinel
geteekent, en niet gegeven tot Amsterdam
door Nicolaus Visscher, met Privilegie.*

Echelle de quatre cent Toises.

A network of sharing products
and goods



Plano de la Ciudad y del Puerto de BARCELONA.

Plan de la Ville et du Port de BARCELONE.

Plan of the City and Port of BARCELONA.

The Medieval city, a city of:
Guilds
Confederations
Pacts
Concentration
Exchange

Escala de Mil Varas Castellanas

0 100 200 300 400 500 600 700 800 900 1000

Plano de la Ciudad y del Puerto de BARCELONA.

Plan de la Ville et du Port de BARCELONE.

Plan of the City and Port of BARCELONA.

Growing inside
empowerment of
exchange and local
networks

safety ring of the city

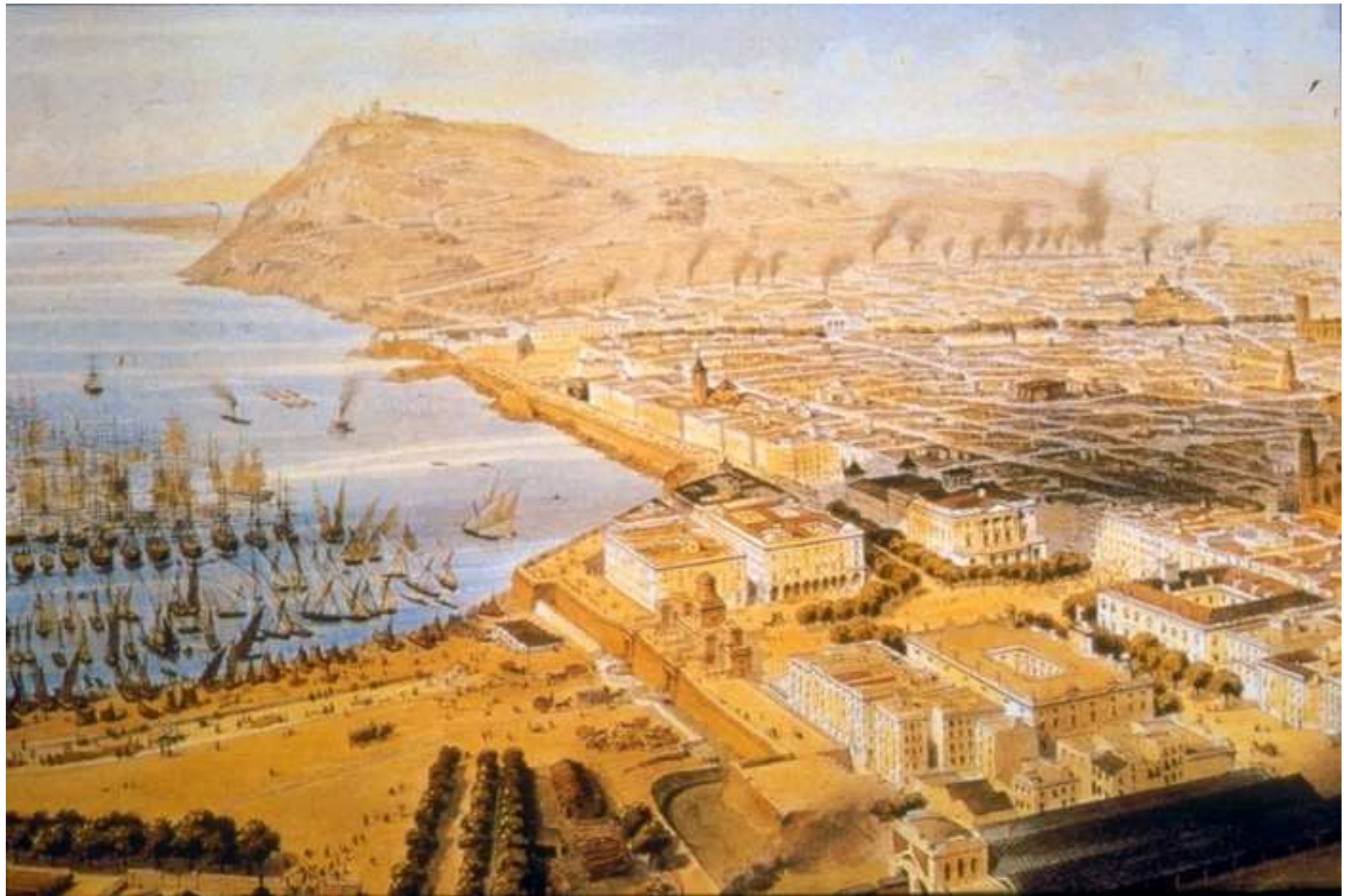
Plano de la Ciudad y del Puerto de BARCELONA.

Plan de la Ville et du Port de BARCELONE.

Plan of the City and Port of BARCELONA.

insanity
people
politics
collapse
bank
public services
mass production
cosmopolitanism
industrial revolution
analphabetism
church
ideology
elite
knowledge
tradition
influence
class conflict
capital of Catalonia
industrial capital of Spain
university
housing problems
anticlericalism







Mercat ambulant. Josep Domínguez. 1925-1935
Arxiu fotogràfic de Barcelona



City general view

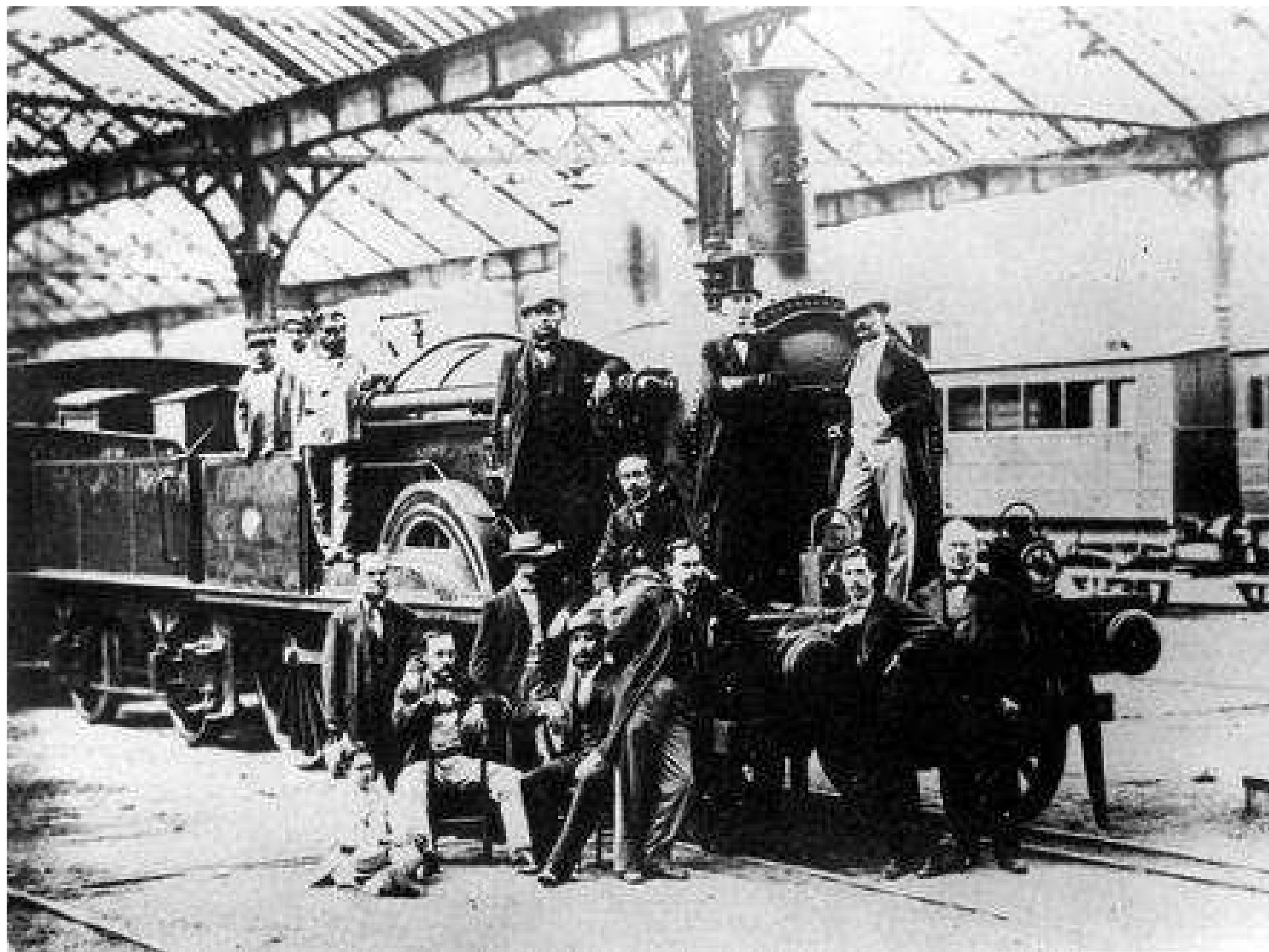
Frank

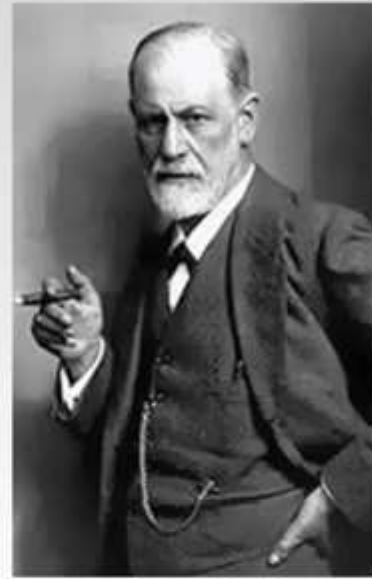
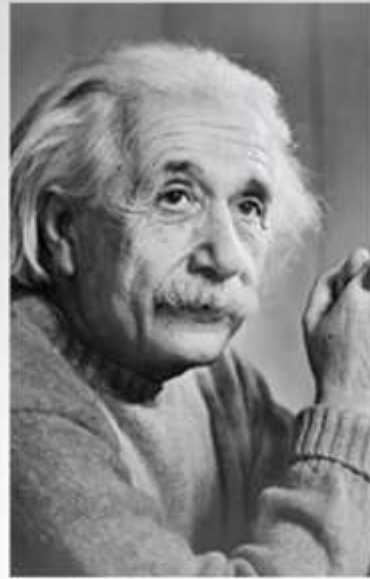
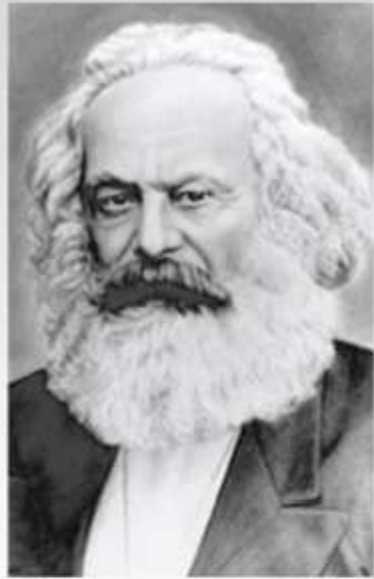
1860-1869.

Arxiu Fotogràfic de Barcelona.

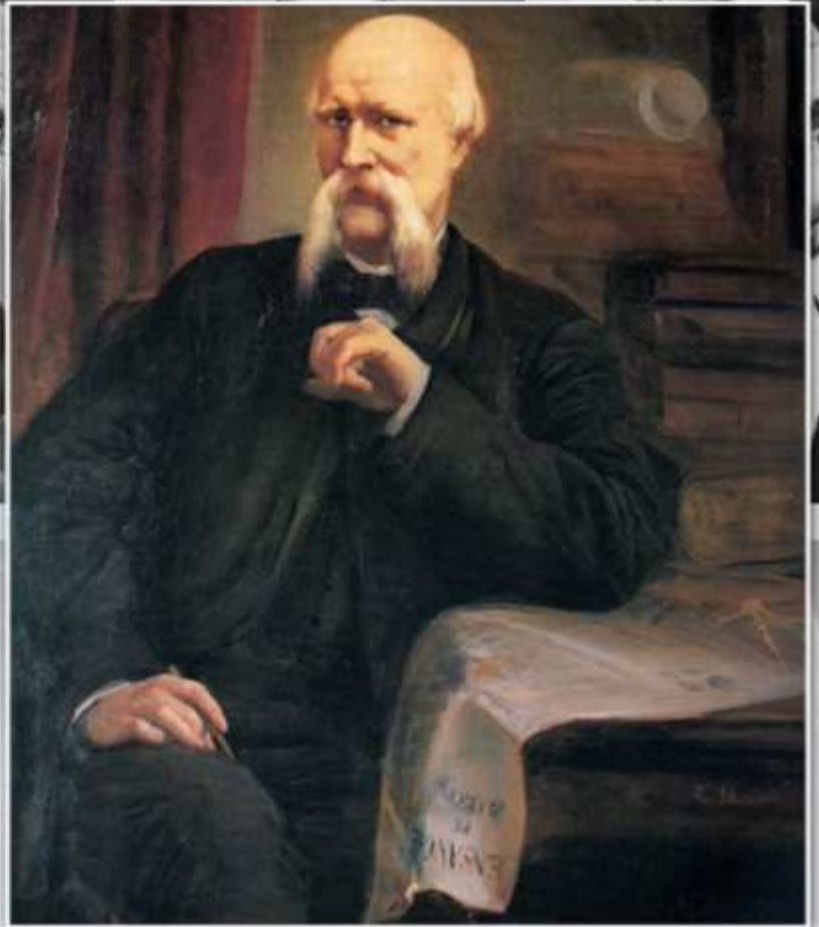
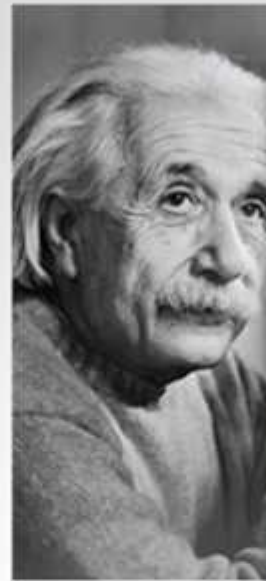
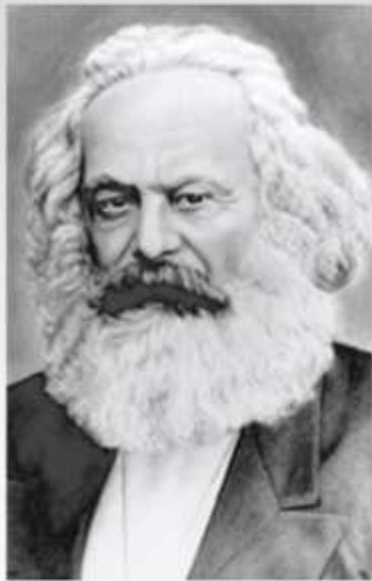


1856 - Enderroc del Baluard de Tallers - Barcelona





Prophets



Ildefons Cerdà

Prophets

TEORÍA GENERAL
DE LA
URBANIZACION,

Y APLICACION DE SUS PRINCIPIOS Y DOCTRINAS

A LA

REFORMA Y ENSANCHE DE BARCELONA,

POR DON ILDEFONSO CERDÁ,

INGENIERO DE CAMINOS, CANALES Y PUERTOS.

Trabajo ultimado en virtud de Real autorizacion de 2 de febrero de 1859, aprobado por Real orden de 7 de junio del mismo año, declarado de utilidad para la enseñanza y de aplicacion oficial, por Real decreto de 31 de mayo de 1860; y mandado publicar por Real orden de 20 de diciembre de 1865, á expensas del Estado con fondos especiales votados por las Cortes.

TOMO I.

