2016 Display

Investment Opportunities In Korea
Display

The global market share of the Korean display panel industry stands at about 43.5%, and is one of the most competitive industries in the world.

Display panel market share (2014)

Industry Overview
Size of the display panel market
Status of foreign direct investments

Competitiveness
Display panel market share

Success Cases
Nippon Electric Glass (NEG), Japan

Where to Invest
Location descriptions

1. Masan Free Trade Zone
2. Iksan Foreign Investment Zone
3. Baekhak Industrial Complex
4. Cheorwon Plasma Industrial Park
5. Chungju Megapolis Industrial Complex
6. Cheongju Technopolis Industrial Complex
Industry Overview

Size of the display panel market

LCD has been leading the market growth but OLED is emerging as a new solution to replace LCD, thanks to its vivid display, wider viewing angles and higher power efficiency.

Status of foreign direct investments

Direct investments
AGC (Asahi Glass Corp.), ASI (AvanState Inc), Merck, Chisso, Dongwoo Fine Chem, AZEM, Nikko, Mitsul Mining, Uvac Materials, Nissan Chemical, Air Products (AP), Air Liquide, Fujifilm, 3M, Teijin Dupont, Bayernsheit Korea

Joint projects
Hantok Chemicals, TOK, Toray Advanced Materials Korea, LG MMA, Samsung Corning Precision Materials, NEG (Nippon Electric Glass), Mitsubishi Rayon

* Source: InvestKorea
Competitiveness

Display panel market share

The global market share of the Korean display panel industry stands at about 43.5%, and is one of the most competitive in the world.

Success Cases

Nippon Electric Glass (NEG), Japan

NEG’s investment in Korea shows that Korea is home to innovative technology in manufacturing LCD glasses and is leading the world’s LCD technology industry. Also, Korea has improved the price competitiveness and pioneered the future of the global display industry by reducing the cost of LCD glass, which accounts for 20% of the global LCD market.

The Korean government attracted investment from NEG, the third-largest LCD glass manufacturer, to position into Foreign Investment Zone of Dangdong, Paju, Gyeonggi Province. NEG, which has innovative technology to manufacture OLED, the next-generation LCD, chose Korea to build their first overseas LCD glass manufacturing factory. It has been an opportunity to establish an OLED cluster in Korea and shed light on the Korean display market.

NEG, the world’s largest LCD glass manufacturer, invested in Gyeonggi Province.
NEG built its first overseas LCD glass manufacturing factory.
Improved the price competitiveness by reducing the cost of LCD glass.

* Source: DisplaySearch, DisplayBank
Where to Invest

Location Descriptions

1. **Masan Free Trade Zone**
As a trade and logistics hub of the Northeast Asia and a global export hub, this high-tech industrial park exports about 4 billion USD a year, and is proposed as a location for research & development and manufacturing.

2. **Iksan Foreign Investment Zone**
This zone is near Saemangeum and serves as an outpost for exports to China. It also offers businesses great incentives and investment opportunities, and is proposed as the optimal location for display manufacturing and R&D.

3. **Baekhak Industrial Complex**
Adjacent to the metropolitan area, and with a number of industrial complexes within the zone (northern Gyeonggi region), this complex is proposed as the optimal manufacturing and R&D location for companies in the display industry that are interested in collaborating with related enterprises and industries.

4. **Cheorwon Plasma Industrial Park**
With the combination of Cheorwon’s nano-technology and mature infrastructure, synergy is expected to take place among industrial complexes. Therefore this complex is proposed as the manufacturing and research & development base for companies related to future industries that are eco-friendly and add high value.

5. **Chungju Megapolis Industrial Complex**
As an advanced technology district industrial clustering with Chungju Enterprise City-High-Tech Industrial Park-FEZ(Eco-polis), it is proposed as a manufacturing and research and development base that can provide many opportunities to knowledge-based manufacturing enterprises.

6. **Cheongju Technopolis Industrial Complex**
It is an industrial complex located in high-tech hub city of Cheongju and major enterprises in the state-of-the-art semiconductor and display industries, such as SK Hynix, LG Household & Health Care, are going to move into the complex, so it is proposed as a suitable location for companies specializing in display manufacturing and R&D.
1. Masan Free Trade Zone

Investment Highlights

Location Description
As a trade and logistics hub of the Northeast Asia and a global export hub, this high-tech industrial park exports about 4 billion USD a year, and is proposed as a location for research & development and manufacturing.

Key Rationale
- With benefits such as tax deferral and tax reduction, free or low rent, it provides an optimum business environment for foreign-invested enterprises.
- Via Masan Port, Busan Gimhae Airport transportation with high speed rail, location adjacent to industrial complexes such as Changwon Industrial Complex adds synergy effects and maximize business productivity.

Recommended Business Sector
Display components · related electronics manufacturing, R&D

Type
Lease

Land Zoning
Free Trade Area

Investment Condition
As the first foreigner-exclusive complex in Korea, about 90 companies in electrical and electronics, precision instruments, metal, textile garment industries moved in.

Target Area
- Total Area: 957,000 m²
- Available Area: rent completed

Location Overview

Location

Map showing the location of the Masan Free Trade Zone with related companies and the surrounding area.
Case References

Sony Electronics Korea Co., Ltd.

Sony Electronics Korea’s overview
- Built in 1992 as Japanese Sony’s subsidiary, it merged with South Korea telecommunications industry and Korea SOWA in 1992 and was registered as a foreign investment enterprise. The flagship business of Sony Electronics Korea is producing the parts used in Sony’s electronic products.
- Major Products: Electron tubes and electronic components, such as optical components, semiconductor components, and acoustic equipment

Investment Overview
- Korea Sony Electronics moved into Masan Free Trade Zone in 1972, and has a factory site of 44,046㎡
- Through the production of various electronic products, its revenue rose to 1 billion USD and created 5000 new jobs.

