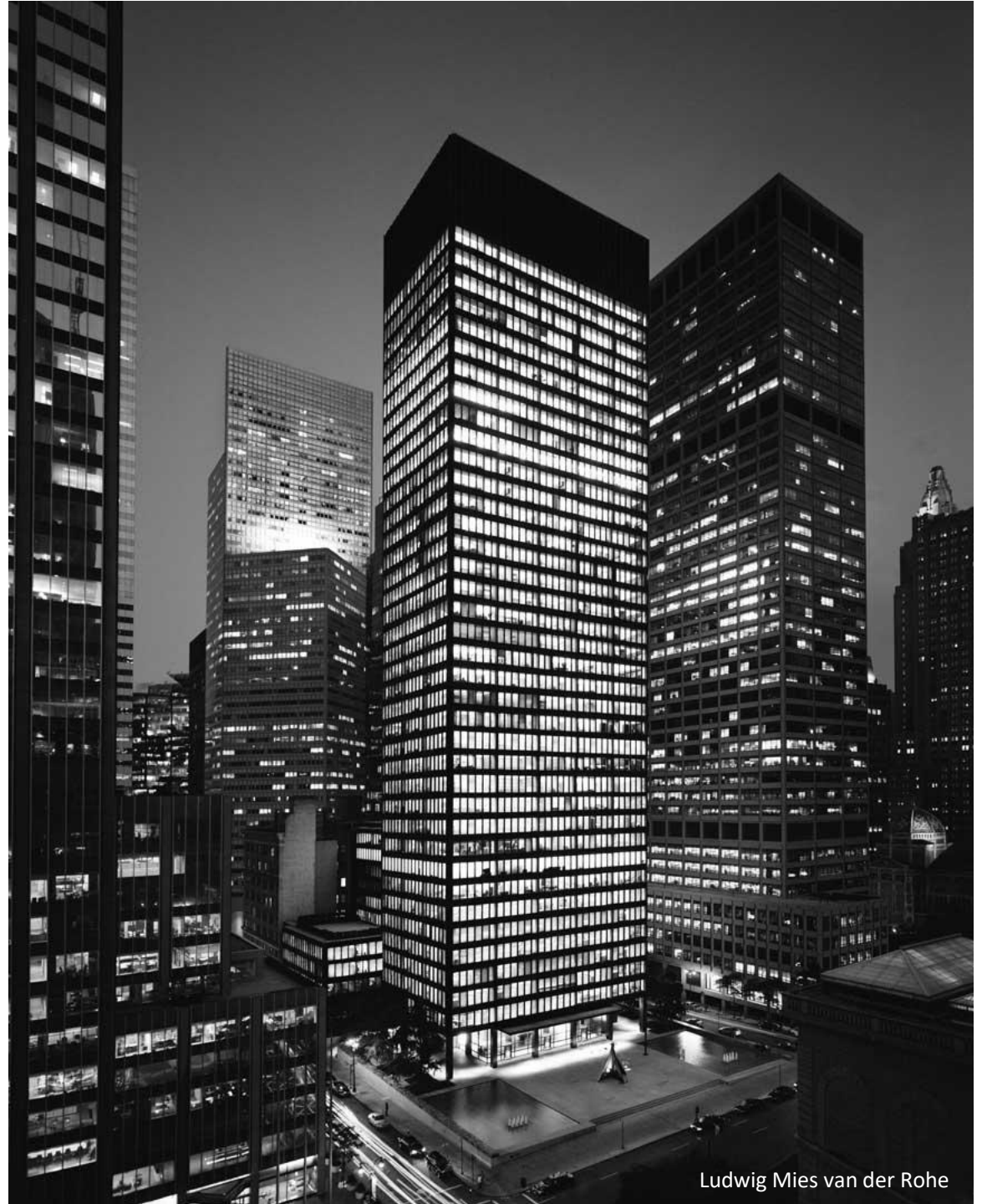


PARAMETRICISMO



1211-1275



1954-1958

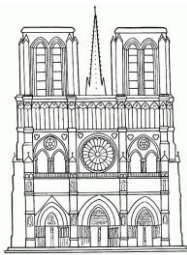
Ludwig Mies van der Rohe

## **PARAMETRICISMO**

Estilo de vanguardia soportado en el uso intensivo del diseño paramétrico



ROMANICO

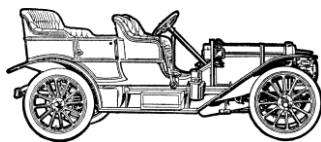
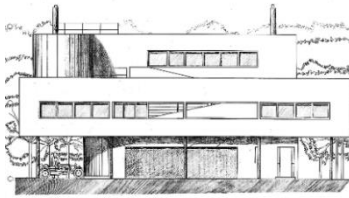


