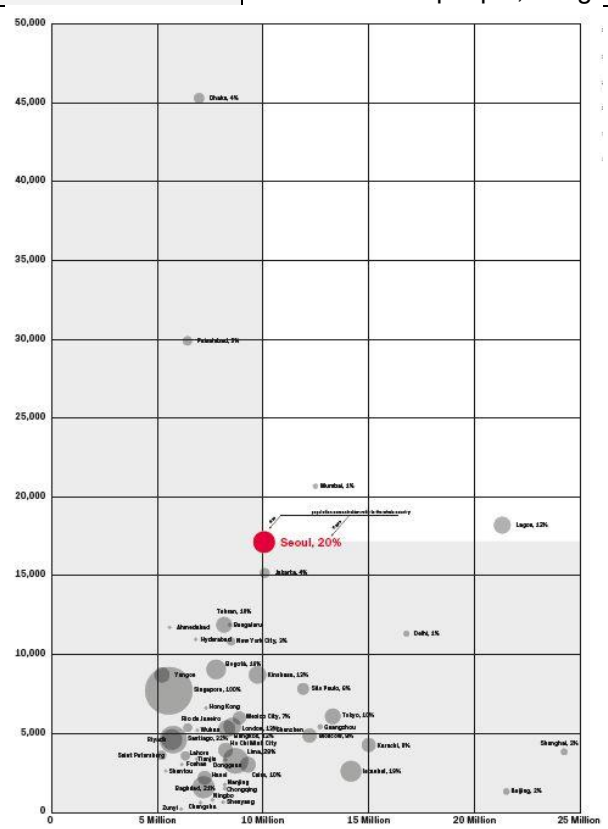
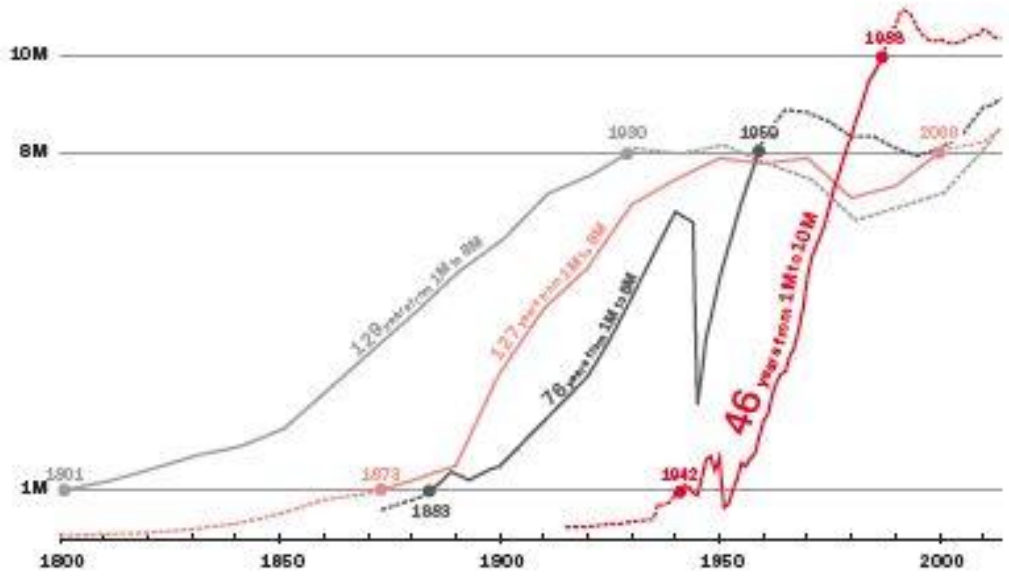
패널 1

전체 제목 : Hyper-density / Compressed Growth

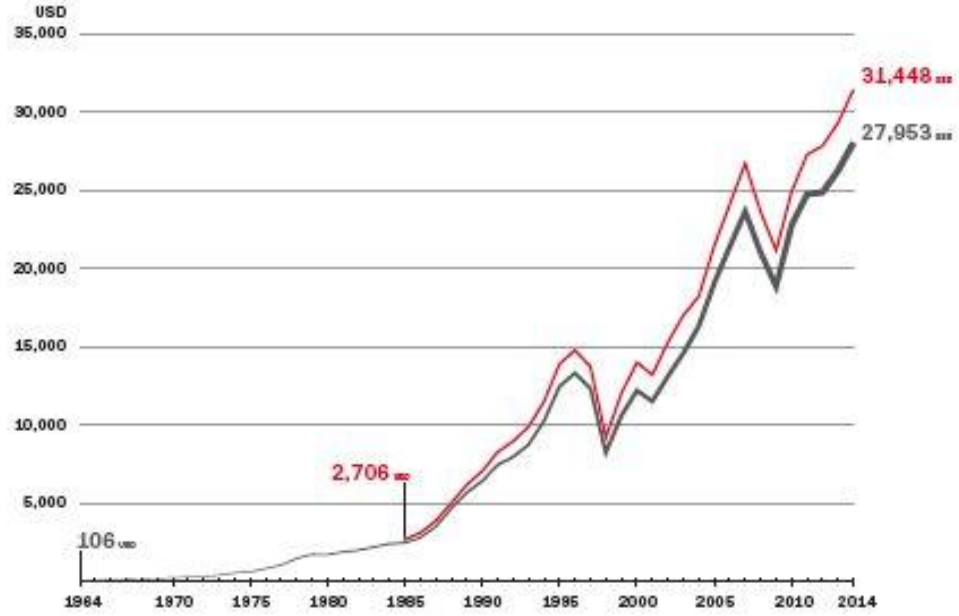
인구밀도, 인구집중도, 인구수 그래프	
Image Heading	Seoul is one of the most populated, densest, and most concentrated cities in the world.
title	Population, Density, and Concentration Ratio of Seoul and Other Large Cities
Legend box	x-axis: population (number of inhabitants) y-axis: density (number of inhabitants per square kilometer) Size of circles: concentration ratio of capital city to nation
Description (가장 작은 font size로 들어가야 함)	Seoul is found in the upper right part of the graph with cities such as Mumbai and Lagos, making Seoul one of the most populated, densest, and most concentrated cities in the world. Half of the population of South Korea resides in the Greater Seoul Metropolitan Area, with about half of that, or over 10 million people, living in the capital city proper.



