Solving Seoul's Urban Issues with Start-ups

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Dr. Jung-Woo Lee, Seoul Digital Foundation



About Seoul



Pillars of Seoul Smart City



The best ICT infrastructure which connects and empowers citizens

2) 0

Open Government focused on communication, participation and sharing



Strong public-private partnerships for sustainable development

Adoption of latest technology such as bigdata, IoT, GIS & Cloud to solve urban issues



Sharing Seoul's smart solutions with the world

Global Digital Seoul 2020



Smart City Seoul

New Connectivity, New Experience



Source: Global Digital Seoul 2020

Innovation Cluster





Seoul Digital Foundation

A nexus for exciting city-wide digital innovations in Seoul

Seoul Digital Foundation



Innovation with Startups





Urban Issues in Seoul

Seoul Digital Foundation

Urban Issues in Seoul

| | '06-'17, 10years 160,317 cases |
|------------------|-----------------------------------|
| Traffic | Parking, Fare system |
| Environment | Food waste, |
| Culture | Tourist, Tourism programs |
| Health | Hygiene, Hospitals |
| Safety | Traffic, Disaster, |
| Economy | Payment, Unemployment |
| Women &Family | Parenting, Education |
| Welfare | Ageing, Retirement |
| Housing | Real estate, New-town |

Source: Seoul Digital Foundation



Fine Dust New Regeneration Energy

Green Energy



Road Traffic Toll System

Urban Mobility



Social Protection Ageing Issues Women and Family Issues Road and Public Facility Safety

Approach to Solve them with Digital





Source: Korea Joongang Daily(2017.6.18)

2030 Seoul Development Plan





Source: http://english.seoul.go.kr/policy-information/urban-planning/urban-planning/1-2030-seoul-basic-urban-plan/



Thank you 🕲

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URBAN INNOVATION CHALLENGE: CITYPRENEURS -GREEN ENERGY-



1 Green Energy

Expansion of renewable energy supply with Citizen

2 Recycling Waste management

3 Smart Energy City

Smart energy management for energy independence



1 Green Energy Expansion of renewable energy supply with Citizen



Central Gov.

Renewable Energy 3020 Implementation Plan





"New development of resident participation type business model"



SEOUL

Goal for 2022: Solar Energy Capacity Achievement of 1GW





Solar Energy Capacity Achievement of 1GW

Solar industrialization

Preparation of Public territory

Improving the system and more citizen participation

Types of Mini Solar power plants_Veranda





Types of Mini Solar power plants_House





Types of Mini Solar power plants_Buildings









Waste Crisis in Seoul









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How the waste reducing policy retreated

- 2008.3 Abolishment of Disposable cup deposit agreement
 - 6. Permission of offering free paper bags,Abolishment of restraining disposable resin measure
- 2009. 7. Permission of disposable toothpaste, toothbrush, shampoo at accomodations
- 2010. 1 Easing packaging regulations on powdered detergents Reducing costs of SME plastic producers
- 2016. 1. Easing yearly reduction of resins in package
 - 10. Easing regulations on packaging of cosmetics and drinks



2 Recycling Waste management



Measures to Improve Waste Management







Waste utilization methods

- o Reduce
 - Save resources and minimize environmental pollutants
- o Re-use
 - re-used items
- o Recycle
 - Sustainable consumption through recycling used items
- O Upcycling

- Add design to the abandoned resource or change the way it is used



3 Smart Energy City

Smart energy management for energy independence



1. Energy paradigm





2. Smart Home



3. Energy Management

4. Energy Management

5. Integrated management of thermal energy

To save energy 5-10% energy consumption with ICT

Seoul Energy Integration Platform

Thank you

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Using Digital Techniques to Establish a Road Junction Cut-in Prevention System

2018. 6. 25.

