

Innovation Districts: Evaluating Equity within the Knowledge Economy Paradigm

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abstract

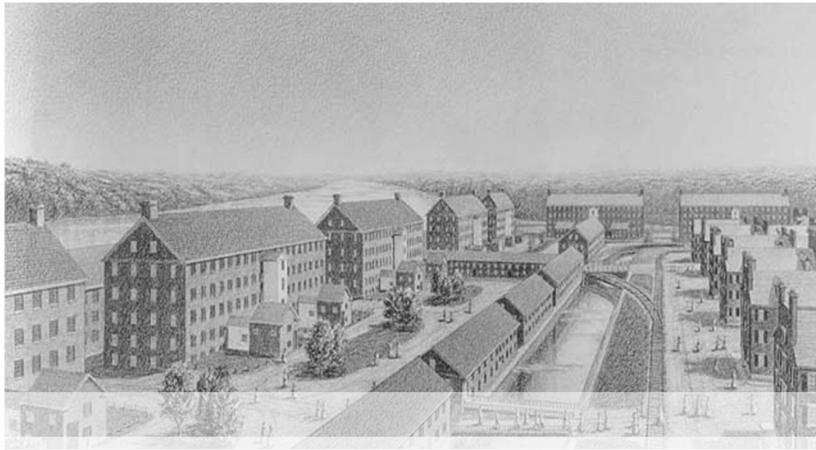
An innovation district is, at its core, an economically driven urban form. Its sole concept design goal is to foster economic growth. The idea of an urban form supporting the economy is not novel as it has been around for centuries. Industry towns supported the manufacturing economy, the research parks of the late 20th century supported the service economy, and today the innovation district supports the knowledge economy. The knowledge economy of today is broadly defined as the generation of capital or products that is more heavily reliant on “intellectual capabilities” rather than physical ones (Powell and Snellman 2004). While economic generation and resiliency is something that is often sought out and greatly benefits a community, in the case of innovation districts it is coupled with the negative externalities associated with gentrification and the displacement of existing residents and businesses. This honors thesis attempts to examine such contradictions by asking the question of, under which conditions innovation districts negatively or positively impact a city’s equity. It explores this question through the analysis of four of the most relevant innovation districts in the world: Masdar City (UAE), 22@ Barcelona (Spain), Digital Media City (South Korea), and MediaCityUK. To measure equity, each case study was examined through the following lenses of: politics, branding, economy, urban design and displacement. Following this analysis, each lens is then distilled down into a single proxy which is then given a numerical value and plotted onto a radar chart. All cases are plotted on radar charts giving a visual understanding and comparison of their equity. The results yielded that innovation districts by nature, promote inequity but they do not have to. This project identifies areas where municipalities can make innovation districts more equitable.

introduction

Society is rapidly evolving and changing due to the widespread adoption of and dependence upon technology. The global economy is shifting away from an industrial manufacturing base to a knowledge services base (Carrillo 2015). With the rise of the internet and increasingly efficient technologies, businesses are no longer restricted to specific locations: while the manufacture of tangible goods generally requires tangible and immovable resources, the production of information depends on skilled human beings as its primary resource (Castells 2000, 409). As such, knowledge-producing businesses can be established anywhere a skilled workforce can be accessed—including and especially within major cities. Urban centers across the world are trying to cultivate these knowledge-based economic hubs by redeveloping their built environments to attract knowledge-based businesses and workers in an attempt to increase their global economic competitiveness. The Innovation District is the current urban planning tool supporting these knowledge-based economies.

Innovation districts are urban forms designed to advance economic development. These are areas that cluster human capital with information technology companies, research and development labs, educational establishments, and companies in the creative fields (Romer 2004; Carrillo 2002; Morrison 2014; Yigitcanlar 2016, Katz and Wagner 2014). Innovation Districts aim to create economic heterogeneity, a trait that is geared to fostering a thriving economic ecosystem. Economic heterogeneity refers to the quality of diversity in relative company sizes, capital generation, and position in the knowledge industry supply chain. In having this variety, the innovation district creates opportunities for companies to exchange different services with one another at a local level versus a global one, feeding back into the economy and growing it more effectively (Hawken and Hoon Han 2017).

Common physical features of an innovation district include mixed-use zoning, easy access via public transportation, walkability, and ample green space, all with the aim of attracting younger urban professionals who make up the main body of employment in these industries (Katz and Wagner 2014).



industry town



research park



innovation district

Urban planning projects to support economic development from top to bottom: industry town in Lowell Pennsylvania supporting the industrial revolution, North Carolinas Research Triangle supporting the service economy, and a rendering of Masdar City supporting the renewable energy sector in Abu Dhabi.
citation: graphic adapted from Katz and Wagner 2014

innovation district evaluation

Thus far in the literature, innovation districts have been evaluated through the following methods: geographic typology, economic and community benefits, and income segregation and gentrification.

geographic typology

The Brookings Institute released a comprehensive report regarding innovation districts and developed the standard method of geographical categorization for innovation districts. This method examines the relationship of a given district to the surrounding urban or suburban context. Research that has used this method of categorization include (S. Hawken, J. H. Han; 2017; M. Harris, K. Holley; 2016; A. Pike, J. Tomaney; 2017; T. Yigitcanlar, M. Bulu; 2016; Berkes et al., n.d.; Morisson and Bevilacqua 2018; Carrillo 2015).

The Brookings method identifies the following categories of innovation district: “anchor plus,” “reimagined urban area,” and “urbanized science park.” The first category, “anchor plus,” refers to districts that arise in downtown urban areas that are heavily mixed-use and contain one large anchor institution, such as a prominent company or a large, well-known university. An example of an “anchor plus” innovation district model is in Seattle, WA, where Amazon is the mammoth corporation that acts as the primary anchor of the area (Katz and Wagner 2014). The second category is the “reimagined urban area,” in which local governments seek to transform and revitalize dilapidated industrial areas. Some examples of “reimagined urban areas” are the Brooklyn Navy Yard in New York City and South Lake Union in Seattle. Incentives are typically given by the city to companies and private developers to transform these run down areas. For example, Brooklyn Navy Yard is considered an “Empire Zone” of New York State, which receives a multitude of tax credits and low interest loans. Another example being South Lake Union in Seattle receives similar benefits from the Transfer of Development Rights program, which incentivizes developers to expand urban growth and reduce sprawl (“Transfer of Development Rights in King County, Washington - King County” n.d.). The final category of innovation district is the “urbanized science park” which is typically located in suburban areas relatively close to major cities, as in California’s Silicon Valley region and North Carolina’s Research Triangle Park (Katz and Wagner 2014).

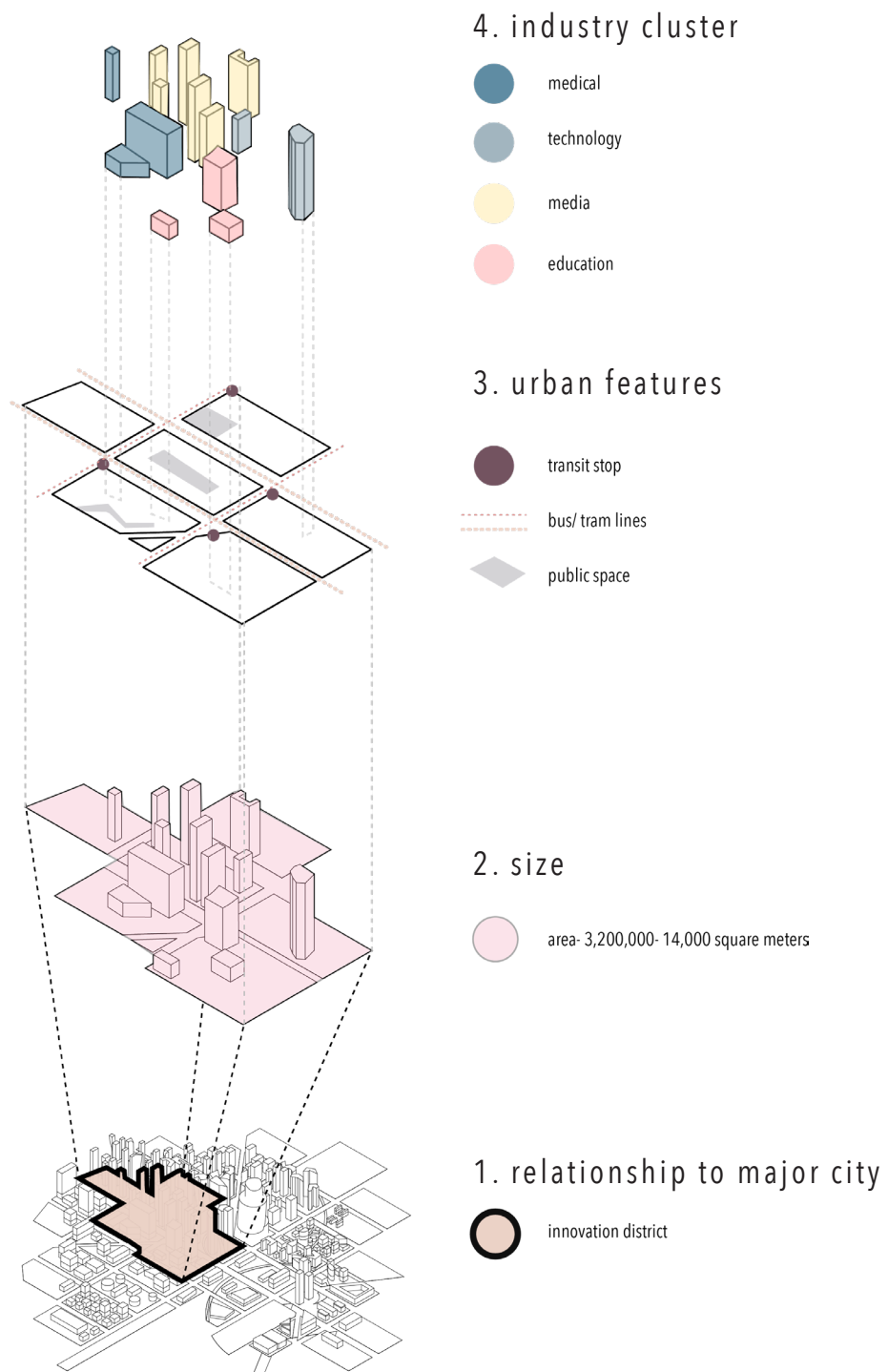


Diagram showing: 1. the relationship the innovation district has to surrounding city, 2. the size range in square meters, 3. common urban features found within the district and 4. showing the industries that make up the knowledge economy within the innovation district.

Diagram created by author

economic and community benefits

There are historical precedents for economy-based urban planning methods in the form of industry towns and factory towns. It is important to look at historical examples for the purpose of analyzing the failures and successes associated with this philosophy. Historically, industry towns produced manufactured goods that were a product of physical resources and part of a “reciprocating system.” This system is defined by Jane Jacobs as a network in which individual companies produce goods required by the larger industry, and depend on both one another and the larger industry for their success: “if any one part of the process halts, the whole system fails” (Jacobs 1969).

After examining the theory behind economics-driven urban form and the ways in which they generally failed in practice, the differences in the economic structures can then be highlighted. One way to better understand innovation districts is through an examination of the knowledge based economic culture that they are supporting and the security that this new type of economy provides (Carrillo 2015). Specifically, what provides stability in this type of economy is the foundation of “economic heterogeneity” within the knowledge economy. Economic heterogeneity, inferred from authors Hawken and Hoon Han, refers to variance in the size, income and business mode of companies within the district. This heterogeneity is a key factor in sustaining the thriving local economic ecosystems that innovation districts aim to create (Hawken and Hoon Han 2017). Another type of economic security that is provided future economic viability. The knowledge based economy is becoming the “main engine of economic prosperity in advanced countries” (Berkes et al., n.d., 1). Innovation districts consist of some of the most successful and competitive companies in the world which have attracted very skilled and talented individuals. The sense of security that is identified with this knowledge economy, is the promise of future viability. The unspoken promise of participation in access to the global economy of the future provides a sense of economic security in residents, workers, investors, and policymakers.

In conjunction with the economic stability, innovation districts provide myriad public benefits ranging from additional green spaces and updated streetscapes to data collection and analysis to aid in policymaking and urban growth organization (Bakıcı, Almirall, and Wareham 2013; Davis, n.d.). The “spatial intelligence” that makes a city a smart city, is loosely defined as “the use of information and communication technologies in several fields such as economy, environment mobility and governance” (Bakıcı, Almirall, and Wareham 2013, 135) to inform decisions regarding the generation of economic capital, commercial regulations and implementation of transportation infrastructure (Komninos 2011).

inequity within Innovation Districts

The main negative externalities associated with innovation districts manifest themselves in the form of gentrification and income segregation. The term “gentrification” was coined in 1964 by Ruth Glass to refer to the displacement of the working class by upper class citizens (Ruth Glass and University College, London Centre for Urban Studies 1964). Since the creation of this term, the topic has been widely debated and is seen as a side effect of economic growth and urban revitalization (Morisson and Bevilacqua 2018). On the other hand, income segregation is defined in sociology as “the uneven distribution of income groups within a certain area”, in other words, “the spatial segregation of poverty” (Reardon and Bischoff 2011, 1093). This is associated with unequal outcomes of higher income households versus lower income households: “If the average income of one’s neighbors... indirectly affects one’s own social, economic, or physical outcomes ...higher-income households may be advantaged relative to lower-income households not only by the difference in their own incomes, but by the differences in their respective neighbors’ incomes.” (Reardon and Bischoff 2011, 1094).

The knowledge economy is inherently exclusive, as to be a knowledge worker one must possess a higher education. Because innovation districts are designed to foster the growth of the knowledge economy specifically, they may indirectly support gentrification by favoring the more educated. It is argued that the large influxes of the knowledge economy workers particularly exacerbate physical displacement and inequalities in class, gender, race and income (Leslie and Catungal 2012; Vey 2017; Morisson and Bevilacqua 2018).

equity

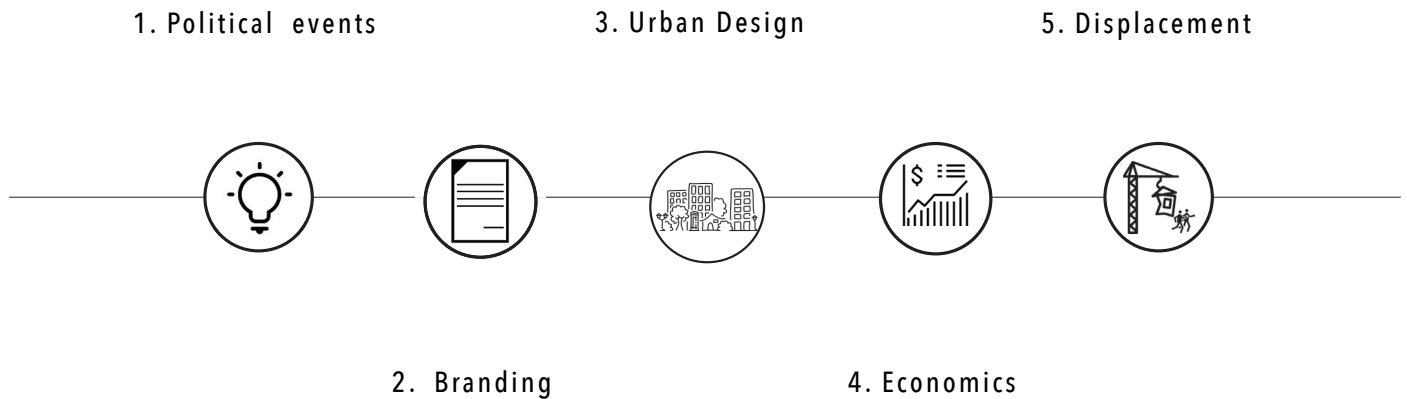
The term equity is most closely associated with the ideas of fairness and accessibility, factors which must be continually evaluated when investigating urban policies that may promote a non-inclusive economy.

Scholars, academics and practitioners evaluate equity in the following areas: economics, education, branding, and design. Economic equity may be assessed in a wide variety of contexts from healthcare funding to the income tax system (Lambert, Bishop, and Amiel 2007). Hashimzade and Myles, when discussing the redistribution of personal tax, identify the question of equity as “how to define the fortunate and the extent of justifiable redistribution.” (Lambert, Bishop, and Amiel 2007, 74). In education equity refers to the unequal opportunities for students of different races (Best and Winslow, n.d.). Brand equity is a common term used in the marketing industry that refers to the consumer’s understanding of the quality of a product (Nam, Ekinci, and Whyatt 2011). Emily Talen when measuring equity in design with regards to playground accessibility, creates a new definition of ‘spatial equity’ that researches “the methodology of discovering when and why spatial inequalities exist” (Talen and Anselin 1998, 2). This brief examination of the literature illustrates the fluidity of the definition and measurement of equity. In this study, equity is understood as a comparison between the economic benefits that Innovation Districts bring to a city versus the negative externalities associated with gentrification and displacement.