4개국 인구 상승 추계	
Image Heading	It took only 46 years for Seoul's population to go from 1 million to 10 million.
title	Population Growth of Seoul and Other Large Cities
Legend box	x-axis: year y-axis: population (number of inhabitants)
Description (가장 작은 font size로 들어가야 함)	It took only 46 years for Seoul's population to reach 10 million from 1 million. Compare that with London, which went from 1 million to 8 million in 129 years, or New York City which took 127 years to accomplish the same feat.



서울과 한국의 gdp	
Image Heading	Rapid economic growth accelerated the Far Game in Seoul
title	Growth of GDP per capita in Korea and Seoul, 1964-2014
Legend box	x-axis: year y-axis: GDP per capita
Description (가장 작은 font size로 들어가야 함)	In 1964 South Korea was one of the poorest countries in the world with a GDP per capita of $106. By 2014, Korea's GDP per capita had reached $27,953 USD. Seoul led the expansion and concentration of capital. Seoul's GDP per capita in 1985 was $2,706 USD, and it reached $31,448 USD in 2014.



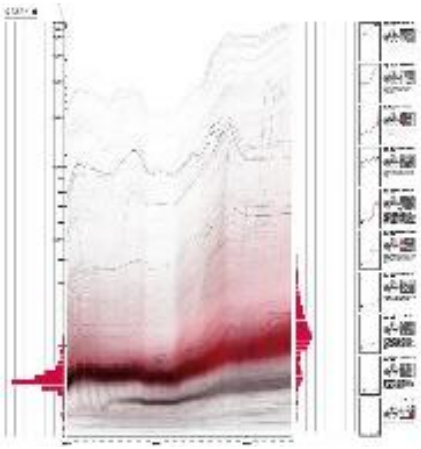
패널 2

전체 제목 : Land Price

1990-2015 지가 상승 그래프	
Image Heading	Seoul's land prices continued to grow between 1990 and 2015, most dramatically between 2002 and 2008.
title	Changes in Official Land Price in Seoul, 1990-2015
Legend box	x-axis: year y-axis: land price per square meter (in US dollars) (그래픽 레전드) Red : residential zoning area Black : other zoning area **The data is from an analysis of the total 1.3 million plots in Seoul.**
Description (가장 작은 font size로 들어가야 함)	The real transaction prices of land are higher than the official prices, sometimes double in Seoul. In 2015, a plot in a prime location of downtown Seoul reached $80,000 USD per square meter. It is no wonder that developers and clients pursue the maximum FAR relentlessly to compensate for the rising land acquisition prices.

미니맵 description

1. One of the most expensive plots, a primary shopping district in the downtown area
2. The heart of Gangnam, South of the Han River, Seoul's current-day Manhattan
3. Urban redevelopment project area in an old urban district
4. Near Namdaemun Market, the oldest and largest traditional market next to the main south gate to the old city
5. Yongsan International Business District. This mega urban project was cancelled in 2013.
6. A high-rise residential complex built on several consolidated small plots in 2008
7. Near Hongdae, a hot spot for urban arts and indie music, clubs and entertainment
8. Land Readjustment Project area in southeast Seoul, multi-family houses built in the 1980s
9. **Land Readjustment Project area (plot for road) in northeast Seoul**
10. An inexpensive plot, in a Green Zoning area near the city boundary



패널 3

전체 제목 : Land Price

아래 3개 그래프의 heading

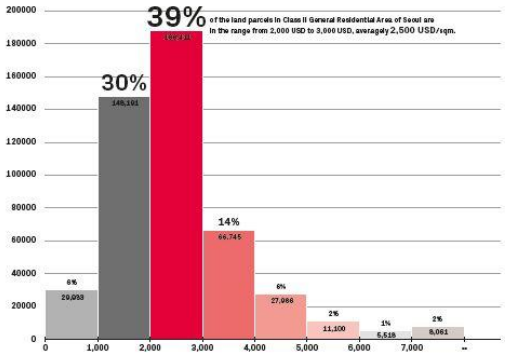
In Seoul a building is considered as the stacking of land.