BAROCO  
NEOCLASICO  
MODERNISMO  
ART DECO



E MODERNO

1929



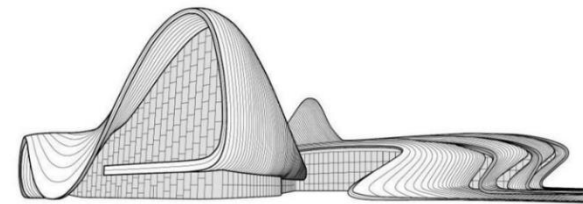
FORDISMO

FUNCIONALISMO  
ORGANICISMO  
RACIONALISMO  
BRUTALISMO  
METABOLISMO  
HIGH TECH

POSTFORDISMO

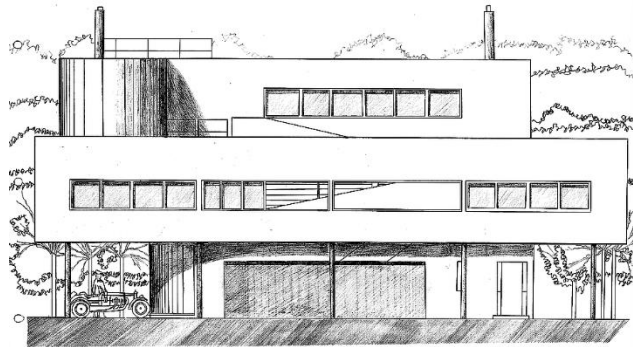
PARAMETRICISMO

POSTMODERNISMO  
DECONSTRUCTIVISMO



Centro Heydar Aliyev





1929

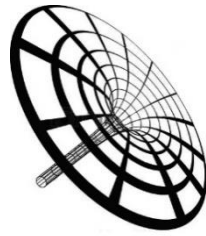


1887 - 1965

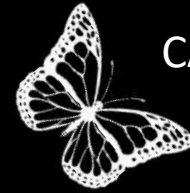




Newton  
Leyes del movimiento



Einstein  
Teoría general de la Relatividad



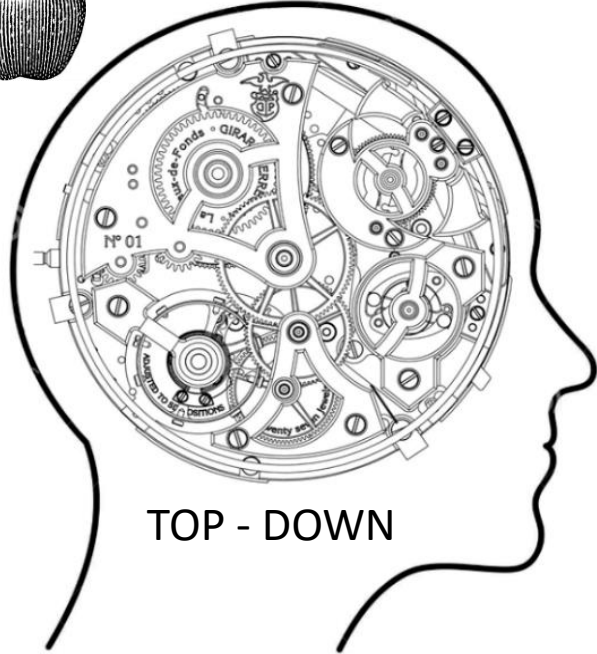
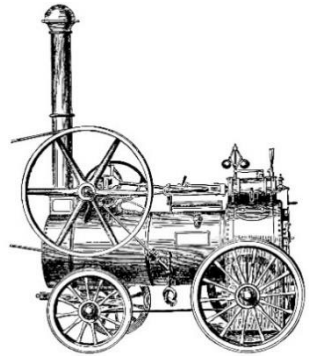
CAOS



Entrelazamiento  
Incertidumbre  
Exp 2R



Niels Bohr  
Física cuántica



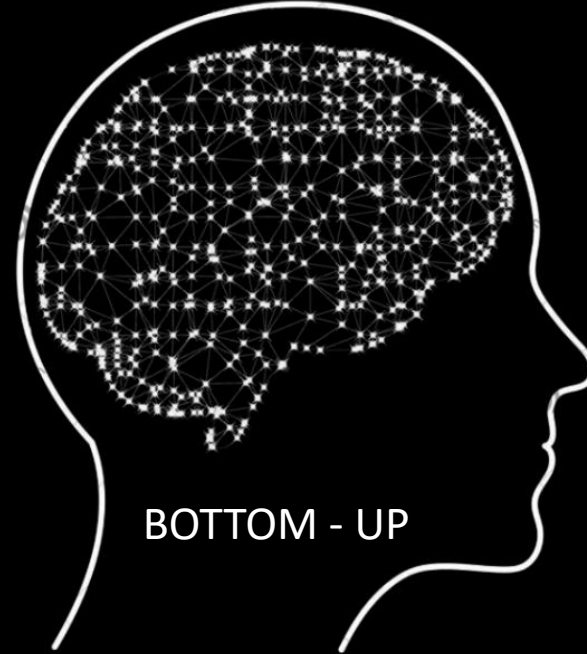
TOP - DOWN



Darwin



ADN



BOTTOM - UP



CERTEZA      INCERTIDUMBRE

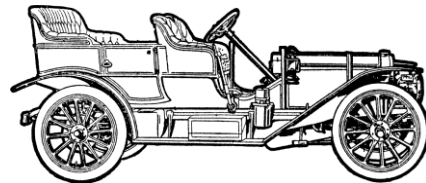
FORDISMO      POST FORDISMO



John Maynard Keynes  
Economía controlada



MARX



LUHMANN



Friedrich Hayek  
Economía = Impredecible

**FORDISMO 1930 – 1970**

**POSTFORDISMO 1970 - ACTUALIDAD**



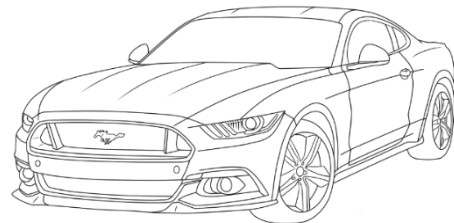
## FORDISMO 1930 – 1970

Un conjunto de estrategias económicas, políticas y sociales orientadas a la producción **estandarizada** de productos en masa. (Clase media)