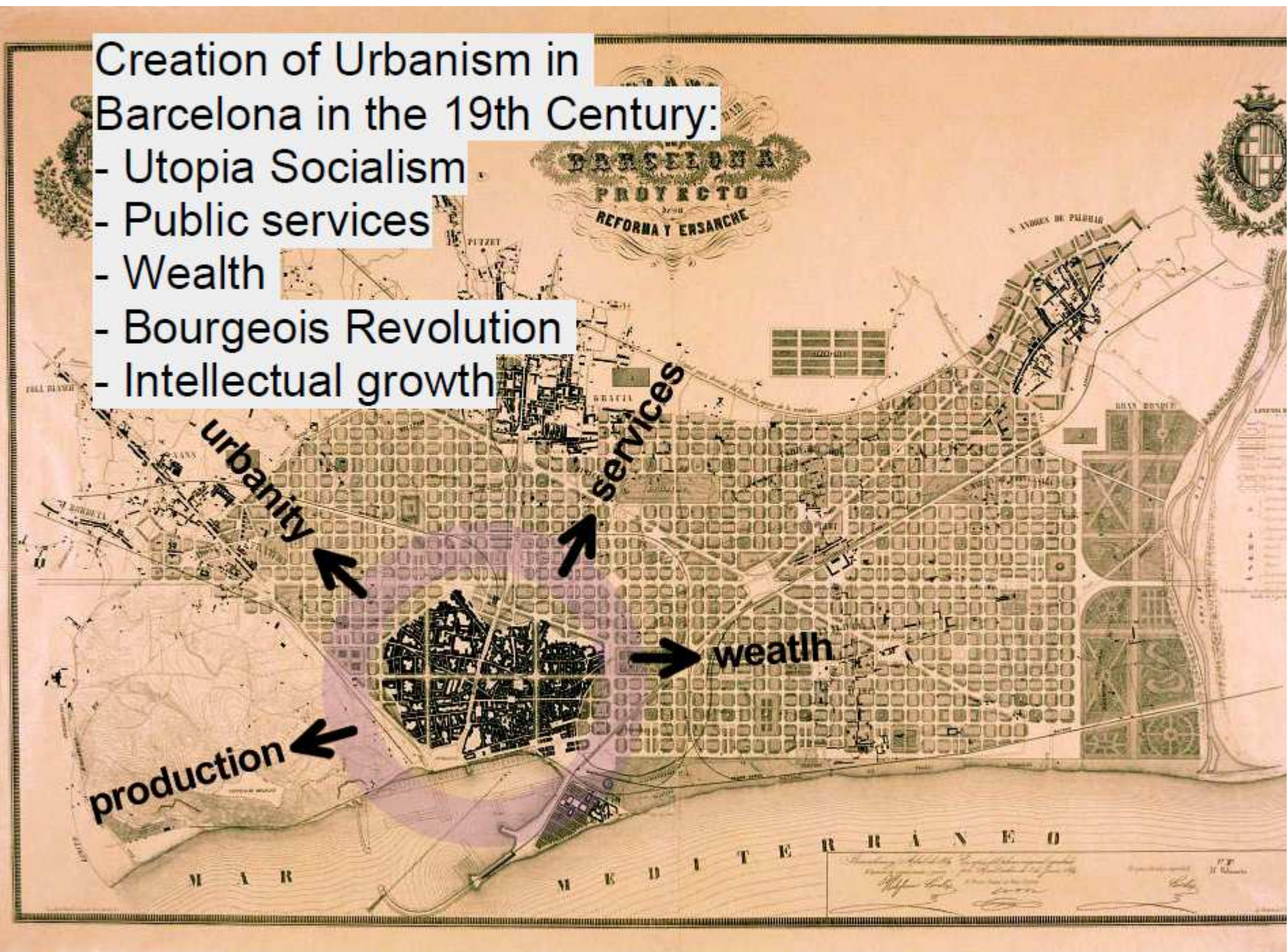
Independencia del individuo en el hogar: independencia del hogar en la urbe:
Independencia de los diversos planes de movimiento en la via urbana.
Reunir lo urbano: urbanizar lo rural:... *Repleta terram.*



MADRID:
IMPRENTA ESPAÑOLA, TORIJA, 14, BAJO.
1897.

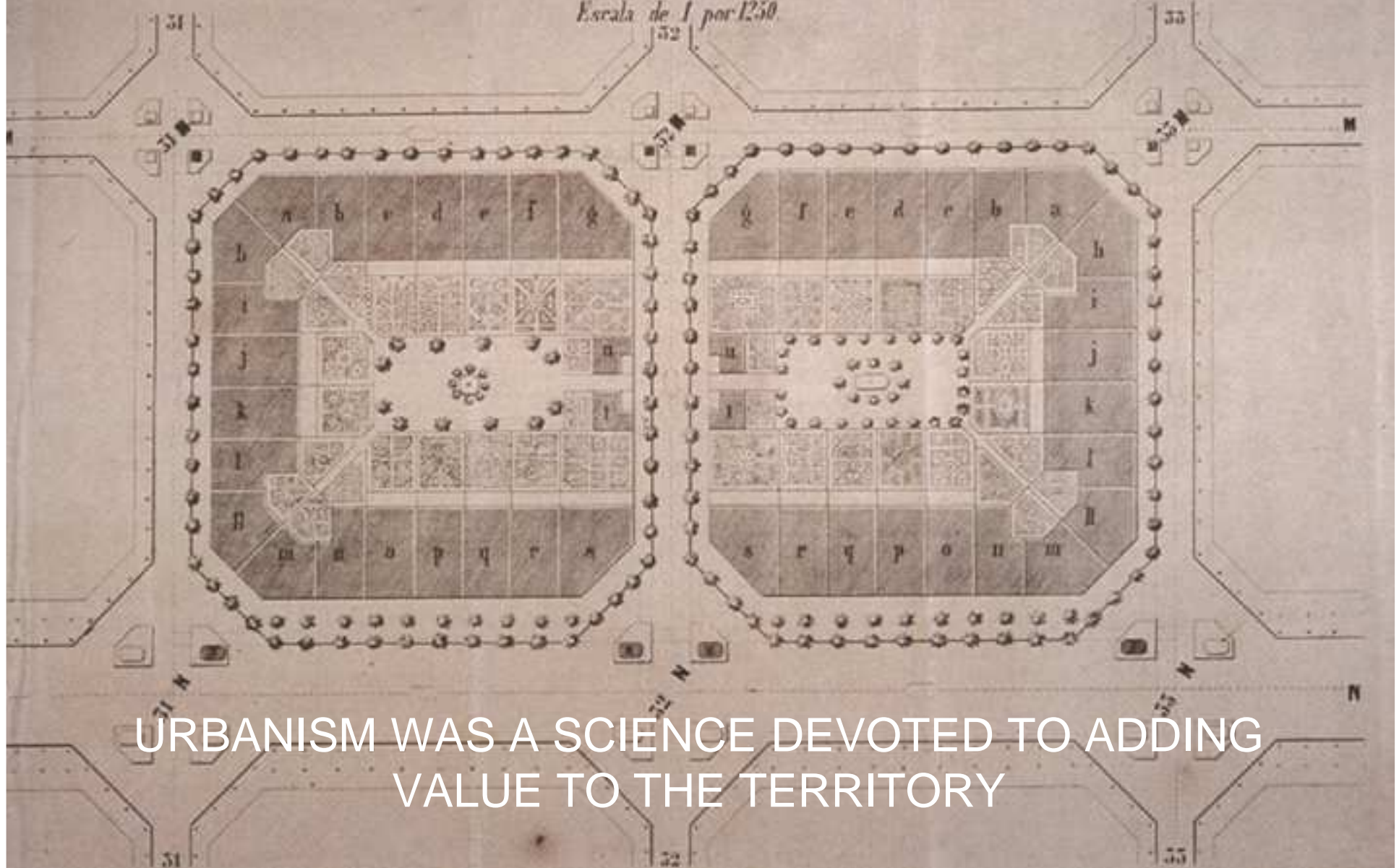
Creation of Urbanism in Barcelona in the 19th Century:

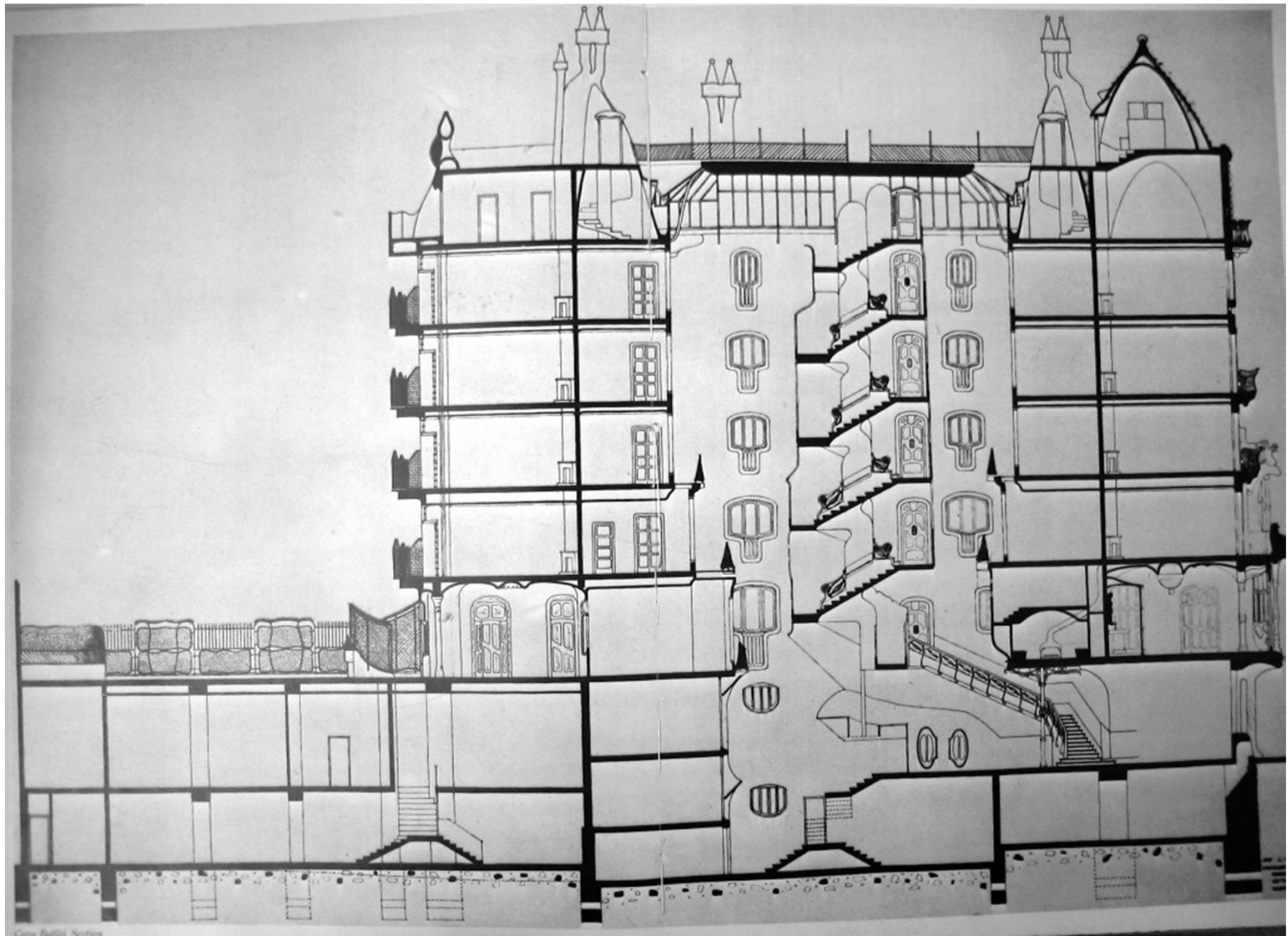
- Utopia Socialism
- Public services
- Wealth
- Bourgeois Revolution
- Intellectual growth



FOMENTO del ENSANCHE de BARCELONA

Escala de 1 por 1250.

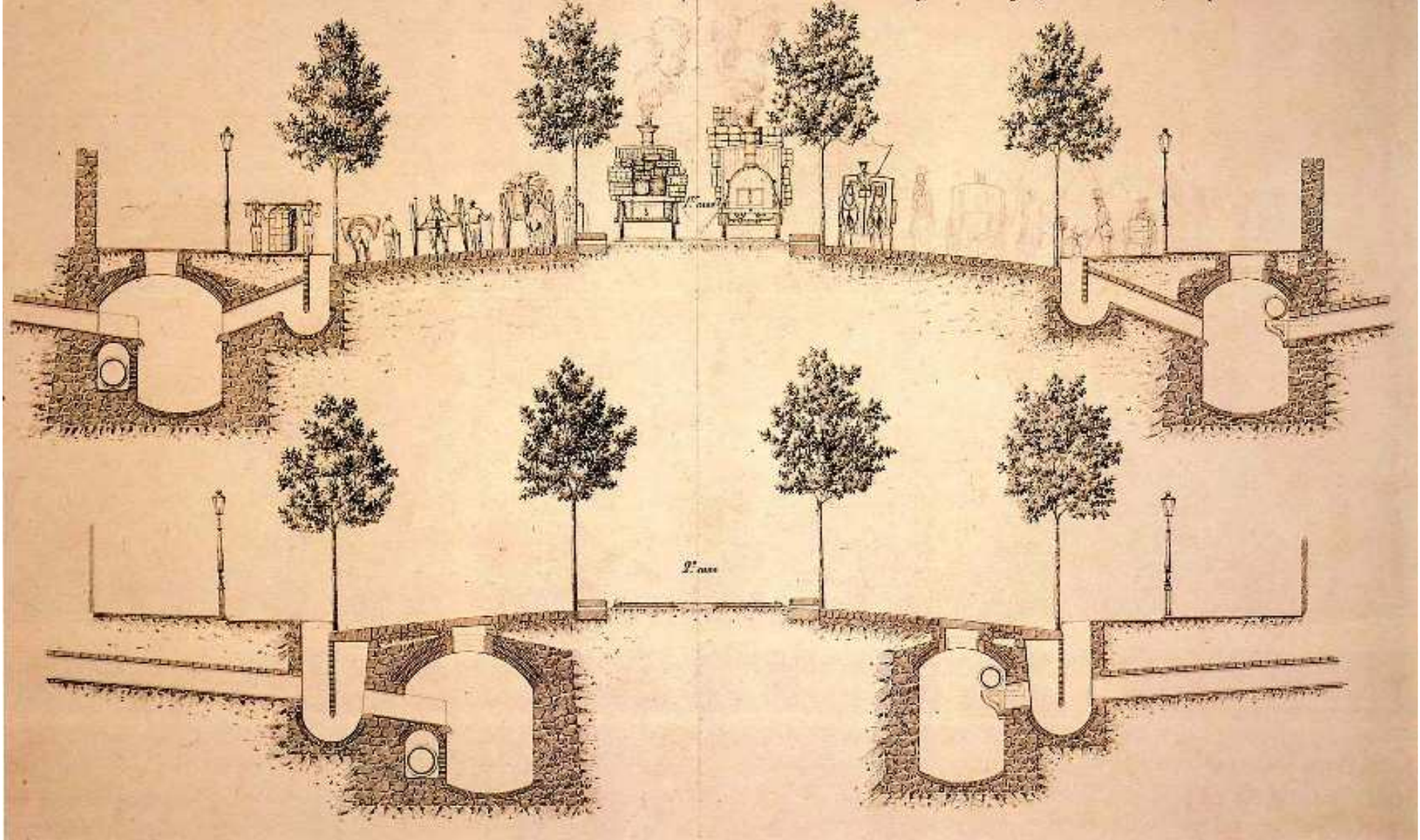




Casa Batlló section, Gaudí, 1904.

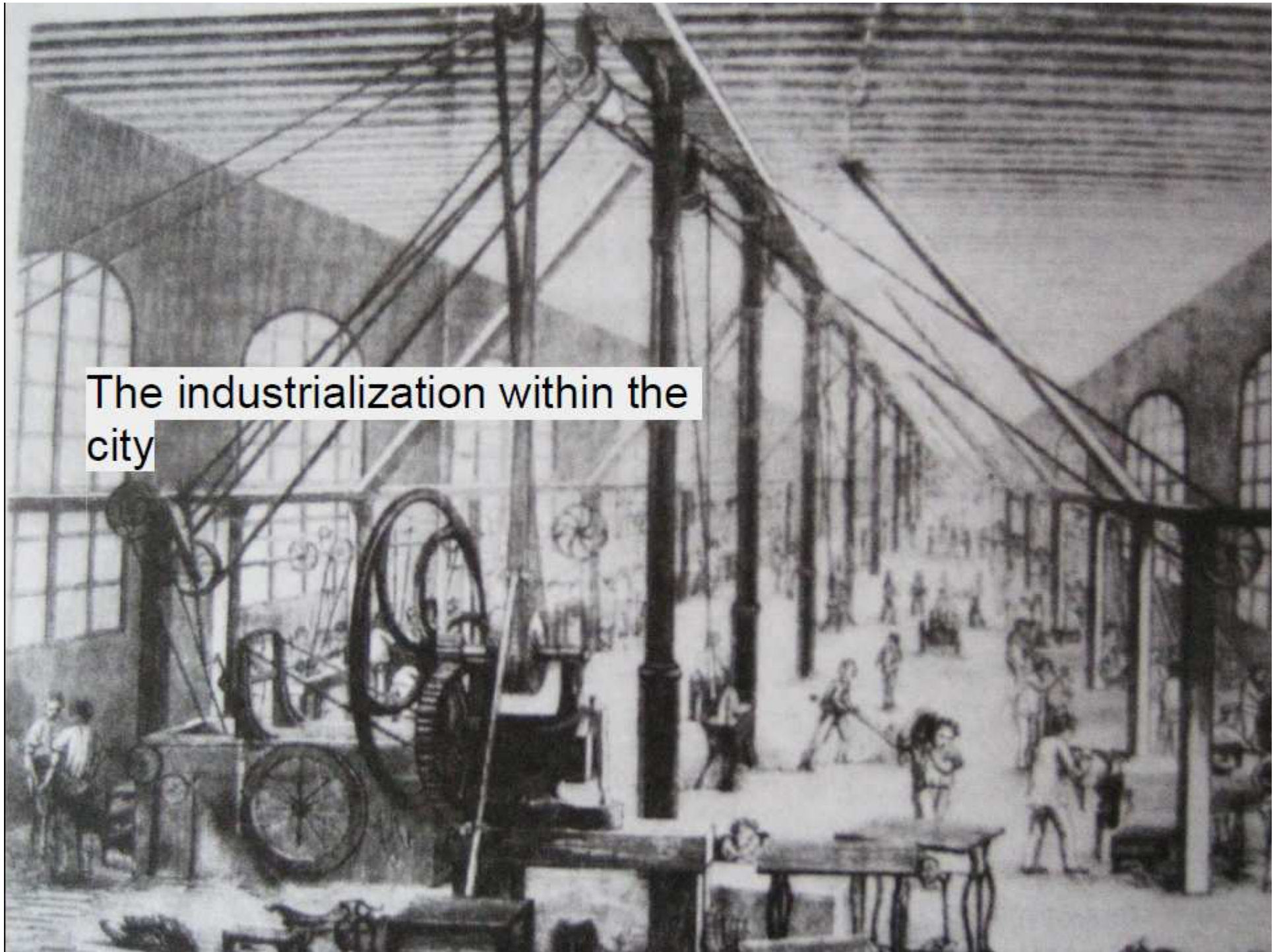
Perfiles del pavimento y obras subterráneas de las calles en el supuesto de que la exportación de las aguas se haga por las calles principales.

