TRANSFORMING THE "WORLD FACTORY"
Designing for a [post]industrial Shenzhen

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ABSTRACT
Keywords: post-industrial, urban change, Shenzhen, China

China has been known as the “world factory” ever since it opened up to the global economy. This has led to a vastly sprawled, monotonous industrial urbanism, where urban environment has become a spatial product rather than a living city. However, just as Western post-industrial cities have experienced, some Chinese cities are currently going through a deindustrialization process due to reasons such as rising labor costs, rising land costs and new environment laws.

Shenzhen, which is a manufacturing center in South China, currently has a 30-45% factory vacancy because companies are leaving to cheaper areas, either in inland China or other countries. Yet, it’s not a declining or shrinking city; it is seeking to transform from a manufacturing center to a more diverse production environment with upgraded industries.

As the first Special Economic Zone in China, Shenzhen is a city under the influences of both socialist ideology and capitalist market forces: on the one hand, the city has a centralized planning system that guides the overall structure of urban development; on the other hand, Shenzhen has been rapidly “produced” under dynamic market forces, with a clear priority of economic growth. The consequence of this conflict is the inconsistency between the city’s master plan and its actual urban form, especially in the aspect of land use. Since the master plan cannot keep pace with socio-economic changes, it always fails to guide urban transformations in urban changes.

Built on Shenzhen’s current urban change and its special political background, this thesis aims at developing a dynamic urban design method for Shenzhen’s current deindustrialization and industrial upgrading process in order to guide urban transformation while allowing for flexibility to accommodate uncertainties and changes.

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This chapter examines the urban context of China as the “world factory” and the post-industrial change it is facing currently. It further looks at what this change has led to the urban environment of Shenzhen, which has been a major manufacturing center in South China. Built on the facts and projections of Shenzhen, the thesis proposes that an urban transformation mechanism is needed for Shenzhen’s current urban change.
Fig 1.1 Edward Burtynsky’s photo of a Chinese factory
PROLOGUE

China, the “World Factory”

In 2006, in the documentary “Manufactured Landscapes”, Edward Burtynsky showed images of a Chinese factory where hundreds of thousands of people dressing in identical clothes and working in large and monotonous factories. It is striking because these places – where things are made – are usually “invisible”, and not considered to be part of our cities. Yet, this kind of environment is common in a lot of Chinese cities and has resulted in a special industrial urbanism in China.

China has been known as the “world factory” ever since the country opened up to the global economy in 1979. Since that year, companies from all over the world started to set their manufacturing plants in China, taking advantage of its cheap labor and land; and soon suppliers also congregated around assemblers, forming efficient industrial communities. Now, China is the world’s largest manufacturing power, and accounts for a fifth of global manufacturing. It produces televisions, computers, smart phones, steel pipes, clothes, shoes and almost any other things that one can think of. The factories in China have made so much and so cheaply that they have curbed inflation in many of its trading partners.¹

What this has led to is a vastly sprawled, monotonous industrial urbanism, where urban environment has become a spatial product, rather than a living city. For urbanism as such, everything follows efficiency and the role of urban designer is almost negligible because the traditional urban rules (public space, street facade, diversity, etc.) don’t apply here.

¹ “Manufacturing: The End of Cheap China | The Economist.”
Fig 1.2 Inside a Chinese factory
Fig 1.3 A dormitory in a Chinese factory
Post-industrial China

However, from the experience of the western postindustrial cities, we have learned that industries are inherently unstable due to the rapidly shifting global economy. The stories of those once “steel city” or “motor city” have been told many times. These western post-industrial cities have either became shrinking cities, or have found a way to revive relying on new service industries; either way, the main industries that used to support these cities have gone. Now, the same story might be repeated by Chinese cities.

As a matter of fact, the era of China as the “world factory” is coming to an end. Due to a series of reasons such as rising labor costs, rising land costs and new environmental and safety laws, companies in coastal cities are leaving to cheaper areas. In the year of 2013, China’s GDP of industry and services (which include transport, wholesaling, retailing, hotels, catering, finance, real estate and scientific research, among other things)
are getting very close.² Daniel Bell defines post-industrial society as a certain stage of society’s development when the service sector generates more wealth than the manufacturing sector of the economy.³ By this definition, China is about to enter a post-industrial era officially.