What is missing in the discussion of the literature is a comparison of the economic benefits associated with innovation districts to the negative effects associated with displacement of citizens with lower salaries who are unable to participate in this knowledge based economy that has taken over portions of cities. Through the exploration of case study analysis, this thesis is aimed at answering the question: **do innovation districts negatively or positively impact a city’s equity?**

methods

To explore the definition of equity as a comparison between gentrification and economic benefits, I will be measuring and evaluating it through the five lenses: political events, branding, economics, urban design analysis and displacement. The first lens of evaluation explores the motives and values behind the political decisions that led to the conception of the innovation district. The branding of the district is the second lens and uniquely identifies the values of the stakeholders of the innovation district and how they choose to advertise them. The third lens, urban design, is examined in regard to how effectively the physical forms of the district represent the narrative that was expressed in its branding. The fourth lens, economics, observes the direct economic impacts that the innovation district brings with the influx of new industry and workforce on the surrounding city. The fifth and final lens through which I evaluate equity is displacement. This lens identifies instances of direct and indirect displacement of the existing population due to the innovation district.



Timeline showing the five lenses of evaluation when determining the equity of the innovation district. Diagram made by author.



political events

An innovation district is traditionally conceived in response to a structural problem in a country's economy, such as crash in its stock market or a threat to its primary global export. In the 21st century economy the government responds to this structural problem with the implementation of a knowledge economy. The stakeholders' political motives establish the context for the conception of the master plan for the proposed innovation district. The values of the government and the citizens are reflected in each decision in the planning of the district. The resulting decisions can be deemed equitable or inequitable on the basis of how they include or exclude particular groups of people.



branding

In this second phase, the discourse of the political actors is transformed into a branding exercise in order to present the project to others (local businesses, investors, etc.) Branding uses advertising, design, and other methods to associate a product or project with particular concepts and values. The overall branding of an urban master plan is meant to further “urban management goals” — essentially, branding is a device to meant to attract a certain group of individuals to a certain place (Kavaratzis and Ashworth 2005). This ties back to the role of political stakeholders in the evolutionary process of the innovation district, as they determine the branding narrative of the district. The narrative that is created always unintentionally or intentionally leaves some groups of people out. To assess how equity enters into the discussions of the branding of an innovation district, the imagery and the vision statements of its master plan will be examined to establish which groups the branding was catered towards and which were left out.



urban design

The design of the district is the physical expression of the narrative established during the branding and political analysis stages. The innovation district master plan includes the following physical features: public transit additions, streetscapes, green space, public art, zoning, and related programming. The rue priorities of the political actors can be ascertained by comparing the physical reality of the masterplan to the rhetorical vision initially used to promote the project. It then becomes apparent which groups were a priority for the political actors and which groups were not.



economics

The central narrative theme of an innovation district is to support and increase economic activity via the inclusion of the knowledge economy. The goal of the innovation district is to diversify the host nations' economic base. To promote this, governments often utilize multiple strategies such as tax incentives, relaxed zoning regulations, etc. [citation] To evaluate equity in economic growth I focus on regulatory incentives, the industries that receive them, and the number of jobs created.



displacement

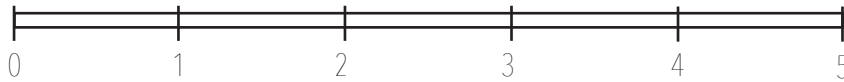
Population displacement by urban projects is a form of inequity in innovation districts that can be objectively measured. Displacement occurs in two different ways; direct and indirect. Direct displacement is defined as the immediate relocation of businesses and people for construction of the innovation district. Indirect displacement refers to the larger effects associated with the implementation of an innovation district, such as increased property values or an increase in rent leading to the exclusion of certain groups. This indirect displacement is illustrated in the case of Seattle, where the rise of the knowledge economy increased property prices and forced large groups of individuals to relocate.

visualizing equity

To measure equity of innovation districts on a case by case basis, each of the five lenses of evaluation—political context, branding, urban design, economics, and displacement—is distilled down to a single proxy question:

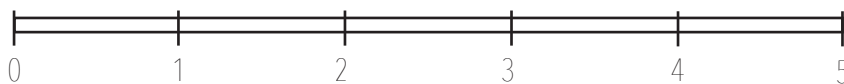
1. political events

Was the political narrative of the district supportive of the entire population of the country?



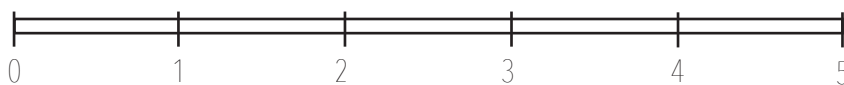
2. branding

Did the branding narrative include any reference to jobs outside the knowledge economy?



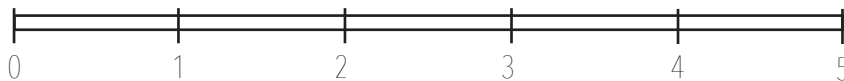
3. urban design

Were there different types of housing (apartments, single family homes, luxury housing, low income housing) included in the plan?



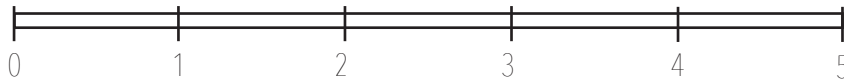
4. economics

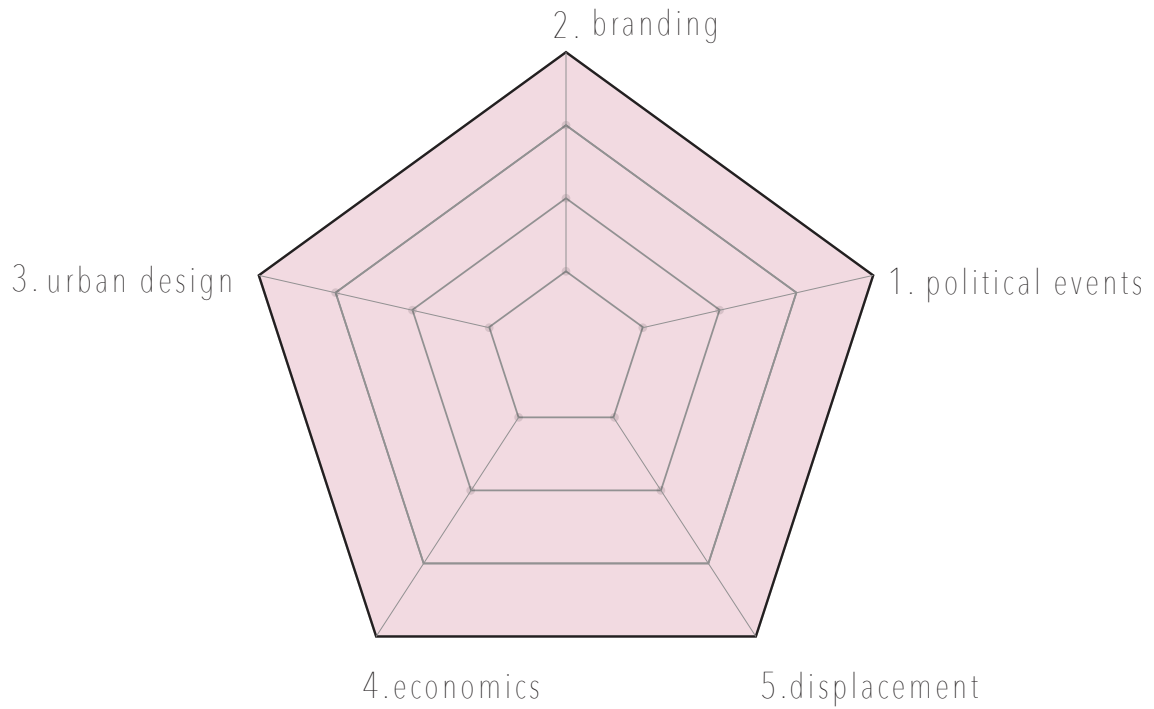
Were incentives offered to smaller, younger and locally owned companies?



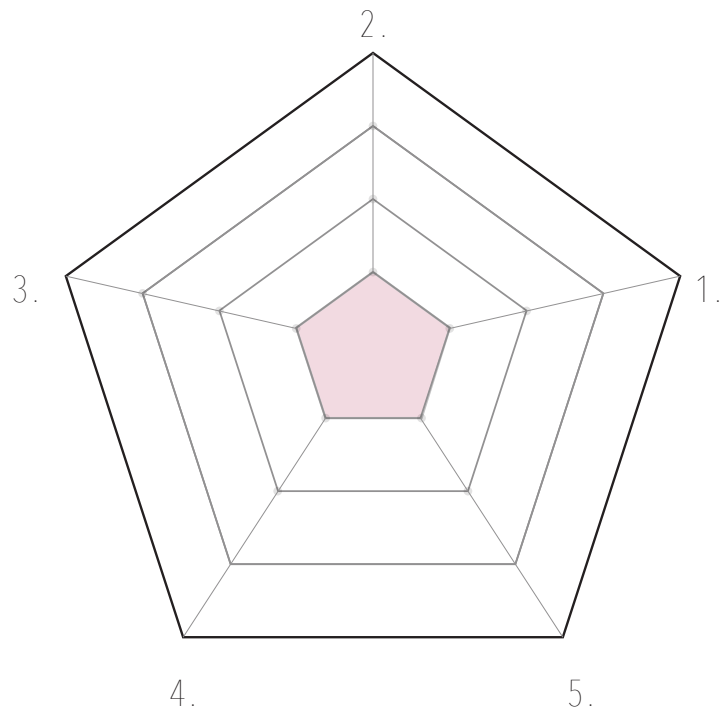
5. displacement

Was there direct and/or indirect displacement of people?





more equitable

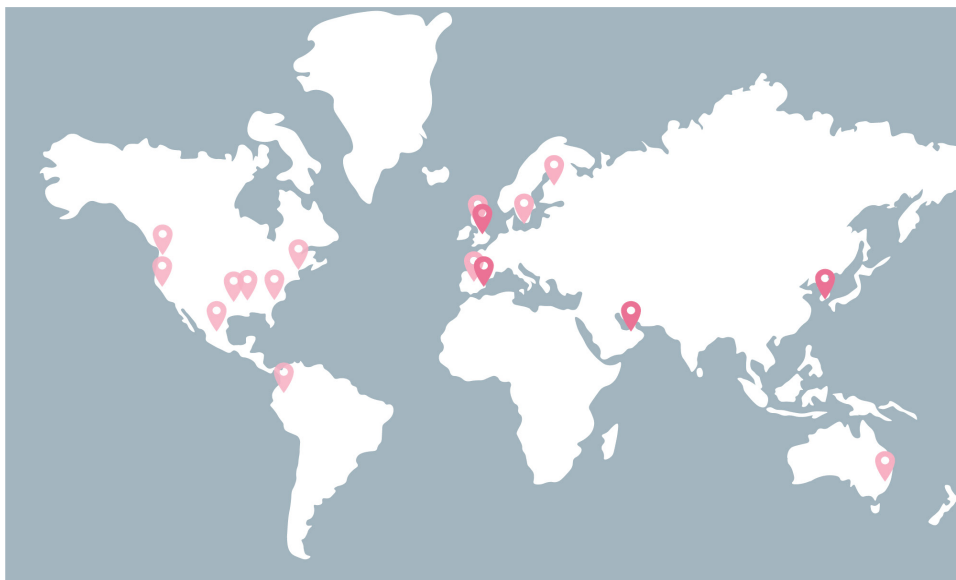


less equitable

Each proxy question is mapped to one of five axes, given a score between 0 and 5, and plotted on its associated axis. The greater the positive equity impact the district has on the city the more complete the resulting pentagon will be.

case studies

To best explore equity of innovation districts, four case study districts were selected: 22@Barcelona (Barcelona, Spain), Digital Media City (Seoul, South Korea), Masdar City (Abu Dhabi, United Arab Emirates), and Media City (Salford, United Kingdom). These cases were selected based on the differences in government, location, size, and phase of development. Looking at four varying cases allows for a stronger understanding of the single factor of equity, which is so often dependent on place (Kavaratzis and Ashworth 2005). The proxies of politics, branding, urban design, and displacement are examined in each case to determine the effect on local equity.



MIT/ Kendall Cambridge, MA
Ørestad Nord, Copenhagen
one north, Singapore
Arabianranta, Helsinki
Digital Media City, Seoul
Titanic Quarter, Belfast
Milla Digital, Zaragoza
MediaCityUK, Salford
Masdar City, Abu Dhabi

Silicon Valley, CA
Research Triangle, NC
22@, Barcelona
South Lake Union, Seattle
Oklahoma City
Pittsburg, Pennsylvania
Chattanooga, Tennessee
CreativeDigitalCity, Guadalajara
Medellin, Colombia

In the above figure it shows some of the well known innovation districts around the world. The markers that are a darker shade of pink illustrate the chosen case studies.

Figure made by author. Information gathered from sources: Katz and Wagner 2014 and Joroff et al. 2009



Four selected cases study innovation districts

1. Masdar City, Abu Dhabi <https://www.popsci.com/masdar-city-ghost-town-or-green-lab>
2. MediaCityUK, Salford England <https://www.gillespies.co.uk/projects/mediacityuk>
3. Digital Media City, Seoul Master Plan Digital Media City
4. 22@, Barcelona <https://www.barcelonabusturistic.cat/en/22-barcelona-industrial-heritage>

case study analysis : masdar city



Aerial rendering of Masdar City showing development plan

Masdar City, Master Plan rendering. Image by <https://transsolar.com/projects/masdar-city>

political events

The primary export of the United Arab Emirates (UAE), is oil. In 2016 alone they exported US\$32,999,000,000 worth of oil, making it their most profitable export (“Trade Profiles” n.d.). With the rise of environmentalism starting in the 1970’s and gaining global attention through the 21st century as temperatures rose, the world began condemn the use of fossil fuels. In 1992, “154 countries signed the United Nations Framework Convention on Climate Change” (“Global Warming: Need for a Global Effort | Alexander Street, a ProQuest Company” n.d.). This global consensus on the need to shift away from fossil fuels greatly jeopardized the UAE’s primary economic export, catalyzing national change.

During this time of change, Sheikh Maktoum appointed Sheikh Mohammed as the Crown Prince of Dubai on June 03 1995 and then the Ruler onto Vice president and then finally the prime minister (“H. H. Sheikh Mohammed bin Rashid Al Maktoum - The Official Portal of the UAE Government” n.d.). He is considered very progressive for the time; some of his initiatives include the UAE Green Growth Strategy, Government Creativity Lab, UAE Vision 2021, and many more. The Green Growth Strategy aims to “build the green economy of the nation, under the slogan ‘A Green Economy for Sustainable Development’”. This initiative also falls under his 2021 vision for the UAE which focuses on six national priorities: “a cohesive society and preserved identity, safe public and fair judiciary, competitive knowledge system, first rate education system, world class healthcare, and a sustainable environment and infrastructure” (“H. H. Sheikh Mohammed bin Rashid Al Maktoum - The Official Portal of the UAE Government” n.d.).

The collapse of the nation’s primary export was recognized by Sheikh Mohammed and it was clear from his initiatives that diversifying the economy was a top priority. This prioritization accounts for the interests of the citizens, as a large majority of them work within or in industries related to oil and petroleum.

branding

“Masdar City is one of the world’s most sustainable urban communities, a low-carbon development made up of a rapidly growing clean-tech cluster, business free zone, and residential neighborhood with restaurants, shops and public green spaces” (“The City” n.d.). This quote, taken directly from the city developer’s website, makes the political narrative of diversifying their economy into sustainable energy extremely clear. The imagery and renderings used in the project’s branding show flashy transportation and building technology being implemented. It is purposeful in the objects and scenes shown in the renderings as it is trying to attract a group of people that works in the tech and research industries and could directly understand and appreciate the message or use for the technology shown in the renderings. The entire website that advertises the district is strictly aimed at highly educated individuals that work in the renewable energy educational or research sectors. It is extremely evident that Masdar City is not a place for lower class and less educated people to move. However, this does not stray from the original narrative of creating an entire new economic sector: only the best and the brightest are needed to found it, but once established one can assume that people of different socioeconomic classes will also participate.



1. Rendering of street-scape done by Foster and Partners showing brilliant building facades, shaded streets that are pedestrian dominated.



2. Rendering of street-scape done by Foster and Partners showing public transportation pod system, autonomous driving citizens underneath the primary roads to eliminate cars from the city all together.