Reason for Site Selection
- As the Korea branch works closely with Japan’s headquarters to develop its technology and its export market, it wants to be in close geographical proximity to the headquarters
- Every year, it dispatches 300 workers to Japan for training, and also it places 20 workers to reside in the headquarters so that they acquire knowledge when it comes to production and facility design

Business Considerations

Market Perspective
As of 2014, exports of display: 34.9 billion USD, production: 3,666 million USD

Business Suggestion
For foreign investment promotion, some laws and regulations are exempted; tax reduction; affordable rents; support facilities; vibrant import and export activities as a non-tariff area

Main Costs
- Land rent: Factory site 0.2 USD/㎡ (month) Standard factory 0.4 to 1.4 USD/㎡ (month)
- Wages: 2,600 USD/month (Gyeongsangnam-do’s average wage per capita)

Financial Benchmark
Sony Korea Electronics has seen its exports and sales decline over the past 3 years owing to the sluggish electronics sector. It plans to attract businesses by improving the structure of industrial complexes.

Business Cluster

Major Corporations in the region
- Korea: Weltem, Changil Tech etc.
- International: Sony Electronics Korea co., Ltd, Korea Hosiden Electronics, Hansan Screw co., ltd, Korea Taiyo Yuden, Central co., ltd etc.

Potential Customers
- SL, OCI, Koei, LIGADP, Hyundai LED (co., ltd) Etc (as of 2012)

Related Organization
- Masan Free Trade Zone Management Service www.ftz.go.kr
- Gyeongsangnam-do www.gsnd.net
- Changwon-si www.changwon.go.kr
- Industry-university integrated information network www.e-cluster.net
Infrastructure

Utilities

- **Water supply**
  - Industrial water: The Nakdong River being the source, the Bansong purification plant supplies 10,000 tons of water per day
  - Living water: The Bansong purification plant supplies 10,000 tons/day, intake facility 200,000 tons/day, water purification facility 120,000 tons/day

- **Waste Water Treatment**: Comprehensive sewage treatment plant in Masan (Deokdong Wastewater Treatment Plant) process the total volume
- **Waste**: commissioned process through local waste disposal company
- **Electricity**: voltage 154 kV, volume 50 MVA
- **Communications**: Masan Central Office supplies 3000 lines, fiber: 66 core and 22 core

Transportation

- **Airport**: Gimhae Airport (35km), Sacheon Airport (60km)
- **Railroad**: KTX Masan Station (3.5km)
- **Road**: Namhae Expressway Masan IC (4km), Guma Expressway Masan IC (8km)
- **National highway**: no.2(Mokpo ↔ Masan ↔ Busan), no.5(Masan ↔ Jungangjin), no.14(Geojé ↔ Masan ↔ Pohang)
- **Local roads**: no.67 (Tongyeong ↔ Masan ↔ Chilgok)
- **Port**: near to Masan Port no.3 Pier: 20,000 ton 2 berths simultaneous berthing capacity

Labor & Material

- **Regional population**:

<table>
<thead>
<tr>
<th>Population of zone</th>
<th>Available labor force</th>
<th>Bachelor's</th>
<th>Master's</th>
<th>Ph.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gyeongsangnam-do</td>
<td>3,350,257</td>
<td>2,006,600</td>
<td>351,198</td>
<td>34,313</td>
</tr>
<tr>
<td>Changwon-si</td>
<td>1,075,168</td>
<td>680,598</td>
<td>12.7%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

- **Average wage**: 2,600 USD/month (Gyeongsangnam-do’s average wage per capita)

Core Resource Supply & Environment

Core Manpower: Gyeongsangnam-buk Universities (Pusan National University, Kyungpook National University, etc.) train and produce high-quality specialized human resource, securing excellent workforce

Living Conditions

- **Education**: 5 universities / 47 high schools / 62 middle schools & 106 elementary schools
- **Medical Facilities**: 10 general hospitals, 63 hospitals, 519 clinics, 5 dental clinics, 250 oriental clinics, 3 public health centers

Government Support

Tax relief under “the Foreign Investment Promotion Act” and “the Restriction of Special Taxation Act”

Gyeongsangnam-do SME support funds (info: Gyeongsangnam-do Office’s Business Support Division 055) 211-3261/6)
- **Support Project**:
  - Technology development, informatization, business transition, large corporation’s cooperation, start-up, SME development, stable management of start-up, location
  - Terms and conditions for support: funds for facility 250,000 to 500,000 USD, working capital within 250,000 USD, market interest rates including interest rates supporting rate 2%
  - Loan period: payable in 2 years with a one-year grace period, payable in 5 years with a 3-year grace period
2. Iksan Foreign Investment Zone

Investment Highlights

Location Description
This zone is near Saemangeum and serves as an outpost for exports to China. It also offers businesses great incentives and investment opportunities, and is proposed as the optimal location for display manufacturing and R&D

Key Rationale
- As a transportation hub of Jeollado Province, it has an abundant labor force and is easy to systemize manufacturers in conjunction with Jeonju, Gunsan
- Being designated as a general bonded area, it is easy to attract foreign investment companies and improves the competitiveness of tenant enterprises

Location Requirements

<table>
<thead>
<tr>
<th>Recommended Business Sector</th>
<th>Display components · related electronics manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Sale in lots</td>
</tr>
<tr>
<td>Land Zoning</td>
<td>Industrial Complex</td>
</tr>
<tr>
<td>Investment Condition</td>
<td>Occupancy limit : pollution causing industries</td>
</tr>
</tbody>
</table>

Location Overview

Target Area
- Total Area: 341,000 m²
- Available Area: 195,000 m²

Related Companies (22)
- Major companies: Silicon Works, Mitech (co., Ltd)
- Display: LED Litec, D&T, SSDisplay, AGC Display Glass Ochung, DITech (co., Ltd), and 2 other companies
- Electronic components manufacturing company: PLA, Silicon Works, UID Korea, IMT, Mitech, MT Mopitica, Global Display (co., Ltd) and 7 others
Iljin Materials Company Overview