Among the reasons that have led to deindustrialization in Chinese cities, the most important one is labor. Labor shortage has contributed to a major wage rise; last year, urban wages were up 14.3% in the non-private sector and 18.3% in the private one. In addition to wage rise, workers have become restive, as shown from strikes to suicides. The world largest electronics manufacturer - Foxconn Technology Group, which employs 1.2 million workers in China, drew the world’s attention because of its suicide event: between January and November in 2010, eighteen Foxconn employees attempted suicide due to high pressure and monotony of their work. With the pressure from both rising wages and suicide events, Foxconn decided it had to automate. Last year, this electronics assembler had 10,000 robots in China; and it is planned that in 2014, there will be a million of them making products for Apple, Nokia, Microsoft, and Sony, among other brands. This will change China’s industrial landscape completely, since automation essentially eliminates the advantages of China as a manufacturing powerhouse of the world.⁴

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³ Bell, The Coming of Post-Industrial Society; a Venture in Social Forecasting.

⁴ “Move Over, Michigan, China Is The World’s Next Rust Belt| Forbes.”

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Fig 1.6 China’s GDP of industry and services
Fig 1.7 Shenzhen deindustrialization

Fig 1.8 A vacant factory in Shenzhen
Shenzhen Deindustrialization

The fact that China’s entering a post-industrial era has the most significant impact on several early developed, manufacturing centers. Shenzhen, which has been a manufacturing center in South China, currently has a 30-45% factory vacancy because companies are leaving to cheaper areas, either in inland China or other countries. Apart from factory vacancy, as a latest survey shows, Shenzhen also has the largest amount of vacant land in Guangdong province, even though land price in Shenzhen is extremely high.5

Companies moving out have become a common phenomenon in Shenzhen. They are “forced” to leave due to the high costs in Shenzhen; another factor that has accelerated this large scale of leaving is the industrial agglomeration effect: when some of the companies start to leave, the overall industrial environment will decline, which will lead to more companies to leave. Therefore, it’s only reasonable to assume that this trend of factories moving out will become even more drastic in the near future.

Among the companies that are left or are planning to leave, most of them belong to relatively old industries; the industry types that have the most companies leaving are mechanics, instruments, toys and plastics. Base on a survey last year, most of the companies are moving to Dongguan, Huizhou, Zhongshan, Heyuan, among other places in province, or to Hunan, Jiangxi and Jiangsu provinces; few of larger companies choose other countries as well, such as Vietnam, Thailand and Indonesia.6

When companies leave, the factories are either left abandoned, or waiting to be rented. They become “dead” areas in the city because nobody go there anymore. Furthermore, these old factories occupy large pieces of land, which is extremely valuable in Shenzhen, but they cannot facilitate new industries without

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5 Shenzhen Statistics Bureau, Shenzhen Statistics 2013
6 Shenzhen Statistics Bureau, Shenzhen Statistics 2013
being completely reconfigured.

Even though a lot of factories are leaving, Shenzhen is not a declining or shrinking city yet, because it still has a mature market environment and a strategic location. The city is seeking to take this opportunity to upgrade industry by bringing higher value added industries such as biotech, advanced manufacturing, high technology, among other things; with appropriate urban reconfiguration, those abandoned areas can be revived by new industries with appropriate urban reconfiguration. Without doubt, this deindustrialization and industrial upgrading process will bring essential changes to Shenzhen’s urban environment, and an urban transformation mechanism is needed for accommodating the current urban change.

Fig 1.9 Shenzhen current urban change condition

Transforming the “World Factory”
This chapter analyses Shenzhen’s historical and political background, and its urban features in relation to its special background. From the analysis, the main challenge for urban design in the current urban transformation is summarized as a guidance for the design proposal in the following chapters.

Proclamation of People's Republic of China
Korean War
Great Leap Forward
Cultural Revolution
Market-based Economic Reform

1960 LAND REFORM
The law abrogated ownership of land by landlords and introduced peasant landownership.

1963-1967 FIRST FIVE YEAR PLAN
Focusing on Soviet-style development of heavy industries.

1979 "OPEN DOOR" POLICY
The first SEZ established in order to attract foreign investment.