Lam.^a XXXVI



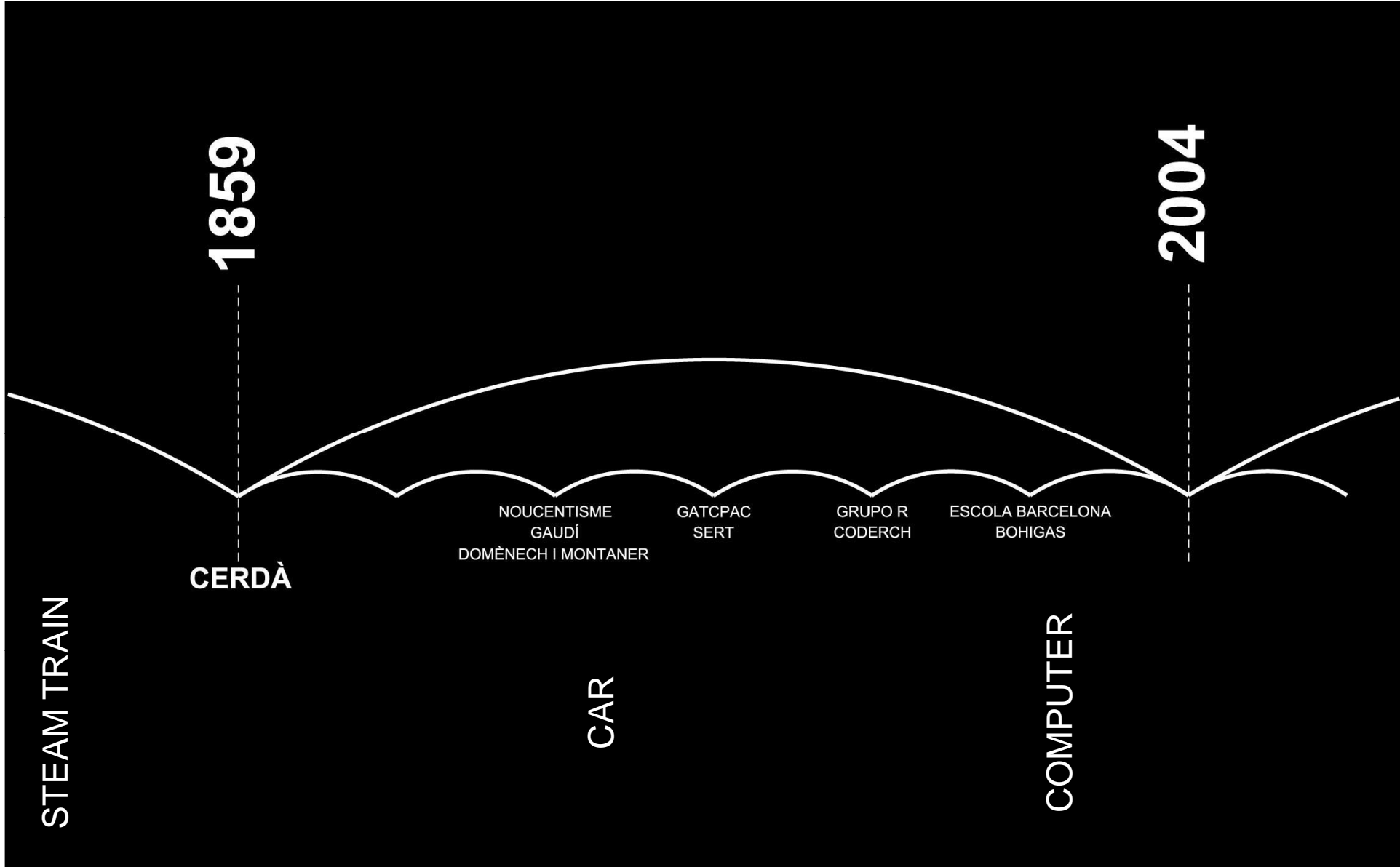
ADDING INFRASTRUCTURES FOR MOBILITY
WATER AND NATURE FOR THE CITY

The industrialization within the city



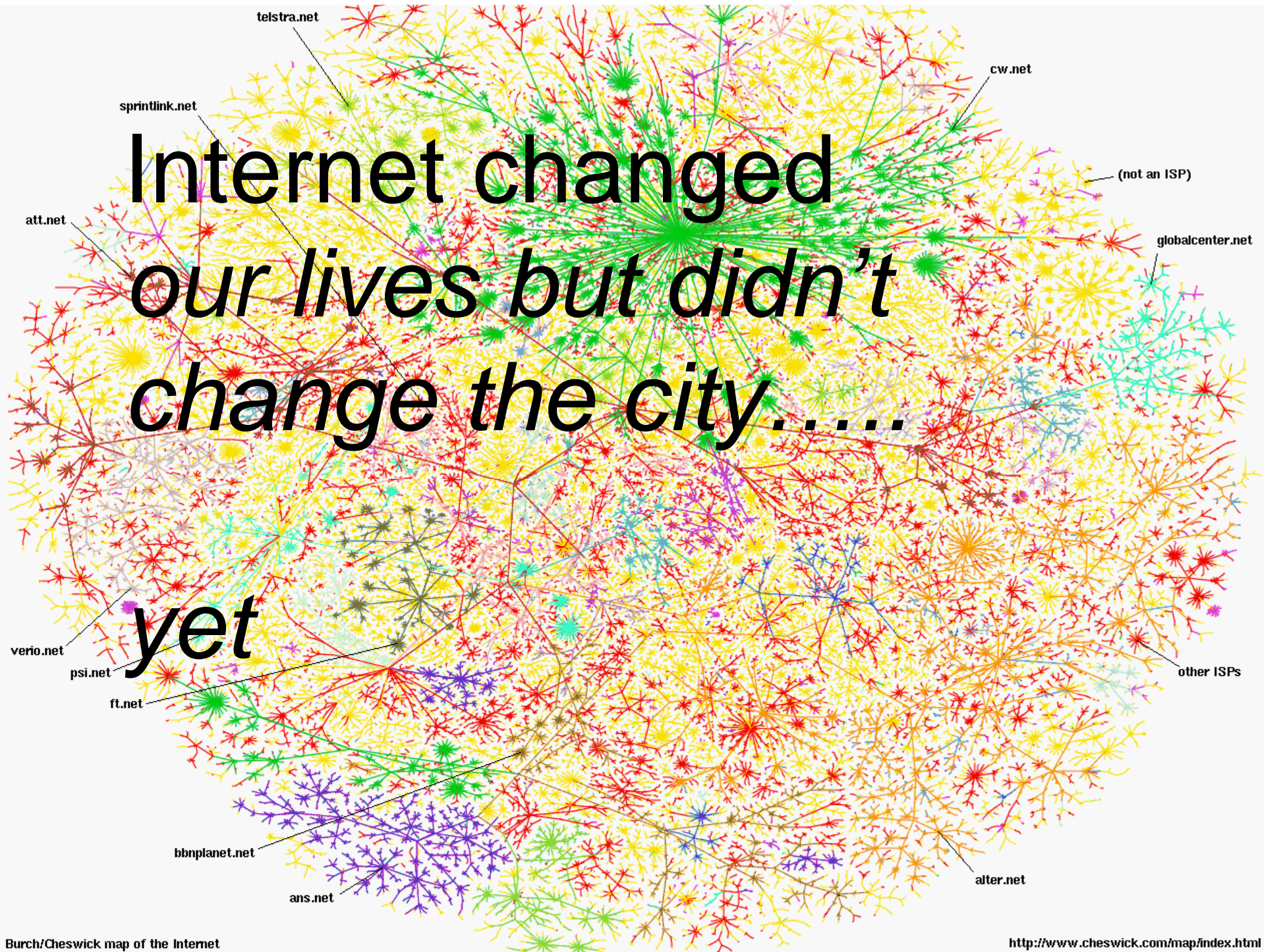
Where are we now?





Internet changed
*our lives but didn't
change the city.....*

yet



WE move from industrial
economy based on
centralized systems to
information economy
based on decentralized
networked systems

The recent changes in Barcelona have been morphological, geometrical and spatial, based on speculative models.

PITO: Product In, Trash Out

Sagrera: A train station paid with *State speculation?*



A city based on tourism,
spectacle and culture
with a show-
business architecture
and urban planning



The future is in the optimization of networks, the value of knowledge and energy production and sharing, based on intelligent networks of people and things

DIDO: Data In, Data Out.

An aerial photograph of a city with a dense, grid-like street pattern. The city is characterized by numerous small, multi-story buildings with reddish-brown roofs. Several wide, green parkways or boulevards run diagonally across the grid, providing green space and open areas. A river or canal is visible on the right side of the image, winding through the urban landscape. The overall scene depicts a highly developed, compact urban environment.

HOW DO WE KEEP ADDING
VALUE TO THE CITY?

VISION

THE SELF-SUFFICIENT NETWORKED CITY

**Productive districts at human speed inside a
hyperconnected and zero emissions city**

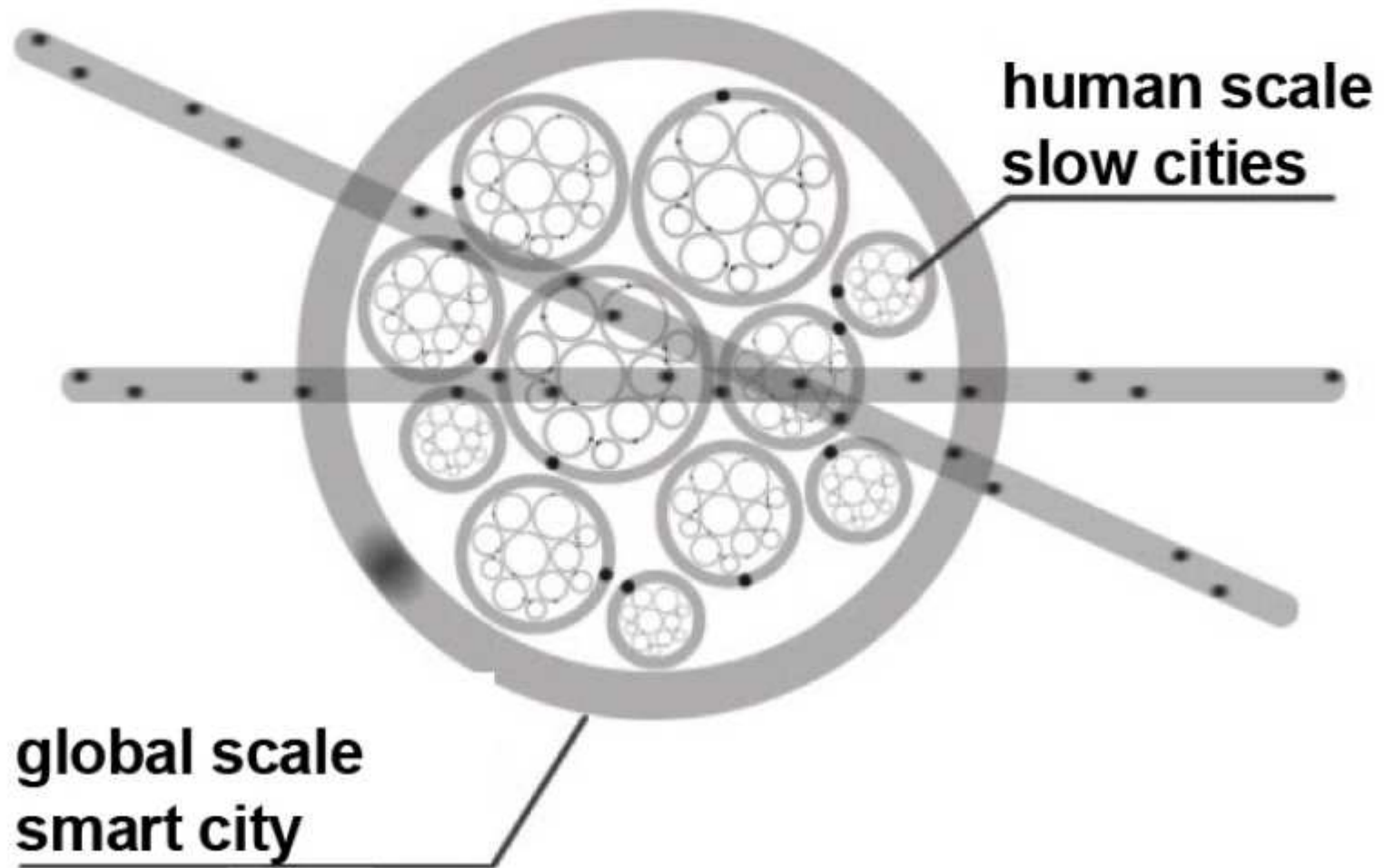
Many slow cities inside a smart city

**Local production: FOOD, ENERGY, THINGS
Global networks: PEOPLE, ECONOMY, KNOWLEDGE**



Ajuntament
de Barcelona

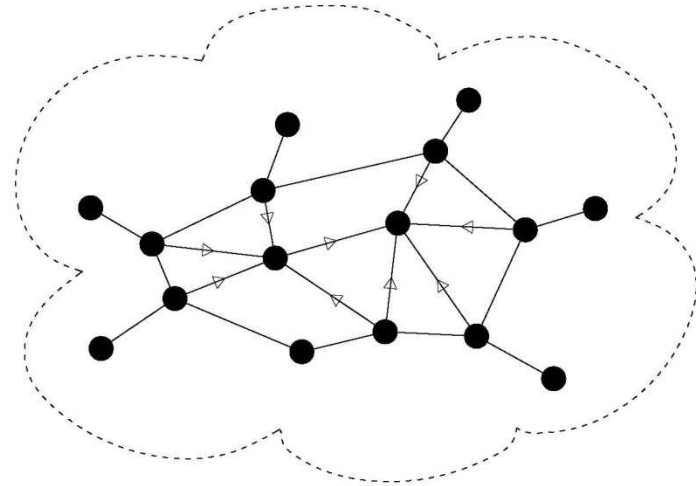
CITY OF MULTIPLE SPEEDS AND SCALES



HOW CAN WE DEFINE A CITY THAT HAS THE SAME TOPOLOGY AS A NETWORK?