### PRINCIPIOS:

1. Estandarización.
2. Simplificación de las habilidades para desarrollar una labor.
3. Supervisión centralizada
4. Localización de capital en ubicaciones específicas - aglomeración de negocios

ESTANDARIZACION  
REPETICION  
HOMOGENIZACION  
MODULACION  
CENTRALIZACION  
TOP - DOWN



MODERNO

## POSTFORDISMO 1970 - ACTUALIDAD

### Crisis en el Fordismo. CAUSAS:

- La crisis del petróleo de los 70`S
- Incremento de la competencia global.
- Revolución informática y comunicaciones

### PRINCIPIOS:

1. Remoción de la supervisión.
2. Inventario limitado.
3. Producción "Just in time"
4. Consumo global
5. Producción de bienes y servicios por segmentos especializados y personalización.
6. Revolución digital e internet / interconectividad global.
7. Democratización de las herramientas de comunicación y producción.

AUTOMATIZACION  
PERSONALIZACION  
INTERCOMUNICACION  
DESEMPEÑO  
DESCENTRALIZACION  
BOTTOM - UP



POST M - PARAMETRICISMO

How megacities are changing the map of the world



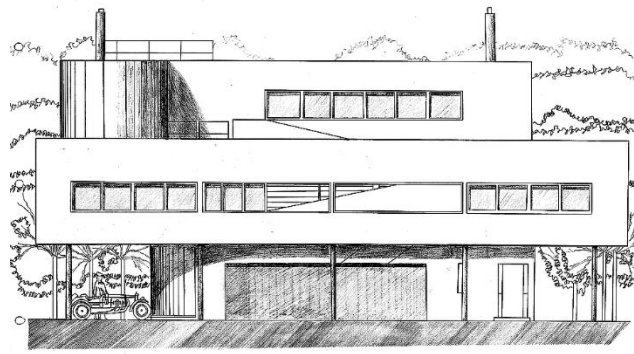
INTERNET = ONE  
MACHINE

2040  
The Web will exceed  
humanity in  
processing power

Kevyn Kelly. TED. 2007

SOCIEDAD POSTFORDISTA

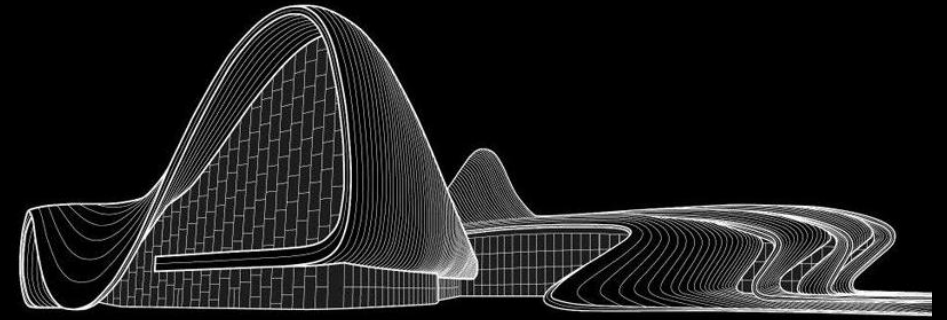
Ai



LA MAQUINA  
"Less is more"  
Simplicity

ESTANDARIZACION  
REPETICION  
HOMOGENIZACION  
MODULACION  
CONTROL CENTRALIZADO  
TOP - DOWN

1887 - 1965



LA COMUNICACION  
+ Complexity

AUTOMATIZACION  
PERSONALIZACION  
INTERCOMUNICACION  
DESCENTRALIZACION  
DESEMPEÑO  
CONTROL DESCENTRALIZADO  
BOTTOM - UP