SOCIALISM IDEOLOGY

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CHINA'S GDP (in billions of RMB yuan)


- Open 14 cities and 3 regions for foreign investment
- Tiananmen Square Event
- Deng's Inspection in South China
- Asian Financial Crisis
- Global Financial Crisis

Transforming the "World Factory"
The first Special Economic Zone

Shenzhen is a city located in Guangdong province, southern China; it’s legendary started at the year of 1979, when it became China’s first Special Economic Zone (SEZ). Built on the concept of Export Processing Zones and Free Trade Zones found in other less developed countries, the SEZs are zones that are designed to provide foreign enterprises with lower taxes, reduced tariffs, more modern infrastructure, flexible labor and wage policies, and less bureaucracy. Three other cities that were selected as SEZ around the same time were Zhuhai, Shantou and Xiamen.

SEZ establishment was part of a market-based economic reform initiated by leader Deng Xiaoping. The intention of the economic reform is to stimulate China’s economic development through breaking down the power of central government and encouraging the influences of global capitalism. Rather than dividing the world into socialists and capitalists, or exploiters and exploited as it used to do, China started to engage in trade and investment relations with every kind of countries to increase its national productive capacity. This economic reform is instrumental to China’s rapid industrialization and urbanization afterwards.

1 Kleinberg, China’s “Opening” to the Outside World.

Fig 2.1 China industrialization & urbanization timeline

Fig 2.2 Diagram of power structure change in 1979 Economic Reform
Pearl River Delta, a regional manufacturing powerhouse

Shenzhen was selected to be the first Special Economic Zone because of its strategic location: it is located in Pearl River Delta region, adjacent to Hong Kong, close to Macau and Guangzhou. Because of the positive market influences from its neighbors (especially Hong Kong), it developed into a manufacturing powerhouse within a short period. In the early days, companies in Hong Kong set their manufacturing plants in Shenzhen because of cheap labor and tax incentives; soon after, attracted by Shenzhen’s mature industrial environment, more and more manufacturing companies from all over the world also came to Shenzhen; later on, suppliers also congregated around assemblers, forming efficient industrial communities.
Currently, not only Shenzhen has been developed into a manufacturing center, its adjacent cities – Dongguan, Fuoshan, Shantou are also known for their manufacturing might. In overall, Pearl River Delta produce 80% of shoes for US export, 60% of all commercial clothing production in the whole world, 40% of global pc hard drives production and 25% of manufacturing exports globally.
Rapid Urban Development and Master Plan “Evolution”

Within 30 years, Shenzhen has grown from a small fishing village with 30,000 people to a mega-city with a population of 14 million. Same as most of other Chinese cities, Shenzhen has a central planning system; meaning that Shenzhen’s overall urban development is mainly guided by master plan. The master plan of the city has been updated four times because its actual growth always outpaces the city planner’s prediction.

1982 SEZ’s initial Master Plan
The first plan proposed a multi-center-cluster-belt urban structure, composed of Nantou Cluster, Luohu-Shangbu Cluster and Shatoujiao Cluster; naturally, these three clusters were developed into the first industrial areas in Shenzhen. A main road – Shennan road from west to east, connected the three clusters.  

Fig 2.4 Shenzhen growth timeline
1986 Master Plan: urban expansion acceleration
The 1986 master plan has a structure of a belt-shape spatial layout of five development clusters: Nantou, Huaqiangbei, Futian, Luohu and Shatoujiao. They each have a different program distribution: some of them are industrial clusters; some consist of both industrial and other programs. At this stage, green corridor (including rivers, orchards or open spaces) were developed within the urban space to promote quality of life.

1989 Master Plan: development of the whole territory
The rapid growth of industrial output led to a revision of the spatial structure only three years later. It was proposed that the SEZ area would be the city center and the construction areas would extend outwards to the non-SEZ gradually. At this time, there had already been some manufacturing enterprises moving from the early SEZ areas to periphery areas which have looser regulations and lower land prices.

1996-2010 Master Plan: a hierarchical city network
This plan proposed that future development could no longer take place in a random state, but along the western, central and eastern axes to form a “hierarchical city network”. Nine development clusters and six independent towns would form the constructed areas in Shenzhen.