=



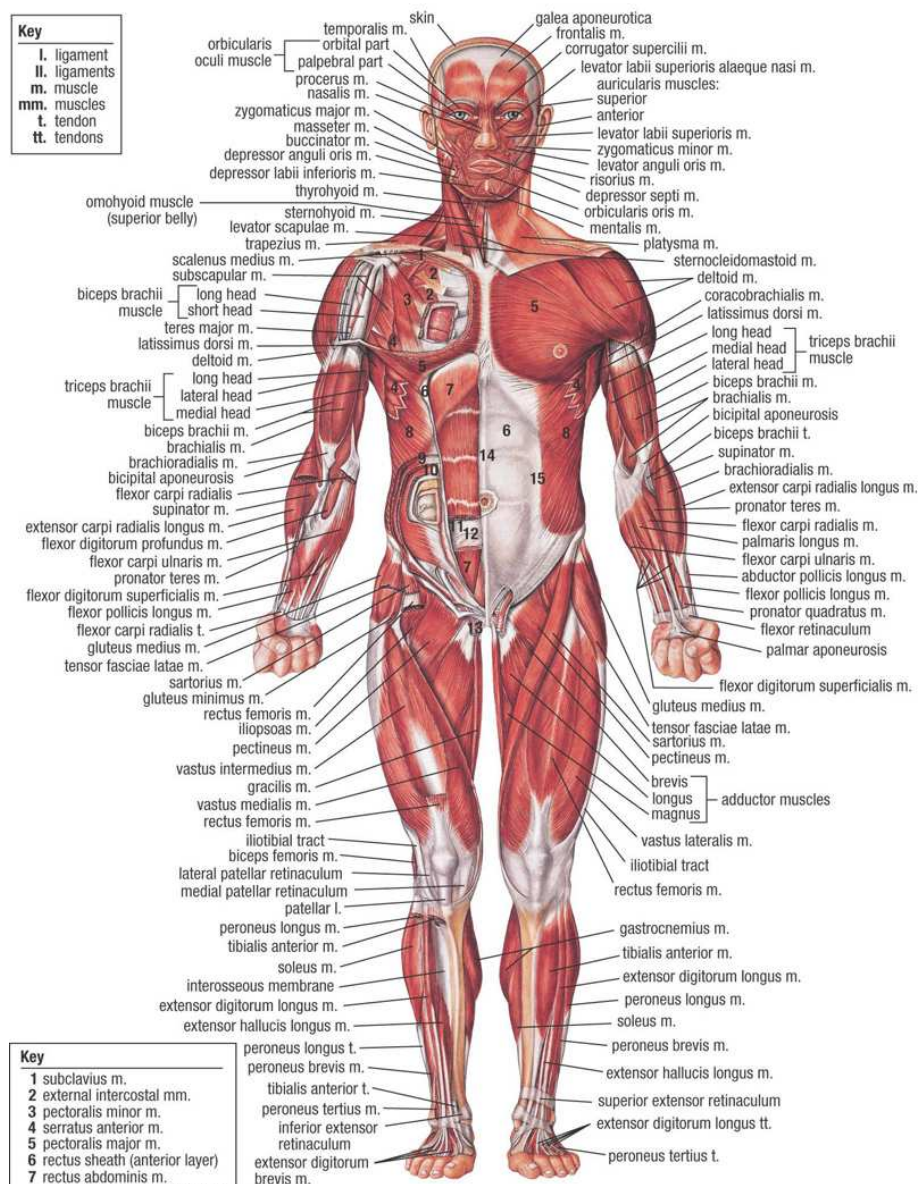
THE PLANET

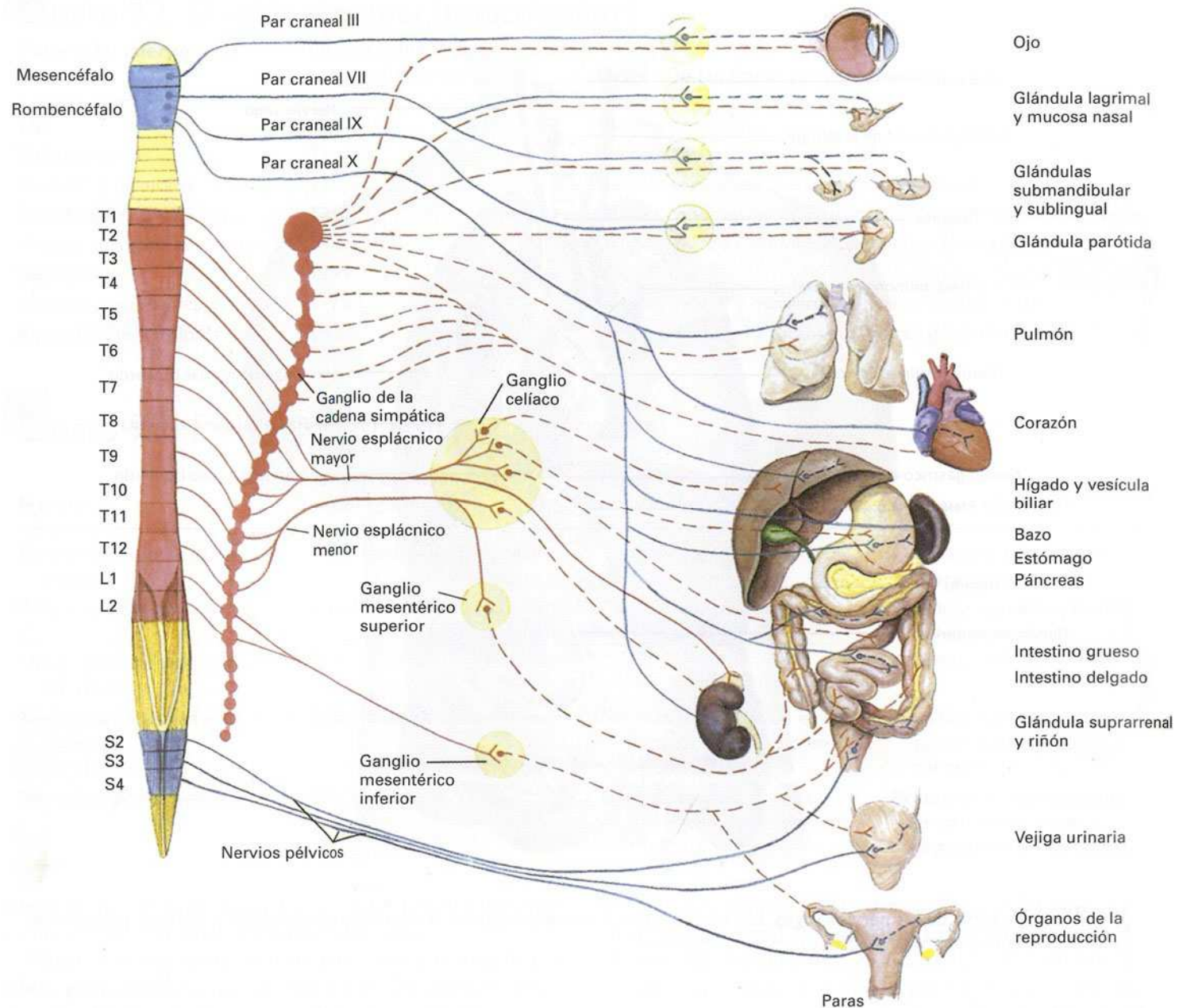
(House, building, block neighborhood,
District, city, metropolis, country, continent,
Planet. From 1 to 10.000.000.000)

NETWORK

Environment
Infrastructures
Nodes
Code

Key
I. ligament
II. ligaments
m. muscle
mm. muscles
t. tendon
tt. tendons





Anatomy of City Habitat

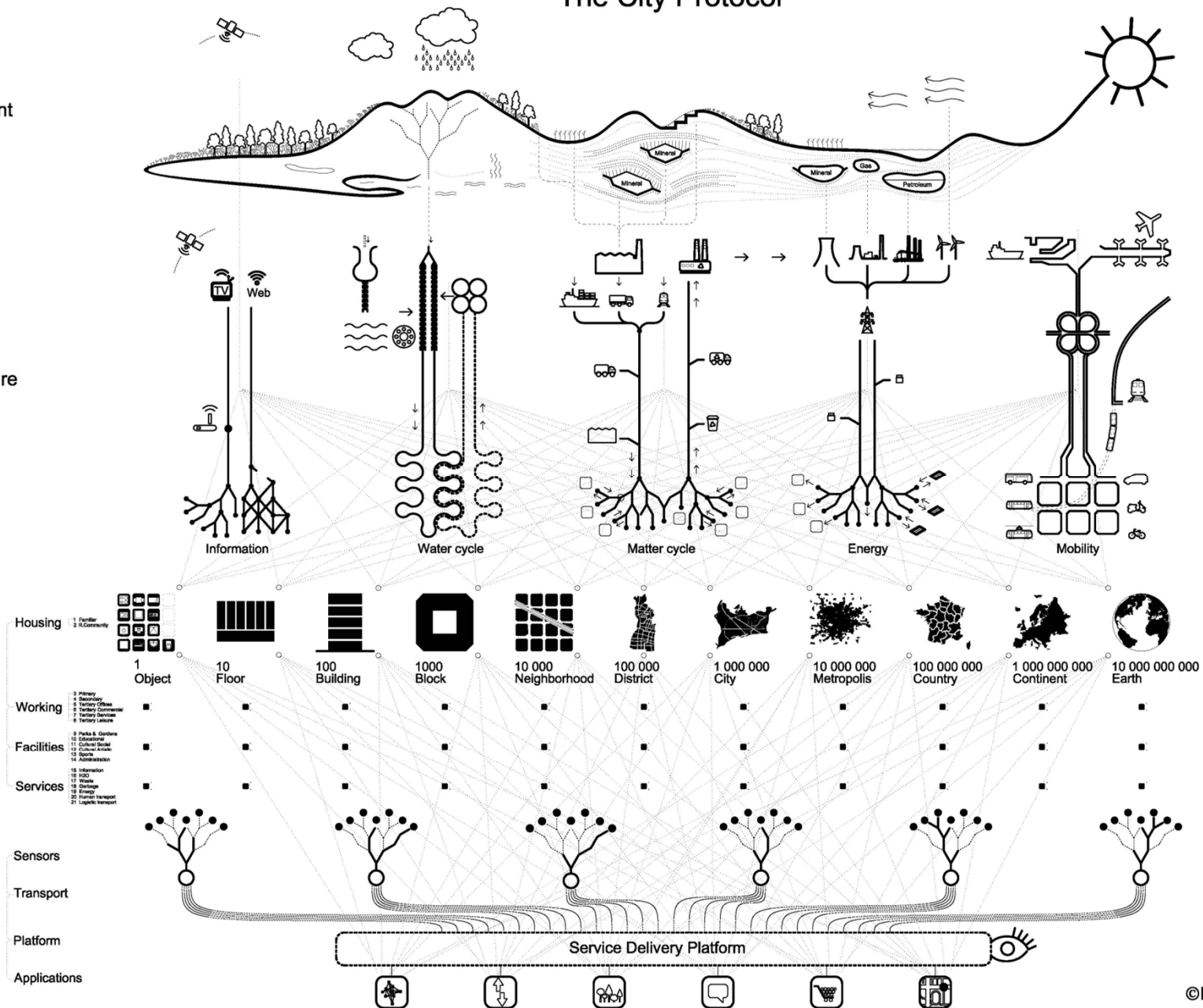
The City Protocol

Environment

Infrastructure

Nodes

Code



The economy of Urban Innovation

CITY IS NOT ONLY THE
URBANIZATION OF THE
ECONOMY BUT
THE REAL URBAN HABITAT
WHERE PEOPLE GROW AS
HUMAN BEINGS



NOT AFFORDABLE CITIES
PRODUCE
NOT AFFORDABLE SOCIETIES



Dubai



An aerial photograph of Barcelona, Spain, overlaid with a complex urban planning map. The map features a grid of blue lines representing streets or transit routes, with several orange and yellow highlighted areas indicating specific zones or projects. Green areas represent parks or green spaces. The city is situated on a coastal plain with mountains in the background.

A PLAN FOR THE FUTURE OF THE CITY

BARCELONA CITY HABITAT

Ajuntament  de Barcelona









PLAN DE ORDENACION DE BARCELONA Y SV ZONA DE INFLUENCIA
GRAFICO DE UTILIZACION DEL SUELO







PRODUCTION OF TALENT AND KNOWLEDGE



PRODUCTION OF GOODS AND SERVICES





An aerial photograph of a suburban housing development. The foreground and middle ground show a large, newly built residential area with numerous houses, winding streets, and cul-de-sacs. The houses are mostly single-story with light-colored roofs. The streets are paved and have some landscaping. In the background, a river or large body of water is visible, and beyond that, a more densely populated urban area with a grid-like street pattern can be seen. The overall scene depicts a typical suburban expansion into a natural landscape.

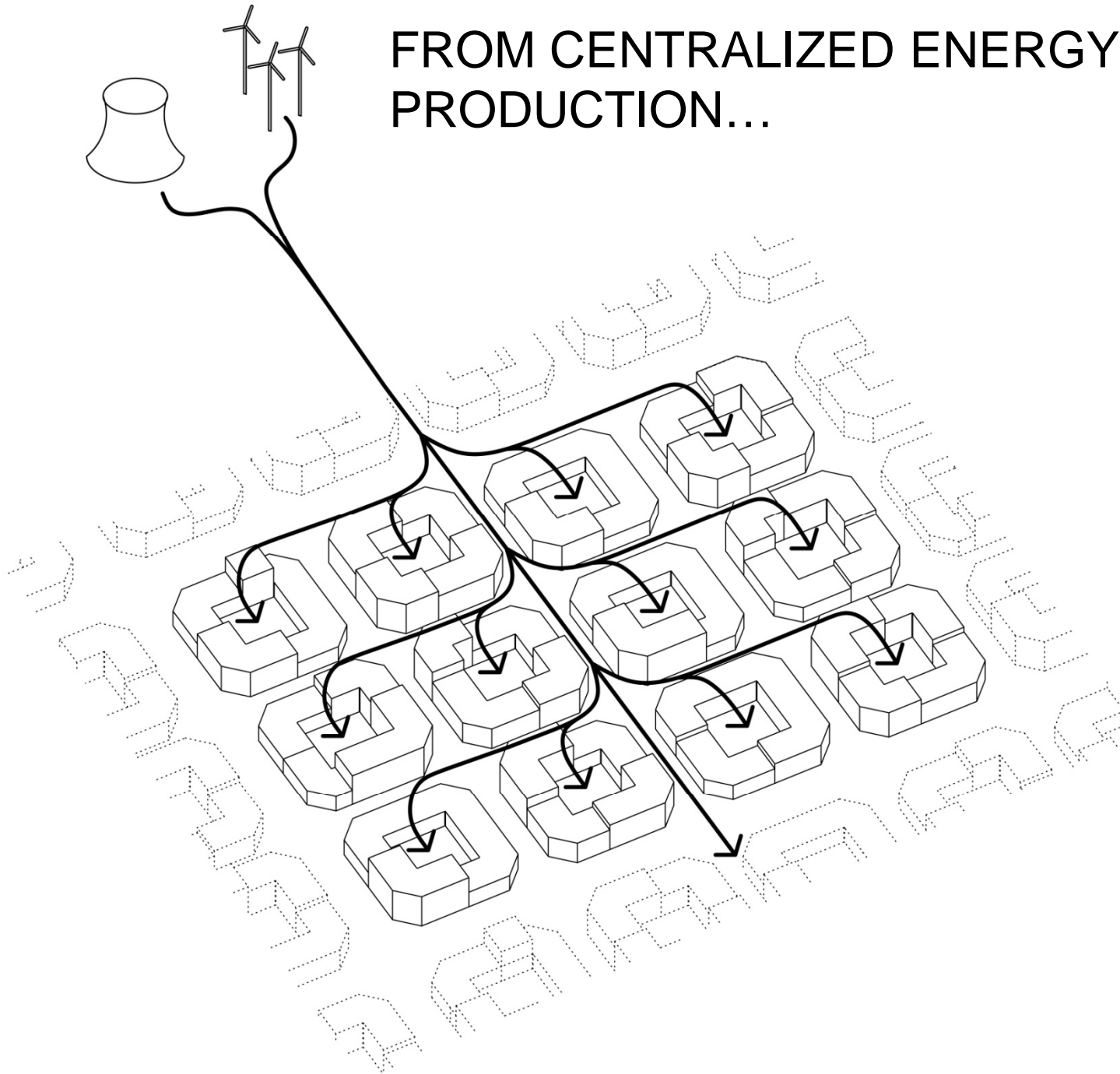
**EVERY URBANIZATION MODEL
HAVE AN ENERGETICAL
CONSUMPTION ATTACHED TO IT...**

URBAN DIVERSITY

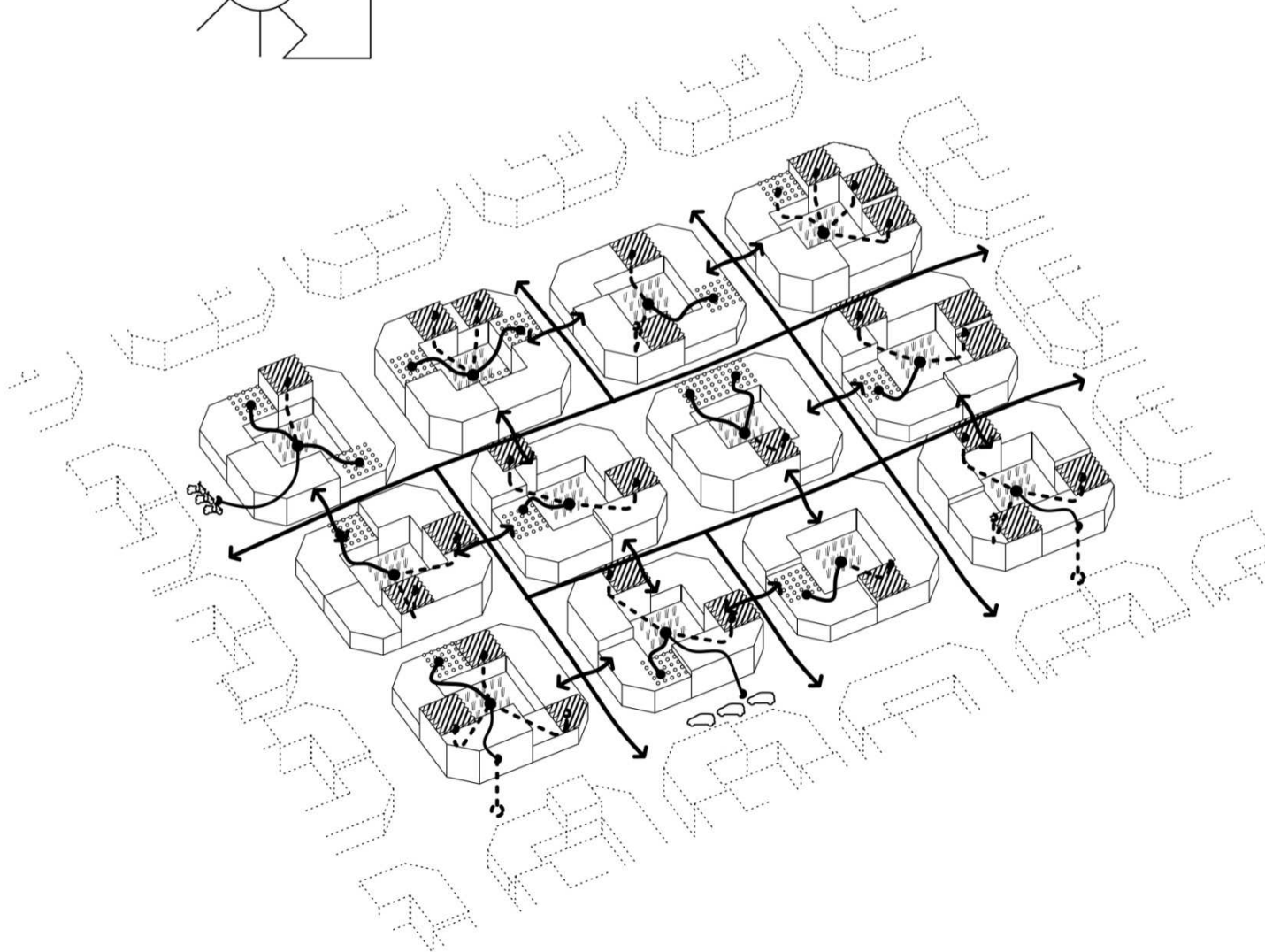
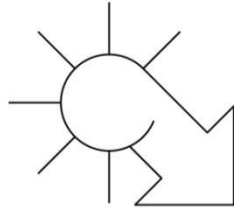