1950 - 2016

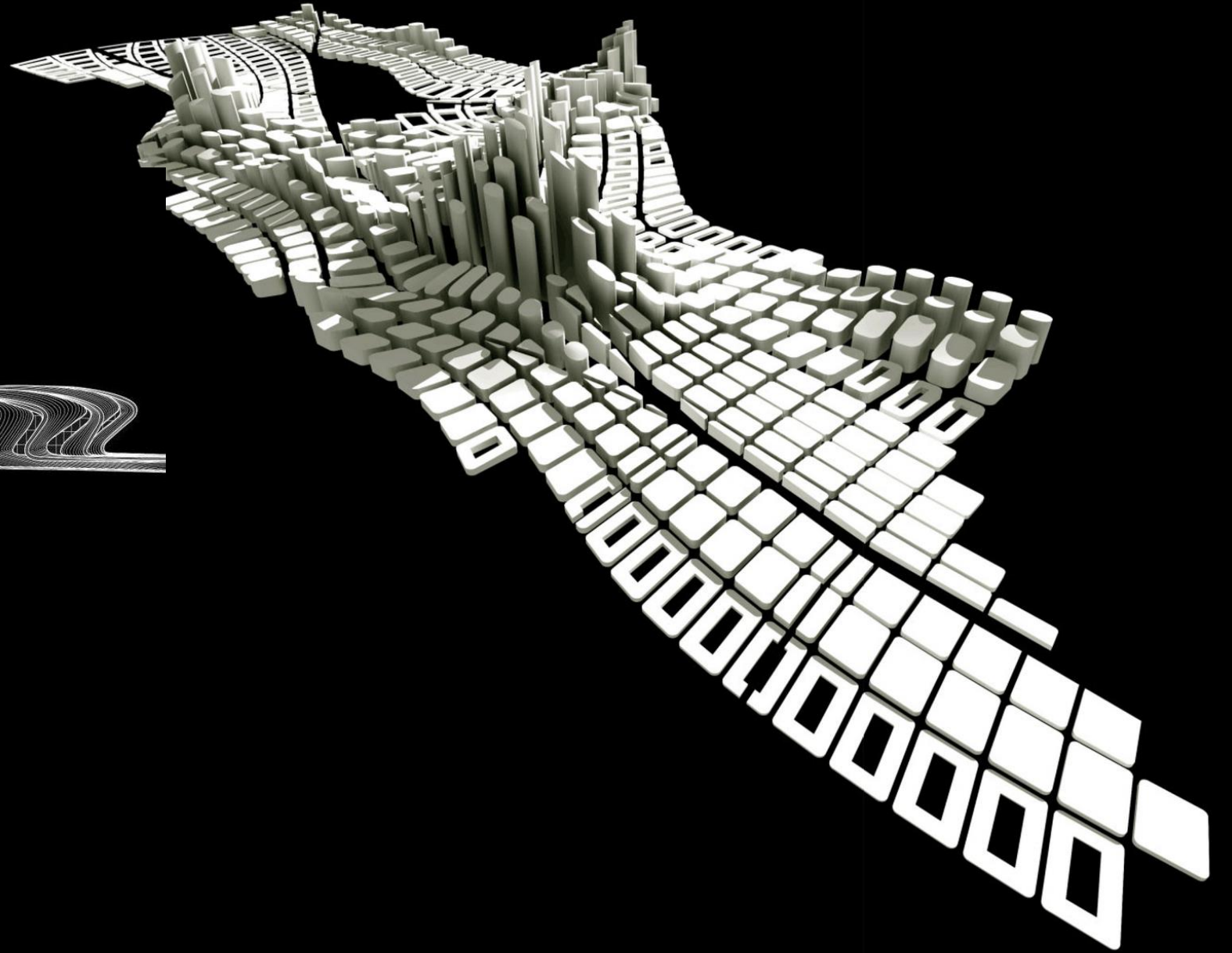
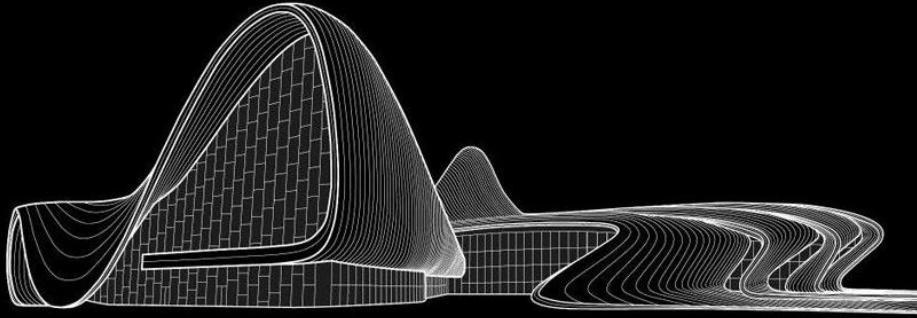


ARQUITECTURA

URBANISMO

DISEÑO INTERIOR

DISEÑO DE PRODUCTO



“¿Si una casa fue una vez una máquina para habitar, puede la ciudad de hoy ser un iPhone?” Helen Castle AD. Digital Cities