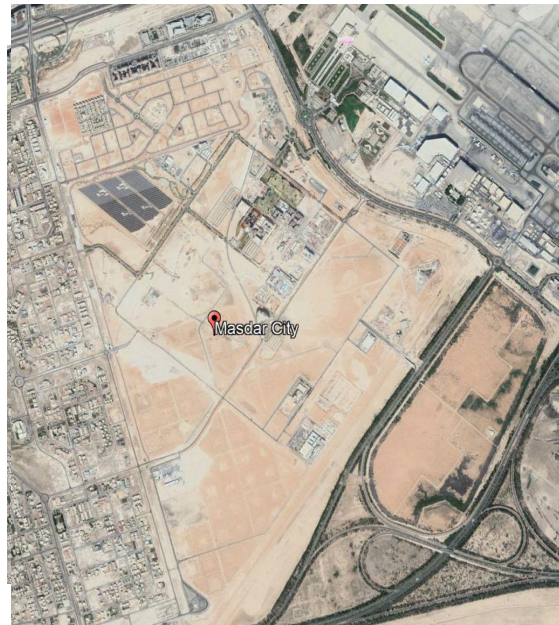
urban design

The district is still undergoing construction, but the first phase of the project has been completed. It includes the infrastructure for the driver-less rapid transit system, the Khalifa University of Science and Technology and associated student housing, five companies all within the energy industry, a 2,500 square meter public park, a bike-share program, a shopping mall, and 16 restaurants offering a variety of cuisines. Khalifa University and student housing was built to use as few resources as possible. The housing is designed to reflect the vernacular architecture of the area with shaded facades and cooling tunnels, again emphasizing the importance of sustainability (“The City” n.d.).

The district’s physical design clearly supports the original political narrative of growing the renewable energy sector through the physical construction methods and design of the buildings that exist there today. The clarity of the narrative translated to the branding and physical design of the district can be partially attributed to the monarchy government where all the stakeholders of the district have the same agenda for it.



expectation



reality

Aerial rendering showing master plan that was supposed to be completed in 2016 next to a satellite image showing the amount of completion in 2017.

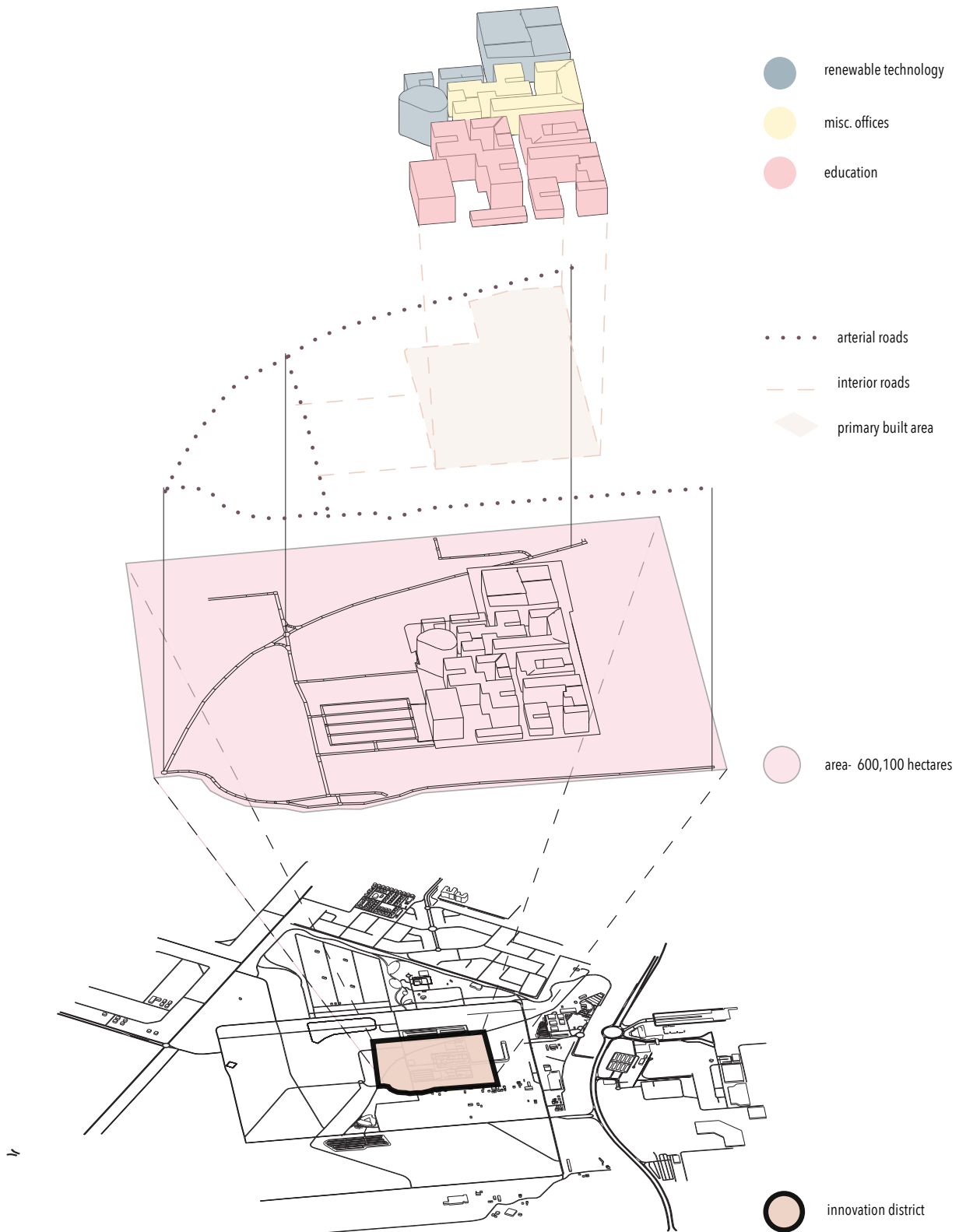




Image showing public square in masdar city- graduate student housing on left of image and cooling urban tower in middle.

<https://www.cnn.com/style/article/conversation-masdar-city-lee/index.html>

economics

The industries that currently reside within Masdar are: Siemens, Emirates Nuclear Energy Corporation, Honeywell, Saint Gobain, International Renewable Energy Agency (IRENA) and Khalifa University of Science and Technology (“Anchor Tenants” n.d.). All of the firms presently within the district are geared towards supporting the renewable energy sector of the economy through manufacturing or research and development. To continue attracting these types of companies to the district, Masdar City has stated that its annual licensing fees will be reduced and the minimum capital requirement will be waived. “These business benefits will further incentivize local start-ups and encourage more UAE national entrepreneurs to enter the private sector, while at the same time supporting the City’s overall mandate to connect education with research and development and business with investment,” said Mohammed Al Fardan, the director of the Masdar City Free Zone” (“Masdar in New Incentive for Sustainable Start-Ups” n.d.). It is unclear how many jobs have been created since the birth of the district, but it is of primary importance that the renewable energy sector continue to grow (“H. H. Sheikh Mohammed Bin Rashid Al Maktoum - The Official Portal of the UAE Government” n.d.).

displacement

Once an abandoned date farm became the future home to the net zero city of Masdar (Prichett 2009). Due to its location, there was no direct displacement of people in the construction of the district. Rental prices in the neighboring city of Abu Dhabi have fluctuated but shown a generally downward trend in Abu Dhabi and neighboring district, Khalifa City, since the construction of Masdar, making it difficult to tell if there was any indirect displacement of local people and businesses. Another important factor to take into account with regards to indirect displacement is the fact that only a very small portion of the district has actually been built.

equity

1. political events

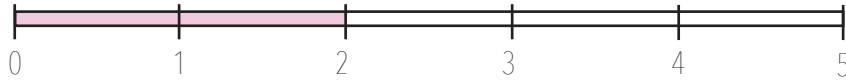
Was the political narrative of the district supportive of the entire population of the country?



Yes, the narrative is focused on maintaining a global export commodity, benefiting the entire population of the UAE.

2. branding

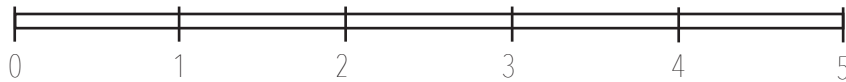
Did the branding narrative include any reference to jobs outside the knowledge economy?



Not exactly. The branding emphasized the sustainability of the district rather than job creation.

3. urban design

Were there different types of housing (apartments, single family homes, luxury housing, low income housing) included in the plan?



No, the master plan mentions only graduate student housing and a 500 unit apartment building prior to 2015.

4. economics

Were incentives offered to smaller, younger and locally owned companies?



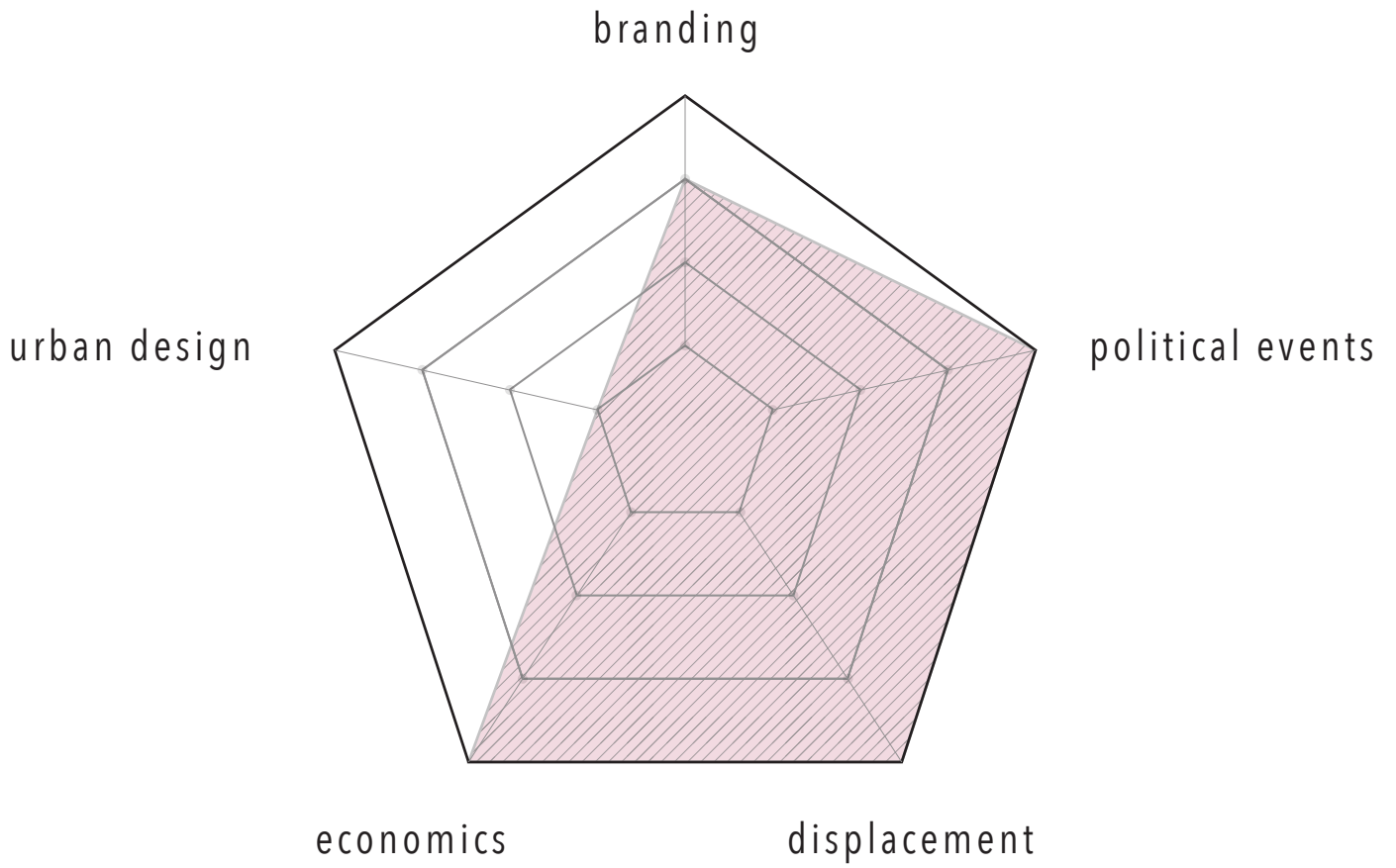
Yes, incentives were offered specifically to smaller entrepreneurs and startups.

5. displacement

Was there direct and/or indirect displacement of people?



No, using this particular site caused no displacement. Indirect displacement did not occur.



Masdar City scored highly in the areas of political events, branding, economics and displacement.

equity visualization for masdar city on radar chart.

COMMITTEE APPOINTED-2006

Owned by -Mubadala company agreed to build core of city, Al Jaher Group - billion to build infrastructure.

Committee includes: 7 people- Mohamed Jameel Al Ramahi Chief Executive director Clean Energy, Yousef Ahmed Baselaib Sustainable real estate initiatives, Ahmed Baghoum human capital and services, nadia bardawil ge

OPPORTUNITY-

United arab emirates primary economic export is oil, their oil reserves to exported product is in 2016 petroleum and crude oil 32,999 million dollars.

Oil has been condemned since the 1970s/ 90's. In order to progress in a changing world, they needed to start to progress in a different direction.

POLICY CREATED-

Green economy for sustainable development 2012

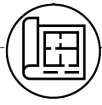
"In 2015, the UAE government injected AED300 billion to foster a knowledge economy, driven by innovation to prepare the UAE for a world after oil."

EVENT OF SIGNIFICANCE- JUNE 03 1995

I think the catalyst for all of this policy change and in turn the creation of the innovation district was the death of the prime minister and the crowning of Sheikh Mohammed, as crown prince he was already making huge changes to the country in terms of increasing tourism and adoption of technology in as many aspects as possible.

PHASE 1

MASTER PLAN CREATED



POLITICAL ANALYSIS-

"By virtue of Vision 2021, the UAE is striving to diversify its income resources by moving away from oil. In January 2012, Sheikh Mohammed (crown prince of Abu Dhabi) launched the Green Economy initiative under the slogan: A green economy for sustainable development. Under this initiative, the UAE seeks to become a global hub and a successful model of the new green economy, to enhance the country's competitiveness and sustainability and preserve its environment for future generations".

BRANDING IS EST

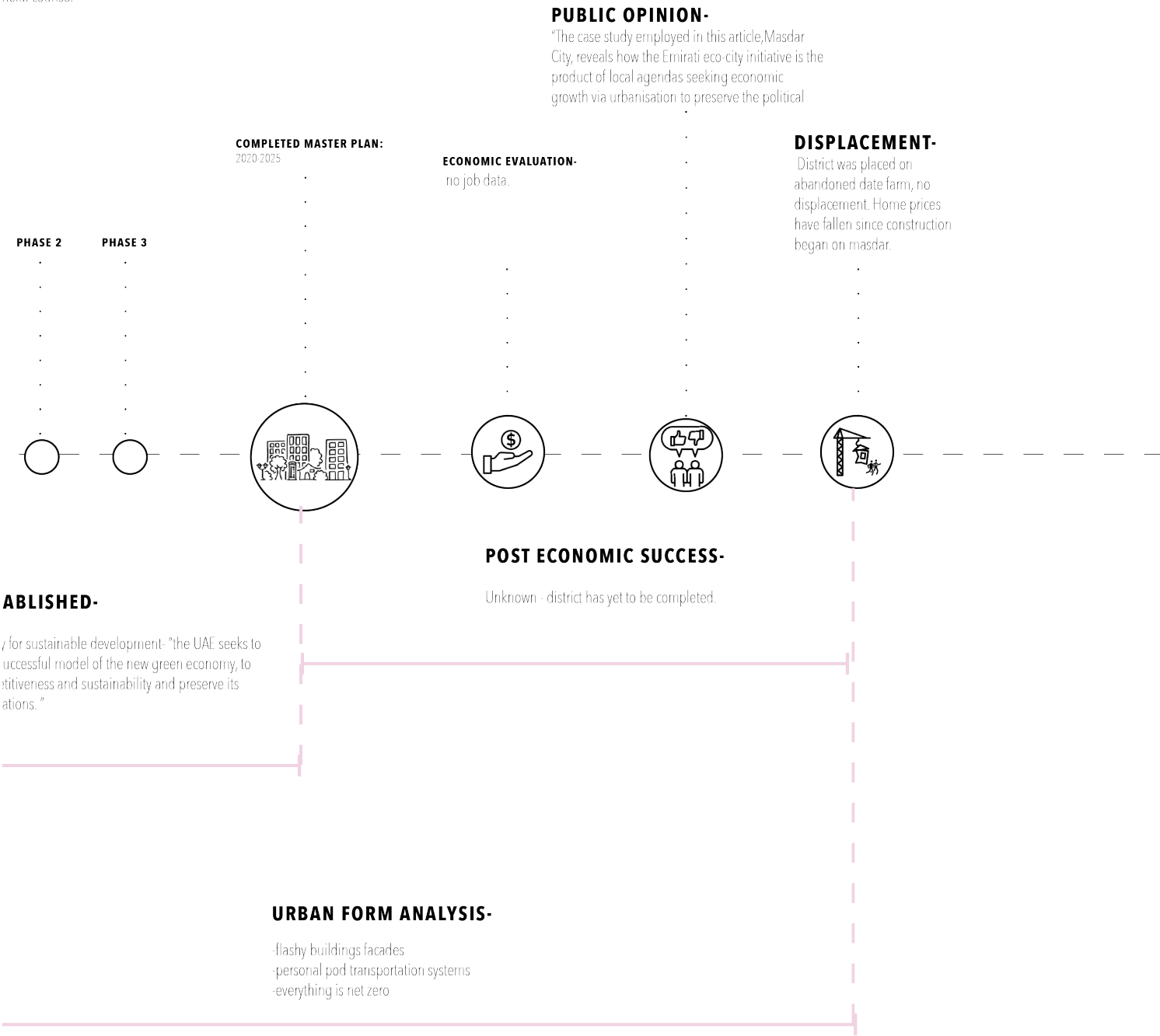
origins in the Green economy become a global hub and a sustainable environment for future generations

ECONOMIC ANALYSIS-

Oil is primary export, global warming/ global shift / acknowledgment of condemnation of fossil fuels, need to create new export.