아래 3개 그래프의 description

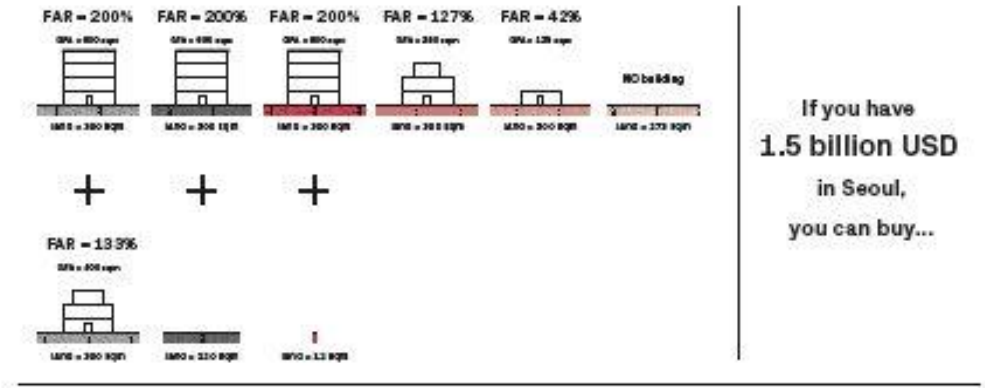
The land price determines the success or failure of a development. On the average, the land price consists of more than half of the total construction cost in Seoul. The building is often not valued in the sale of a property.

Ultimately, floor area is the land, verticalized. In Seoul, land is money, and hence so are floor areas.

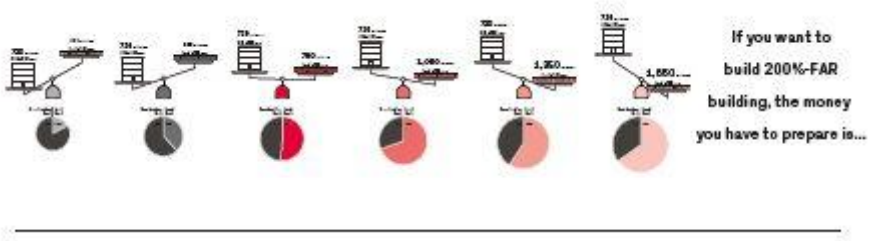
지가 히스토그램	
Image Heading	The largest portion of the prototypical urban spaces averages about $2,500 USD per square meter.
title	Distribution of Land Prices in Seoul
Legend box	x-axis: price per square meter y-axis: number of plots
Description (가장 작은 font size로 들어가야 함)	About 39% of the plots in Class-2 General Residential Zoning areas are priced at about $2,500 USD per square meter. They occupy the largest portion. The official land price of the top 5% of the plots is more than $5,000 USD per square meter.



1.5 Billion USD 질문	
Image Heading	If you have $1.5 billion USD, (오른쪽 위) **You can purchase these. (오른쪽 아래)** 그래프의 오른쪽에 위아래로 각각 들어감. 다른 heading 과는 다르게 취급 해야 함
title	-
Legend box	-
Description (가장 작은 font size로 들어가야 함)	-