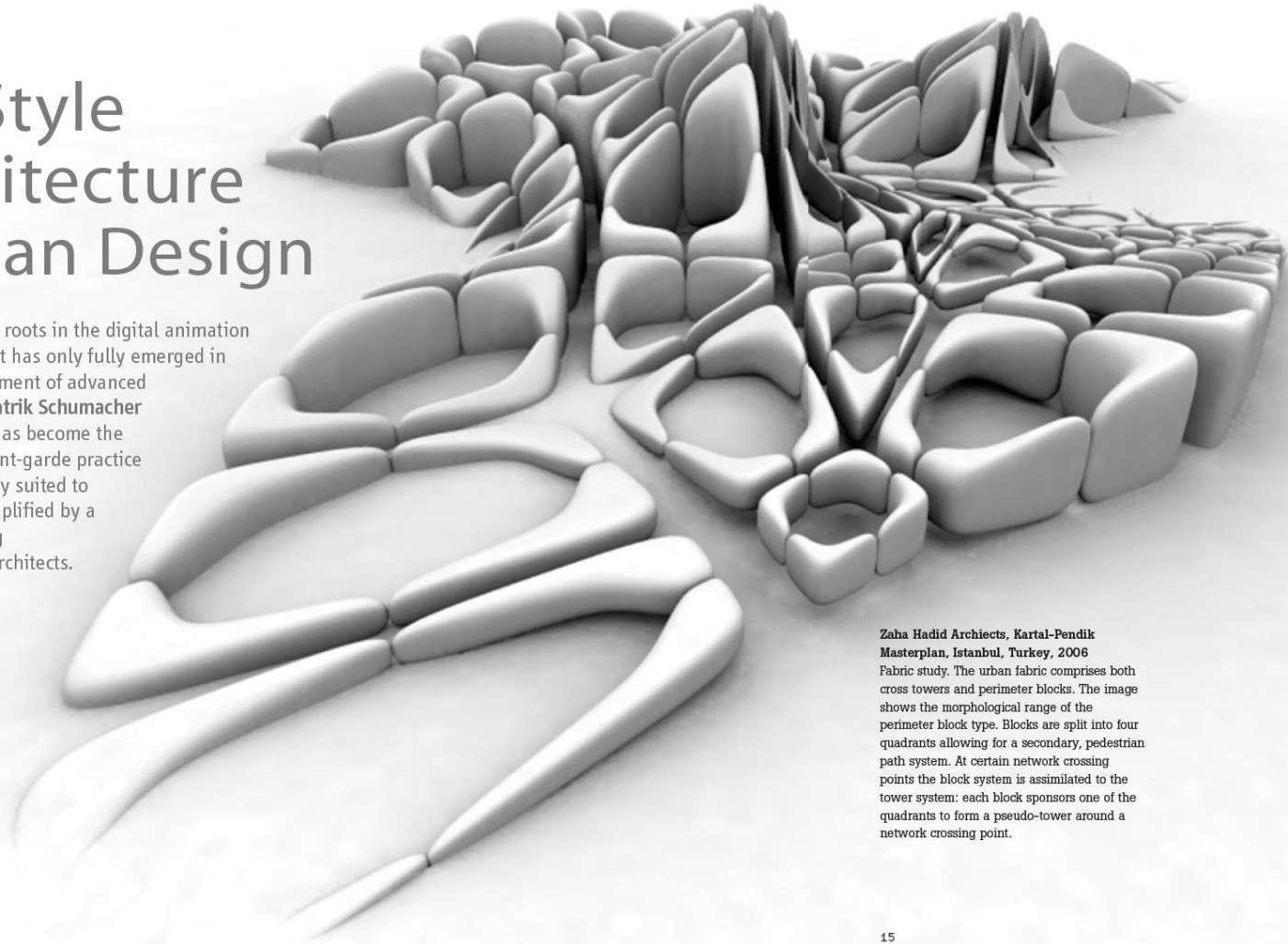
# Parametricism

## A New Global Style for Architecture and Urban Design

Though parametricism has its roots in the digital animation techniques of the mid-1990s, it has only fully emerged in recent years with the development of advanced parametric design systems. **Patrik Schumacher** explains why parametricism has become the dominant, single style for avant-garde practice today and why it is particularly suited to large-scale urbanism as exemplified by a series of competition-winning masterplans by Zaha Hadid Architects.



Architectural Design.  
Schumacher 2009



**Zaha Hadid Architects, Kartal-Pendik Masterplan, Istanbul, Turkey, 2006**  
Fabric study. The urban fabric comprises both cross towers and perimeter blocks. The image shows the morphological range of the perimeter block type. Blocks are split into four quadrants allowing for a secondary, pedestrian path system. At certain network crossing points the block system is assimilated to the tower system: each block sponsors one of the quadrants to form a pseudo-tower around a network crossing point.



“As conceptual definition of **Parametricism** one might offer the following formula: **Parametricism** implies that all **architectural elements and compositions are parametrically malleable**. This implies a fundamental ontological shift within the basic, constituent elements of architecture. Instead of the classical and modern reliance on ideal (hermetic, rigid) geometrical figures - straight lines, rectangles, as well as cubes, cylinders, pyramids, and (semi-)spheres - **the new primitives of parametricism are animate** (dynamic, adaptive, interactive) **geometrical entities** - splines, nurbs, subdivs, particle-spring systems, agent based systems ect. - as fundamental ‘geometrical’ building blocks for dynamical compositions that react to “attractors” and that can be made to resonate with each other via scripts.”

“What characterizes the new style are **new ambitions and new values** - both in terms of **form and in terms of function** - that are to be pursued with the aid of the new tools and techniques. **Parametricism pursues** the very general aim **to organize and articulate the increasing diversity and complexity of social institutions and life processes within** the most advanced centre of post-fordist **network society**”

“The goal is to ***intensify the internal interdependencies*** within an architectural design as well as the ***external affiliations and continuities*** within complex, urban contexts. Offers a new, complex order via the principles of **differentiation** and **correlation.**”



**Design Parameters to Parametric Design**  
Patrik Schumacher, London 2014



“What is the societal relevance of the complex geometries and intricate spatial compositions made possible by parametric design?”

In order to answer this question we need to clarify the specific **social task** (societal function) **of architecture: The spatial ordering of social processes.** The increasing density, diversity and complexity of contemporary social life processes requires complex spatial configurations...”