- Abu Dhabi construction company won contract in 2009 up to \$1.6

e officer, Niall Hannigan Financial officer, Bader Saeed Al Lamki
ate, Dr Lamiya Nawaf Fawwaz director of brand and strategic
neral counsel



timeline showing overall logic and overlap of analysis

case study analysis : 22@



Image from 22@ Master Plan, 2012

political events

In 1975 Spain made the transition from a dictatorship to a democracy. One year after this huge shift in government, the General Metropolitan plan was created and carried out under prime minister, Adolfo Suárez González (“Spain Profile” 2019). This new master plan developed under Suárez’ rule was a backlash against the Franco dictatorship where the public opinion was banned and the city was characterized by a series of disconnected urban design interventions (Duarte and Sabate, n.d.). This initial general plan was where the seed for the 22@ innovation district was first planted. The General Metropolitan plan responded to the unemployment and identity crisis of the nation and consisted of three phases. The first phase was titled “preservation and modernization” which lasted a decade. The second phase was titled “innovation” and the 22@ district was created as a part of this and approved in 2000 (Duarte and Sabate, n.d.).

For the two decades after the transformation in government the political climate was turbulent. In 1996 José María Aznar, a member of the People’s Party who had strong foundations around economic reform, was appointed prime minister (“Spain - Migration” n.d.). Aznar’s father had been employed under the dictatorship of Franco and the previous employees of the dictatorship were promised “ironclad job security” (Eavis 2017). The People’s Party, while being on the conservative side, stood for economic reform and needed to create a surplus of jobs to jump-start the economy after an abrupt transition in government (“Spain - Migration” n.d.). In 2000 the knowledge city department was appointed and set up a municipally owned company to administer and oversee the construction of the innovation district (Duarte and Sabate, n.d.) which helped begin to reinstate previous government employees.

branding

22@ was to become “The main economic and technological platform in Barcelona, Catalonia and Spain in the perspective of the 21st century” (22@Barcelona Master Plan 2012). The branding narrative responded to the tumultuous political past by showing that Spain as a new democracy progressing with the rest of the world into the new era of internet and technology. The industrial neighborhood of Poblenou in Barcelona, historically known as the ‘Manchester of Catalan’, was the prime location to create the new hub the knowledge economy. It was a previously vacant unproductive area of the city, and therefore was the ideal area to be re-purposed into an economically productive area.



Lluís-Pujades Llevant area (before)



Lluís-Pujades Llevant area (present)

Imagery from the Master Plan showing the proposed before and after of Llacuna street. Demonstrating the update the district will receive.

Image from <https://www.barcelonabusturistic.cat/en/22-barcelona-industrial-heritage>



Rendering showing the new buildings being constructed within the innovation district.

<https://dsabarcelonaprogram2018.wordpress.com/2018/01/12/22-innovation-district/>

urban design

The urban design of 22@ focuses on enhancing the transportation, supporting space for public interactions in the form of green space and public realm with additional space added to each city block. In addition to new infrastructure that was added it was a priority to also preserve some of the historical buildings within the district (22@Barcelona Master Plan 2012). Special attention was given to the streetscapes of the district making the improvements made to the district easily seen by the public.

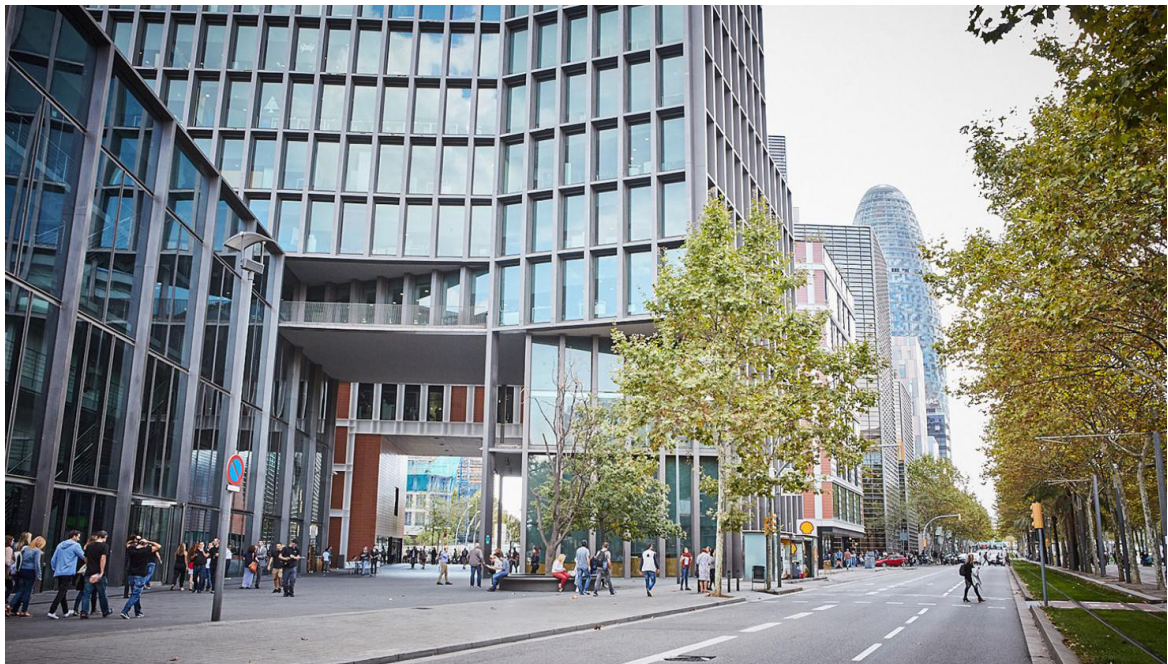
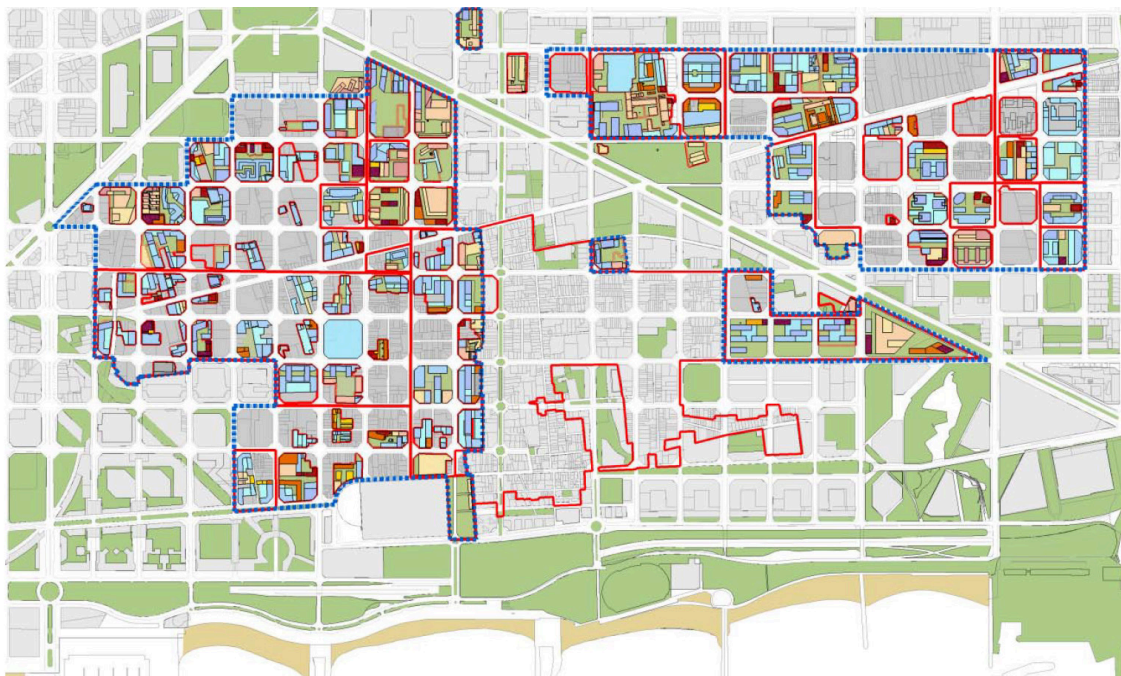
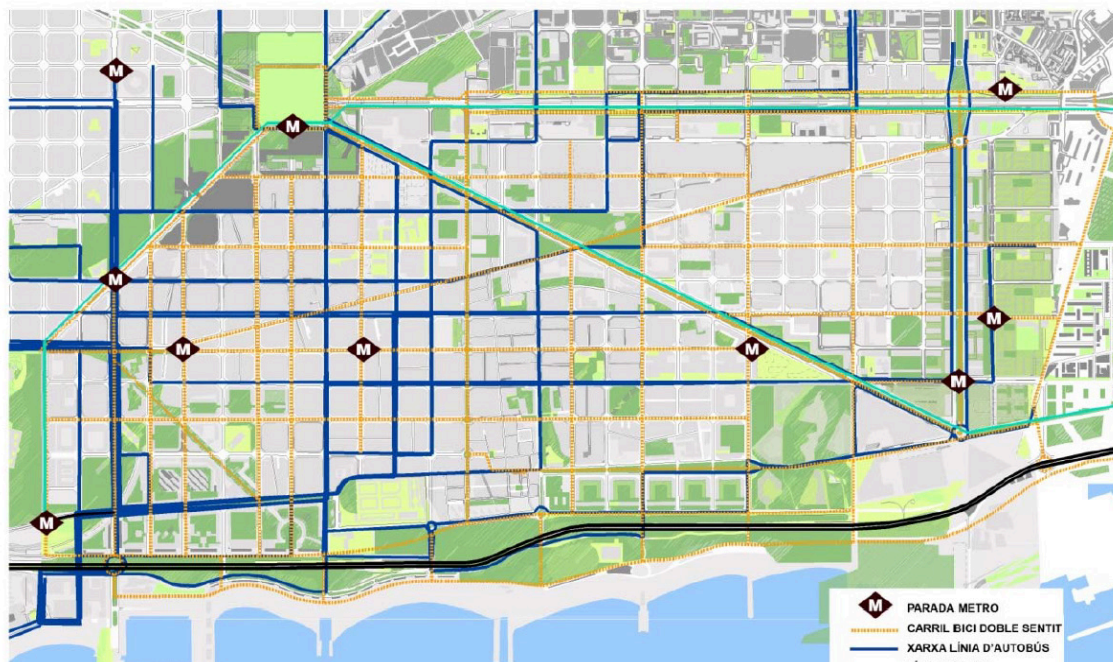


Image of updated Llacuna Street- the primary axis of the innovation district .

Image taken from 22@ master plan, 2012



Plan diagram- red outlined areas show developments directly associated with 22@ plan



Plan diagram- showing additional public transportation lines being added to connect the innovation district with the greater Barcelona area.

economics

This district promised 150,000 new jobs within the knowledge economy. Since the completed construction of the district 5,350 new companies have emerged in 22@, significantly boosting the economy of the area: on average, 545 new business formed in or moved to the district every year for the first 15 years (“22@Barcelona 2000-2015: Barcelona’s Innovation District” n.d.). The five core industries of the district are information communication technology, media, medical research, energy research and development, and design. Incentives were given in the form of lower land prices in exchange for companies to conduct knowledge based business (“22@Barcelona 2000-2015: Barcelona’s Innovation District” n.d.)

displacement

There was both indirect and direct displacement with the construction of this innovation district. The innovation district was placed in an existing industrial area and a number of buildings were torn down in order to make room for the infrastructure to house the knowledge economy. Compensations were given at 600 euros per square meter for relocation[citation slideshare]. There was some indirect displacement in two neighborhoods of innovation district area, La Vila Olímpica del Poblenou and Diagonal Mar i el Front Marítim del Poblenou, where housing prices increased to 25-37% above the average price for Barcelona.

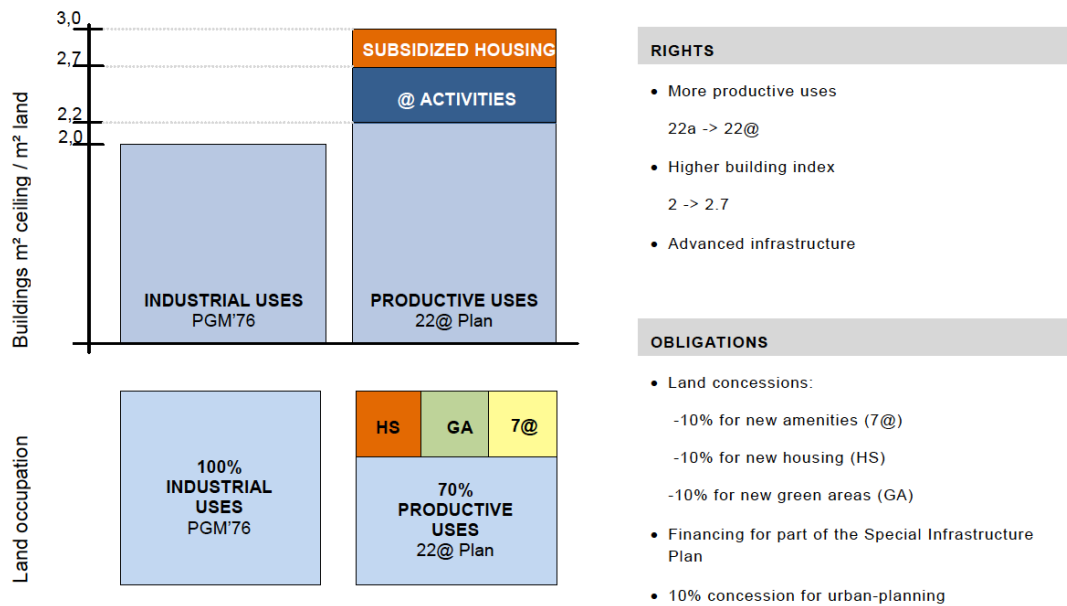


Diagram above taken from 22@ Master Plan, 2012- showing land use within the district



Image taken in Poblenou showing how artists are using the buildings as canvas' to express themselves. In this particular case it is a mural showing the artists feelings about the gentrification of the district.

<https://whatsgoingoninmystaircase.wordpress.com/2015/04/14/gentrification-the-case-of-the-poblenou-dis->

equity

1. political events

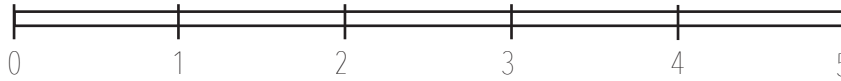
Was the political narrative of the district supportive of the entire population of the country?



Not exactly. The political narrative was primarily centered around updating a dilapidated area of the city.

2. branding

Did the branding narrative include any reference to jobs outside the knowledge economy?



No, it did not. The branding emphasized activities and businesses surrounding knowledge economy exclusively

3. urban design

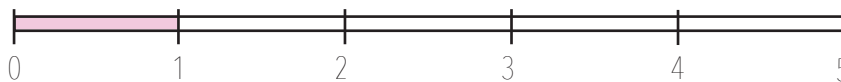
Were there different types of housing (apartments, single family homes, luxury housing, low income housing) included in the plan?



Yes, there were a variety of housing types included in the master plan.

4. economics

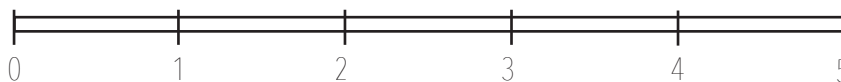
Were incentives offered to smaller, younger and locally owned companies?