2010-2020 Master Plan: future intensification
In July 2010, the original SEZ boundary was extended to the whole city territory, meaning the land resources of the previous non-SEZ will have more development potential; therefore, urban intensification areas that were outside the original SEZ will be the main focus of development at this stage.²

² Huang and Xie, “The Plan-Led Urban Form: A Case Study of Shenzhen.”
"Economic-led" Urban Form

In the aspect of urban form, Shenzhen shares the characteristics of other "special zones". Keller Easterling describes zone urbanism (including the Free Trade Zone, Foreign Trade Zone, Special Economic Zone, Export Processing Zone, among other variants) as repeatable and infrastructural. It is a machine like capital enclave, rather than a living city that has evolved naturally through time; therefore, zone urbanism typically consist of monotonous urban forms with hardly any public realm. Usually, this kind of zone urbanism is only part of a city; in Shenzhen’s case, the zone itself is a city. The followings are three examples of Shenzhen’s urban features that are related to its fast economic development because of its special zone identity.

Fig 2.5 Urban village

Fig 2.6 Mega block dimension

Fig 2.7 Diagram of spontaneous mix of programs (red represents industrial, gray represents residential and commercial)
Urban villages are unregulated residential areas that house cheap labors. As Shenzhen expands, rural land was transformed into urban land for urban development. In this process, some rural villages were encompassed by new development, forming urban villages.

Mega block is also a strategy that helped accelerating urban development: the block size in Shenzhen can reach as large as 1,500 by 1,500 meters, so that at the early stage of development, the city only provided the most basic infrastructure and left other secondary roads and facilities for the private sectors to develop for themselves.

Spontaneous mix of programs phenomenon is because master plan of the city can not keep pace with Shenzhen’s development speed and always lead to inconsistencies between the plan and the urban form in reality. Many areas were planned with clear divisions between different programs, but turned out to be a mix of industrial, residential and commercial programs.
Fig 2.8 Map of Shenzhen's industrial land
Industrial Urbanism Typologies

In overall, industrial land occupies of 32% of Shenzhen, which is higher than most industrial cities. Another characteristics that’s worth mentioning is that comparing to other typical industrial cities where there are clear divisions between industrial land and other areas, in Shenzhen most industrial land is dispersed patches mixed with other programs due to its fast development.
Even only within 30 years, industry typologies have changed a lot due to different ownership policies. The following timeline shows the industrial policy evolution and the main industrial urbanism typologies for each period.
Huaqiangbei: a case of bottom-up urban development mechanism

Among all the industrial typologies, Huaqiangbei is a case of bottom-up urban development mechanism. It was transformed from an industrial land into a successful commercial area mixed with remaining industries without official planning, and got justified later through adjusting zoning plan.

It’s located in central area of Shenzhen, and is one of the oldest areas in the city. In early 1980s, Huaqiangbei developed quickly as a manufacturing zone specializing in small electronic goods. Since it is close to Futian CBD, Shennan Road (a main road in Shenzhen) and Hong Kong border, in 1990s it attracted a large amount of commercial activities. By 2000, hotels, apartments, restaurants and department stores entered the area, drawn by its

Fig 2.10 Huaqiangbei
strategic location. Nowadays, it has developed into the largest wholesale and retail electronics marketplace in China. The story of Huaqiangbei is a typical market-led urban transformation, and the flexibility of Shenzhen’s urban development helped it transformed into the current successful Huaqiangbei.

4 Zacharias, “The Role of Urban Planning in the Spontaneous Redevelopment of Huaqianbei, Shenzhen.”

Fig 2.11 Diagram of Huaqiangbei’s transformation
Conflict and Challenge

How to deal with the conflict between control and flexibility will be the major challenge for designers in facing the current urban change – deindustrialization and industrial upgrading in Shenzhen. On the one hand, Shenzhen’s economic success was partly because due to loose regulations, urban environment was able to be flexible enough to accommodate changes and stimulate development (as shown in the example of Huaqiangbei); while at the same time, the flexibility is also a failure of the city’s master plan as it always fails to guide urban environment in urban changes and have to react afterwards by adjusting itself. This has led to a problematic urban environment since control of order, public realms and relationships between programs cannot be guaranteed. The goal of the design proposal in following chapters is to seek a dynamic design mechanism for urban change in order to guide the urban environment while allowing for flexibility to accommodate uncertainties and changes.
This chapter consists of researches of the selected site - Longhua. It examines the actors, urban form and conditions of changes in order to understand the current issues on the site.
LONGHUA

Context

Selected site is in Longhua district; it is well connected to central city and has dispersed patches of diverse industries. The size of the site is 5km by 5km, almost half of the land is occupied by industrial land.