“The **stylistic characteristics of parametricism...** are potentially **more effective** in the **legible articulation** of complex relations - clustering, nesting, interpenetration - between multiple different spaces.”



**Design Parameters to Parametric Design**  
Patrik Schumacher, London 2014

## Operational definition of Parametricism:

### Formal heuristics:

Negative principles (taboos):

- Avoid rigid forms (lack of malleability)
- Avoid simple repetition (lack of variety)
- Avoid collage of isolated, unrelated elements (lack of order)

Positive principles (dogmas):

- All forms must be soft (intelligent: deformation = information)
- All systems must be differentiated (gradients)
- All systems must be interdependent (correlations)

### Functional heuristics:

Negative principles (taboos):

- Avoid rigid functional stereotypes
- Avoid segregative functional zoning

Positive principles (dogmas):

- All functions are parametric activity/event scenarios
- All activities/events communicate with each other

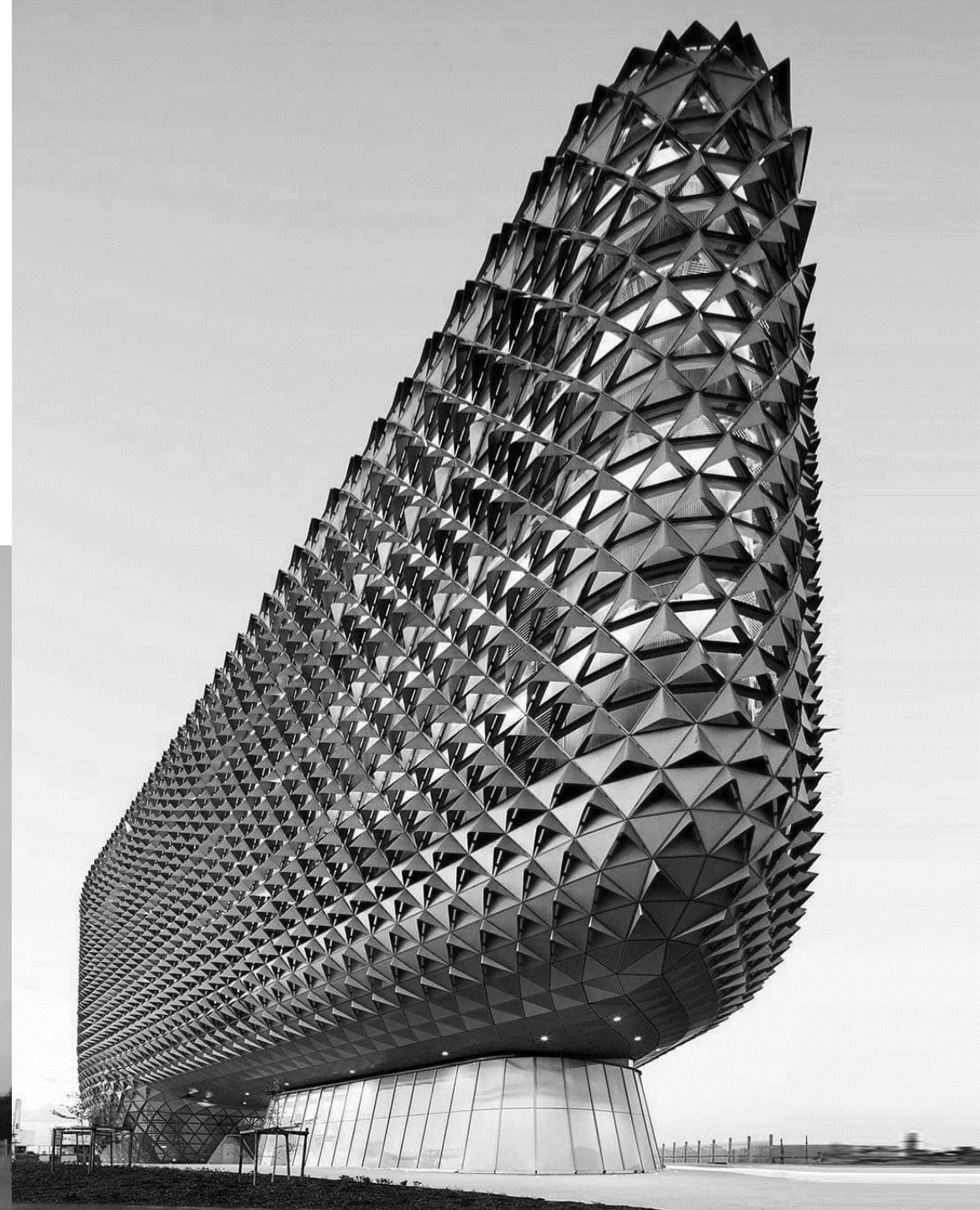


- **Continuous differentiation**
- Sub-system **'correlation'**.