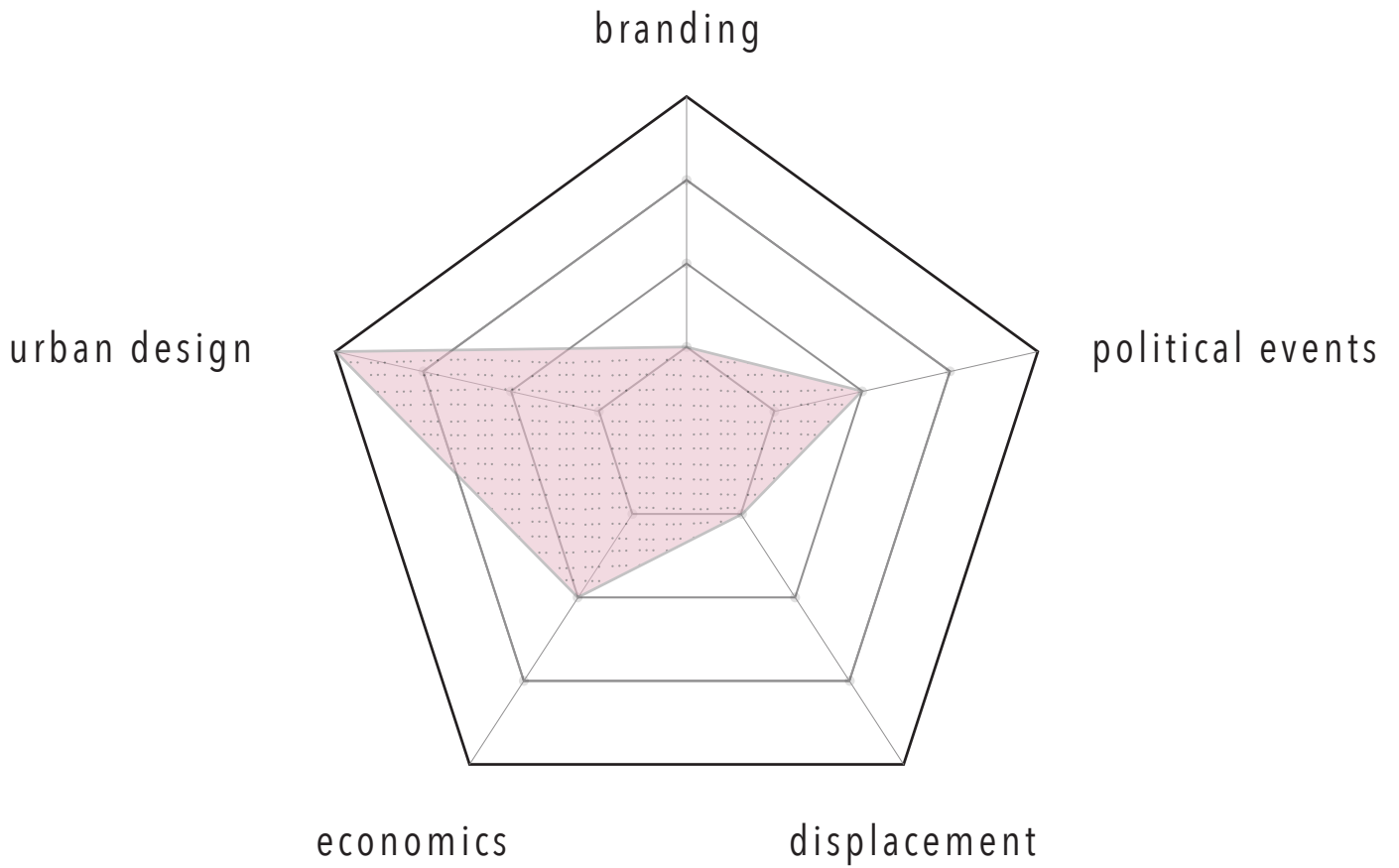
Some incentives were offered to local companies.

5. displacement

Was there direct and/or indirect displacement of people?



There was direct and indirect displacement of people during and after the implementation of the district.



22@ scored high in the area of urban design, showing that innovation districts can improve their equity by including a variety of housing types.

equity visualization for 22@ on radar chart.

OPPORTUNITY-

1975 Spain transitioned from a dictatorship to a democracy, 1980 coup attempt fails and socialists win elections from 1982- 1996. Politically turbulent time. 1996 Aznar becomes prime minister.

Peoples Party strongly encouraged economic reform and there were issues with high unemployment . Huge issues with unemployment after the dictatorship was overthrow- na lot of the employees were promised "ironclad job security" - these people were given temporary employment contracts- makes sense because Aznars father worked in the dictatorship (NYT)

EVENT(S) OF SIGNIFICANCE-

1992 olympics put stress on city to create new projects, management was not set up to deal with this (ds)

POLICY INTRODUCTION-

1976 General Metropolitan Plan (3 phases: preservation + modernization 76-86, innovation 86-92 and consolidation+ efficiency from 92- present [consult winn, 2012]

policy of land acquisition helped to promote urgent projects needed to meet the considerable demand for housing - leaving a patchwork of projects (duarte sabate)

MASTER PLAN- approved in 2000

COMMITTEE APPOINTED-

the Knowledge City Department (duarte and sabate) and in 2000 city council set up municipally owned company to administer 22@bcn

PHASE 1



POLITICAL ANALYSIS-

Aznar becomes candidate for peoples party, which was highly conservative and adopted a lot of the Franco (the dictator)'s values- but he helped transform it to a much more right leaning party than it was before.

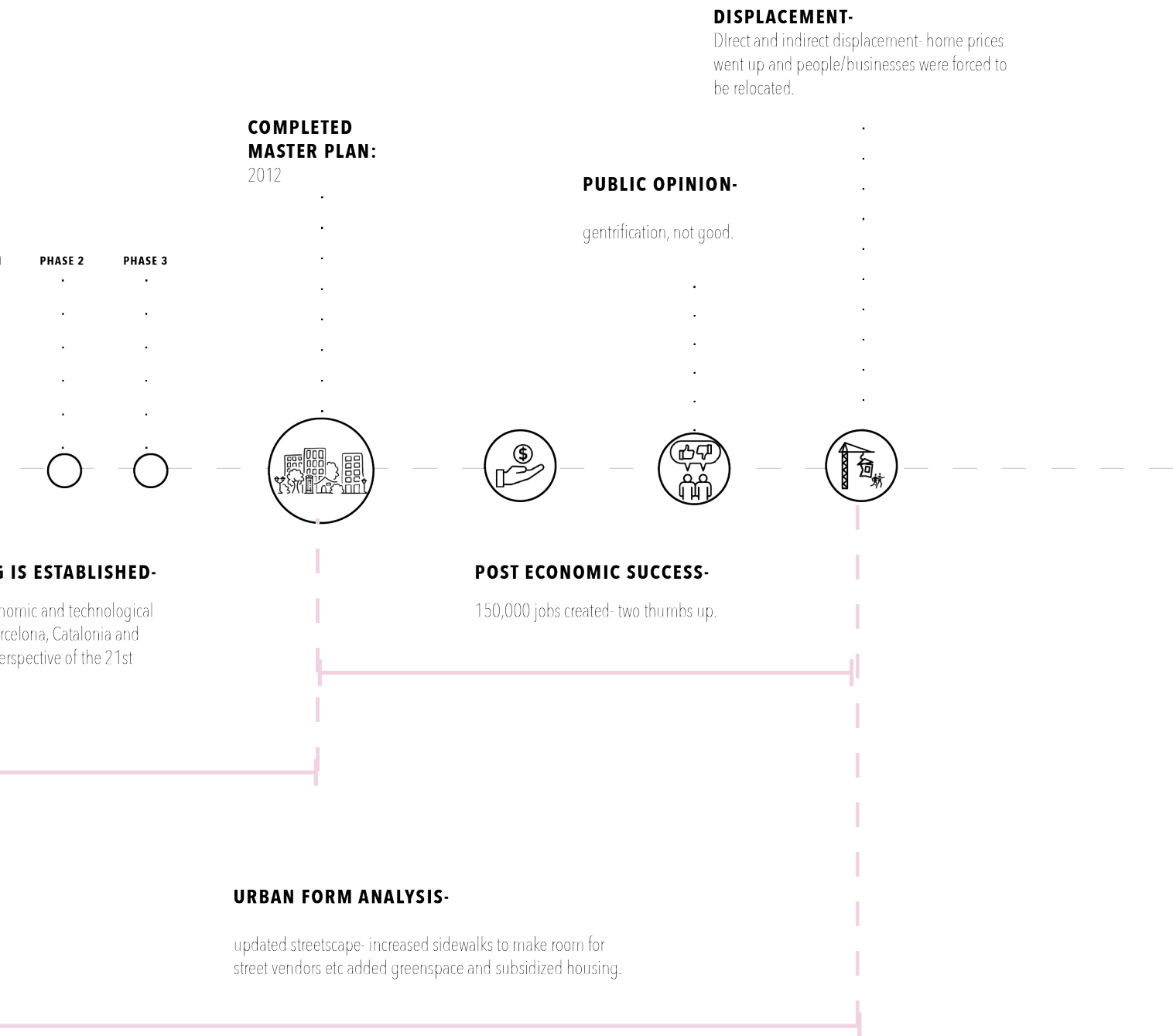
Aznar "appointed a cabinet with a wide range of views and emphasized economic reform" unemployment peak remained high. (Brittanica)

BRANDING

"the main economic platform in Barcelona in the 21st century". (MP)

ECONOMIC ANALYSIS-

during the early 1990s huge economic crisis caused in part by spains entry into the european monetary system "at an exchange rate that was over valued" after spain overthrew the dictatorship a lot of jobs that were guaranteed to employees were then also promised jobs in the new democracy which affected the labor market [look up temporary contracts]



case study analysis : mediacityUK



Aerial image of MediaCityUK

<http://www.mediacityuk.co.uk/newsroom/mediacityuk-given-go-ahead-to-double-in-size/>

political events

Manchester England 1982, once a large shipping trade hub met its demise with the containerization of shipping, which demanded larger ships to carry the freight. The Irwell river was soon too small for the larger freight ships that carried the containers. Shipping trade then began to move away from Europe and the United States towards Asia (“Salford Quays Milestones” n.d.). With this sharp decline in trade, the city made the decision to close the Manchester Ship Canal and Manchester Docks resulting in the loss of 3,000 jobs-(“Salford Quays and MediaCityUK • Salford City Council” n.d.). During this same time period, Manchester had released “Action for Cities”, a publication that outlined the cleanup of the Irwell river at the site of the docks located down river from Manchester in Salford [don’t know if this sentence is necessary]. To follow through on this publication, the city then purchased the site from Manchester Ship Canal Company by means of a derelict land grant and private sector investment. Once the land was purchased it was not long before a master plan for the redevelopment of Salford Quays was released showing a joint venture of the Peel Group and the Salford City Council. Redevelopment officially began in 1985 of the area which included pollution cleanup, updated infrastructure, cultural architecture, retail spaces, commercial spaces and residential areas.

In 2003, well into the development of the Salford Quays master plan, the BBC made the announcement to move from their previous location as part of the renewal of its royal charter. The choice to move to the Salford area was made in 2006, “The objectives for the relocation to Salford were better to serve audiences in the north of England, improve quality of content for all audiences, improve efficiency and provide economic and other benefits to the region.” (“The BBC’s Move to Salford” n.d., 10) This announcement of BBC’s move was the catalyst for creation of MediaCityUk, innovation industrial area of Salford Quays (“Salford Quays Milestones” n.d.).

branding

The entire Salford Quays development and more specifically within it, MediaCityUK, was meant to revitalize and rebrand the former industrial powerhouse of Manchester as a city of the 21st century. “MediaCityUK has been designed as an innovative, creative hub to rival other media cities emerging around the world.” (“Salford Quays and MediaCityUK • Salford City Council” n.d.). The master plan’s primary goals for the district were to create: “a place that is designed to stimulate linkage and exchange ideas; a place where people live, work, play and learn; a place where new ways of informing, educating and entertaining will be created.” (“Salford Quays and MediaCityUK • Salford City Council” n.d.).

The BBC’s goals included updating their brand to appeal to the broader audience of northern England through press releases and media engagements, to express greater attentiveness and responsiveness to this section of the country, and to “better reflect and represent the whole of the UK.” (“BBC - Press Office - BBC Move to Salford Gets Green Light” n.d.).



Screenshot image taken from MediaCityUk website- highlighting the big name companies that currently occupy the district.

<https://www.gillespies.co.uk/projects/mediacityuk>



Image showing primary public green space in use within the MediaCityUK development.

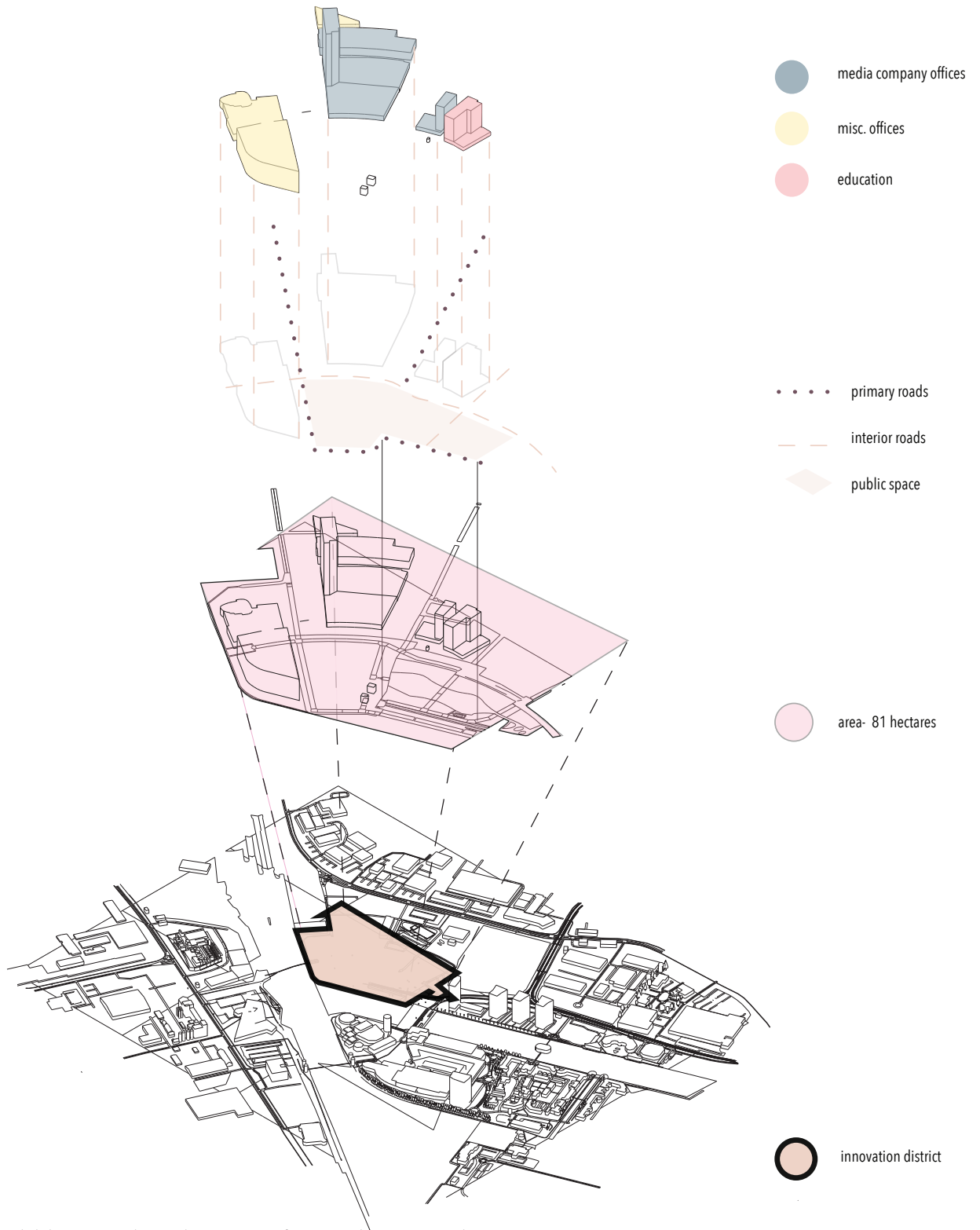
<https://www.gillespies.co.uk/projects/mediacityuk>

urban design

The urban design of the project is consistent with the branding narrative of creating a new technology hub that supports the desires and needs of the region. MediaCityUK is home to BBC and University of Salford and has a large waterfront park or square onto which the majority of the buildings face. The public space provides an area for employees to interaction and cultivate relationships and even share ideas. The plan outlines narrow streets, piazzas, parks, and digital technology integrated into building facades for increased interactivity with the industry and general population (Salford City Council& Trafford Metropolitan Borough Council 2007).