Longhua district was incorporated into SEZ (Special Economic Zone) in 2010. Before that, it was developed with loose regulations. This have led to a quite random distribution of different programs on the site. Apart from industrial patches, there are also urban villages of various sizes. The existing infrastructure is well maintained and is currently under heavy use from both flows of people and goods. The highway running from south to north is one of the major transportation spines connecting Shenzhen to Dongguan, which is another manufacturing intense city adjacent to Shenzhen. However, the infrastructure on site also isolate different areas, leaving disconnected mega blocks.

The industry types on the site ranges from large electronic company compound like Foxconn, which is the world’s largest
electronics manufacturer, to small single building textile or shoe factories. Right now, small and medium old industries are starting to leave due to the pressure from high costs; Foxconn is also planning to shrink its size from a 0.5 million people campus to 50,000 people campus, leaving mostly research and market departments. At the same time, attracted by the city’s new incentives and mature market opportunities, high value-added industries (including biotech, advanced manufacturing, high technology and energy) are seeking to enter. However, the uncertainties concerning both leaving and coming industries make urban reconfiguration hard to proceed.

Fig 3.2 Site photos
Site Map

The urban form of the site mainly consists of large factory buildings (dark gray) and other surrounding residential and commercial buildings (light gray). There are a river, a pond surrounded by forests and a metro station; these landscape and transportation nodes currently, or has the potential to attract and gather people.

*Fig 3.3 Site map*
Main Actor - Foxconn

Foxconn Technology Group is the largest electronic manufacturer in the world. It manufactures products including iPad, iPhone, Kindle, BlackBerry, PlayStation 4, Xbox One. With headquarters in Tucheng, Taiwan, it has manufacturing plants all over the world. Foxconn has 13 factories in nine Chinese cities, more than in any other country. Its largest factory is in Longhua, Shenzhen, where nearly 500,000 workers are employed.¹

Foxconn Longhua campus is more than just factories, it is almost a city: it has its own supermarket, restaurants, dormitories and playground. More than half of the workers also live in the campus; they rarely leave the campus because the campus can already fulfill all of their basic needs.

In 2010, Foxconn Longhua campus drew the world’s attention because of its suicide events: between January and November, eighteen Foxconn employees attempted suicide due to their high pressure, low wages and the monotony of their work.

With the pressure from Shenzhen’s rising labor costs and the suicide events, Foxconn Technology Group is officially leaving Pearl River Delta. It has started a new manufacturing plant in inland China - Zhengzhou to replace the production line in Shenzhen.³ Without doubt, Foxconn’s moving will greatly influence the future of Shenzhen and Longhua.

¹ “Foxconn - Wikipedia, the Free Encyclopedia.”
² “Kosmograd: The Ballet of iPod City.”
³ “Foxconn’s Move Inland Leaves Shenzhen’s Future Ambiguous | Society | China | Epoch Times.”
Site Survey

Base on the information from a detailed online map, a site survey concerning building types and industry types is conducted to further discuss vacancy scenarios for the following design proposal.

Fig 3.6 Map of building type
Fig 3.7 Map of industrial type
This chapter consists of a design proposal for Longhua’s urban transformation. Built on researches and analysis in previous chapters, this thesis argues that a dynamic urban design method is needed for Shenzhen’s ongoing deindustrialization and industrial upgrading process in order to guide urban transformation while allowing for flexibility to accommodate uncertainties and socio-economic changes.
Post-industrial Urban Transformation Vision

Due to the current post-industrial urban change, the following transformation should be brought to the site:

- **Mix working and living programs**
  Rather than only have manufacturing plants, the site should accommodate other programs including offices, logistics, commercial and residential, in order to establish a mature post-industrial working and living environment.

- **Insert new public realms**
  New public realms should be inserted to the site, which currently only consists of isolated and private territories.