An aerial photograph of a city grid, overlaid with numerous small, colorful icons representing various urban functions and facilities. The icons are arranged in a grid-like pattern, corresponding to the city blocks. The icons include symbols for education (e.g., a graduation cap, a book), healthcare (e.g., a cross, a heart), recreation (e.g., a park bench, a tree), commerce (e.g., a shopping bag, a storefront), and other urban amenities. The map is color-coded, with different shades of green, yellow, and red used to highlight specific areas or functions.

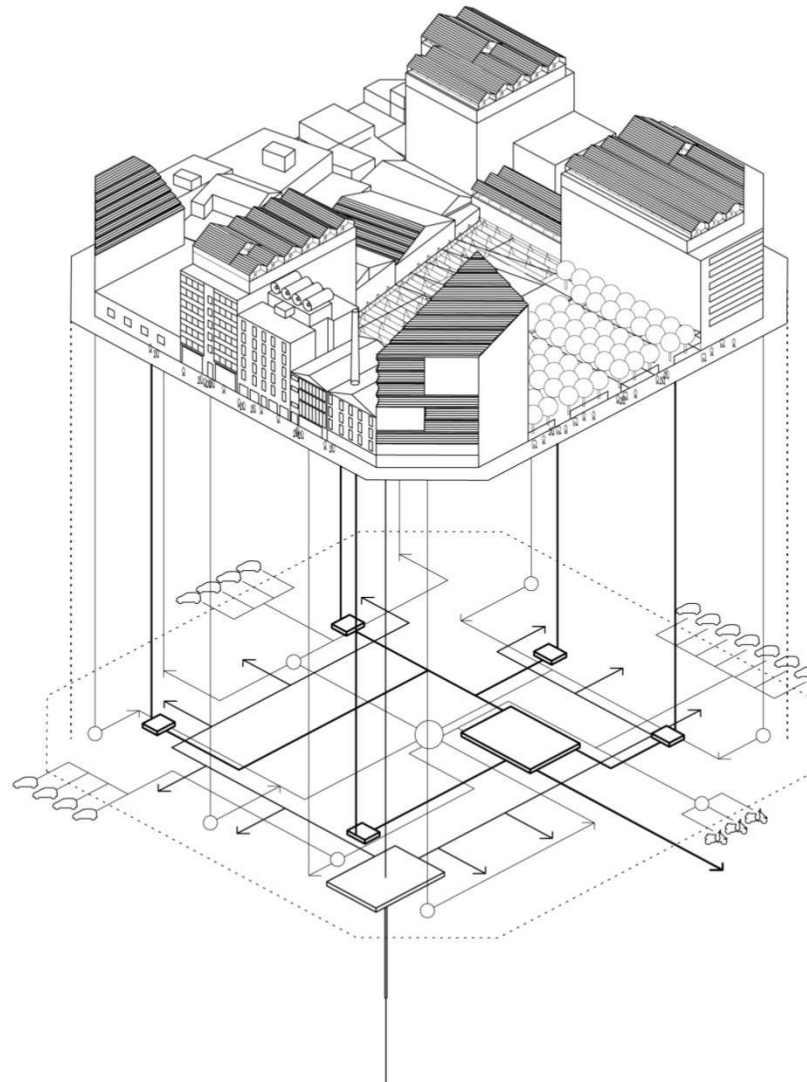
FROM CENTRALIZED ENERGY
PRODUCTION...