Image from Master Plan showing relationship of Media City to surrounding Salford Quays



exploded axonometric diagram showing context of innovation district to surroundings

economics

As MediaCityUK was the last piece of development as part of the Salford Quays joint venture, there were no incentives given to companies in this particular phase of the master plan. There have been 4,600 total jobs created thus far from the implementation of MediaCityUK. While this number in fact covers the amount of jobs lost during the closure of the docks, of the 4,600 total jobs, 2,000 of them were given strictly to BBC staff that were relocated after the establishment of their new hub, and 1,200 were again businesses relocating from within the district, leaving the net total of new jobs at 1,400. While new jobs were created, it was not as successful as the city and developers had originally hoped for (“BBC Move to Salford Brought Jobs Boost to MediaCity – But Has Had Minimal Impact on Employment Across Greater Manchester” n.d.)

displacement

In the creation of the district there was no direct displacement of businesses or people. The home prices in Salford did rise 38.66% over the past 10 years in part due to the relocation of BBC and the creation of MediaCityUK (“MediaCity Leads to Salford Becoming the UK’s Property Hotspot | Money | The Guardian” n.d.; “Browse House Prices within Salford, Greater Manchester on Zoopla” n.d.) . The rise in home prices make it more challenging for people of lower economic class to continue to afford homes in the greater Manchester area resulting in indirect displacement

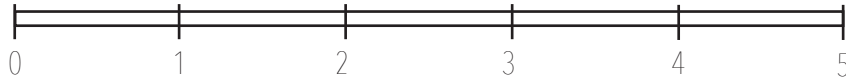


https://www.dphotographer.co.uk/image/311198/media_city_uk

equity

1. political events

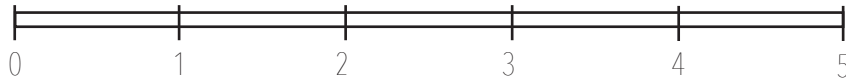
Was the political narrative of the district supportive of the entire population of the country?



Primarily no, but it was in fact supportive of the environmental and economic ambitions of northern England.

2. branding

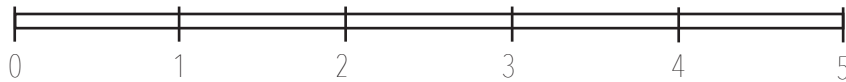
Did the branding narrative include any reference to jobs outside the knowledge economy?



No, it did not as it emphasized jobs primarily in the media industry.

3. urban design

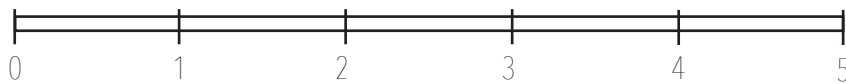
Were there different types of housing (apartments, single family homes, luxury housing, low income housing) included in the plan?



No, the development only contains one high end apartment building at this time.

4. economics

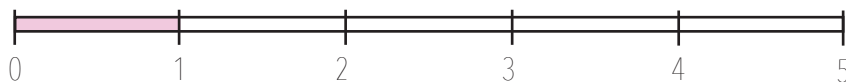
Were incentives offered to smaller, younger and locally owned companies?



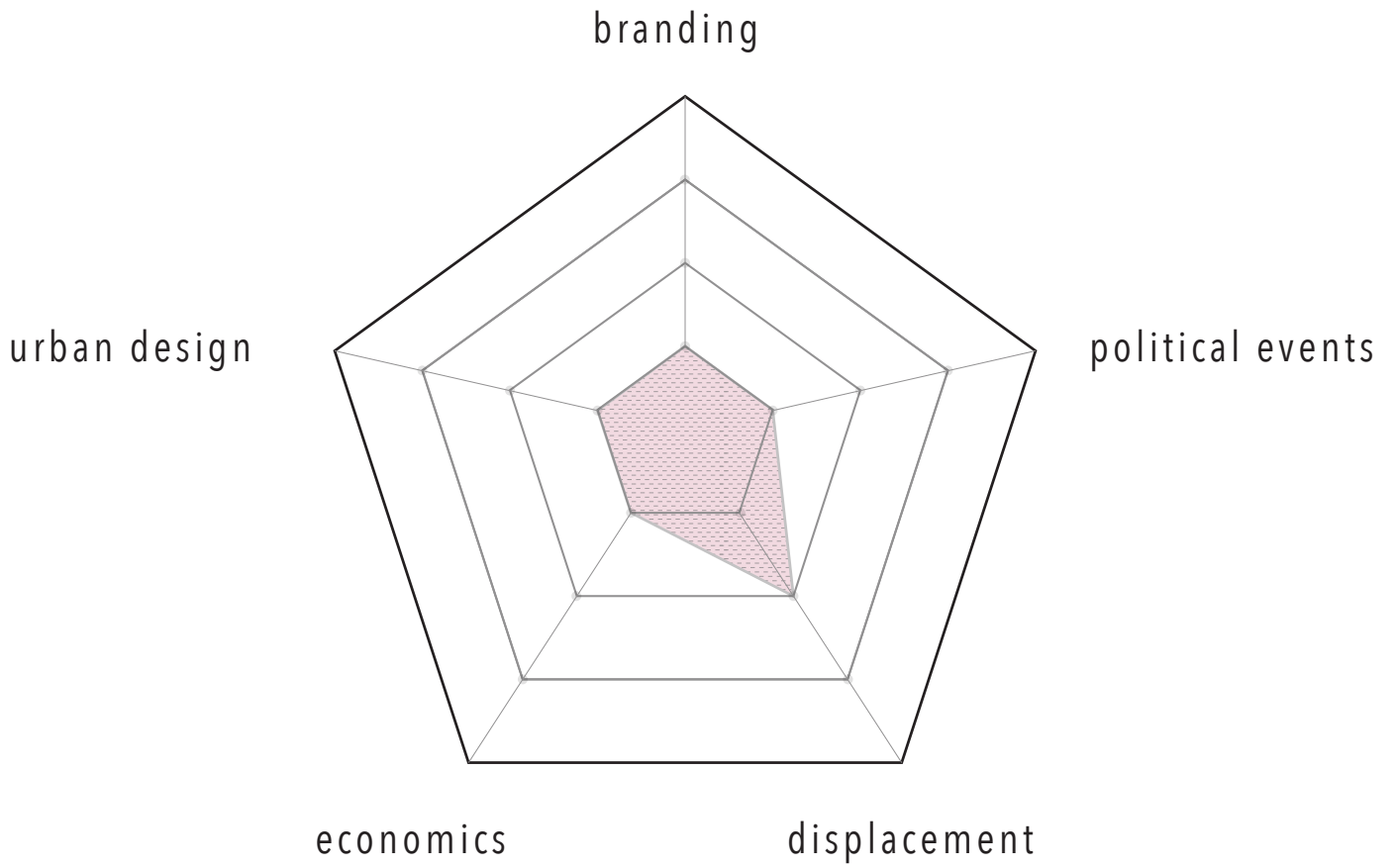
No, there were no incentives offered.

5. displacement

Was there direct and/or indirect displacement of people?



There was no direct displacement since the site was abandoned before construction. The increase in home prices have caused indirect displacement.



MediaCityUK scored a single point only in the area of displacement.

equity visualization for mediacityUK on radar chart.

OPPORTUNITY-

deindustrialization of a previously very industrial "boomtown" of manchester in combination with "the sharp tightening of monetary policy in the late eighties and the subsequent collapse of the housing market." put uk in a recession. (catao and ramaswamy)

EVENT OF SIGNIFICANCE-

closure of the salford docks in 1982
where 3,000 jobs were lost (city website)
trade shifted away from america and
europe and eastward.

MASTER |



POLITICAL ANALYSIS-

Part of the 'Action for Cities' government publication, there was also lobbying done to clean up the extremely polluted water of the docs as a previous site of high economic activity, the city wanted to restore it

1984 city purchased docks using derelict land grant from the ship canal company the city then found private sector to invest

The salford quays development master plan was created in 1996- joint venture by Peel Land and

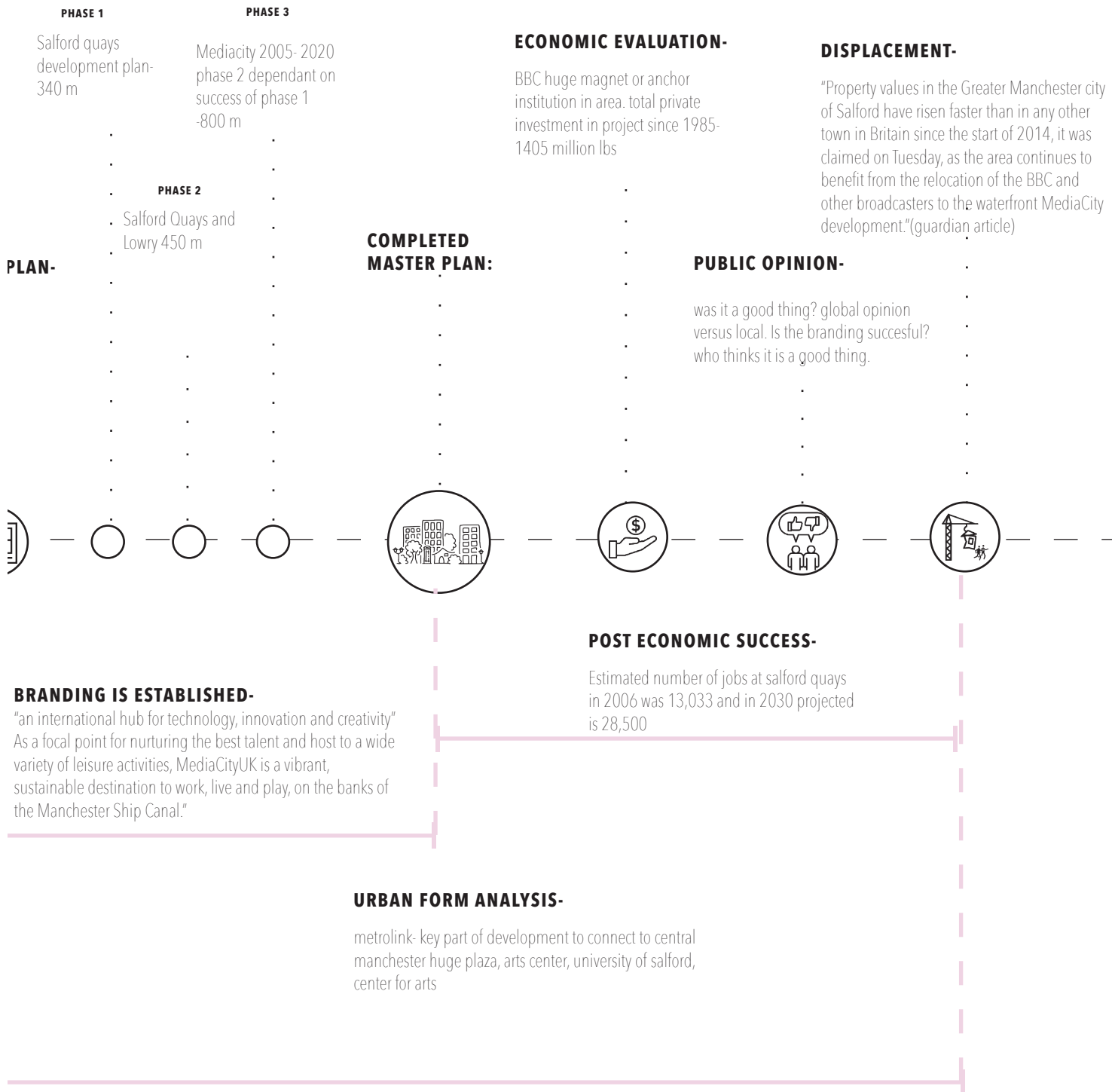
COMMITTEE APPOINTED-

Central Salford Urban Regeneration company, salford city council, northwest regional development agency and peel holdings

ECONOMIC ANALYSIS-

funding- from the department of the environment, the urban programme, and european regional development fund invested 35 million lbs for infrastructure- private investment ~1990 was 250 million lbs

BBC wanted to relocate to northern england, and digitally driven industry has an annual turnover of 6,45 billion pounds and employs 63,000 people.
(mcmilestones) BBC 1.5 bn and employment for 15,500 people



case study analysis : digital media city



Digital Media City- image showing rendering- taken from <https://seoulsolution.kr/en/node/3447>

political events

In 1993, the Nanjido landfill located in northeast Seoul was deemed unusable and was contaminating the surrounding urban areas. After its closure, there was a conversation surrounding the future use of the area and two plans were drafted, the “early development plan” and a “stabilized long term plan”. The first plan proposed an immediate solution to remove the waste and develop it into a commercial or residential district, while the second proposed rapid development of a park and the installation of decontamination system (Scaadmin 2015b). During these conversations surrounding the future use of the park, the Thai Baht currency collapsed in 1997, leading to a crash in the South Korean stock market (Sharma 2003). The crash was large enough the nation had to request a loan from the International Monetary Fund, and the president said “We have lost our economic sovereignty” (Sharma 2003)[find page number]. In 1999 the Seoul metropolitan government adopted the Sangam New Millennium city Plan which outlined “the development of a cutting edge IT industrial complex” (scaadmin 2015b).

The values of the citizens were reflected in the planning process of with the closure and reuse of the landfill as it was polluting the surrounding communities. The creation of the IT industrial complex was a direct response to the immediate prior crash in the market, and it was in the best interest of the entire population that the nation not go into further into debt after the loan from the IMF was administered. Thus the decision to move forward with the long term development plan of the landfill calling for the development of this IT campus was chosen over the short term plan which had proposed development of residential areas to combat the housing shortage in the city. When a leader of any sort is in serious crisis mode, decisions are made quickly and do not always prioritize the needs of certain groups.

branding

The vision of Digital Media City was to create, “a high-tech industrial complex built inside Sangam New Century City which is focused on new media and software. It is also a 21st century type of new city where one can work, live and enjoy leisure based on digital technology at the same time.” “[ENG]10-Year History of Digital Media City.Pdf,” n.d.). The point of this vision branding statement was to advertise to the world that with the implementation of Digital Media City, Korea was now the “best business center in north east Asia” “[ENG]10-Year History of Digital Media City.Pdf,” n.d.).

The theme of this narrative had two primary components. The first was to show how the city of Seoul was cleaning up a previously extremely toxic area and turning it into not just a park but the media and IT center for Seoul. The second was to make the nation more competitive since high quality semiconductors, their primary export, were now being produced by surrounding countries such as Singapore and China as well (“OEC - Integrated Circuits (HS92: 8542) Product Trade, Exporters and Importers” n.d.). Their use of the word ‘Asia’ when describing the new business center shows that they wanted to be known for having “the best” something, since it would not be semiconductors anymore.



Digital Media City- image showing architecture credit from 10 Year review Digital Media City

urban design

With the expectation set for the “Best Business Center In Asia”, the urban form of the district had to follow this narrative. There are two primary axes in the district; the horizontal axis, which clusters media and cultural companies, and the vertical axis, which houses digital and information technology firms. To make this area of Seoul easier to access, the government constructed Susaek Train Station, which carries passengers from the city center to the district in only one hour via high speed train. Once it was decided that Digital Media City was to be built, the government moved the Incheon International Airport to Sangam, boasting a 30 minute commute [making the area appealing to conduct foreign business in] (“[ENG]10-Year History of Digital Media City.Pdf,” n.d.). In addition, the government plans to open a ferry route along the Han River in the future, to make it even easier to commute to and from surrounding areas.

Once in the district, after being able to access it with ease from the city center, the streetscapes along the two primary axes demonstrate highly advanced and interactive technology along the “smart” facades. The streets in the main area are referred to as the Digital Media Streets (DMS). There are four primary nodes of experience along the district: experimental, IT art, media and exhibition. The design was highly focused on the street-level perspective, showing the importance of the pedestrian experience. The experimental node of the DMS is a park that exhibits green space and public art (a popular spot for selfies). The IT art node is a shopping district that is home to “posh cafes, restaurants, [a] gallery and other urban facilities” (“[ENG]10-Year History of Digital Media City.Pdf,” n.d., 55). The exhibition node contains Media Park whose primary function is an events area for hosting online game shows and various performances. There are a number of streets laid out to be pedestrian only.