- **Integrate isolated urban patches**
  More than just bringing in diverse elements to the site, there should be different interactions between these elements.
Design Strategy for a Prototypical Industrial Urban Patch

As seen from Shenzhen’s typical urban development, static master plan with clear formal divisions couldn’t work with constant changes and uncertainties, and therefore left a spontaneous mix of urban elements. The strategy of this project is to develop a dynamic design mechanism that allows for a mix of diverse elements with flexible rules for public realms, different scales, programs and building types. An parametric model is developed in order to achieve the designed relationships.
Rules for Mix

In the post-industrial urban transformation process, there are four rules for public realms, different scales, programs and building types to control the relationships between all the mixed elements.

a. Public Realms
Public realm parcels are close to larger urban public network while dispersed from each other; there are accesses connecting them. Public realms consist of public space, parks, institutions and public programs that can be shared by surrounding development.

b. Scale
Larger scale parcels are located near infrastructure while smaller parcels have a closer relationship to public realms.
c. Program
The organization of programs can be categorized into 3 types of mix: work cluster (manufacturing, office and logistics), live cluster (residential and commercial) and work live cluster (office, residential and commercial). The distribution of the clusters depends on their relationships to remaining factories: work clusters are closer to remaining factories since they can share the same public realm.

d. Building
Buildings should face the public realm of the cluster they belong to.
Generating Process

The following drawings demonstrate the generating process of one prototypical industrial patch from its existing condition to a post-industrial working and living mixed urban environment.

STEP 0

A typical industrial patch

STEP 1

When deindustrialization happens, some companies will leave.

Large parcel subdivision
Reconfiguration of the urban patch starts with large parcel subdivision of 100 by 100 meters.
STEP 2
Large parcel subdivision grid

STEP 3
Available large parcels
(without remaining factories)

Select large public realm parcels
Among the available large parcels, public realms are selected based on their relationships to larger urban public network (metro station, city parks or monumental buildings). New public realms consist of public space, parks, institutions and public programs that can be shared by surrounding development.

STEP 4
Relationship to urban public network
STEP 5
Select the first large public realm parcel.

STEP 6
Select the second large public realm parcel. The criteria is that it is close to urban public network while dispersed from other selected public realm parcels.

STEP 7
Select the third large public realms parcel. The amount of public realm parcels is 20% of the available parcels.

STEP 8
All selected large public realm parcels.
Select large private parcels

Large parcels that are close to roads are selected for large private parcels. The rest are left for medium and small parcel development.

STEP 9
Relationship to road network

STEP 10
Selected large private parcels

STEP 11
Large public realm parcels and private parcels
**Medium parcel subdivision**

For the rest of the land (including parcels that were not available in large parcel subdivision and parcels that were not selected for public realms or private development), it gets subdivided again by a grid of 50 by 50 meters.

**STEP 12**

Medium parcel subdivision grid

**STEP 13**

Available medium parcels (without remaining factories)

**Select medium public realm parcels**

Medium public realm parcels are selected based on the same criteria as large public realm parcel selection.
STEP 14
Select the first medium public realm parcel

STEP 15
Select the second medium public realm parcel

STEP 16
Select the third medium public realm parcel

STEP 17
All selected medium public realm parcels
Small parcel subdivision
The rest of the land are subdivided into small parcels (25 by 25 meters) for private development; they are close to selected public realms so that public realm interfaces would have a mix parcels of different scale.

STEP 18

Small private parcels

Public realm network
Public realm parcels are connected with each other, forming a secondary public access system in the existing industrial mega block.

STEP 19

From the selected public realms, they are connected with two other public parcels that are closest to them.
STEP 20

These connections are transformed into accesses base on the parcel division.

STEP 21

The parcels are revised to leave the accesses.

Program distribution

The organization of programs can be categorized into 3 types of mix: work cluster (manufacturing, logistics and offices), live (residential and commercial) cluster and work live cluster (residential, commercial and offices). One cluster consists of one public parcel and the private parcels that are close to it. The distribution of the mix types depends on their relationship to remaining factories: work clusters are closer to remaining industries because they can share the same public parcels.

STEP 22

Relationship to remaining factories
STEP 23

3 mix type

LIVE

WORK

LIVE & WORK

STEP 24

For each type of mix, program distribution can be flexible within certain ranges.

Building types

Buildings should face the public realm parcel in their cluster.

STEP 25

Buildings
Alternatives under Different Urban Conditions

Through the above design method, urban design itself becomes a dynamic software that can deal with different urban conditions. No matter in reality how many factories leave, or how many new factories enter, the resultant urban elements will keep the designed relationships: large parcels are close to roads, public realms are close to urban public network, work clusters are close to remaining factories...