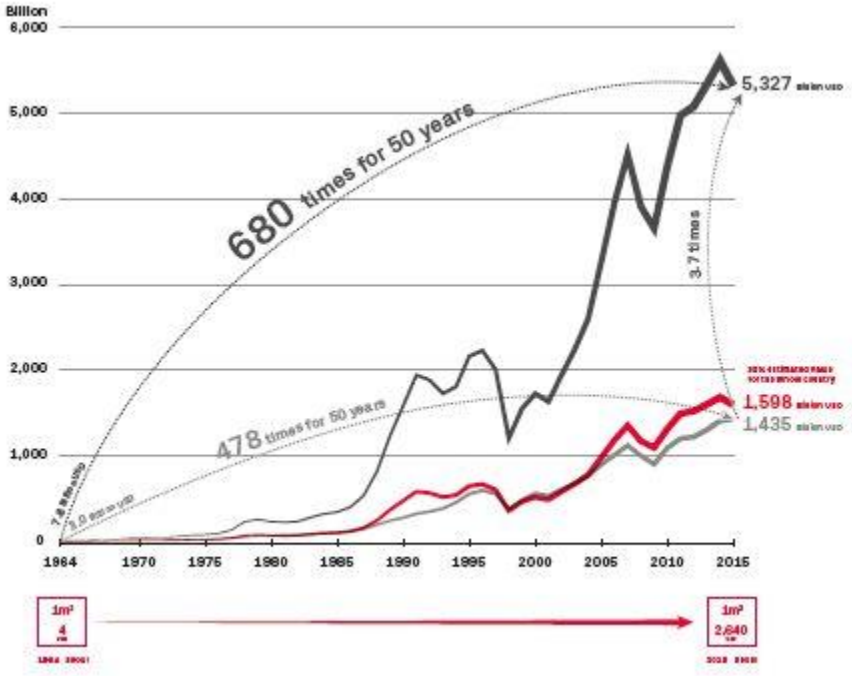


200% FAR 질문	
Image Heading	**If you construct a building with a maximum FAR of 200% on 300 m2 of land, (right upper)** **(right lower) The land price comprises more than half of the total construction cost for 64% of the plots in Class-2 Residential areas.** 그래프의 오른쪽에 위아래로 각각 들어감. 다른 heading 과는 다르게 취급해야 함
title	-
Legend box	별도로 없음
Description (가장 작은 font size로 들어가야 함)	~~The diagram shows the ratio of land price to the total construction cost, provided you construct a building with a maximum 200% FAR on 300 m2 of land. For 64% of the plots in Class-2 General Residential areas, the land price comprises more than half of the total construction cost. For 25% of the plots, the ratio is 60%.(삭제)~~



(앞으로)

GDP와 land price 추이	
Image Heading	The growth of land price exceeded the growth of nominal GDP in Korea over the last 50 years
title	**Growth in Land Price and GDP in South Korea**
Legend box	x-axis: Year y-axis: Land Value and Nominal GDP (in billions of US dollars)
Description (가장 작은 font size로 들어가야 함)	Between 1964 and 2015, the official total land price of South Korea grew more than 680 times. If that price is calculated in Korean Won, it grew more than 3,000 times. A more striking fact is that Seoul's total land price represents about 30% of the total land price of the whole of South Korea.



패널 4

전체 제목 : **Building Scales and Typologies**

연도-층수 버블 다이어그램	
Image Heading	**Building typologies were polarized drastically after Korea's 1997 foreign exchange crisis.**
title	Amplification and Verticalization of Buildings and Polarization of Typologies in Seoul
Legend box	x-axis: building completion year y-axis: building storeys (height) Size of circle: relativized gross floor area of each building **(그래픽 레전드)** **Red** – Detached Houses and Multi-Family Houses **Pink** – Small Retail Buildings **Black** – Apartment Buildings
Description (가장 작은 font size로 들어가야 함)	The horizontal layers indicate how building storeys were planned in response to the changes in building rules. Amidst amplification and verticalization of the urban architecture, building scales and typologies were differentiated and polarized. These changes were most drastic between Korea's foreign exchange crisis in 1997 and the global financial crisis in 2008.