• An electronic parts manufacturer established in 1987, it ranks top in the global market share of secondary rechargeable battery Elecfoil, and produces advanced components and materials

• Since changing its company name from Iljin Materials Industry Co.,Ltd to Iljin Materials, it expanded the scope of its business to new growth engines, such as ‘LED chips’ and secondary battery cathode materials

• Business area: Elecfoil(40%), LED (25%), construction (15%), resource development(10%), energy(10%)

Investment Overview

• After concluding an investment agreement(MOU) with Jeollabukdo and Iksan, ILJIN has built manufacturing plants for Elecfoil, LED chip, secondary rechargeable batteries, the core material of electronic products, by investing 200 billion won(1st step) on the site (200,000㎡) within the Comprehensive Medical Science Industrial Complex in Hamyeol, Iksan.

• After that, it plans to invest about one trillion won for a phase-in expansion of production line to create factories in Iksan Industrial Complex 3 (234,774㎡) and to employ 1,400 workers

Reason for Site Selection

• To relieve uncertainty in supply and demand, and for the aim of delivering products to Japan and overseas companies

• To streamline administrative procedures required for the plant construction, such as development plan revisions and building permits led by 12 related departments including Iksan Investment Promotion Division, and Housing Division, at the same time, to provide full support to Iljin Materials, Co.,Ltd to proceed the construction according to its business schedule.

Business Considerations

<table>
<thead>
<tr>
<th>Market Perspective</th>
<th>As of 2014, exports of display: 34.9 billion USD, production: 3,666 million USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Suggestion</td>
<td>Tax benefits and incentives are provided to tenant foreign-invested enterprises that move into the foreigner-exclusive parts and materials industrial complex within Iksan general industrial complex 3, and in particular, the designation of a general bonded area eases to import/export raw material of foreign-invested enterprises and reduces customs burden.</td>
</tr>
<tr>
<td>Main Costs</td>
<td>Land rent: 100 USD/㎡ (340 USD/pyeong) Wages: 2,500 USD/month(North Jeolla Province’s average wage per capita)</td>
</tr>
<tr>
<td>Financial Benchmark</td>
<td>Iljin Materials has achieved a continuous growth in sales in recent 3 years</td>
</tr>
</tbody>
</table>

Business Cluster

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Foreign: Korea Yasunaga Co.,Ltd etc.</td>
</tr>
<tr>
<td>Potential Customers</td>
<td>Companies specializing in developing technology or manufacturing of display materials components</td>
</tr>
</tbody>
</table>

Related Organization

<table>
<thead>
<tr>
<th>Related Organization</th>
<th>• North Jeolla Province <a href="http://www.jeonbuk.go.kr">www.jeonbuk.go.kr</a></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Iksan City <a href="http://www.iksan.go.kr">www.iksan.go.kr</a></td>
</tr>
<tr>
<td></td>
<td>• Industry-university integrated information network <a href="http://www.e-cluster.net">www.e-cluster.net</a></td>
</tr>
</tbody>
</table>
Infrastructure

Utilities
- **Water supply:**
  - Industrial water: Palbong reservoir 15,550㎥/day
  - Living water: Geumma reservoir 1,111㎥/day
- **Waste Water Treatment:** self-treatment in wastewater treatment plant within complex 6000㎥/day
- **Electricity:** 150,602㎾A
- **Communications:** 3,135 circuits: supplied by ONU installed in business complex (broadband network supply machine room)
- **Energy Supply:** Jeonbuk Energy Service supplies LNG

Transportation
- **Airport:** Gunsan Airport (41.4㎞)
- **Railroad:** Honam 20㎞, 20 minute
- **Road:** Honam Expressway Iksan IC (15.3㎞) 13 minutes, West Coast Expressway Gunsan IC (29.2㎞) 25 minutes, no.1 National Highway(10.3㎞) 9 minutes, no. 718 Local Road(0.5㎞) 4 minutes, no.722 Local Road(0.4㎞) 4 minutes
- **Port:** Gunsan port (46.0㎞)

Labor & Material

Labor Condition

<table>
<thead>
<tr>
<th>Population of zone</th>
<th>Available labor force</th>
<th>Ratio</th>
<th>Bachelor’s</th>
<th>Master’s</th>
<th>Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Jeolla Province</td>
<td>1,871,560</td>
<td>1,053,008</td>
<td>56.3%</td>
<td>210,315</td>
<td>23,712</td>
</tr>
<tr>
<td>Iksan</td>
<td>304,117</td>
<td>177,531</td>
<td>58.4%</td>
<td>11.2%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

- Average wage: 2,500 USD/month (North Jeolla Province average wage per capita)

Core Resource Supply

Environment

Core manpower: LED Agricultural Fusion Technology Research Center (Iksan) and prestigious universities in the region educate and supply excellent workforce.
- LED Agricultural Fusion Technology Research Center: As a LED fusion center in the southwest area, which leads agricultural-based LED fusion technology, it serves as the agricultural-based LED fusion technological hub in Northeast Asia, and is a research institute which trains applied agricultural specialists.
- Through the establishment of Iksan Comprehensive Business Center and International Convention Center, resident companies are given support

Living Conditions

- **Education:** 1 university / 16 high schools and 8 vocational high schools / 26 middle schools
- **Medical Facilities:** 2 general hospitals, 6 hospitals, 158 clinics, 79 dental clinics, 72 oriental clinics, 1 public health center, 15 health center branches, 24 health care centers
- **Others:** 1 golf course, 2 tourist hotels, 1 indoor stadium, 1 stadium