Seoul Facilities Corporation

Road Management HQ: Current Projects

Limited Access Road Management

Traffic Data Offerings

Naebu Expressway, Gangbyeon N. Road, 9 Limited Access Road Routes, Namsan Tunnel Traffic Data Collection, Data Dissemination

- Image detector: 812 locations
- Loop detector : 459units
- CCTV : 157 locations
- DSRC : 60 locations

Data Collection

- Central System, Management Server
- Communication Equipment, Other Systems

Data Processing/Analysis

Situation Room (Public Corp. 20th floor)

- Variable Message Signs: 339 locations
- Homepage (including mobile)
- Twitter

Traffic Info Offered

Mediums Providing Information

Current State & Problems

Essential Causes of Stagnation in Limited Access Roads

Limited Access Roads→ Arterial Highway Expansion, Heavy Traffic and Highway Signal

Influence on Traffic Jam Occurrence

• Cut-in Occurrence Leads to Rise in Inter-Vehicle Interruption &

Traffic Jams

• Illegal Cut-ins Result in Civil Complaints from Road Users &

Rising Accident (collision) Rates

Cut-in Guidance Broadcast Operation Example

Installation Summary

- o Installation Period : April 2007
- Quantity Installed : 2 (Dongbu Expressway Expansion, Entrance to Bundang/Suseo)
- o Configuration : Camera, Speaker, Control Dept., Rural Areas etc.
- Function: Inspects for vehicles cutting-in through forbidden passing sections. Broadcasts are automatically transmitted after examination.

Operational Limitations

• Nearby Residents may Complain about the Noise of the Guidance Broadcasts (if the volume is too low, drivers wouldn't hear it)

• Difficult to Enforce Authority through a Simple Guidance Broadcast Alone

Requested Issues

Technical Approach

Proposal for Entrance Route Cutin Prevention Measures

- o Digital technology is used to Detect illegal cut-in occurrences
- Specific Technology for Illegal Cut-in Vehicles (Automatic collection of license plate info)
- o Other technical approaches to prevent cut-ins (prevention, promotion, control)

Other Considerations (Review) Issues

| Categorization | Guidance (Prevention / Publicity) | Control | |
|---------------------|---|---|--|
| Operating Body | NHIC or National Police Agency | National Police Agency (not applicable to corporations) | |
| Considerations | Driver Guidance Method (without causing excessive inconvenience to drivers and residents) Ease of system operation & maintenance | Flexible operating environment (both manual and automatic vehicles) Manual transmission : use of evidence of cut- in violations, Road management agency requires National Police Agency to dispose High vehicle detection accuracy X Legislation for automatic transmission still needs to be enacted. | |
| Doploy mont Procoss | | | |

Deployment Process

Operating Method Selection & System Design

Pilot Project Select Target Point

System deployment & effect measurements

[Reference] Example of Cut-in Control System Operation (National Police Agency)

Installation Overview

o Installation Date : 2008 (Seoul Metropolitan Police Agency)

• Quantity : 2(Gangbyeon North Road Youngdong Bridge, Olympic

Expressway South End of Hannam Bridge)

• Configuration : Detection camera, control camera, control

단속 카메라 구성도

• Function: Camera tracks the vehicle making a cut-in, records the vehicle's license plate number, and sends it to the operation center.

Operational Limitations

o Difficult to control without formal relevant traffic regulations.

Automation of Congestion Toll Exemption Screening

Congestion Tolls

- Grounds for Collection : The Urban Traffic Improvement Promotion Act Article 35 and Ordinances of Congestion Toll Charge in Seoul Metropolitan City
- **Purpose :** To alleviate traffic congestion by reducing the use of private cars
- Location : Namsan 1st and 3rd Tunnel
- Hours : 7am ~ 9pm Weekdays (except weekends and public holidays)
- Toll Charge : 2,000KRW
- Current Status

(2017, Unit: 1,000 cars)

| | Traffic (24hours) | | Toll Collection Hours (7am ~ 9pm) | | | | |
|---------------------------|-------------------|-------|-----------------------------------|---------|-----------|---------|-------|
| (Unit: 1,000 cars) | Annual | Daily | Annual | | | | Dailu |
| | | | Total | Charged | Exemption | Default | Dally |
| Total | 37,460 | 103 | 19,546 | 7,849 | 11,651 | 46 | 80 |
| Namsan 1 st | 23,791 | 65 | 11,989 | 4,772 | 7,188 | 29 | 49 |
| Namsan 3 rd | 13,669 | 38 | 7,557 | 3,077 | 4,463 | 17 | 31 |

Seoul Facilities Corporation Transportation Headquarters of Traffic and Transportation Services (Traffic Congestion Fee Management)