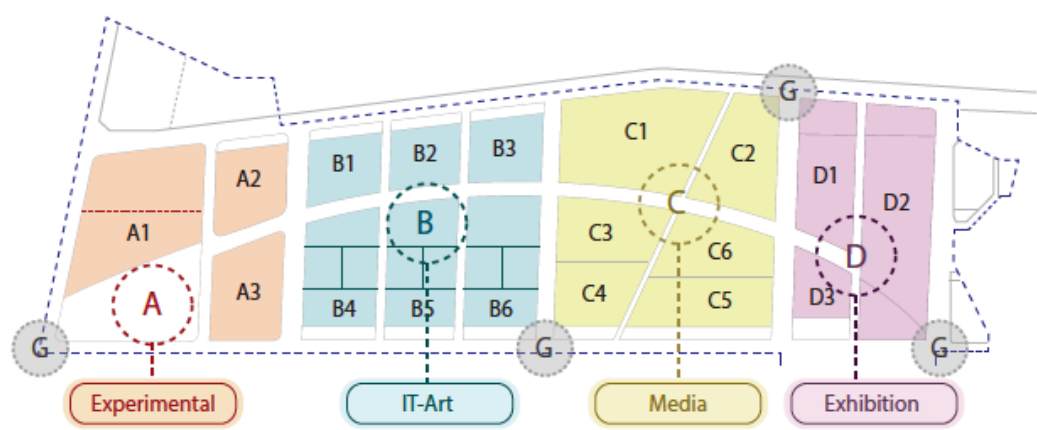
The emphasis placed on the streetscapes of the district demonstrate the importance of the perception of the visitor. Social media is a huge market in Asia; as of 2018 there are a total of 503,300,000,000 users on Facebook alone. “Gangnam Style,” at one point the most viewed YouTube video in the world, was filmed in Digital Media City along with the popular film, *Avengers: Age of Ultron*.

The physical features of design, from the “posh cafes” to the smart streets, are included to attract people of status. It is clear that the district is designed for a specific purpose: “to develop and expand world class technologies”. The physical features of design, from the “posh cafes” to the smart streets, are included to attract people of status. Consequently, once the long term plan was adopted all efforts to help mitigate the lower- and middle-class housing crisis in Seoul were abandoned.



Film shot from Age of Ultron showing rocket flying though public art installation in Digital Media City

NODES



Digital Media City- image showing architecture credit from 10 Year review Digital Media City

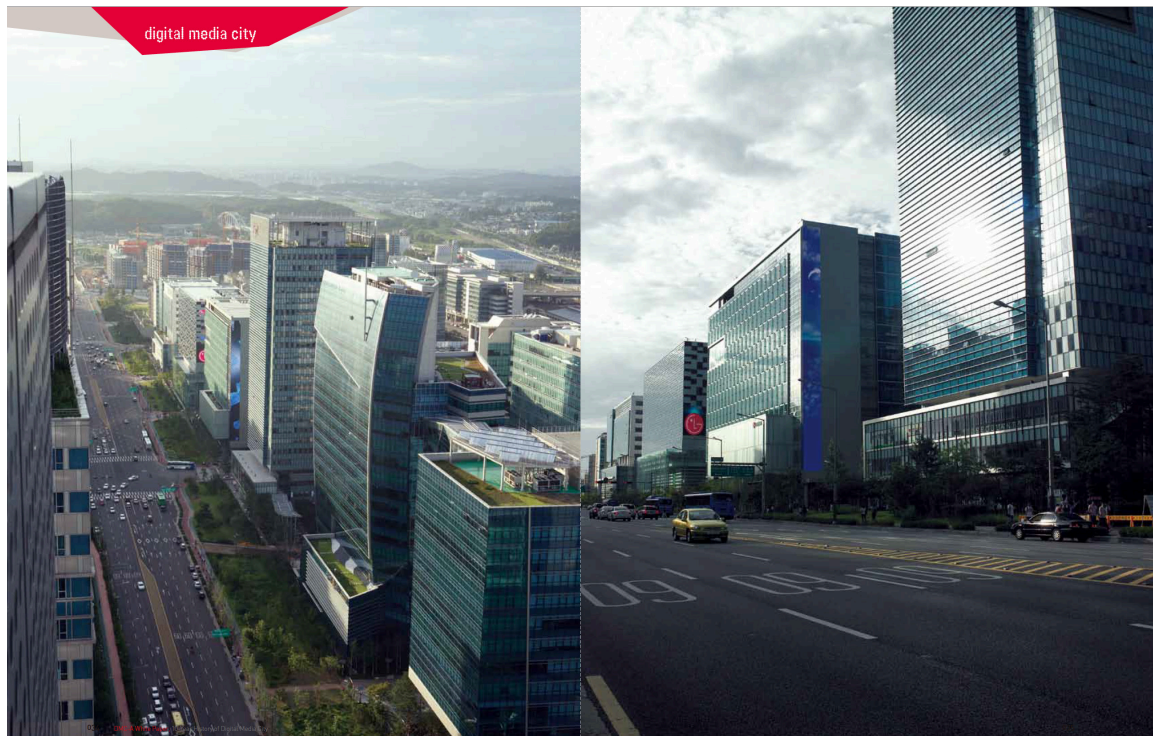
economics

Seoul Metropolitan Government offered sizable incentives to attract high-tech foreign invested companies to the innovation district. These incentives included negotiable land prices, installment payment options, lowered interest rates, and national tax reductions. According to the comprehensive 10 year review master plan, 68,000 “high quality” jobs were created after the implementation of the district.

The goal of diversifying the economy away from semiconductors and to become competitive with other large powers in Asia, specifically in the realm of media and technology, was achieved: as of 2012 there were a total of 741 companies in the district. Of these, 202 are specifically media and entertainment, 185 are IT and high-tech. The majority of tenant companies fall under the support and welfare facilities with 300 companies such as: hospital clinic, office supplies, restaurants, tourism agency, coffee shops, convenience stores etc.

displacement

Implementation of the district caused no direct displacement as it was placed on the site of the decommissioned Nanjido landfill. However, there has been a housing shortage in Seoul since the 1990’s attributed to rapid urbanization and economic growth, and by choosing not to build housing on the recovered landfill, the innovation district has exacerbated the housing shortage and contributed to increasing housing prices (scaadmin 2015a).



Digital Media City- image showing architecture credit from 10 Year review Digital Media City

equity

1. political events

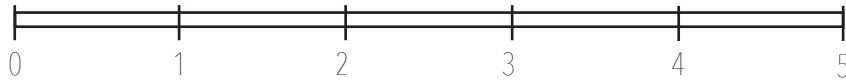
Was the political narrative of the district supportive of the entire population of the country?



It was indirectly, because it helped add a competitive edge to the primary economic powerhouse of the entire nation. It was not directly supportive of population in Seoul because it aggravated the housing crisis.

2. branding

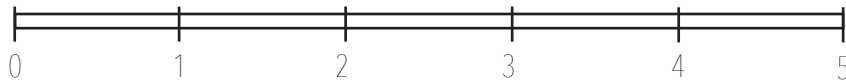
Did the branding narrative include any reference to jobs outside the knowledge economy?



No, it did not. The branding was geared towards media entertainment and technology companies.

3. urban design

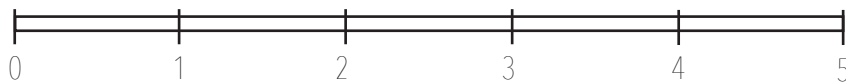
Were there different types of housing (apartments, single family homes, luxury housing, low income housing) included in the plan?



No there was not any variety of housing specified.

4. economics

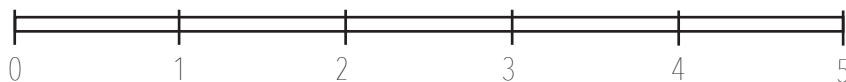
Were incentives offered to smaller, younger and locally owned companies?



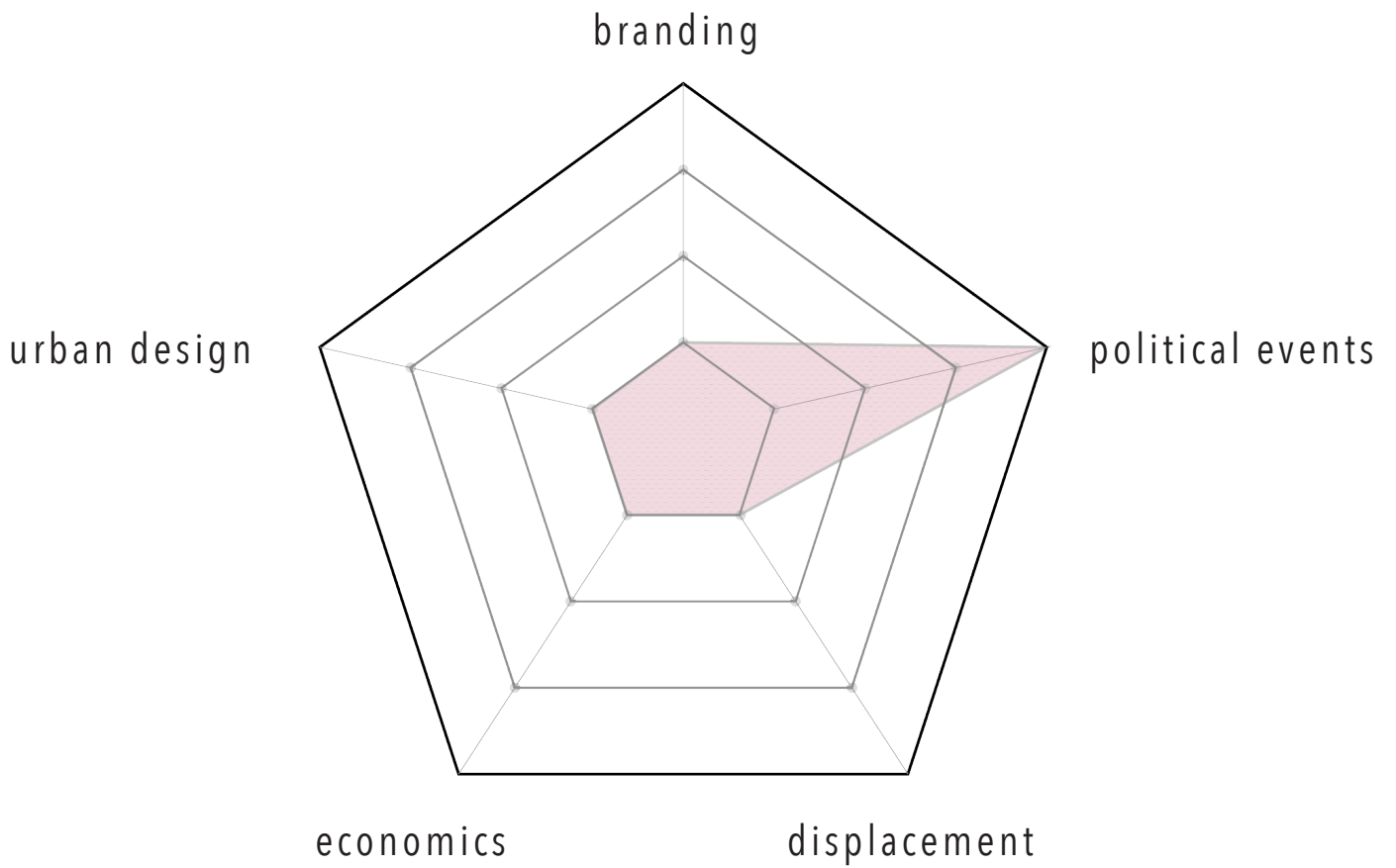
Yes, incentives were offered primarily towards foreign invested companies.

5. displacement

Was there direct and/or indirect displacement of people?

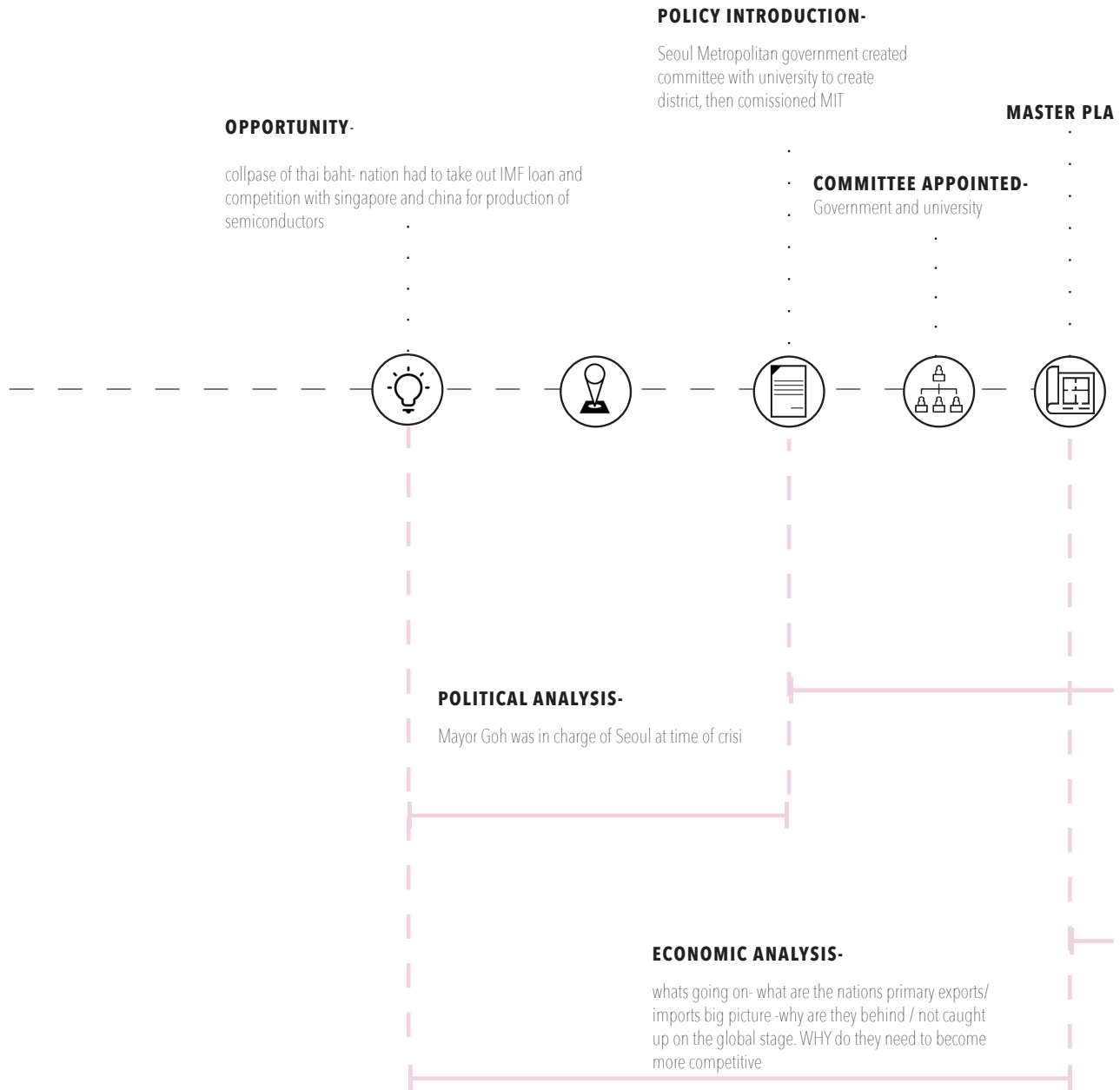


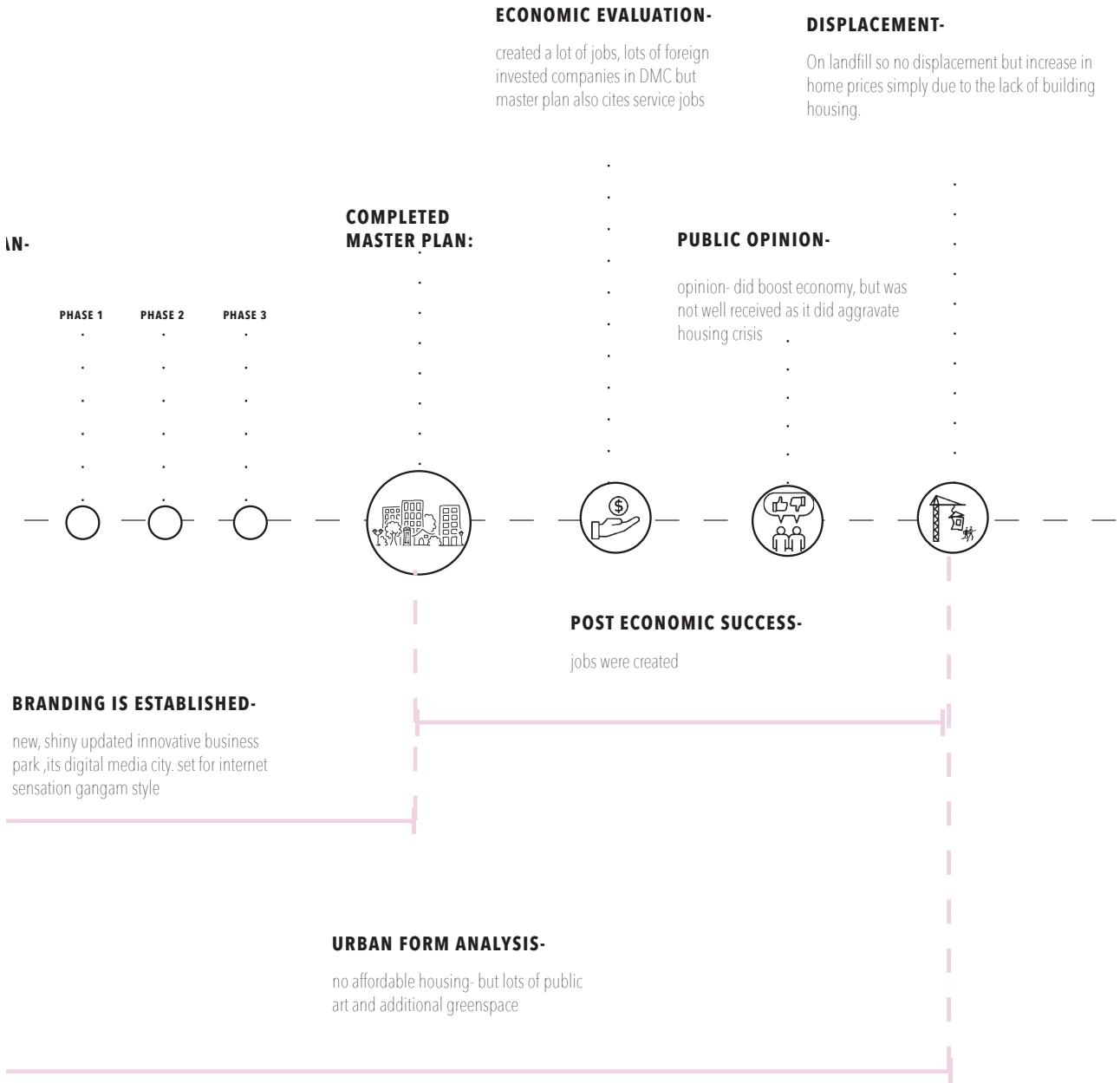
There was indirect displacement due to the rising of rents after the construction but there was no direct displacement.