Government Support

National (corporate, income tax): 5-7 years
- 3,000 or more USD investment: 5-year 100%, 2-year 50% reduction
- 1,000 or more USD investment: 3-year 100%, 2-year 50% reduction

Local taxes (acquisition tax, registration tax, property tax)
- In case of investment worth more than 1,000 USD, local taxes are exempted for 5 years after which the reduction rate is determined according to the foreign investment ratio

Employment subsidies
- North Jeolla Province: If more than 20 persons from the Jeollabukdo Province are employed, 800 USD is provided for each person in excess of 20 persons with the maximum amount of 830,000 USD in total for 6 months
- Iksan: if more than 20 persons from Iksan are employed, 400 USD is provided for each person in excess of 20 persons with the maximum of 166,000 USD in total for 6 months

Training subsidies
- North Jeolla Province: If more than 20 persons from the Jeollabukdo Province are employed, 400 USD is provided for each person in excess of 20 persons with the maximum of up to 416,000 USD in total for 6 months.
- Iksan: if more than 20 persons from Iksan are employed, 400 USD is provided for each person in excess of 20 persons with the maximum of 166,000 USD in total for 6 months.
3. Baekhak Industrial Complex

Investment Highlights

Location Description
Adjacent to the metropolitan area, and with a number of industrial complexes within the zone (northern Gyeonggi region), this complex is proposed as the optimal manufacturing and R&D location for companies in the display industry that are interested in collaborating with related enterprises and industries.

Key Rationale
- Located in the metropolitan area, it has convenient transportation network including KTX, airport, ports, and expressway
- Differentiated incentives, including government aid and tax benefits
- 11 cooperative industrial complex network is built around Paju LG display to serve as LCD industrial complex (Paju, Yangju, Yeoncheon, Dongducheon, etc.)

Location Requirements

<table>
<thead>
<tr>
<th>Recommended Business Sector</th>
<th>Display materials component technology development-specialized manufacturing, R&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Sale in lots</td>
</tr>
<tr>
<td>Land Zoning</td>
<td>Industrial Complex</td>
</tr>
<tr>
<td>Investment Condition</td>
<td>Eligibility: any person qualified under Article 6 of “the Enforcement Decree of the Industrial Cluster Development and Factory Establishment Act”, who intends to engage in manufacturing business in the occupancy(inducement) business type</td>
</tr>
</tbody>
</table>

Location Overview

Target Area
- Total Area: 440,000 m²
- Available Area: rent completed

Related Companies (18)
- Major companies: Digitech Systems, Paju Electric Glass, ULVAC Materials Korea, New Optics
- Display: New Optics, Yax, ULVAC Materials Korea, etc.
- Electronics Manufacturing: Digitech Systems, GGT, etc.
- Other parts: Daewoo Metal, Paju Electric Glass, etc.
Case References

Japan NEG’s investment in Paju Dangdong Foreign Investment Zone

NEG (Nippon Electric Glass Company, Limited)’s Company Overview

- World’s no. 3 LCD glass negative manufacturer founded in 1944. Takes up more than 90% share of world production of USA Corning, Asahi Glass, NEG

Investment Overview

- Following completion of step 1 factory construction, step 2 factory construction has started. In other words, after NEG spent 500 million USD to complete the first step of factory construction, it spent 500 million USD to complete the second step of plant construction.
- If the project successfully proceeds to step 2, NEG plans to pursue the establishment of a step 3 factory worth 500 million USD in Paju Dangdong Industrial Park

The Main Reason for site selection

- Since Idemitsu Kosan is located in Paju Dangdong Foreign Investment Zone, it decided to move into the zone to create synergy with the company
- Founded in 1911, Idemitsu Kosan is a global OLED materials source technology company, possessing a number of important patents related to OLED technology. They are committed to developing state-of-the-art OLED materials and a variety of device technologies, based on its own OLED source technology
- It entered into MOU and has a strategic partnership with domestic companies such as Doosan, LG display for the joint use of patents on LED materials.

Business Considerations

Market Perspective

136.45 billion US dollars (2014 estimate)

Business Suggestion

It is an industrial complex created with an aim of developing in conjunction with Kaesong Industrial Complex. It is also included in the display industrial complex network at the same time, therefore, it can create various synergy effects when display-related companies move in

Main Costs

Land rent: 150 USD/㎡/single payment or installment payment (5 years)
Wages: 2,600 USD/month(Gyeonggi-do average wage per capita)

Business Cluster

Major Corporations in the region

- Domestic: Bohyun co.,ltd, Korea BRT co.,ltd, FMC co.,ltd, GNI, Link Electronics co.,ltd, YeongJin Knit co.,ltd

Potential Customers

- Chemicals and chemical products manufacturing, primary metal manufacturing, metalworking products manufacturing, electronic parts, computer, video, TV and communications equipment manufacturing, other machinery and equipment manufacturing, medical treatment, precision, optical instruments, watchmaking manufacturing, electrical equipment manufacturing, furniture manufacturing

Related Organization

- Gyeonggi-do www.gg.go.kr
- Yeoncheon-gun www.yc21.net
- Industry-university integrated information network www.e-cluster.net
Infrastructure

Utilities
- **Water supply**: Industrial water: 3,594 ton/day (it uses Jangnam-myeon simple waterwork that uses Samicheon as a source)
- **Living water**: 266 ton/day (It uses the existing water pipe in Yeoncheon-gun’s integrated water purification plant)
- **Waste Water Treatment**: 1,000 ton/day (1step 500 ton/day)
- **Electricity**: Supply channel: Jeongok substation-Baekhak Industrial Complex
  - Supply Ability: 180MV (60MV X 3 units) Demand: 104,587 MWh/year
- **Communications**: Korea Telecom Jeongok supplies (demands: 415 circuits)
- **Energy Supply**: Heavy oil, kerosene of boilers, LPG, etc. are supplied (CES has none feasibility)