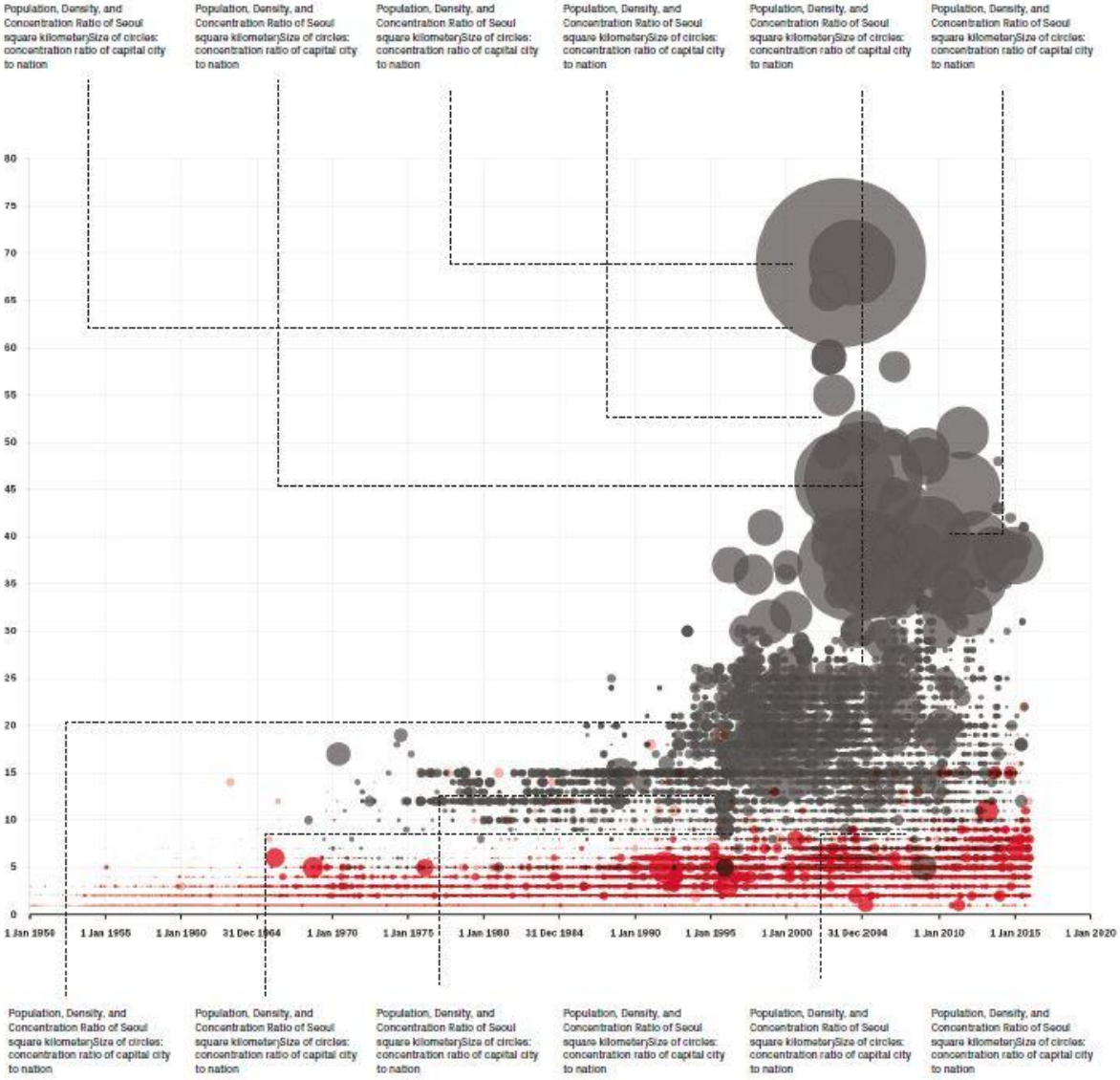
[within graphic] 그래프 위쪽 캡션

1985: Legalization of high-rise apartment buildings over 16-stories
1990: Increase in FAR limit from 200% to 300% / Street Width to Building Height Ratio Adjustment from 1:1.5 to 1: 1.8 for apartment buildings
1991: Increase in FAR limit for high-rise apartment buildings and retail complexes with higher FAR
1998: Boost to economy through massive construction of apartment buildings /
Rules promoting the construction of super tall apartment buildings
Total gross floor area constructed in each year

[within graphic] 그래프 아래쪽 캡션

1950-53: Korean War
1960s – 1980s: Primarily Detached House Construction
1985: Legalization of the Multi-family House for sale (*dasedae jutaek*)
1990: Legalization of the Multi-family House for rent (*dagagu jutaek*)
1990: (low-interest loan promotion for multi-family house construction)
1997: Foreign Exchange Crisis
2003: (Prenotification of tightening regulation on multi-family house parking lots)
2008: Global Financial Crisis
2010: (Easement of a parking-lot regulation for small-sized multi-family houses

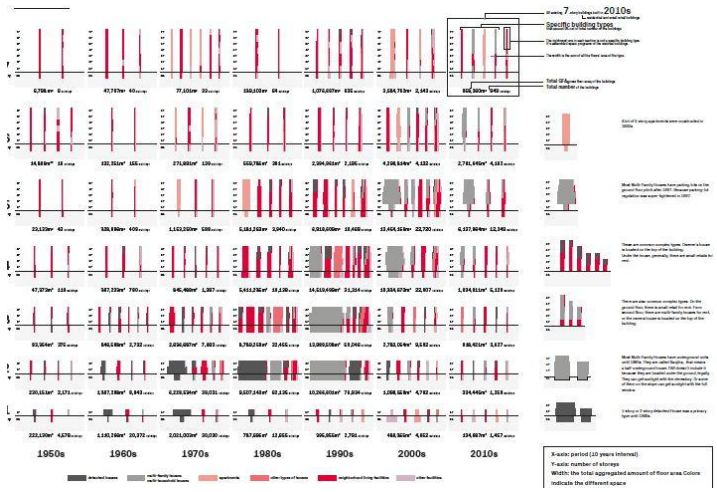
- **(괄호친 부분은 영어 교정 후 교체 예정)**


Population, Density, and Concentration Ratio of Seoul square kilometerSize of circles: concentration ratio of capital city to nation
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1 Jan 1950
1 Jan 1955
1 Jan 1960
31 Dec 1964
1 Jan 1970
1 Jan 1975
1 Jan 1980
31 Dec 1984
1 Jan 1990
1 Jan 1995
1 Jan 2000
31 Dec 2004
1 Jan 2010
1 Jan 2015
1 Jan 2020