TO DISTRIBUTING ENERGY PRODUCTION



SELF-SUFFICIENT BLOCKS ENERGY WISE



SOLAR ROOF

MIXED USES

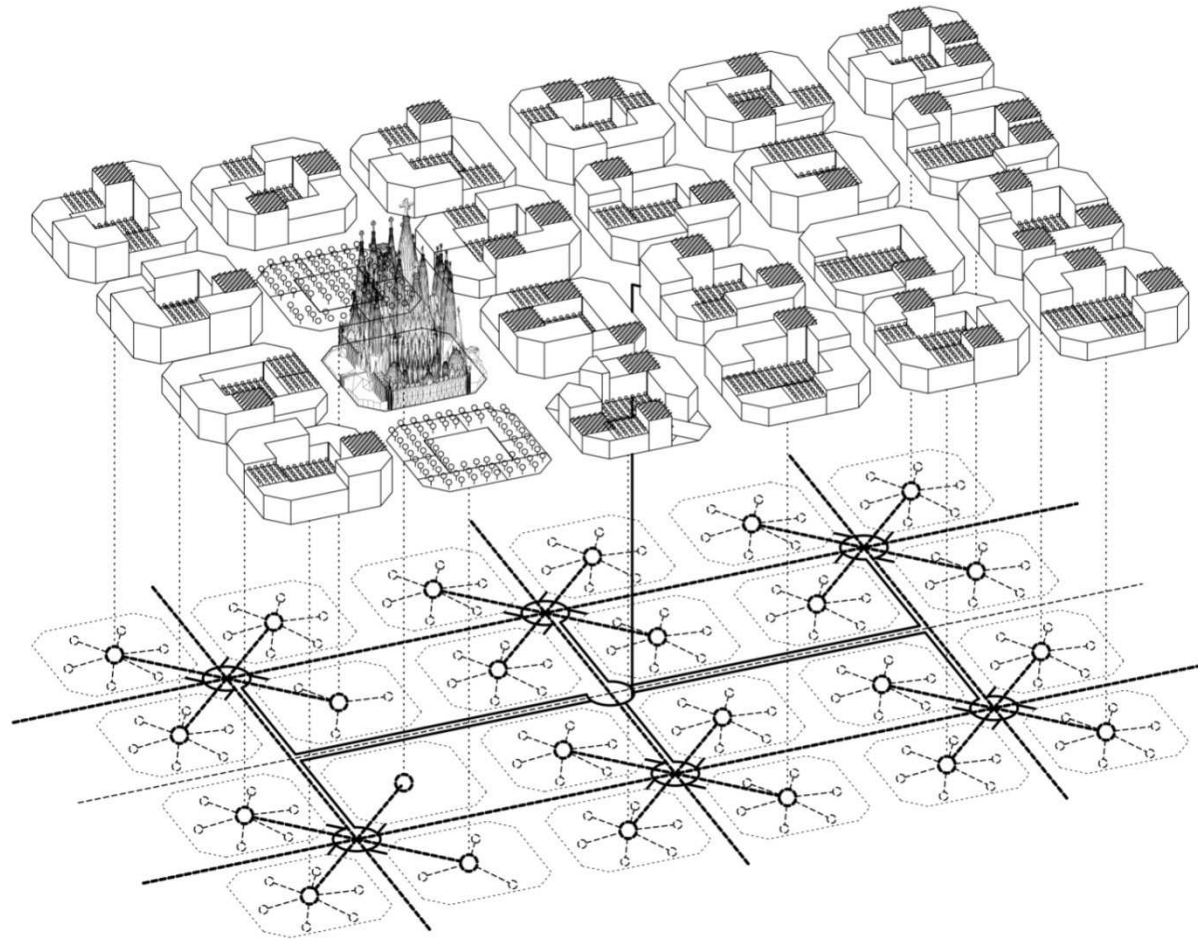
DISTRICT HEATING

WASTE RECYCLING

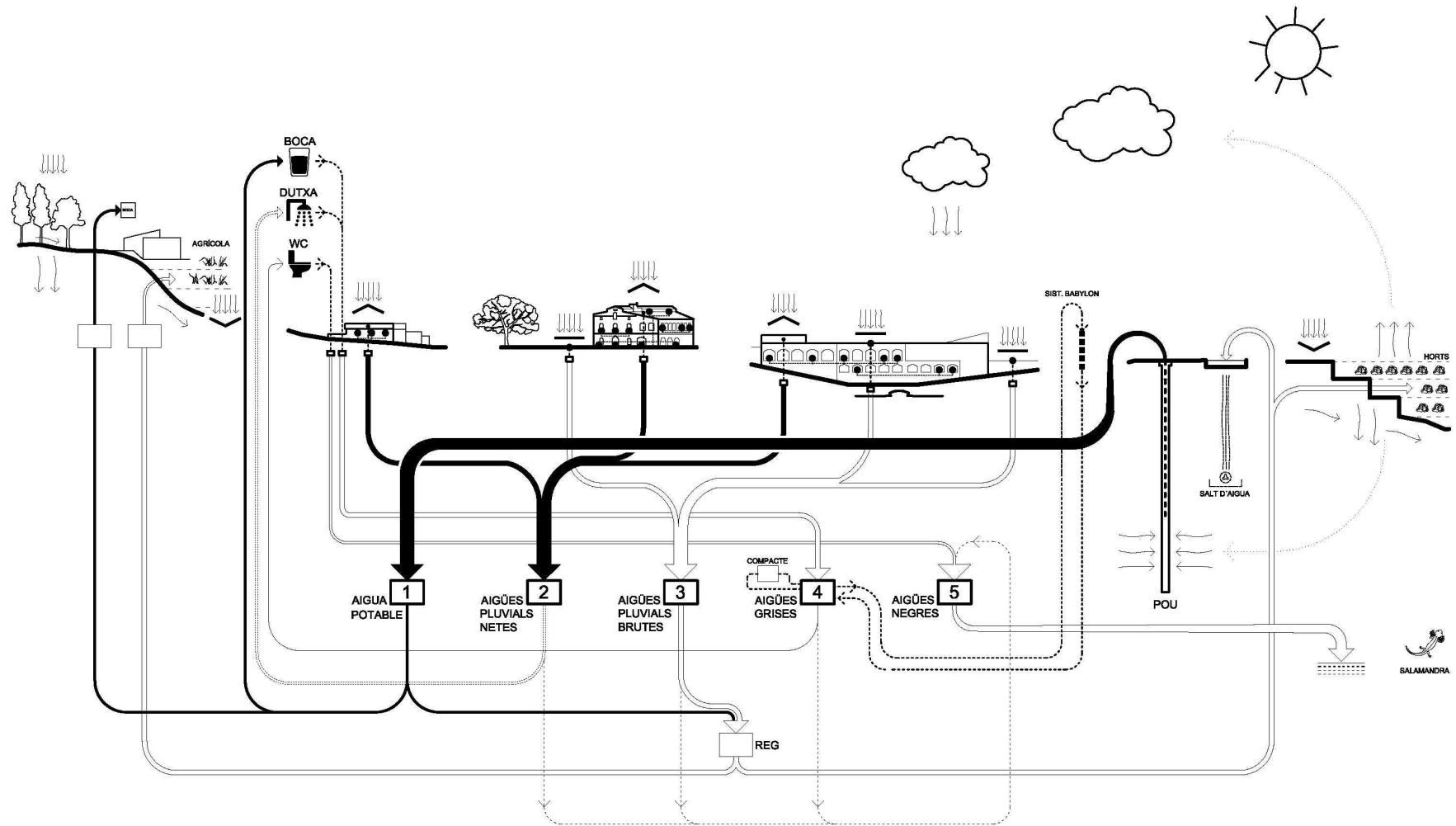
ELECTRIC CAR

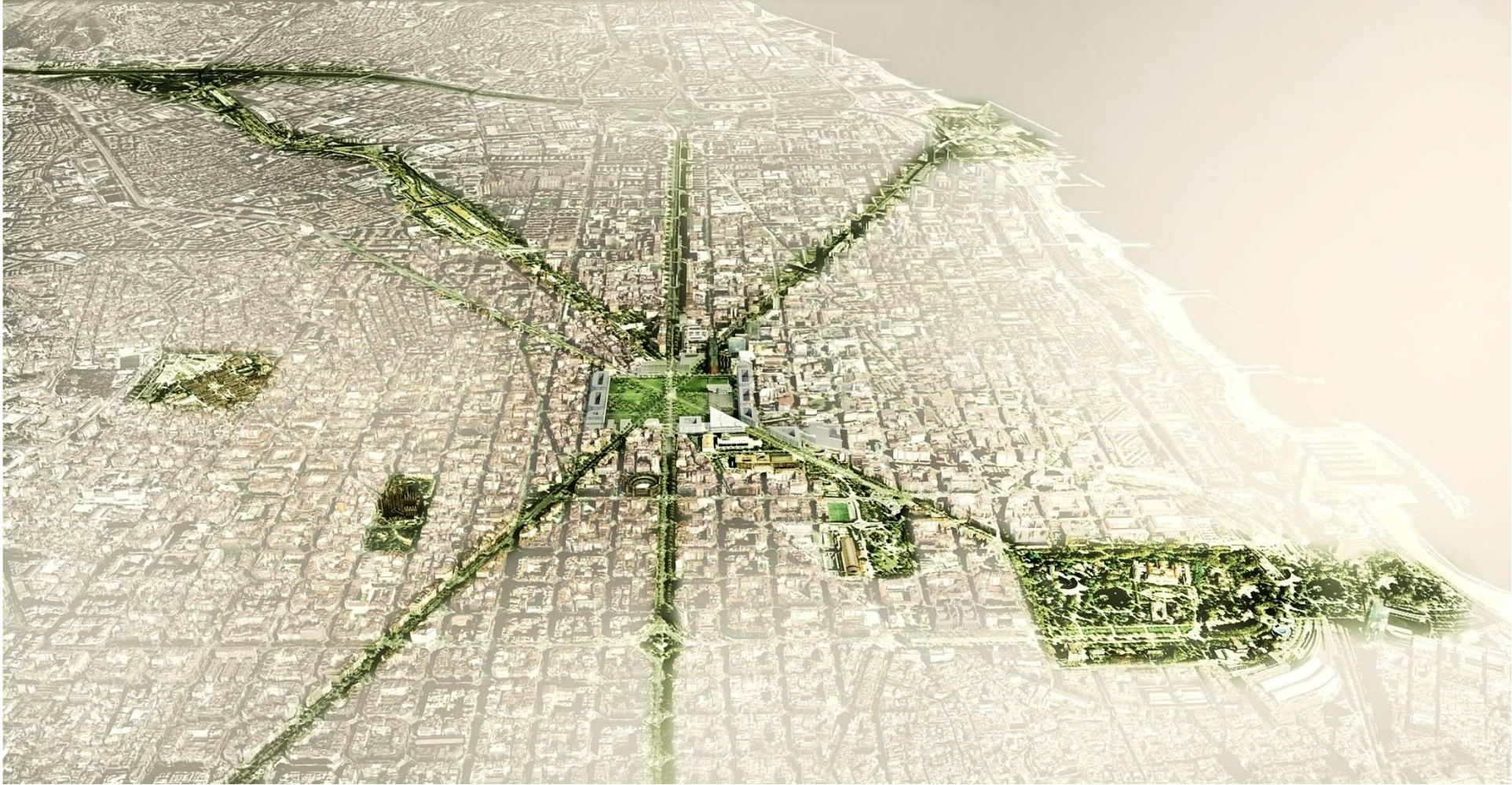
ELECTRIC BIKE

THE CITY AS A NETWORK OF NETWORKS

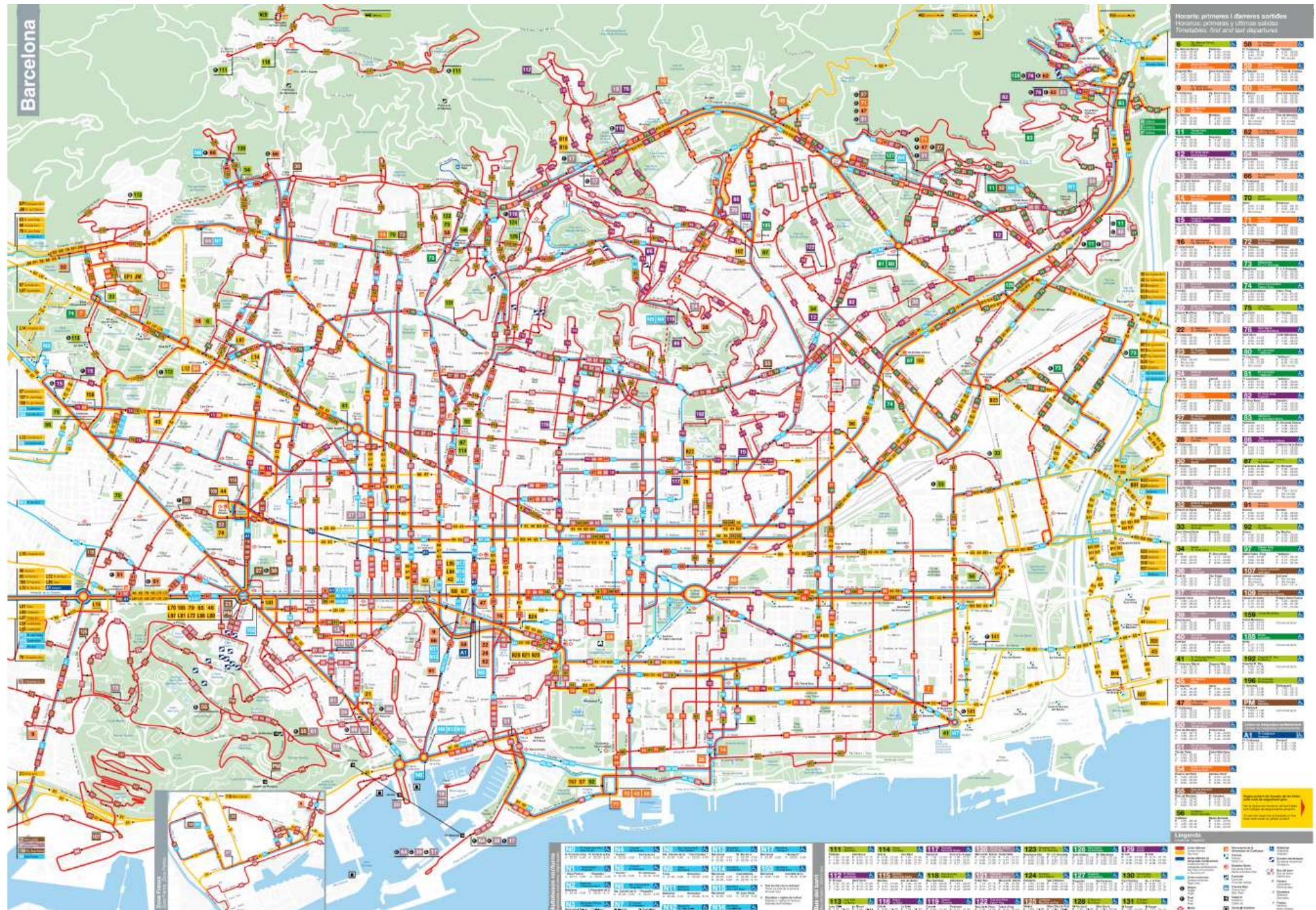


THE INTERNET OF WATER





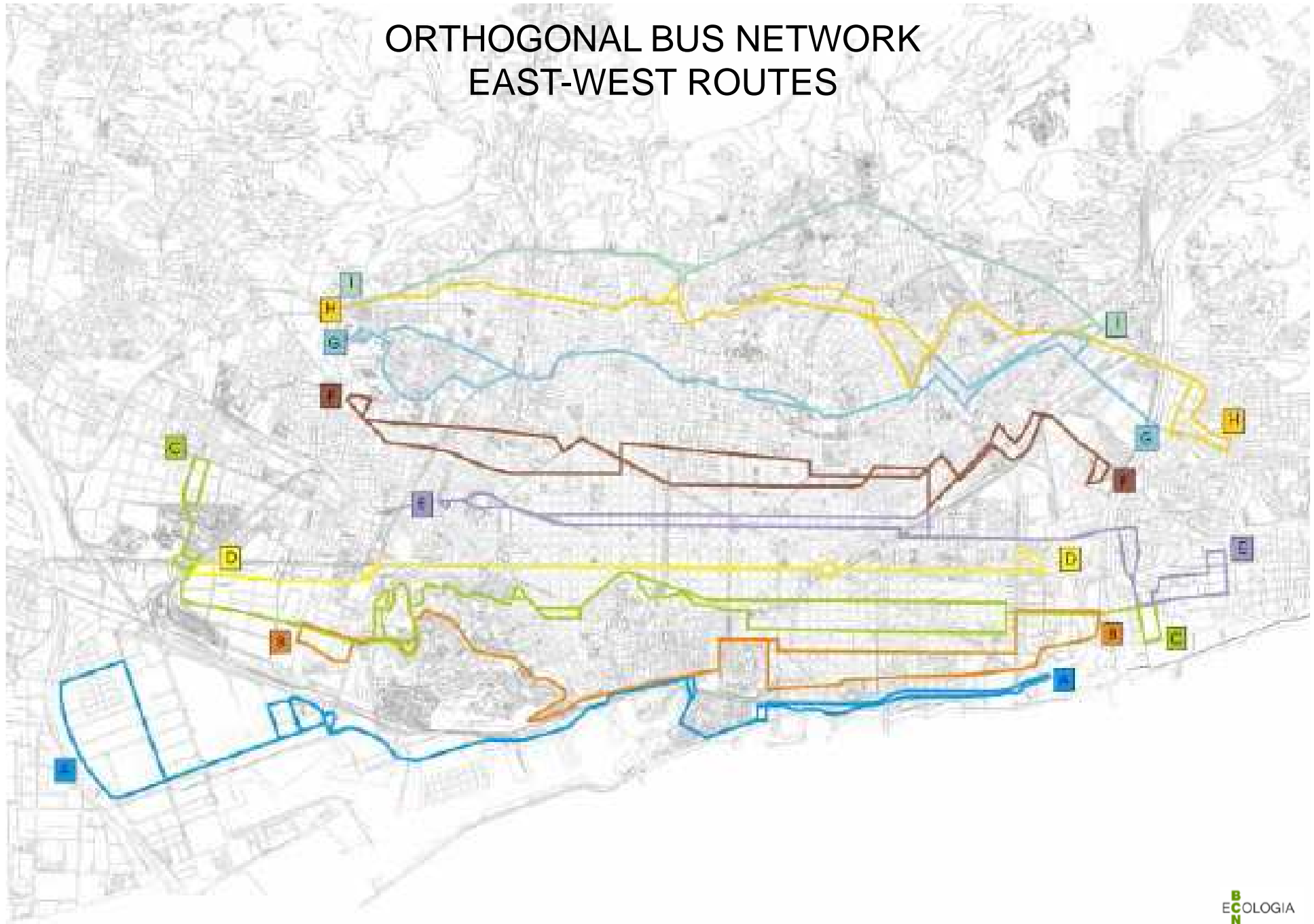
CURRENT BUS NETWORK



ORTHOGONAL BUS NETWORK NORTH-SOUTH ROUTES



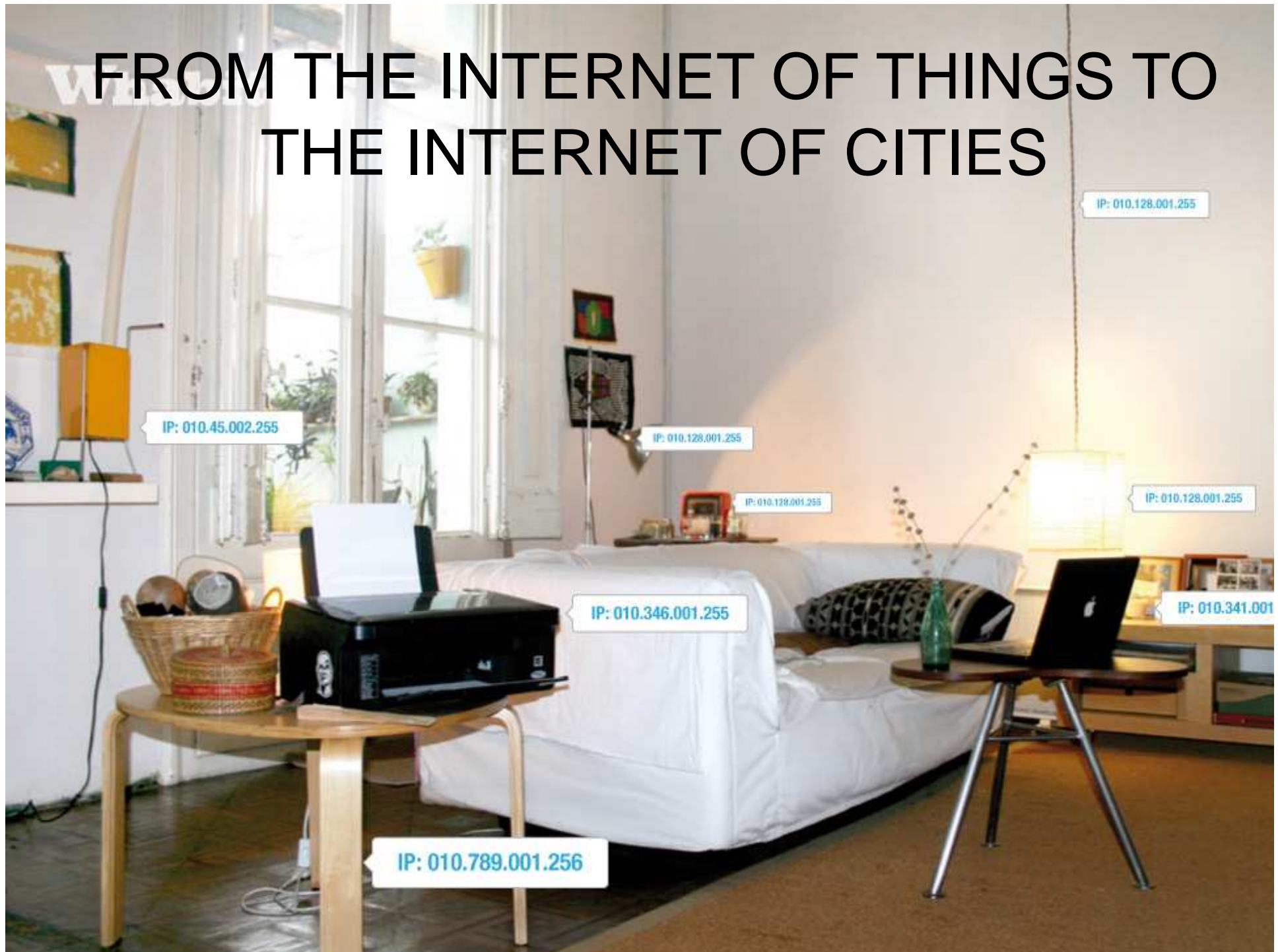
ORTHOGONAL BUS NETWORK EAST-WEST ROUTES



ORTHOGONAL BUS NETWORK



FROM THE INTERNET OF THINGS TO THE INTERNET OF CITIES



Whabit



EL SALÓN DE MARIA

3 BANQUETAS
1 LIBRO DE ARQUITECTURA
2 VINILOS DE MÚSICA CLÁSICA
1 REPRODUCTOR DVD



EL SALÓN DE JOAN

5 SILLAS
1 CAFETERA EXPRESSO
10 JARRAS DE CERVEZA



EL SALÓN DE PEDRO

15 VASOS DE LICOR
2 MESAS PEQUEÑAS
1 PANTALLA DE PROYECTOR



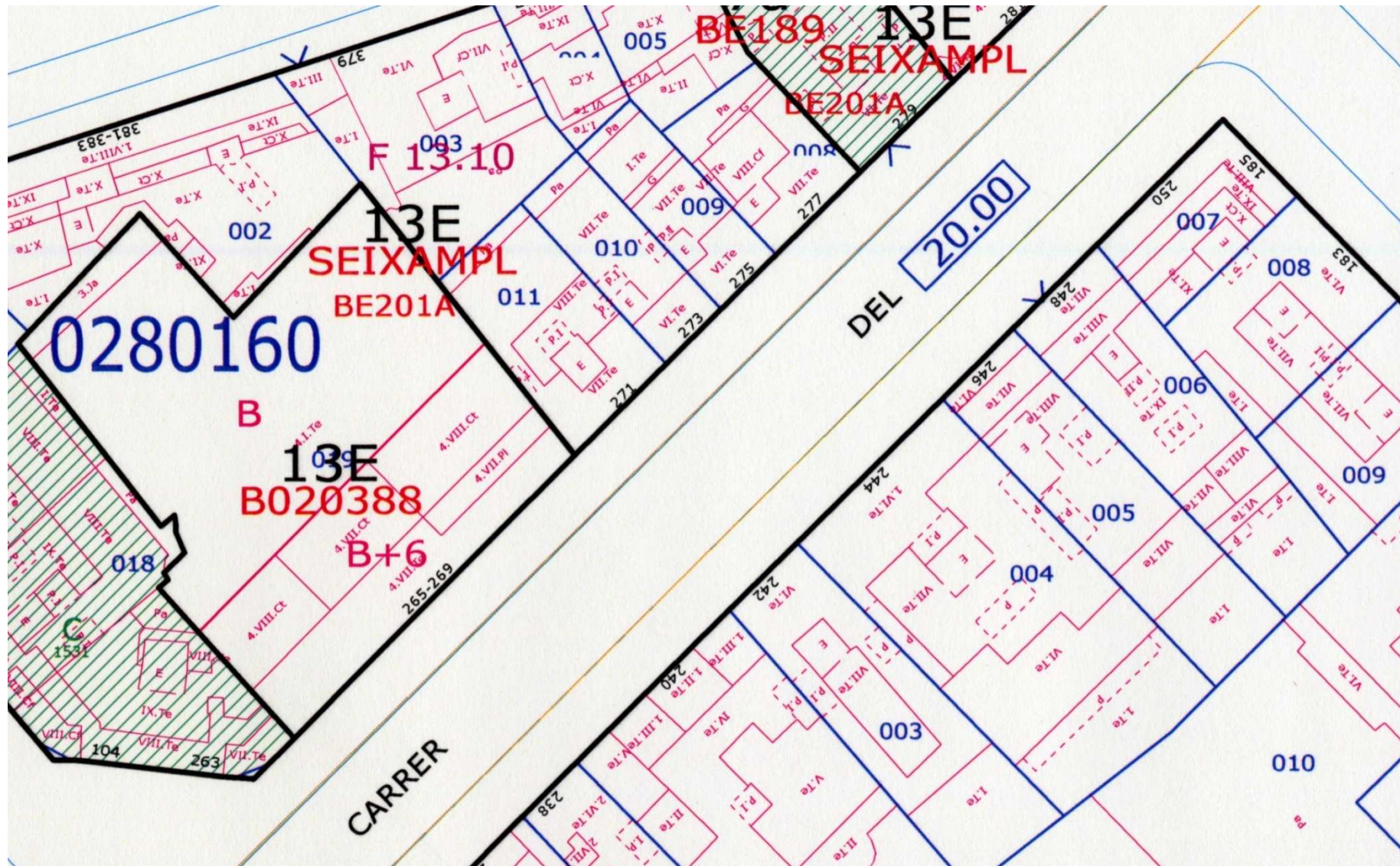
EL SALÓN DE PEDRO

2 MESAS DE 6 PERSONAS
15 COPAS DE VINO



Estás en el **Barrio de Guinardó**.
Tienes **783 objetos** en tu barrio.