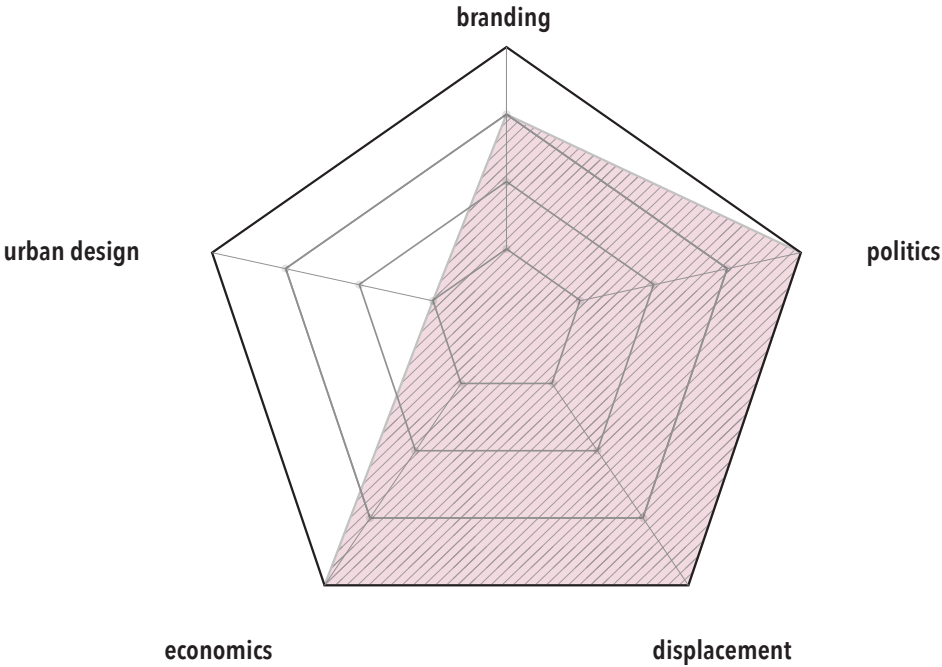
Digital Media City scored highly on in the area of political events and zero points in the other areas.

equity visualization for Digital Media City on radar chart.

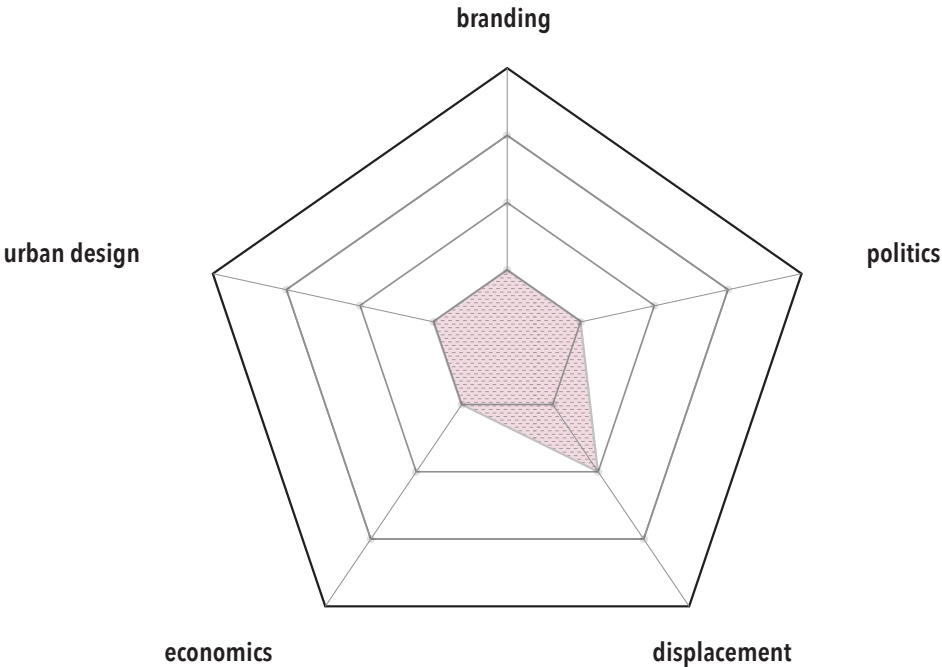




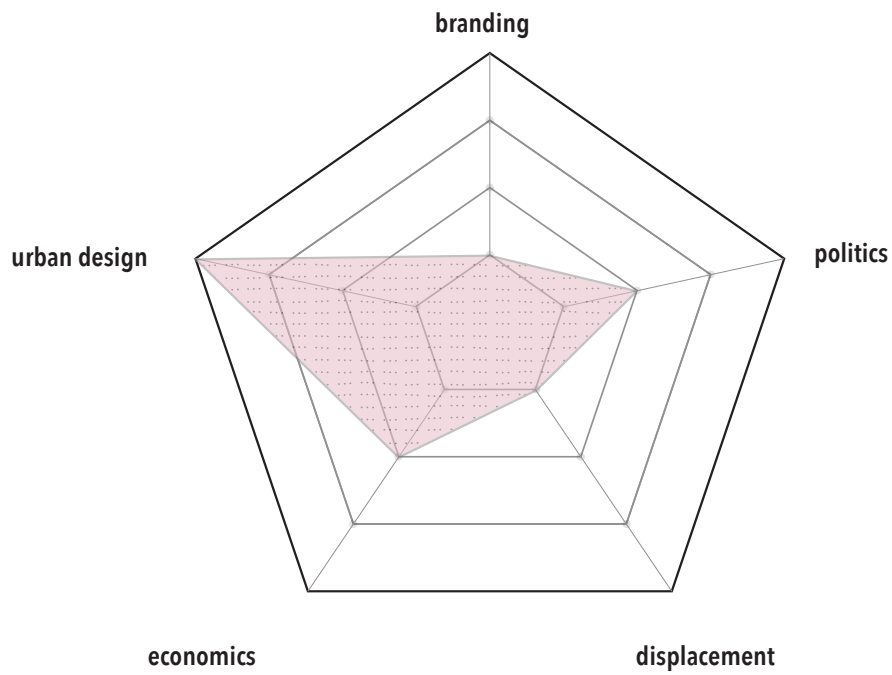
equity results



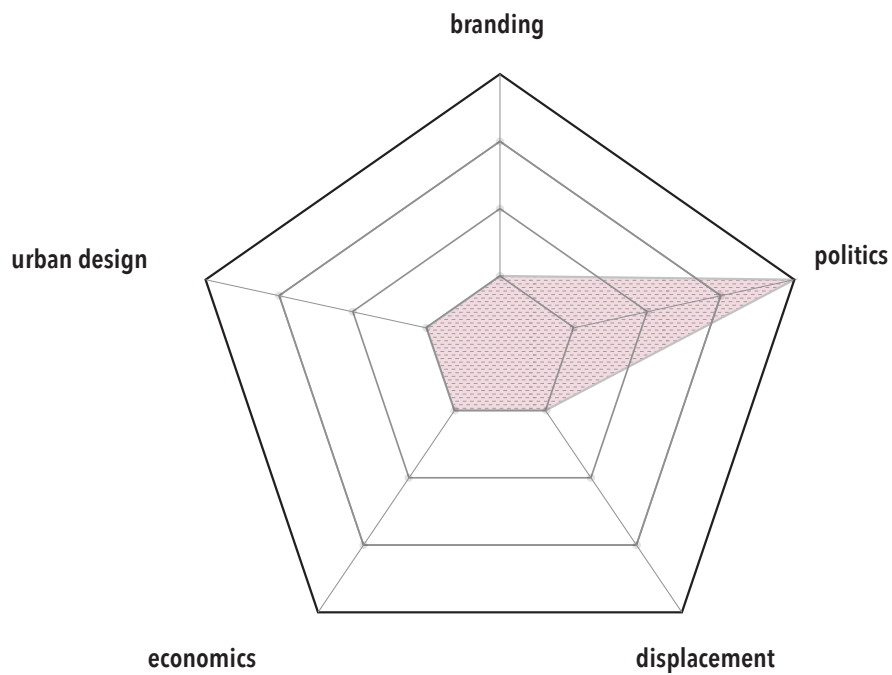
Masdar City



Media City



22@



Digital Media City

findings- equity

Based on the scoring system used in this paper, Masdar City received the highest score or had the most positive effect on a city's equity, MediaCityUK scored the lowest. Factors that may contribute for their differing scores could be: site conditions, level of previous development, differences in government, phase of completion, cultural differences and the scope of their intentions with regards to the implementation of the innovation district. 22@'s equity was mapped in between, the other two cases.

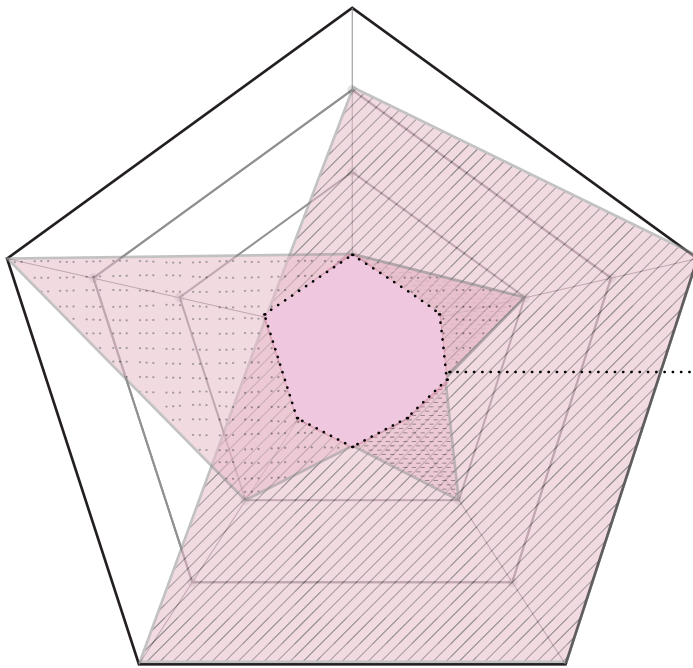
Masdar City lies within one of the most oppressive areas of the world with regards to the repression of women, yet scored the highest in adding equity to the major city of Abu Dhabi. This is primarily due to the fact that the scoring system does not account for pre-existing political conditions. The creation of a renewable energy economy in a nation that previously had none is arguably the most ideal condition for the creation of an innovation district. Masdar City was developed in response to an anticipated demise of their primary export, petroleum. But rather than change their entire economic base, they opted to shift their focus from the previous era's energy source to the future's.

22@'s score only marginally increased Barcelona's equity however, it can be argued as one of the most equitable case studies. It was the only case study to deliberately include affordable housing within the master plan and make efforts to respect the population that was previously living in the area. The catalyst for this particular innovation district was not as immediately powerful as Masdar's. Due to the fact that the economy of Spain was not directly dependant on one primary export that is being phased out, the urgency to rapidly diversify their economy was not the same.

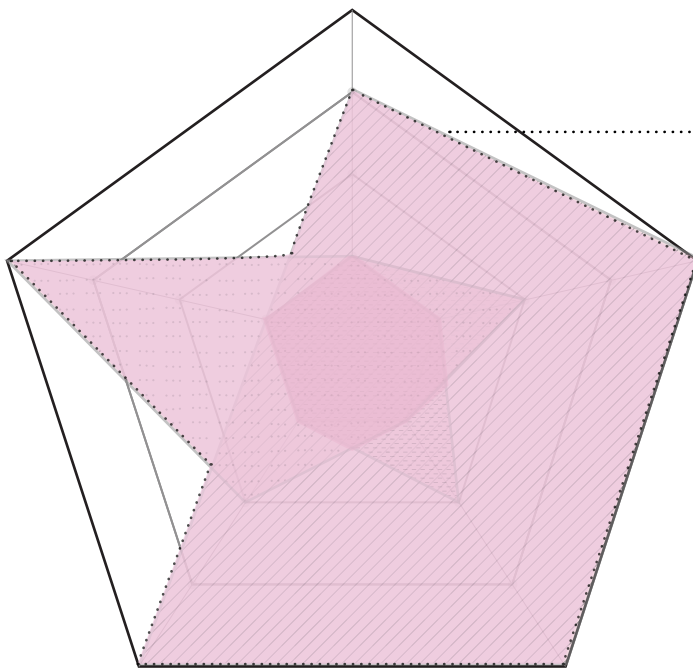
MediaCityUK scored the lowest of all the innovation districts because of the lack of need to diversify the economy from the stance of a complete national international crisis that Masdar and Digital Media City were facing when their innovation districts were created. In addition, MediaCityUK was the final piece of a much larger municipal development project and therefore some equitability objectives had already been addressed by the larger Salford Quays master plan.

Digital Media City was concluded to very nearly decrease Seoul's equity primarily based upon the fact that they were responding to a national economic crisis and did build it on a decommissioned landfill. It was a smart and equitable investment to diversify their economy away from the production of semiconductors so in the future their economy would not be as susceptible to external, uncontrollable events like the crash of the Thai baht.

Upon analysis and evaluations of these innovation district case studies, two of the four cases were deemed to positively impact the neighboring city's equity based on the definition used for the purpose of this research. The primary shortcoming with the proxies that I have chosen to measure equity with is that it examines equity at a national level. In future research, more specific proxies based upon local data would yield more accurate results.



current equity of an
innovation district



potential equity of an
innovation district

Final Equity visualization

discussion

This review of four highly regarded innovation districts suggests that, by nature, innovation districts tend to promote inequity unless a conscious effort is made to include marginalized groups. They tend to appeal to: educated workers, large established firms, younger, unmarried professionals and exclude groups such as the elderly, less educated, lower class, disabled, and families with children.

The pre conditions (referring to the catalyst or political climate) of the innovation district are extremely important to acknowledge with respect to their effect on equity with regards to innovation districts. Meaning that there needs to be a clear, and sizable economic crisis to justify their creation, otherwise they are expertly planned gentrification. This is perhaps the most important conclusion to draw from this study, as it can be applied for future evaluation of innovation districts.

An example that this evaluation could be applied to is HQ2's most recent deal with Queens, New York and how it fell apart. New York City already has a huge variety of industry including tech, finance, educational establishments, research and development and creative fields. There is no real open space within the city where HQ2 could move in without causing substantial direct displacement. The housing crisis is prevalent in and around New York City where people in the lower classes are being forced to live farther and farther away from their work in the city. Had the deal that New York made with HQ2 not fallen apart, it would have been extremely inequitable and displaced hundreds of citizens changing the identity of the borough. This suggests that innovation districts need to be fully evaluated with attention paid to the negative externalities that they often create.

In the future, when municipalities are faced with decisions surrounding the implementation of an innovation district, created by a large company, instead of asking the company, what can we do for you? They should be asking, what can YOU do for us?

The goal of this research into equity surrounding innovation districts was to start the conversation around the true impact of economic based urban planning on minority groups while understanding the economic benefits they bring to an area. This research identifies areas in which innovation districts can improve their equity to ultimately benefit the surrounding city and nation.

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