Transportation
- **Airport**: Gimpo International Airport (69km), Incheon International Airport(96km)
- **Railroad**: Gyeongwon Line Jeongok Station (21km)
- **Road**: Seoul Ring Expressway Uijeongbu IC (40km), Southern Gyeonggi and Eastern Seoul entry route no. 37 road, no.3 road, no.1 road are adjacent, Local Road no. 371
- **Port**: Incheon (84km), annual handling capacity 9,728,000 ton

Labor & Material

Labor Condition
- **Regional population**:

<table>
<thead>
<tr>
<th>Population of zone</th>
<th>Available labor force</th>
<th>Bachelor’s</th>
<th>Master’s</th>
<th>Ph.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gyeonggi-do</td>
<td>12,357,830</td>
<td>7,799,381</td>
<td>1,718,439</td>
<td>231,448</td>
</tr>
<tr>
<td>Yeoncheon-gun</td>
<td>45,363</td>
<td>34,969</td>
<td>5.7%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

- Average wage: 2,600 USD/month (Gyeonggi-do average wage per capita)

Core Resource Supply
- **Core manpower**: With prestigious universities and colleges concentrated in Seoul and Gyeonggi, it can easily provide excellent manpower with expertise in technology
  - Technical cooperation through global display manufacturers that moved into the nearby Industrial Park (Dangdong, Paju)
    - Japan NEG, Japan’s Idemitsu (OLED core technology holding company) etc.

Environment

Living Conditions
- **Education**: 2 high schools / 6 middle schools & 16 elementary schools
- **Medical Facilities**: 1 health care center, 16 hospitals, 7 public health branches, 6 health care centers
- **Others**: Welfare facilities: Cultural and Sports Center, Youth Center

Government Support

Tax benefits: Tax relief under “the Foreign Investment Promotion Act” and “the Restriction of Special Taxation Act”

Finance:
- Gyeongsangnam-do’s SME support funds (info: Gyeongsangnam-do Office’s Business Support Division 055) 211-3261/6)
  - Support Project: Technology development, informatization, business transition, large corporation’s cooperation, start-up, SME development, stable management of start-up, location
  - Terms and conditions for support: financing facility 250, 000 to 500,000 USD, working capital within 250,000 USD, market interest rates including interest rates supporting rate 2%
  - Loan period: payable in 2 years with a one-year grace period, payable in 5 years with a 3-year grace period
With the combination of Cheorwon’s nano-technology and mature infrastructure, synergy is expected to take place among industrial complexes. Therefore this complex is proposed as the manufacturing and research & development base for companies related to future industries that are eco-friendly and add high value.

**Key Rationale**

- High value-added new product development through association with Cheorwon research-industrial park
- Transfer of technology of the research institute within the industrial park is expected to promote expansion into the Asian markets

**Location Requirements**

<table>
<thead>
<tr>
<th>Recommended Business Sector</th>
<th>Display components-related electronics manufacturing, R&amp;D</th>
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<td>Type</td>
<td>Sale in lots</td>
</tr>
<tr>
<td>Land Zoning</td>
<td>Industrial Complex</td>
</tr>
<tr>
<td>Investment Condition</td>
<td>The minimum investment area to be determined in the future(Cheorwon-gun)</td>
</tr>
</tbody>
</table>

**Target Area**

- Total Area: 319,394 m²
- Available Area: 211,203 m²

**Location Overview**
SL Corporation's Overview

• SL Corporation is a manufacturer of automotive parts such as various lamps, including car head lamps, sash, mirror, modules, etc. founded in 1954, and it holds world-class research and development capabilities, leading digitization of automotive parts, modularization, and development of eco-friendly products.

• Being selected as 'good partner of this year' by General Motors (GM) for 17 consecutive years, it has been recognized for the world’s best technology and quality.

• It signed an academic agreement with Yeungnam University College, which trains talented workforce in the field of technology and provides excellent staff.

Case References

SL Co., Ltd intends to move into Cheorwon Plasma Industrial Complex

Investment Overview

• For the purpose of manufacturing LED headlamp heat dissipation parts, it intends to move into the 30,000 pyeong site of Cheorwon Plasma-industrial complex in Gangwon.

SL Corporation's Overview

Business Considerations

Market Perspective

Display, display equipment
136.45 billion USD (2014 estimate)

Business Suggestion

Utilizing Cheorwon's nanotechnology as a core base technology, foreign-invested joint venture company through the transfer of nano-materials technology

Main Costs

Expected lotting-out price: 140 USD/㎡
Wage: 2,400 USD/month (Gangwon-do’s average wage per capita)

Business Cluster

Major Corporations in the Region

• 44 companies (6 signed MOU, 6 related to KAPRA-Korea Accelerator and Plasma Research Association - and 32 interested in occupancy) of 'ET(Energy) and Environmental Industry, IT, NT' related to plasma are expected to move in

Potential Customers

• Electronic parts, computer, video and communications equipment-related companies

Related Organization

• Research Institutions: Cheorwon Do peulnjeu Industrial Technology Research Institute
• Gangwon-do www.provin.gangwon.kr
• Cheorwon-gun www.cwg.go.kr
• Industry-university integrated information network www.e-cluster.net
Infrastructure

Utilities
- **Water**: Kimhwa water intake station, living water 0.4 thousand tons/day, usage 3.6 thousand tons/day
- **Wastewater**: Sewage treatment plant’s treatment capacity 2,500 m³/day, facility site 6,568 m²
- **Power**: Supply channel general power (KEPCO Cheorwon), supply capacity 29,381 KVA
- **Communications**: KT Cheorwon
- **Energy Plan**: planned as LPG, total hydrothermal volume: 142,634 Gcal/year