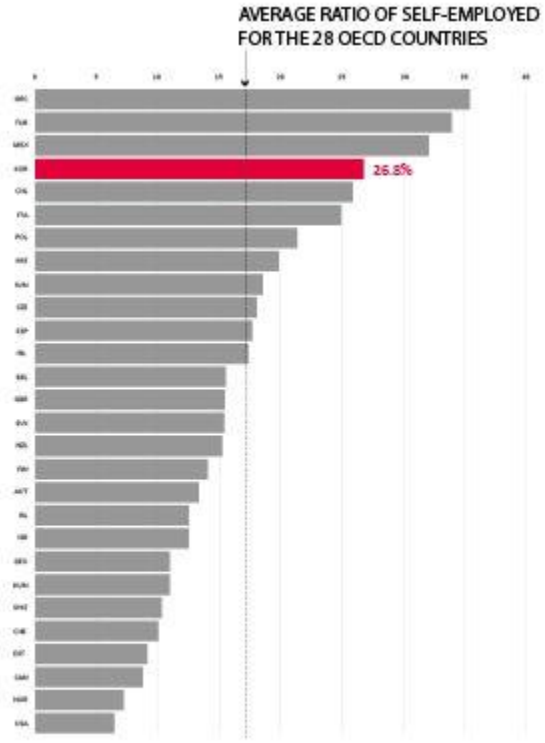
패널 5

전체 제목 : **Building Scales and Typologies**

주거 유형 분류 다이어그램	
Image Heading	**(일단 없음)**
title	**Profiles of all Medium-rise (under 7 stories) Residential and Small Retail Buildings in Seoul**
Legend box	x-axis: period (10 years interval) y-axis: number of storeys **width: the total aggregated amount of floor area** **Color indicate the different space programs** 그래픽 레전드 : 각각의 주거 유형과 색깔
Description (가장 작은 font size로 들어가야 함)	**While the two major building types—the apartment building and the multi-family house—were polarized from the 1980s, small retail spaces (keunsaeng) were combined with the medium-rise multi-family houses, and became the prototypical mixed-use buildings in Seoul.**



자영업자 비율 (새로 추가됨)	
Image Heading	The higher ratio of self-employed in Korea affects the retailization of medium multi-family houses.
title	Ratio of Self-Employed for the 28 OECD Countries
Legend box	x-axis: ratio of self-employed (percent) y-axis: 28 OECD countries
Description (가장 작은 font size로 들어가야 함)	The mixture of residential and retail spaces within Residential Zoning areas is common in Korean cities. It is because urban and building rules allow most retail functions in Residential Zoning. But the fundamental reason for this phenomenon is the higher ratio of self-employed.

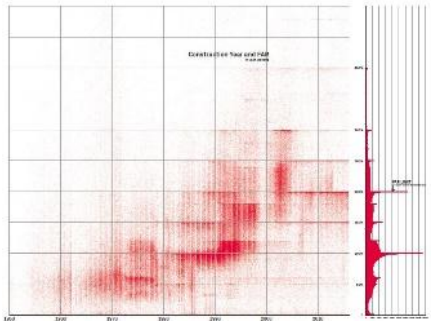


패널 6

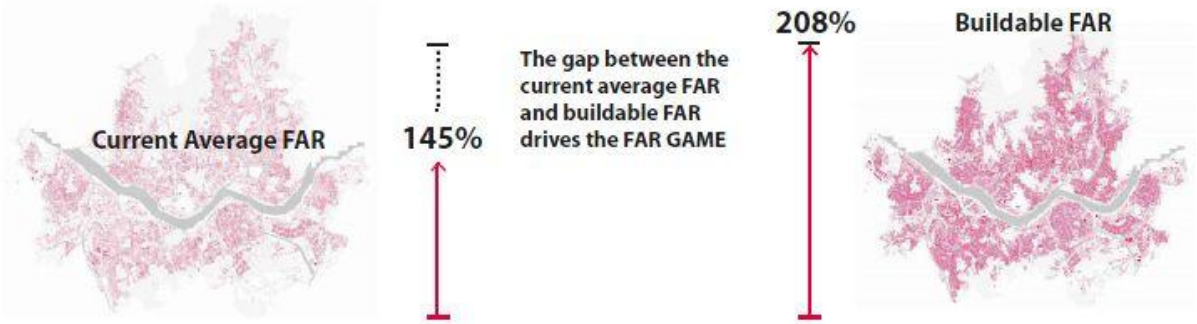
전체 제목 : **The FAR Game in Statistics**

용적률 산포도	
Image Heading	**These two infographics demonstrate how the FAR Game is played in direct response to changes in the urban building rules.**
title	**The FAR of 88% of All Buildings in Seoul**
Legend box	x-axis: building completion year y-axis: FAR Dots represent 558,956 of the 634,201 buildings in Seoul x-axis:-the number of buildings y-axis: FAR
Description (가장 작은 font size로 들어가야 함)	The infographic on the left shows the stepwise distribution of FAR with some intervals. The distribution of FAR is clearly demarcated into three different periods – before 1997, between 1998 and 2003, and after 2003. These were the years when the regulations regarding FAR limits were intensified. **(이 부분 교정 후 업데이트 예정)** On the right infographic the two highest peaks are shown at 100% and 200%, the FAR limits for different zoning areas. These demonstrate how the FAR Game really is a concerted effort to capture every possible millimeter of space allowable.