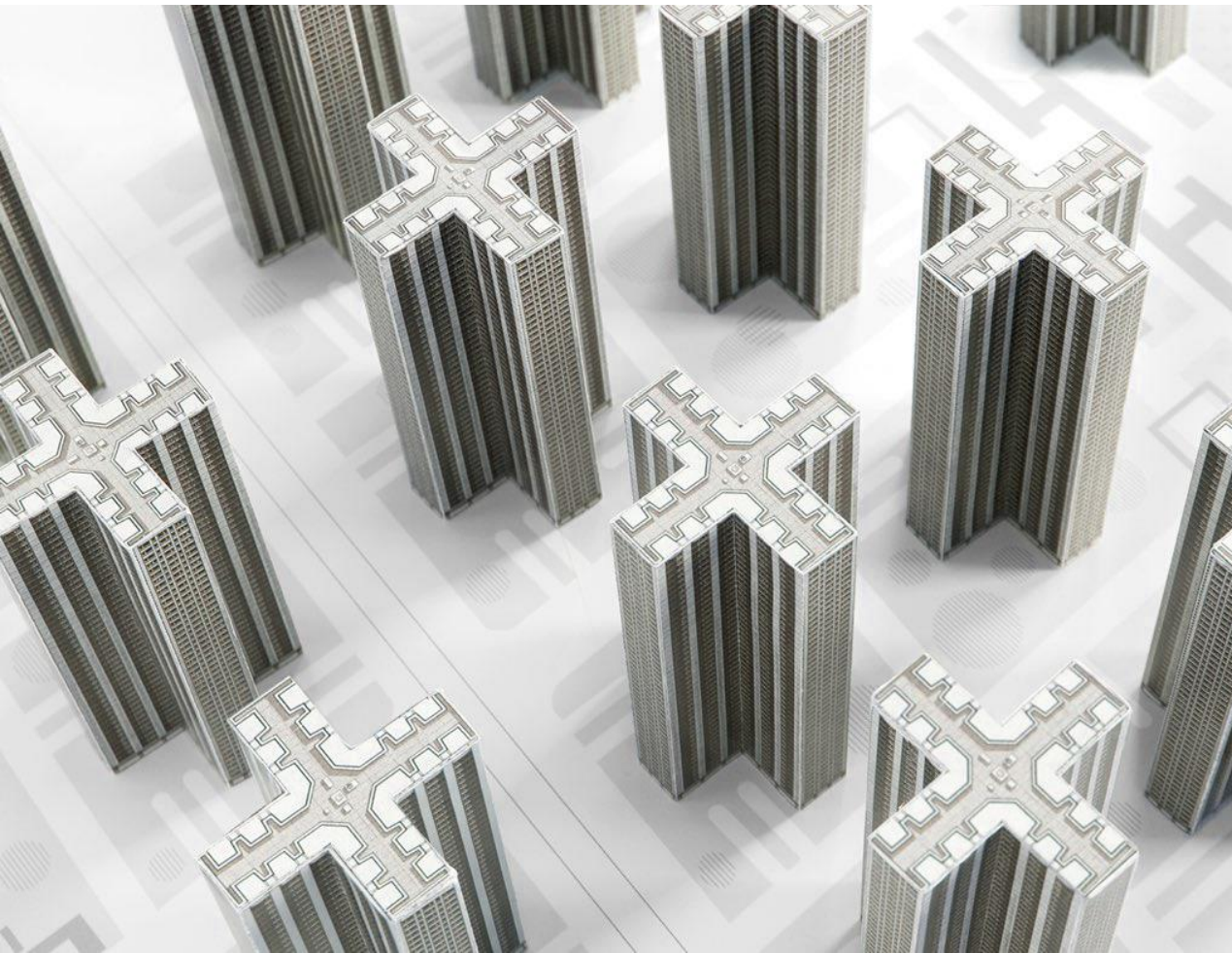
“The same principles of adaptive system differentiation and multi-subsystem correlation might be applied to urbanism which thus becomes **'parametric urbanism'**.”

“Design thus becomes **'rule-based'** design”