Transportation
- **Airport**: Gimpo International Airport (111km)
- **Railroad**: Gyeongwon Line, Baengmagoji Station (Within 2-hour accessibility to the metropolitan area)
- **Road**: National highway no.47 line (within 1km), no.56 line (within 1km), no.43 line (within 1km)
- **Port**: Incheon port (133km)

Labor & Material

Labor Condition
- **Regional population**: (Unit: persons, %)
<table>
<thead>
<tr>
<th>Population of zone</th>
<th>Available labor force</th>
<th>Bachelor’s</th>
<th>Master’s</th>
<th>Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gangwon-do</td>
<td>1,544,442</td>
<td>896,748</td>
<td>156,476</td>
<td>19.324</td>
</tr>
<tr>
<td>Cheorwon</td>
<td>47,590</td>
<td>26,747</td>
<td>6.4%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>
- Average wage 2,400 USD/month (Gangwon-do average wage per capita)

Core Resource Supply Environment
- **Raw materials**: As a basalt accumulated soil that is source of nano-materials, it is advantageous to develop competitive core materials
- **Various fusion technology support environment**: Vigorous human resource exchange thanks to prestigious universities in the nano sector
  - Every year, students and professors of prestigious domestic universities such as Sungkyunkwan University, Hanyang University, KAIST participate in the Plasma Industry Forum, securing a wide pool of human resources

Living Conditions
- **Education**: 2 high schools and 3 vocational high schools / 5 middle schools
- **Medical Facilities**: 1 general hospital, 16 clinics, 7 dental clinics, 8 oriental clinics, 1 public health center and 11 clinics
- **Others**: 1 hotel, 2 indoor stadiums, 1 sports complex, and 2 swimming pools

Government Support

*Acquisition tax 50%, Property tax 75% reductions are possible*
- According to the ordinance of Do, acquisition tax can be reduced by up to 25%

Gangwon SMEs fostering fund
- Stable management fund
  - Purpose: Working capital for stable management
  - Condition: 410,000 to 660,000 USD, interest support 3-4%
- Entrepreneurship and competitiveness support fund
  - Purpose: Facility investment fund (land purchase, factory building, machinery, etc.)
  - Condition: 1.25 million USD (12 facilities, 3 operations), interest support 2%
5. Chungju Megapolis Industrial Complex

Investment Highlights

Location Description
As an advanced technology district industrial clustering with Chungju Enterprise City High-Tech Industrial Park FEZ (Eco-polis), it is proposed as a manufacturing and research and development base that can provide many opportunities to knowledge-based manufacturing enterprises.

Key Rationale
- With excellent accessibility through the Central Inland Expressway and being located in the central area of high-tech industrial belt, it has the optimal infrastructure.
- The government provides various incentives to attract companies of new growth industry of the future, such as IT·BT·NT·GT industries (Knowledge-based industry, new materials biotechnology, new material, green technology industries, etc.)

Location Requirements

<table>
<thead>
<tr>
<th>Recommended Business Sector</th>
<th>Display materials-component manufacturing, R&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Sale in lots</td>
</tr>
<tr>
<td>Land Zoning</td>
<td>Industrial Complex</td>
</tr>
</tbody>
</table>

Investment Condition
Occupancy limit:
- Among “Medium classification of manufacturing industry”
  - Cloth, clothing accessories and fur products, leather, bags and shoes, wood and wood products: except for furniture; pulp, paper and paper products, cokes, briquettes and petroleum products
- Among classification of “Notification of facilities with permission for occupancy in industrial facilities site”
- Wastewater Treatment Services, Renting of non-residential buildings

Location Overview

<table>
<thead>
<tr>
<th>Target Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Area: 1,811,000 m²</td>
</tr>
</tbody>
</table>

Related Companies

- Major companies: Pregen, Koj, Win-tek (co., Ltd) etc.
- Display: Pregen co., Ltd etc.
- Plastic manufacturers (display-related): Koj, Win-tek, Techpa, Sahara EN Tech (co., Ltd)

Related Companies

- Major companies: JSR Micro Korea, MHNtech, GD (co., Ltd) etc.
- Display: JSR Micro Korea, GD, SP-Tech, MT Optics, JH (co., Ltd) etc.
- Electronic parts: MHNtech, Df-Mech, Sell Mllec, ACP, AOX, Display Glass Ochung, M-Pix (co., Ltd) etc.
LIVICON Company Overview

- As a professional manufacturer of LCD display, it was established in January 17, 2014 through massive participation of key technical personnel who commercialized PDLCD (Polymer dispersed Liquid Crystal Display) for the first time in the world.
- It has already successfully won a supply contract of goods with the US, Canada, China, Dubai, etc., so it is evaluated as a promising business.
- PDLCD changes its status from transparent to opaque, depending on the existence of an electric field. It can be utilized for various purposes, such as construction, transportation, full-page ads, etc.

Market Perspective

- As of 2014, export of display: 34.9 billion USD, production: 3,666 million USD

Business Considerations

<table>
<thead>
<tr>
<th>Market Perspective</th>
<th>Various support benefits led by Chungju (tax benefits and subsidiary, preferential rates for investment enterprises, etc.) are available, and in the future, a development plan of a foreign investment zone will be implemented</th>
</tr>
</thead>
</table>
| Main Costs | Land rent: Sale prices: around 520 USD/㎡
Wages: 2,500 USD/month (Chungcheongbuk-do’s average wage per capita) |

Business Cluster

<table>
<thead>
<tr>
<th>Major Corporations in the region</th>
<th>Domestic: [Occupancy expected] Lotte Chilsung co., ltd Forom. Geumsung Chemical, Morgan Food, Sanji, Alsok Bitec Co., Ltd Etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential Customers</td>
<td>IT-BT-NT-GT industries (electronic-information, biotechnology, new material, eco-green)</td>
</tr>
</tbody>
</table>