[below x-axis]
1970: Introduction of FAR Limit in Building Regulations
1990: BCR Limits revised
1997 Foreign Exchange Crisis
2001 Sub-categorization of FAR Limit by zoning area
1990s: Height Limit regulations exceed FAR Limit
2003: Tendency to reach FAR Limit **(빨간 부분 교정 후 교체 예정)**



용적률 145% 그림	
Image Heading	
title	**Gap between the current average FAR (145%) and buildable FAR (208%).**
Legend box	-
Description (가장 작은 font size로 들어가야 함)	The discrepancy between the current FAR and buildable FAR puts pressure on developers and architects, as a 200% FAR ratio is considered the minimum threshold for new development

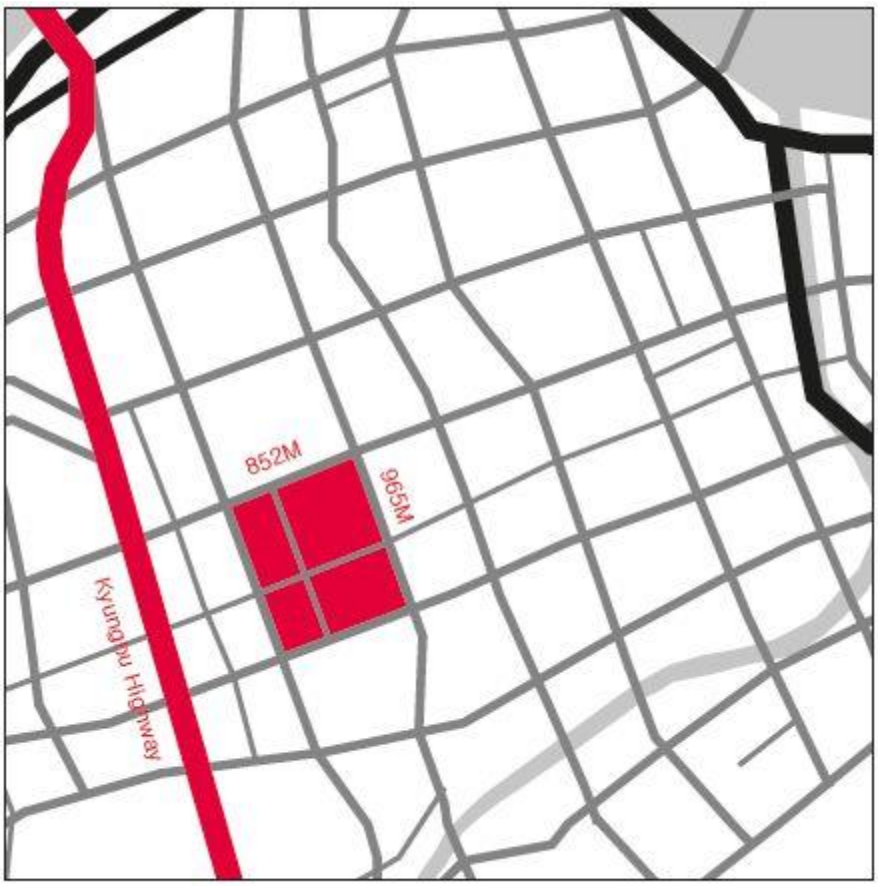


패널 7,8

전체 제목 : **Characteristics of the Urban Fabric**

서울 용적률 지도	
Image Heading	**Today, the average FAR of about 602,548 of the 634,201 buildings in Seoul is 145%.**
title	**FAR of All Buildings in Seoul**
Legend box	그래픽 레전드
Description (가장 작은 font size로 들어가야 함)	-

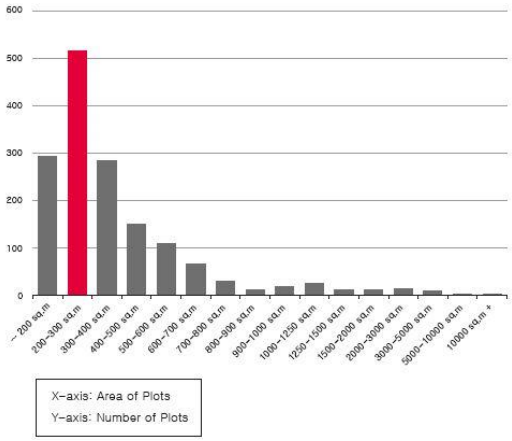
강남 전체 보이고 역삼동 블록 강조한 그림	
Image Heading	**Gangnam is representative of a planned grid pattern consisting of superblocks.**
title	**The Superblock**
Legend box	-
Description (가장 작은 font size로 들어가야 함)	The block chosen as an example here is 965 by 852 meters.