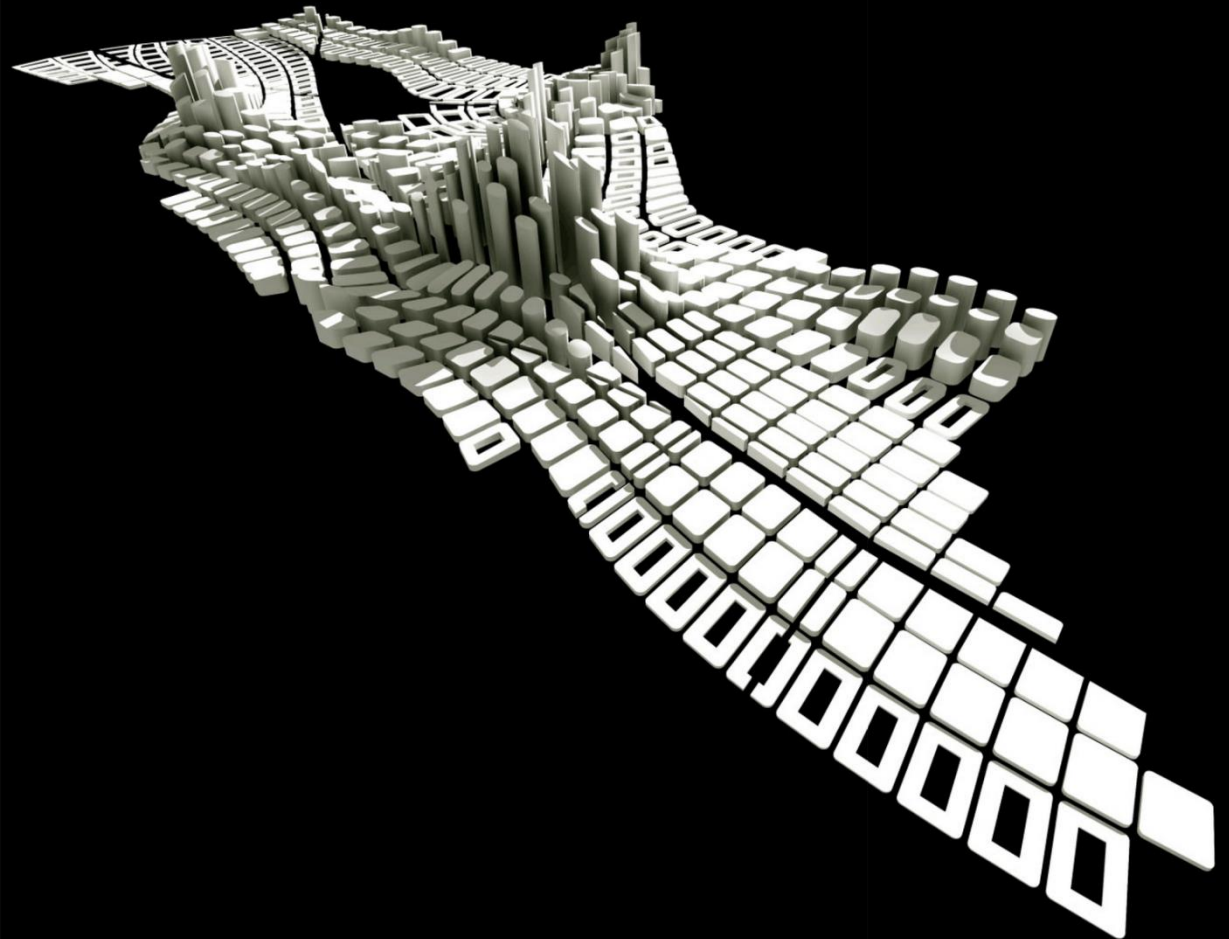
South Australian Health and Medical Research Institute



ESPACIO



CAMPO



## **PARAMETRICISM - Subsidiary Styles**

FOLDISM

BLOBISM

SWARMISM

TECTONISM

## FOLDISM

“**building up complexity** by adding up pieces or layering like in deconstructivism one can take a **single surface** and **differentiate it.**”

“Adaptive and fluid **set of systems** which pick up **contextual features, internal requirements** and get something going which has both **coherence** and **intensive differentiation.**”



Rail Baltic



Centro Heydar Aliyev - Azerbaiyán



Zaha Hadid's Nordpark Cable Railway Station



INTERIOR  
DESIGN

Leeza SOHO

**BLOBISM**



Galaxy SOHO

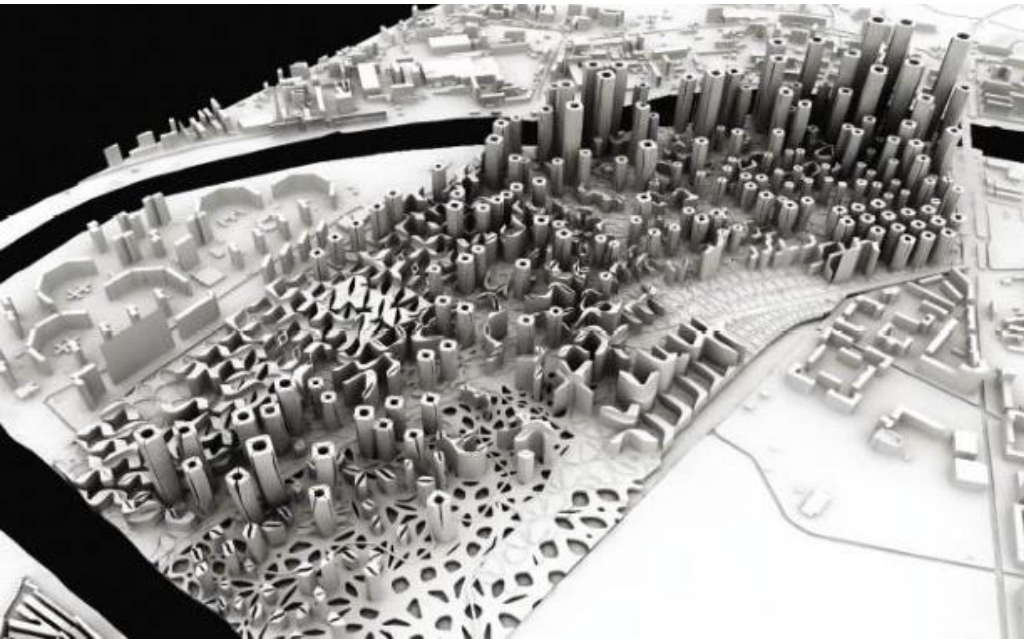




## SWARMISM

Applies to urbanism

- Particles which associate in different ways
- Swarms of elements which deliver vitiation and differentiation



## TECTONISM

Engineering and Fabrication Logics as Stylistic Drivers

Tectonism implies the stylistic heightening of engineering and fabrication based form finding and optimization processes.

**Performance – based design via Engineering logics:**

- Structural rationality
- Environmental rationality
- Fabrication rationality