Related Organization

- Chungcheongbuk-do www.cb21.net
- Chungju-si cj100.net
- Industry-university integrated information network www.e-cluster.net
- ChungjuMegapolis Industrial Complex cjmega.co.kr
**Infrastructure**

**Utilities**
- **Water supply**: Industrial water 8,100 ton/day, living water 2,400 ton/day
- **Waste Water Treatment**: Industrial wastewater 12,400 ton/day, living sewage 600 ton/day
- **Electricity**: 91,200 kW

**Transportation**
- **Airport**: linked with Cheongju International Airport (40 minutes)
- **Railroad**: Central Inland Railway [Icheon - Chungju : Scheduled to be completed in 2019] [Chungju - Mungyeong : Scheduled to be completed in 2021]
- **Road**:
  - Central Inland Highway North Chungju IC 2km, East-West Highway Chungju IC 2km
  - ChungCheong inland expressway to be built –[Sejong City –Cheongju (airport) Chungju -Wonju : being designed]
  - East-West Highway [Pyeongtaek -Chungju-Jecheon] within one-hour access to Pyeongtaek port

**Labor & Material**

**Labor Condition**

<table>
<thead>
<tr>
<th>Regional population :</th>
<th>(Unit: persons, %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population of zone</td>
<td>Available labor force</td>
</tr>
<tr>
<td>Chungcheongbuk-do</td>
<td>1,578,933</td>
</tr>
<tr>
<td>Chungju-si</td>
<td>208,527</td>
</tr>
</tbody>
</table>

**Core Resource Supply**

**Environment**
- **Core manpower**: Korea National University of Transportation, Konkuk University, Polytechnic IV, etc. located in the zone provide excellent technical personnel
- **Foreign-invested enterprises supporting environment**: A new large-scale foreign investment zone in 330,000㎡ within the Chungju Megapolis Industrial Complex planned
  - Chungbuk-do and the central government jointly purchased the land and lent it to foreign-invested enterprises for up to 50 years, and various tax benefits and financial support for national, local taxes as well as tariffs will be provided

**Living Conditions**

- **Education**: Korea National University of Transportation, Konkuk University, Chungju Polytechnic IV / 17 middle schools for 8,852 students, 10 high schools for 8,534 students, 2 universities for 20,617 students
- **Medical Facilities**: Konkuk University Hospital and another general hospitals 2 places, clinic 95 places
- **Others**: 5 golf courses, 8 tourist hotels, 13 general hotels, 5 condominiums, 1 indoor stadium, 1 stadium, 1 indoor swimming pool, and 1 multi-purpose gym

**Government Support**

**Tax exemption following the re-location of companies**
- National tax: [factory, head office or principal office] 5-year exemption of corporate tax on transfer gains [SME plant, factory head office or principal office with at least 3 years] 5-year 100% exemption of income tax or corporation tax and after that 2-year 50% reduction
- Local taxes: [head office or principal office] 100% exemption of acquisition tax, 100% exemption of property tax for 5 years and after that 3-year 50% reduction, [head office or principal office] 100% exemption of registration and license tax [factory] 100% exemption of acquisition tax, 100% exemption of property tax for 5 years and after that 3-year 50% reduction

**Chungju-si’s own support grants**
- Capital investment subsidy
- Support limit: Within 5% of the investment amount, of which the necessary expenses including land purchase cost exceeds 2.5 million USD, municipal fund is provided up to 830,000 USD per company
- Financial aid for resettlement of workers
  - Support limit: up to 400 USD for every family member (800 USD for third or more children)
6. Cheongju Technopolis Industrial Complex

Investment Highlights

Location Description
It is an industrial complex located in high-tech hub city of Cheongju and major enterprises in the state-of-the-art semiconductor and display industries, such as SK Hynix, LG Household & Health Care, are going to move into the complex, so it is proposed as a suitable location for companies specializing in display manufacturing and R&D.

Key Rationale
- Thanks to the Jungbu Expressway, plants and new start-up factories relocated from the metropolitan area are moving into the Ochang Science Industrial Complex around the complex and into Cheongwon, Jincheon, and Eumseong, so it is convenient to form clusters.
- The Chungcheongbuk-do provincial government office is located here, so it has a complete infrastructure and a comprehensive support system related to attracting investment, which is necessary for industrial activities.

Location Requirements

<table>
<thead>
<tr>
<th>Recommended Business Sector</th>
<th>Display Materials·Component Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Sale in lots</td>
</tr>
<tr>
<td>Land Zoning</td>
<td>Industrial Complex</td>
</tr>
</tbody>
</table>

Investment Condition
- Type of Business: IT, BT, NT, ST, renewable energy and advanced manufacturing
- Occupancy limit: The water consumption and pollution causing industries sector

Location Overview

Target Area
- Total Area: 1,527,575 m²
- Available Area: 549,000 m²
Case References

SK Hynix invests 1,291.7 million USD in Cheongju Technopolis Industrial Complex

SK Hynix’s Company Overview

- It is a manufacturer and distributor of semiconductor devices founded in 1983, and a global company that has 4 production subsidiaries including domestic place of business in Incheon, Cheongju, and in Wuxi, Chongqing in China, and sales subsidiaries in 10 countries, including the United States, England, Germany, Singapore, Hong Kong, India, Japan, Taiwan, China, and operates 4 R&D subsidiaries in Italy, USA, Taiwan, Belarus, etc.
- Major Products: Memory chip (DRAM, NAND Flash, MCP, etc.), System Semiconductor (CMOS Image Sensor, etc.)

Investment Overview

- SK Hynix purchased 234,000 m² industrial site of Cheongju Technopolis that is currently under construction, and plans to expand the Cheongju plant by investing 15.5 trillion won by 2025.
- If SK Hynix invests as planned and operates the production line, it will create effects on production inducement worth of 48.36 trillion won and employment inducement effects of 114,000 employees.