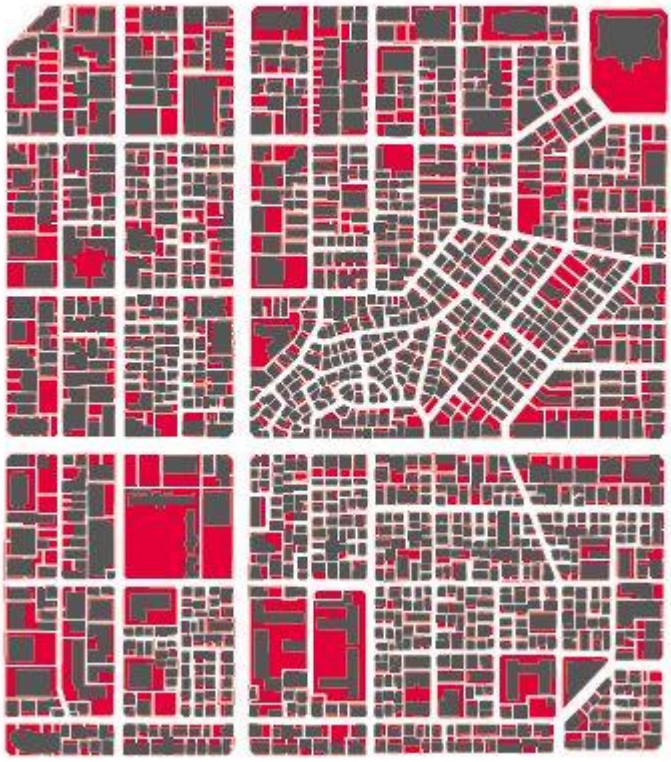
건물 렌더링 하고 블록 색으로 조닝 구분한 조감도	
Image Heading	**This horizontal shift of zoning within a block can be compared to the layers of an onion. Entering a block is like peeling a layer off; you see more onion, but the onion is getting smaller.**
title	A bird's-eye view of zoning layers within a Gangnam superblock
Legend box	
Description (가장 작은 font size로 들어가야 함)	Along the wide street, a new business corridor with high-rise office buildings is formed, while the areas in the middle were packed with medium rise residential and commercial buildings, converted from single story houses from the 1970s.

Commercial (600%), Class-2 (200%), and Class-1 General Residential (150%) > 그림 안에 표기

역삼동 블록 대지 면적에 대한 히스토그램	
Image Heading	**The average plot size in this Gangnam superblock approximates the average plot size in Seoul today.**
title	Plot Size
Legend box	-
Description (가장 작은 font size로 들어가야 함)	The chosen superblock between Gangnam Station and Yeoksam Station consists of about 1,340 plots. More than one third of these plots are between 200 and 300 square meters, which approximates the average plot size within Seoul today. This is about three times the average residential unit size defined by the Korean Government.



건물이 점유한 부분과 비어있는 땅이 표시된 역삼동 블록	
Image Heading	**The small plots, narrow adjacent roads, and plot-based buildings rules make for a unique dense and compact urban fabric.**
title	Dense and Compact Urban Fabric with Buildings Side by Side
Legend box	-
Description (가장 작은 font size로 들어가야 함)	Due to the small plots, narrow adjacent roads, and the restrictive plot-based buildings rules discussed earlier, it is virtually unavoidable that seeking to reach BCR and FAR limits will create a dense and compact urban fabric with buildings side by side.

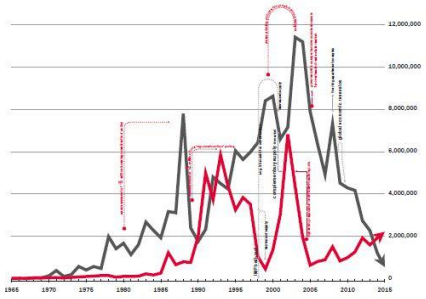


별도 다이어그램(정이삭 소장 패널)

다세대와 아파트 construction 물량 추이 비교 꺾은선 그래프	
Image Heading	In 2015, construction of multi-family houses exceeded the construction of apartment buildings for the first time since the 1970s.
title	Changes in the Construction of Multi-family Houses and Apartment Buildings
Legend box	x-axis: year y-axis: Total gross floor area constructed that year 그래픽 레전드 : 붉은색 – Multi-Family Houses 검은색 : Apartment buildings
Description (가장 작은 font size로 들어가야 함)	Amid fluctuation in the construction of the two major residential building types since the 1990s, the supply of apartment buildings has exceeded that of multi-family houses for the last 20 years. However, as the economic profits of large-scale apartment development were no longer guaranteed after 2008, the construction of apartment buildings dropped rapidly, while that of multi-family houses continued to increase. As of 2015, the supply of these two types reversed, which is a new phenomenon in the history of residential buildings in Korea.

부가 그래프 밑의 설명 (이미 그래프 안에 업데이트 해 놓았습니다.)

Changes in the Construction of Multi-family Houses and Apartment Buildings
1980 Plan for construction of 5 million housing units by the Fifth Republic
1990 Plan for construction of 2 million housing units by the Sixth Republic
1996 Initial Tightening of parking requirement rules for multi-family housing
1997: Foreign Exchange Crisis and Recovery from Economic Recession
1997: 30-month average achieved for constructing apartment buildings
1999 Economic Boost for the Construction Industry
2000: Decrease in supply of apartments
Decrease in supply of multi-family houses
2000: Supply of multi-family houses Matches Supply of Apartments Buildings
2004: Second Tightening of parking requirement rules for multi-family houses
2004: Countermeasures for the overheating of the real estate market
2008: Global Financial Crisis


12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015