In this way, urban design won’t fail to guide urban environment changes because it can react to different scenarios. The following drawings are examples of alternative results under different urban conditions.
Site strategy

Currently, 3 most important elements on the sites are: the river, the forest and the metro station. These landscape and transportation nodes currently, or has the potential to attract the most people. The calculated public network consists of paths that will be used the most in order to get to those three locations from the industrial patches. This public network will lead the public realm organization on the site.
In the first phase, some factories in the old industry patches leave. For new development at this phase, more work related programs are brought in due to its mature industrial environment.
Development Process

In order to discuss how the dynamic design mechanism can operate on the site, the design proposal is taking one scenario as an assumed deindustrialization process. The scenario is based on a vacancy simulation with 2 parameters – building type and industry type.

Due to the flexibility of the dynamic design mechanism, urban reconfiguration of the site can happen while the factories leave, rather than waiting for the area to be emptied out; the parameters of "new design" can be adjusted based on the actual deindustrialization condition. The new development for different phases have different emphasis on work or live related programs.
In the second phase, large part of Foxconn area is abandoned; New development consists of an equal mix of work related and live related programs.

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In the last phase, more factories leave; New development includes more live related programs in order to balance the work live program ratio on the site.
Transforming the "World Factory"
Transforming the “World Factory”
The public realms have different uses: for work clusters, it can be a training school, a restaurant area, or a technology exhibition center; for live clusters, it can be a community center, a garden or a sport facility; for work live clusters, it can be a library, a park or a market.

The new public realms are interconnected, forming a secondary road network on top of the existing mega block, organizing the mix of old and new buildings, public and private buildings, and large and small buildings.
Diagram of Relationships

The following diagrams demonstrate the relationships that organize the distribution of different elements:

- organization of public realms in relation to the urban public network around the site
- distribution of parcel scales base on road network
- programs base on the distance to remaining factories
PUBLIC REALM DISTRIBUTION
Afterword

The advantage of this dynamic urban design mechanism is that it’s not a design of static forms; rather, it’s a design of relationships, making it flexible enough to be applied to urban conditions with changes and uncertainties, such as Shenzhen’s current deindustrialization and industrial upgrading process. In this way, design and planning won’t fail to guide urban environment changes in rapidly shifting urban conditions.
Illustration Credits

Chapter 1

Fig 1.1 http://www.terryking.us/photoalbum/v/china/workers/
ChinaWorkers--01.jpg.html?g2_imageViewsIndex=2
Fig 1.2 http://www.blissful-wisdom.com/inside-chinas-factory-life.html
Fig 1.3 http://www.oneinchpunch.net/2007/07/02/endless-assembly-lines-and-giant-cafeterias-inside-chinas-vast-factories/
Fig 1.4 http://data.worldbank.org/indicator/NV.IND.MANF.CD/countries?display=map
Fig 1.5 http://www.forbes.com/sites/gordonchang/2012/12/09/move-over-michigan-china-is-the-worlds-next-rustbelt/
Fig 1.6 http://www.economist.com/blogs/analects/2013/02/services-sector
Fig 1.7 http://www.economist.com/node/21549956
Fig 1.8 Image by author
Fig 1.9 Image by author

Chapter 2

Fig 2.1 Image by author
Fig 2.2 Lin, Red Capitalism in South China.
Fig 2.3 Google earth
Fig 2.4 http://www.sztj.gov.cn/nj2012/indexce.htm
Fig 2.5 Image by author
Fig 2.6 Image by author
Fig 2.7 Image by author
Fig 2.8 http://www.szpl.gov.cn/
Fig 2.9 Image by author
Fig 2.10 Image by author
Fig 2.11 Image by author
Chapter 3

Fig 3.1  http://www.szpl.gov.cn/
Fig 3.2  http://newsfeed.kosmograd.com/kosmograd/2010/06/the-ballet-of-ipod-city-1.html
Fig 3.3  Image by author
Fig 3.4  Image by author
Fig 3.5  http://www.theepochtimes.com/n2/china-news/foxconns-move-inland-leaves-shenzhens-future-ambiguous-40566.html
Fig 3.6  Image by author
Fig 3.7  Image by author
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