The Main Reason for the site selection

- Cheongju Technopolis where SK Hynix Cheongju is to move in is expected to become a key economic area of Chungbuk, which is connected to the Cheongju Industrial Complex and Ochang Industrial Complex.
- It is following the plan for expansion of domestic semiconductor plants that SK Hynix revealed at the 'M14 Icheon Factory Completion and Future Vision Proclamation' ceremony held in August 25 last year, which is aimed at fostering the Cheongju factory as a base specialized in key memory components of a high growth potential.

Business Considerations

<table>
<thead>
<tr>
<th>Market Perspective</th>
<th>Display, Display Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>136.45 billion US dollars (2014 estimate)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Suggestion</th>
<th>Display manufacturing facility can be built using IT · BT and other high-tech industry R&amp;D infrastructure</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Main Costs</th>
<th>Land rent 916 USD/m² or under</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages</td>
<td>2,500 USD/month (Chungcheongbuk-do’s average wage per capita)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Financial Benchmark</th>
<th>Since 2012, SK Hynix, is showing a continuous rise in sales and operating profit for 3 consecutive years</th>
</tr>
</thead>
</table>

Business Cluster

<table>
<thead>
<tr>
<th>Major Corporations in the region</th>
<th>• Domestic : Celltrion Pharm, Daewoong Pharmaceutical, Taegang (co.,ltd) Etc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Companies scheduled to move in</td>
</tr>
<tr>
<td></td>
<td>- Domestic : LG Household &amp; Health Care, SKHynix</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential Customers</th>
<th>• Manufacturing, R&amp;D (Research and Development)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Related Organization</th>
<th>Research Institutions:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Chungcheongbuk-do [<a href="http://www.cb21.net">www.cb21.net</a>]</td>
</tr>
<tr>
<td></td>
<td>• Cheongju-si Administration [<a href="http://www.cjcity.net">www.cjcity.net</a>]</td>
</tr>
<tr>
<td></td>
<td>• Industry-university integrated information network [<a href="http://www.e-cluster.net">www.e-cluster.net</a>]</td>
</tr>
</tbody>
</table>
Infrastructure

Utilities
- **Water**: Intake source with Daecheongdam system, stable industrial water supply is possible with regional water supply facilities
- **Wastewater**: processed in association with Cheongju Industrial Complex’s wastewater treatment plant
- **Required facilities**: 31,000 tons/day, Current facilities 31,000 tons/day
- **Power**: Bongmyeong substation is located
- **Waste**: Entrusted treatment
- **Communications**: KT supplies 10,377 lines
- **Energy Plan**: Chungcheong Energy Service (Pyeongtaek LNG → Chungcheong Energy Service)

Transportation
- **Airport**: Cheongju Airport (7km) within 12 minutes (Jeju 12 times/day)
- **Railroad**: Chungbuk Line Cheongju Station (5.3km) Osong station (16km) Bukcheongju station (500m expected)
- **Road**:
  - Expressway: Cheongju IC, Seocheongju IC, Ochang IC (within 10 minutes)
  - National Highway: no. 17 route (Yeocheon ↔ Cheongju ↔ Yongin)
- **Port**: Gunsan port (50km): 20,000 to 50,000 ton ship berthing, cargo handling capacity 281.3 million tons, cargo berthing capacity 6 berths

Labor & Material

Labor Condition
- **Regional population**
<table>
<thead>
<tr>
<th>Population of zone</th>
<th>Available labor force</th>
<th>Ratio</th>
<th>Bachelor’s</th>
<th>Master’s</th>
<th>Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chungcheongbuk-do</td>
<td>1,576,933</td>
<td>935,677</td>
<td>59.3%</td>
<td>159,391</td>
<td>19.441</td>
</tr>
<tr>
<td>Cheongju</td>
<td>831,521</td>
<td>516,168</td>
<td>62.1%</td>
<td>10.1%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>
- Average wage: 2,500 USD/month (Chungcheongbuk-do’s average wage per capita)

Core Resource Supply
- **Core manpower**: A number of universities (graduate schools) are located, supplying excellent quality labor force
- **High-tech industries such as IT, BT’s R&D Infrastructure**
  - Osong high-tech medical complex is formed and health-related 6 national institutions have been re-located
  - High-tech industrial clusters around Osong-Ochang are built (Korea Research Institute of Bioscience and Biotechnology’s Ochang Campus, Chungbuk Technopark, Korea Basic Science Institute’s Ochang Campus, and etc.)

Environment
- **Education**: 97 kindergartens for 6,819 children, 32 middle schools for 32,870 students, 22 high schools for 22,255 students, 3 universities for 43,658 students
  - Industrial manpower training agencies: Korea Polytechnics 4 University Chungju Campus, Cheongju University for 629 students
- **Medical Facilities**: 7 general hospitals, 380 hospitals and clinics, 149 dental clinics, 153 oriental hospitals, 2 public health centers
- **Others**: Apartment s for 125,608 households, 7 tourist hotels, 5 indoor stadiums, 1 stadium, 7 public libraries, 56 concert halls, 7 exhibition facilities, 8 local cultural welfare facilities

Living Conditions

Government Support

Tax Benefits
- Acquisition tax full exemption (at the time of acquiring lotting-out or vacant land)
- Property tax 5-years 50% reduction (within 5 years from the first acquisition)

Finance: Chungcheongbuk-do’s SME Support Fund
- (Info: Chungbuk-do Government Office’s company invitation and support division 043) 220-3322, Chungbuk SME Support Center 043) 236-9101
- Support fund: Facility investment fund, working capital fund
- Loan limits: Facility investment fund 830,000 USD, working capital 416,000 USD
- Facility fund: within 8 years (5-year equal repayment with a 3-year grace period)
- Working capital: 2-year temporary repayment
  - But, in the case of start-ups, working capital is limited to 83,000 USD