URBANISM: CITY BASED IN THE DEFINITION OF FORM AND FUNCTIONS



URBAN METABOLISM: ADDING NEW PARAMETERS TO URBANISM

β ϵ l o^2 n $@$ r c α

Welfare

Energy

Logistics

Air

Nature

Information

Recycling City

Water

BARCELONA IS SMART



Ajuntament
de Barcelona

BARCELONA'S CHALLENGE

- ***WE WANT TO PROMOTE*** THE DEVELOPMENT OF THE “**CITY PROTOCOL**” (CP) AN OPEN PLATFORM IN PARTNERSHIP WITH OTHER CITIES AND ORGANIZATIONS IN ORDER TO CREATE A STANDARD WHICH IS SIMILAR TO INTERNET PROTOCOL (IP)
- ***CITIES MUST DEFINE AND BUY WHAT THEY NEED, AHEAD OF WHAT INDUSTRY OFFERS***



Leading rating systems compared:



Star Community Index: The new US framework intended to create a new standard for the whole country.

Green Star Communities: The national Australian community assessment framework

LEED-ND: USGBC's rating system for neighborhood design along principles of smart growth, urbanism and green building.

Green City Index: Siemens-led urban environmental impact study, with ratings completed by independent panel.

The Sustainable City Index: Britain's sustainability index, ranking British cities according to sustainability, with participation from GE.

BCN Ecologia: Indicator set to track progress towards the BCN-Ecologia urban sustainability model.

BCN Agenda 21: Assessment tool for tracking progress towards Barcelona's Agenda 21 commitments.

City of Santa Monica: Award-winning "sustainable city plan," produced and used in Santa Monica.

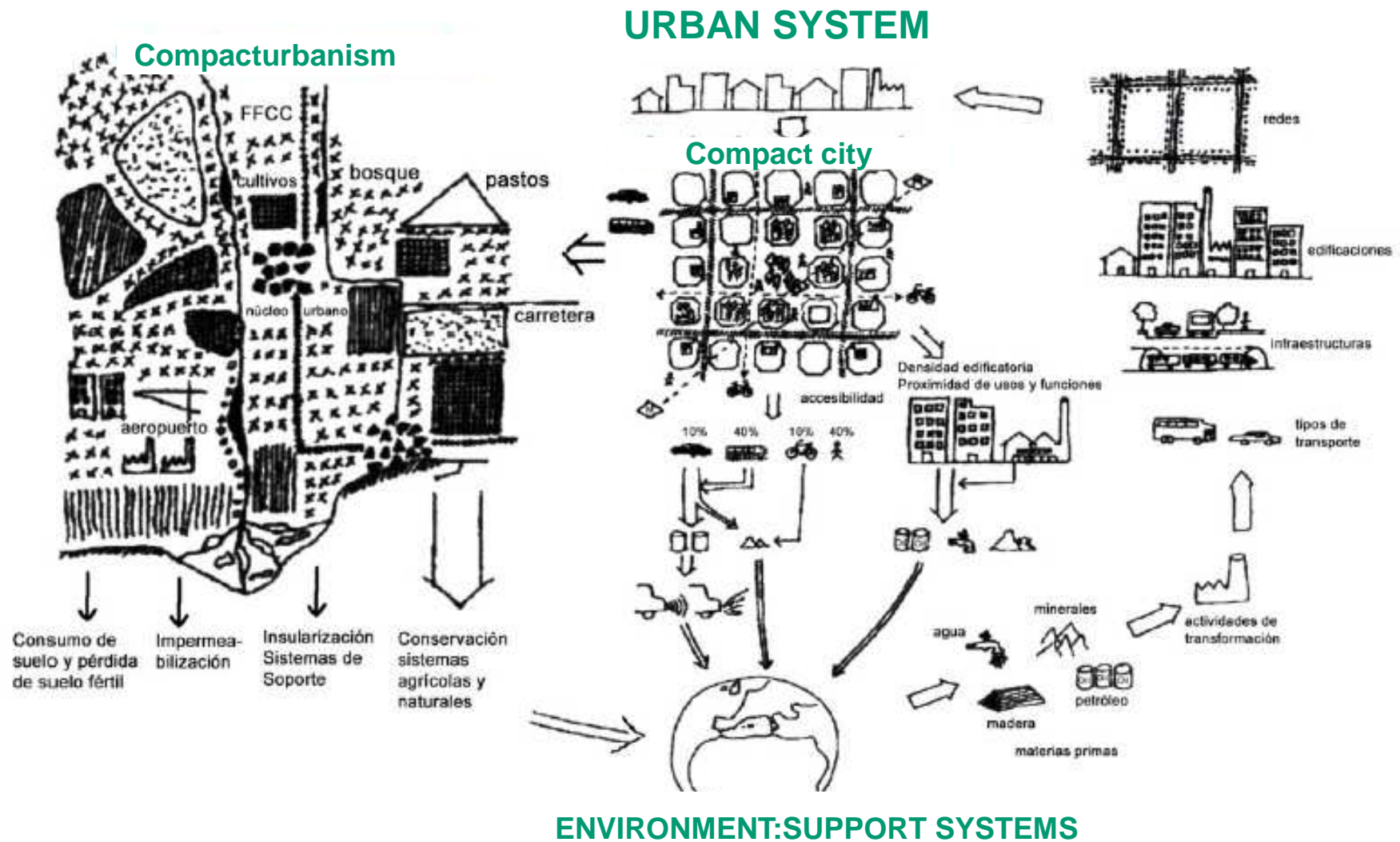
Masdar: Sustainability Action Plan used to measure progress toward sustainability goals for the project.

cittaslow: Framework for measuring progress toward increasing urban quality of life through Slow Movement goals. Example of specific goal-oriented framework.

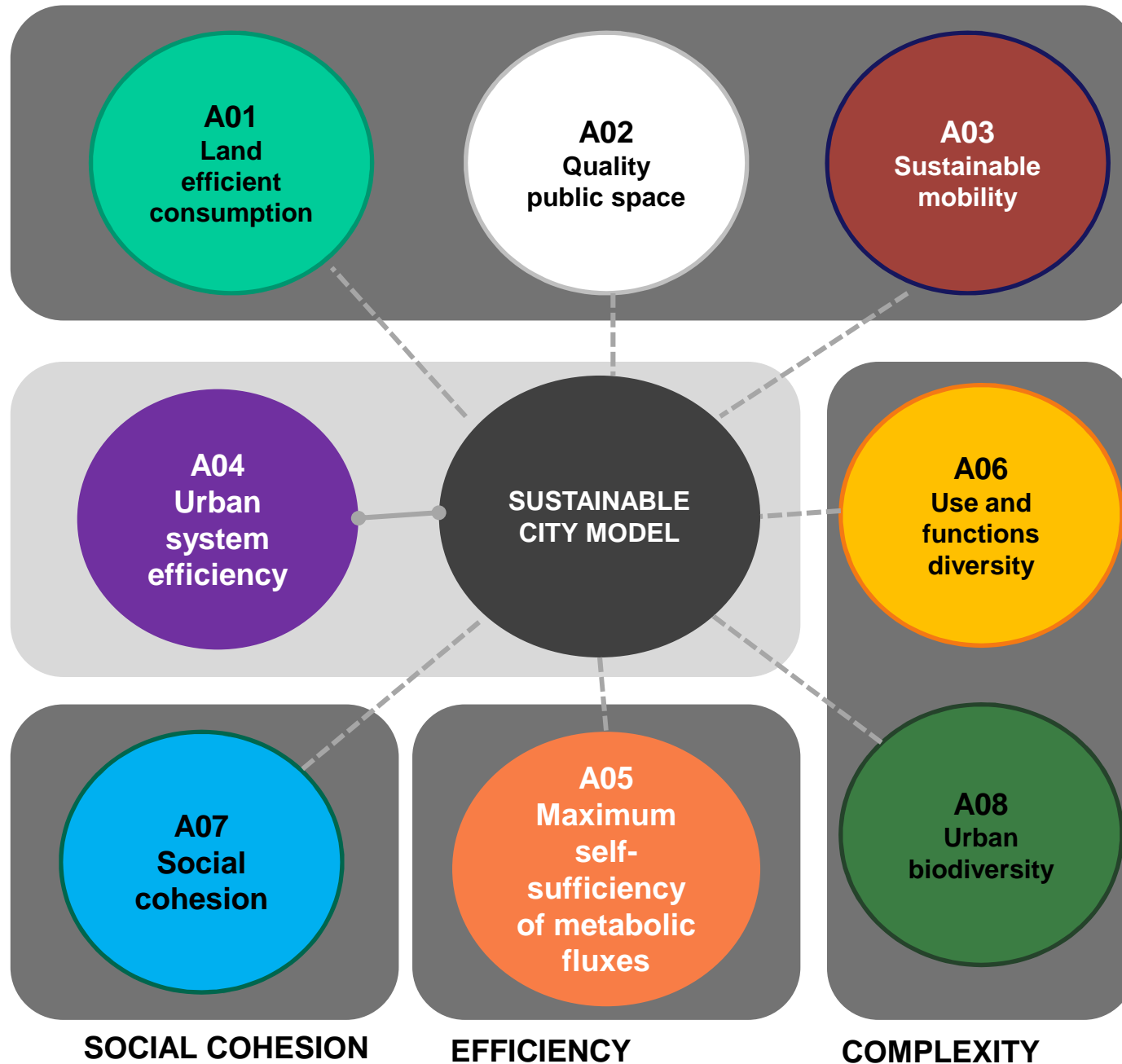
UN CSD Indicators: Official UN sustainable development indicator set from the Commission for Sustainable Development.

SUSTAINABLE TERRITORIAL MODEL

compact model of land occupation



CITY PROTOCOL FRAME (alfa version)

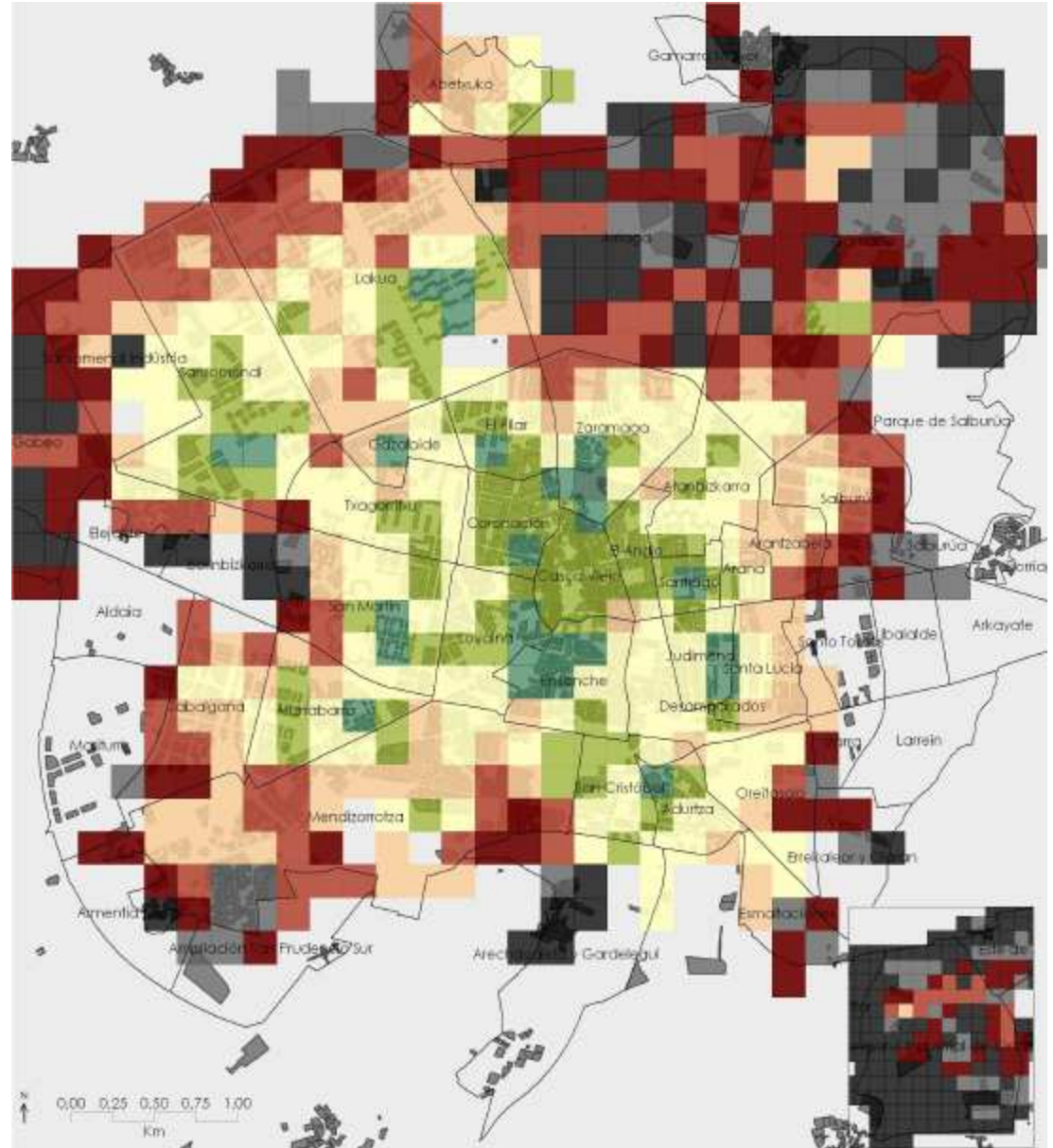
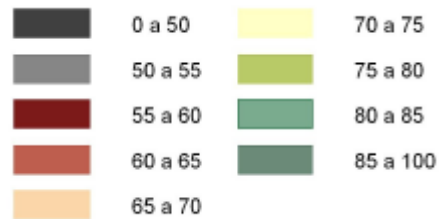


A02 PUBLIC SPACE AND HABITABILITY

RESULTS

Habitability index in the public space and basic services proximity


Global index	Requerimientos mínimos:		Resultado alcanzado
	CRITERIO	SUP.	SUP.
	Puntos	%	%
VITORIA-GASTEIZ	>75	50%	27%

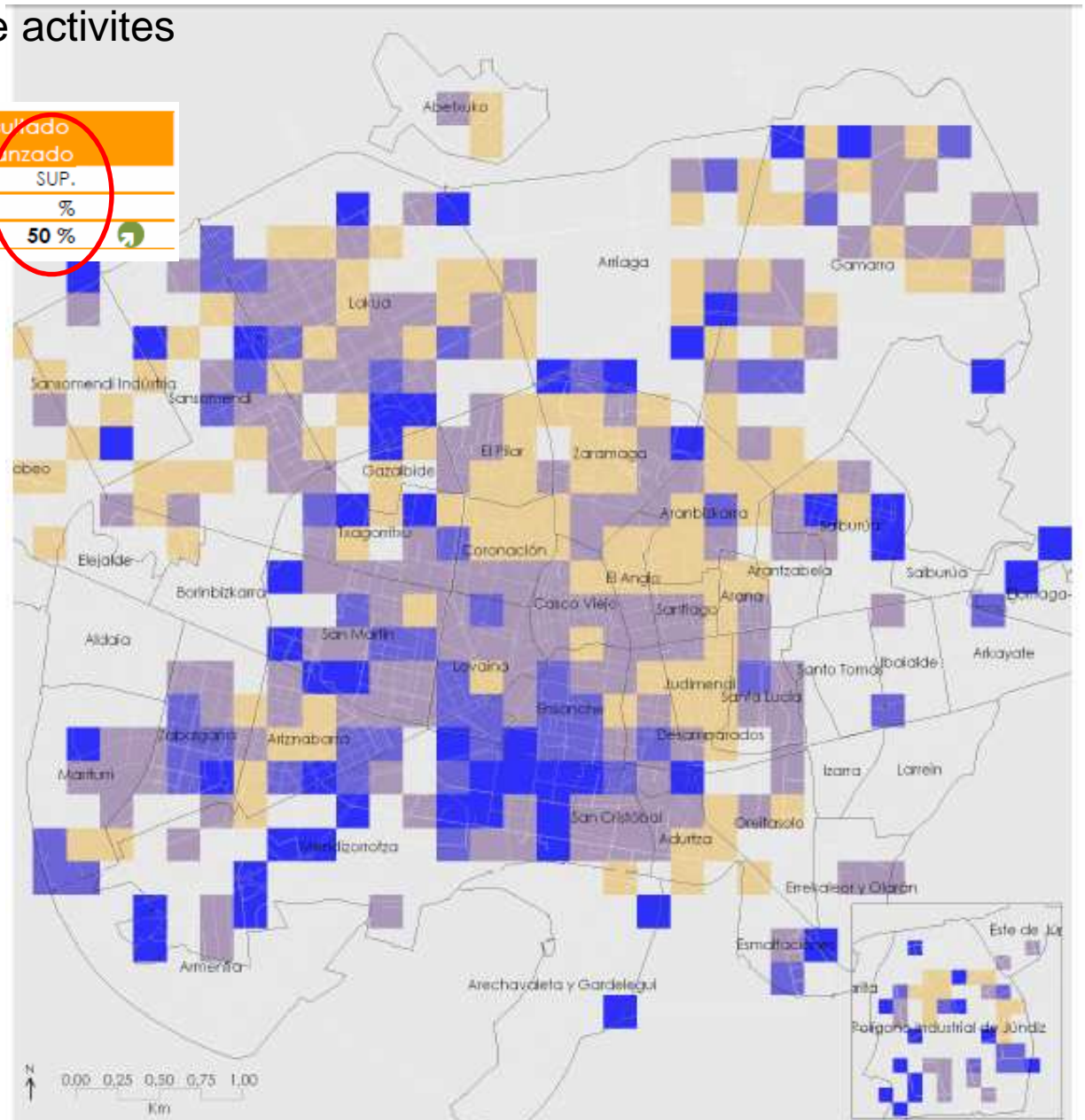
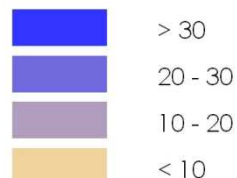


A04 URBAN COMPLEXITY

Objective: Diversity of uses and functions

Density of knowledge-intensive activities

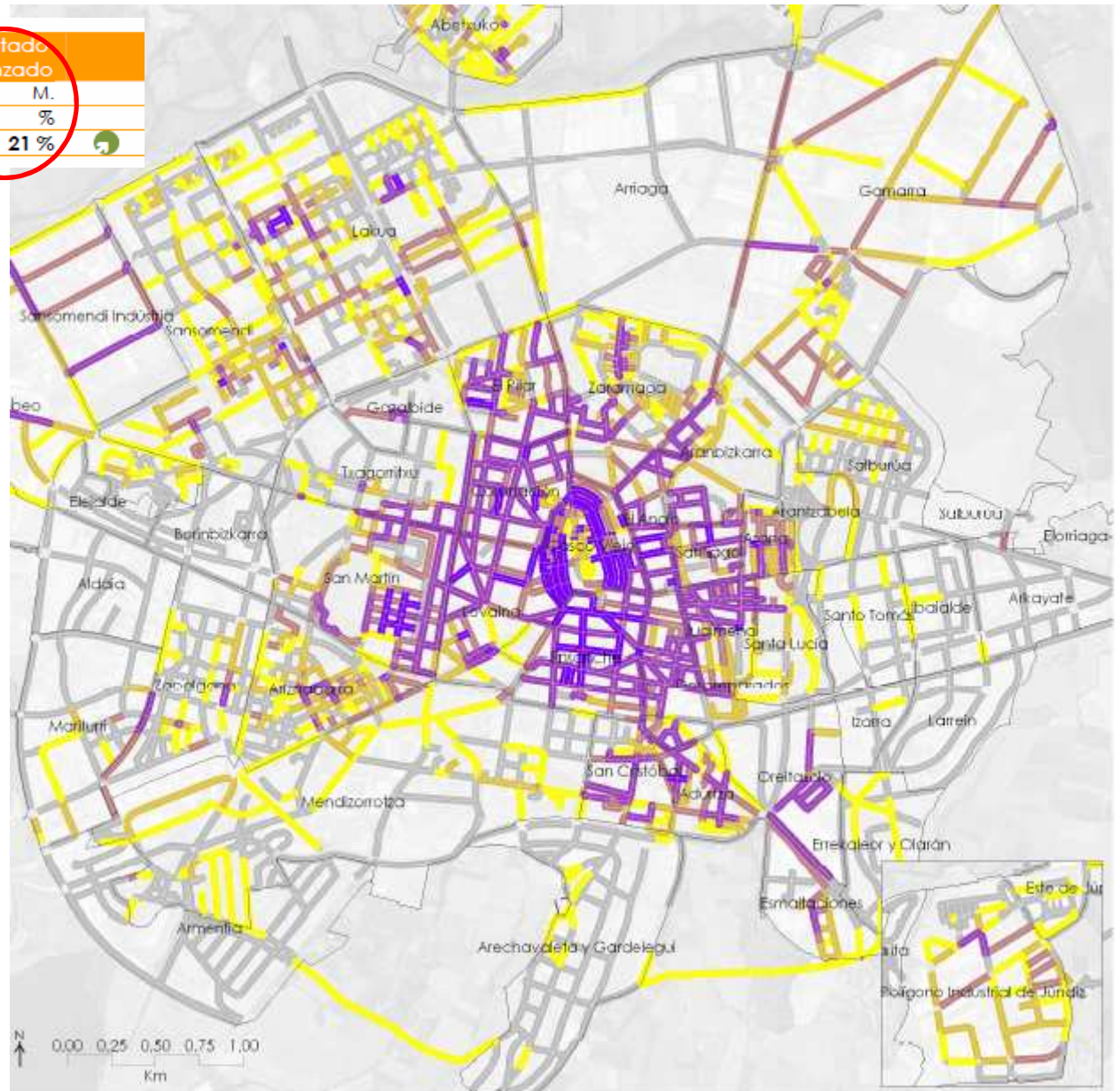
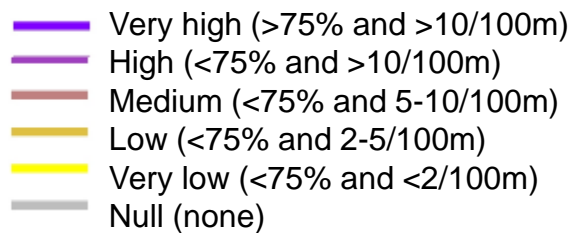
Global index	Requerimientos mínimos		Resultado alcanzado
	CRITERIO	SUP.	SUP.
	%.	%	%
VITORIA-GASTEIZ	>10%	50%	50 % 



A04 URBAN COMPLEXITY RESULTS

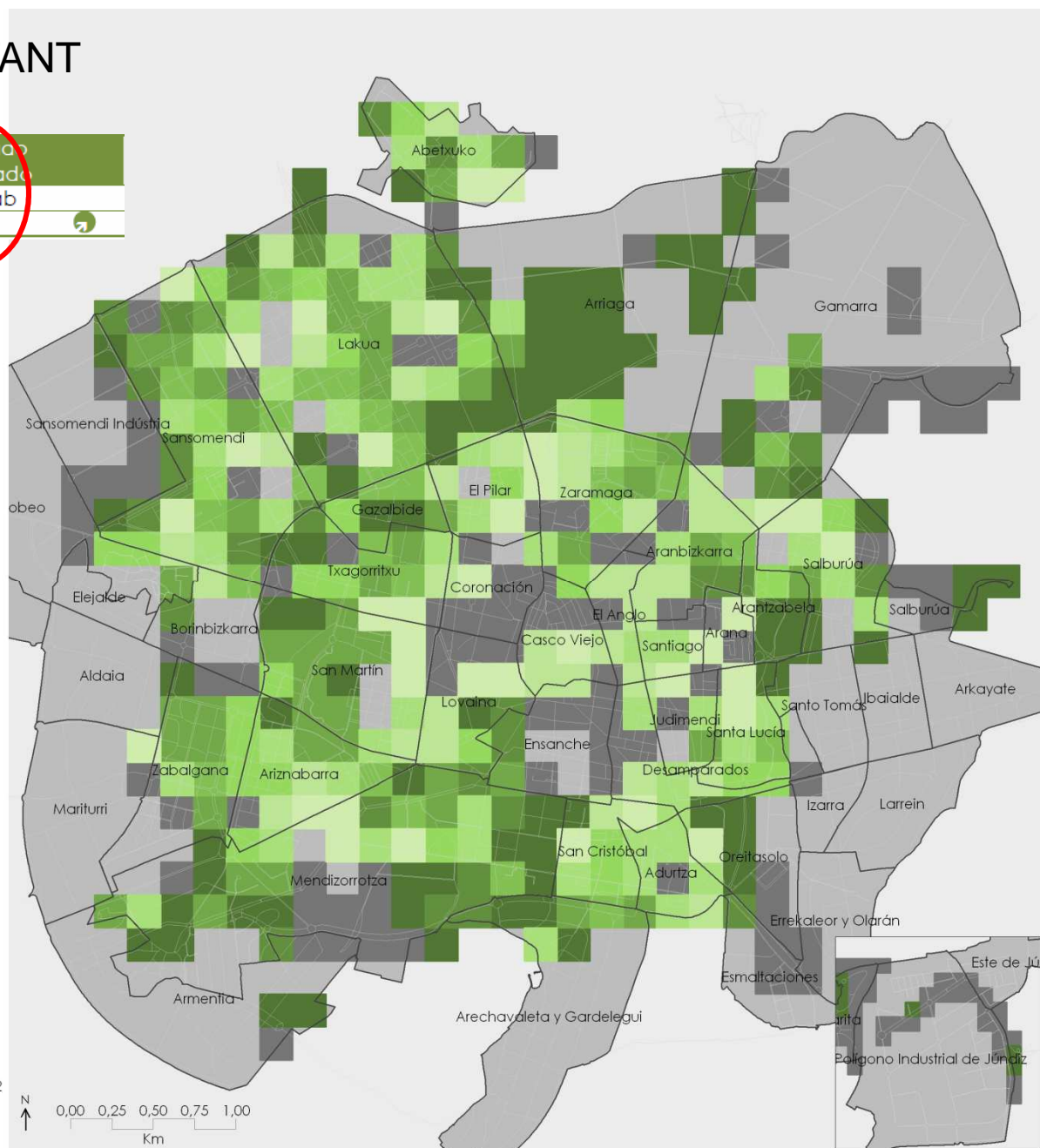
FUNCTIONAL AND SPATIAL CONTINUITY OF *CORREDOR ST*

Global index		Requerimientos mínimos	Resultado alcanzado
CRITERIO	M.	M.	
Interacción	%	%	
VITORIA-GASTEIZ	Alta	>20%	21 %



URBAN BIODIVERSITY RESULTS GREEN AREAS PER INHABITANT

Global index	Requerimientos mínimos m ² /hab	Resultado alcanzado m ² /hab
VITORIA-GASTEIZ	>10	14



Current scenario

Evaluation

Asignación de PUNTOS:		Resultados:			
10	Alcanza el objetivo deseable.	Ámbito	Puntos máximos	Puntos alcanzados	% alcanzado (sobre 100%)
7,5	Se acerca al objetivo deseable (-10%).	A1. Ocupación del suelo	20	0	0%
5	Alcanza el objetivo mínimo.	A2. Espacio público y habitabilidad	80	40	50%
2,5	Se acerca al objetivo mínimo (-10%).	A3. Movilidad y servicios	80	20	25%
0	No alcanza el objetivo mínimo.	A4. Complejidad urbana	50	20	40%
		A5. Metabolismo urbano	90	7,5	8,3%
		A6. Espacios verdes y biodiversidad	80	57,5	71,9%
		A7. Cohesión social	90	42,5	47,2%

■ EVALUACIÓN GLOBAL

Asignación de PESOS según ámbito y eje del modelo de sostenibilidad urbana:

		Peso del eje	Puntos máximos	Puntos alcanzados	% relativo alcanzado = (C (A/B))
	A1	25%	180	60	8,2 (sobre 25%)
	A2	25%	130	77,5	14,9 (sobre 25%)
	A3	25%	90	7,5	2,1 (sobre 25%)
	A4	25%	90	42,5	11,8 (sobre 25%)
			490		37,1% (sobre 100%)

■ CALIFICACIÓN GLOBAL

Asignación de LETRA:	Porcentaje alcanzado:	CALIFICACIÓN FINAL:
	37,1%	D

Future scenario: after recommendations and policies

Asignación de PUNTOS:

10

Alcanza el objetivo deseable.

7,5

Se acerca al objetivo deseable (-10%).

5

Alcanza el objetivo mínimo.

2,5

Se acerca al objetivo mínimo (-10%).

0

No alcanza el objetivo mínimo.

Resultados:

Ámbito	Puntos máximos	Puntos alcanzados	% alcanzado (sobre 100%)
A1. Ocupación del suelo	20	0	0%
A2. Espacio público y habitabilidad	80	60	75%
A3. Movilidad y servicios	80	55	68,8%
A4. Complejidad urbana	50	20	40%
A5. Metabolismo urbano	90	35	38,9%
A6. Espacios verdes y biodiversidad	80	60	75%
A7. Cohesión social	90	45	50%

■ EVALUACIÓN GLOBAL

Asignación de PESOS según ámbito y eje del modelo de sostenibilidad urbana:

	Peso del eje	Puntos máximos	Puntos alcanzados	% relativo alcanzado = (C (A/B))
A1	A	25%	180	122,5
A2	B	25%	130	75
A3	C	25%	90	35
A4	D	25%	90	45
A5	E		490	53,6% (sobre 100%)

■ CALIFICACIÓN GLOBAL

Asignación de LETRA:	Porcentaje alcanzado:	CALIFICACIÓN FINAL:
<div>A</div> 290% EXCELENTE <div>B</div> 70%-89% NOTABLE <div>C</div> 50%-49% SUFICIENTE <div>D</div> 25%-49% INSUFICIENTE <div>E</div> <25% MUY INSUFICIENTE	53,6%	C

CITY PROTOCOL INDICATORS PLAN

CITY PROTOCOL frame



City performance compared to indicators



After recommendations,
policies, projects

A01	A01 OCUPACIÓN DEL SUELO Objetivo: Consumo eficiente del suelo
A02	A02 ESPACIO PÚBLICO Y HABITABILIDAD Objetivo: Espacio público de calidad
A03	A03 MOVILIDAD Y SERVICIOS Objetivo: Movilidad sostenible
A04	A04 COMPLEJIDAD URBANA Objetivo: Diversidad de usos y funciones
A05	A05 METABOLISMO URBANO Objetivo: Máxima autosuficiencia de los flujos metabólicos
A06	A06 ESPACIOS VERDES Y BIODIVERSIDAD URBANA Objetivo: Aumento de la biodiversidad urbana
A07	A07 COHESIÓN SOCIAL Objetivo: Aumento de la cohesión social
A08	A08 FUNCIÓN GUÍA DE LA SOSTENIBILIDAD Objetivo: Eficiencia del sistema urbano

[illegible]

Asignación de PUNTOS:		Resultados:			
		Ámbito	Puntos máximos	Puntos alcanzados	% alcanzados (sobre 100%)
10	Alcanzar el objetivo máximo (100%).	A3. Ocupación del suelo	20	0	0%
7,5	Se acerca al objetivo máximo (75%).	A3. Espacios públicos y habitabilidad	20	0	0%
5	Alcanzar el objetivo mínimo (50%).	A3. Movilidad y servicios	80	20	25%
2,5	Se acerca al objetivo mínimo (25%).	A3. Complejidad urbana	80	20	40%
0	No se alcanza el objetivo mínimo (0%).	A3. Metabolismo urbano	90	7,5	8,33%
		Habitat	50	37,5	75%
		A6. Espacios verdes y biodiversidad	80	0	0%
		A7. Cohesión social	90	42,5	47,2%

■ EVALUACIÓN GLOBAL

Asignación de PESOS según ámbito y eje del modelo de sostenibilidad urbana:

A1	A2	A3	COMPACTADY FIRCONALIDAD
A4	A5		COMPLEJIDAD
A6			EFICIENCIA
A7			COESIÓN SOCIAL

Peso del eje	Puntos máximos	Puntos alcanzados	% relativo alcanzado
	A	G	G (A/B)
25%	180	60	8,3 (pobre 25%)
25%	120	77,5	14,9 (pobre 25%)
25%	90	7,5	2,1 (pobre 25%)
25%	90	42,5	11,8 (pobre 25%)
490			37,1% (pobre 100%)

■ CALIFICACIÓN GLOBAL


Asignación de LETRA:	Porcentaje alcanzado:	CALIFICACIÓN FINAL:
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37,1%

Asignación de PUNTOS:		Resultados:			
		Ámbito	Puntos máximos	Puntos alcanzados	% alcanzado (sobre 100%)
10	Alcanzar el objetivo deseado.	A1. Ocupación del suelo	20	0	0%
7,5	Se acerca al objetivo deseado (>10%).	A2. Espacio público y habitabilidad	80	40	75%
5	Alcanzar el objetivo mínimo.	A3. Movilidad y servicios	80	55	48,8%
2,5	Se acerca al objetivo mínimo (>10%).	A4. Complejidad urbana	50	20	40%
0	No alcanzar el objetivo mínimo.	A5. Metabolismo urbano	90	35	38,9%
		A6. Espacios verdes y biodiversidad	80	40	75%
		A7. Cohesión social	90	45	50%

■ EVALUACIÓN GLOBAL

Asignación de PESOS según ámbito y eje del modelo de sostenibilidad urbana:

	COMPACTIDAD Y FUNCIONALIDAD	25%	180	122,5	16 (sobre 25%)
	COMPLEJIDAD	25%	120	75	15,4 (sobre 25%)
	EFICIENCIA	25%	90	35	9,7 (sobre 25%)
	COHERENCIA SOCIAL	25%	90	45	12,5 (sobre 25%)
				490	53,4% (sobre 100%)

■ CALIFICACIÓN GLOBAL

Asignación de LETRA:	Porcentaje alcanzado:	CALIFICACIÓN FINAL:
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A	290%	EXCELENTE
B	70%-69%	NOTABLE
C	50%-49%	SUFICIENTE
D	25%-49%	INSUFICIENTE
E	<25%	MUY INSUFICIENTE

53,6%

C