Congestion Toll Exemption and Reduction Conditions

| Exemption | Disabled drivers, low emission vehicles (Type 1·2), <u>vehicle with 3 or</u> <u>more passengers</u> , light van, vehicle with more than 11 people, etc. | |
|--------------------|--|--|
| Reduction (50%) | Light cars, low emission vehicles (Type 3), vehicles registered for use only on specific days. | |

Current Status and Problems

1. Problems with Various Exemption Requirements Verification Process

- Among vehicles passing congestion toll, in the case of disabled driver, low emission vehicle or vehicle registered on specific days, exemption or reduction of toll charge follows automatically through RFID license plate recognition
- In the case of vehicle with 3 or more passengers, the toll operator <u>directly checks</u> <u>inside</u> the vehicle after inducing the passenger to stop or slow down
- When the toll operator holds back the vehicle for checkup, smooth passage is restricted, and this leads to complaints related to accident risk
- Toll operators subjectively identify penalties, which means that the accuracy of checking exemption conditions is low, resulting in complaints about mistaken toll charges

Seoul Facilities Corporation Transportation

Headquarters of Traffic and Transportation Services (Traffic Congestion Fee Management)

Current Status and Problems

2. Controversy over tolls exemption for vehicles with 3 or more passengers

- When the passing vehicle is not thoroughly checked, there may be <u>cases where the toll</u> operator cannot identify the number of people inside due to vehicle's fast speed or window tint
- In this case, the vehicle is imposed a fine because it is classified as a non-paid vehicle, due to its unconfirmed exemption condition(3 or more passengers). However, drivers rise complaints against such fines because 3 or more passengers were on board at time of transit.
- To identify the number of passengers inside the vehicle in transit, a thermal camera was being used but it was **impossible to check the exact number due to window tint or radiation**

Request

 Request to prepare a plan to automatically identify the number of passengers inside a vehicle in transit

Social Protection

Hazardous Obstruction Management in Underground Shopping Malls using Digital Technology

(Boundary Line Enforcement, Disaster Prevention Facilities, Hazardous Obstruction Alert, etc.)

Seoul Facilities Corporation

Headquarters of Welfare & Economy

Emergency Exit Obstruction (Media Coverage)

[국가안전대진단]'대형화재에도 정신못차렸다'…비상구폐쇄·적

치 여전

행안부, 자치단체별 주요 위험시설 분석·평가 발표 점검 결과 시정조치 1만400개소·행정조치 4890개소 과태료 부과 1232개소, 지난해보다 9배 이상 증가

배민욱 기자 | mkbae@newsis.com

등록 2018-05-10 14:00:00

【서울=뉴시스】김선용 기자 = 김부겸 행정안전부 장관이 10일 오전 서울 종로구 정부 서울청사에서 2018년 국가안전대진단 추진 결과를 발표하고 있다. 2018.05.10. mangusta@newsis.com

【서울=뉴시스】배민욱 기자 = 공공시설의 소방시설의 관리상태가 여전히 미흡한 것으로 나타났다. 계천· 밀양화재 참사에서 지적됐던 비상구 폐쇄, 물건 적치, 방화문 훼손 상태 방치 등이 여건했다.

행정안전부(행안부)는 10일 이낙연 국무총리 주재로 열린 제37회 국정현안점검조정회의에서 확정된 2018년 국가안전대진단 추진결과를 발표했다.

국가안전대진단은 지난 2월5일부터 4월13일까지 실시됐다. 당초 29만8580개소가 계획됐으나 이보 다 4만7766개소가 추가된 34만 6346개소를 점검했다.

매일경제 2018년 1월 9일 화요일 A01면 종합 강남 지하쇼핑·백화점… 비상구 막은 상품더미들

제천 참사에도 안전의식 실종

8일 오후 서울 동대분구 한 백화점 지 하 1층에서 비상계단으로 이어지는 복 도. 하루 유동인구 10만명의 이 백화점 은 화재 때 불과 유독가스가 비상계단으 로 번지는 것을 막는 방재문 앞에 상품 재고를 담은 박스 등이 성인 남성 키를 훌쩍 넘길 정도로 쌓여 있었다. '상품 적 재 금지'라는 문구와 함께 "방화문 주변 상품 적재 시 입의 이동 조치하겠다"는 방재실 측 경고문이 무색할 정도였다. 백화점 고객에게 이곳은 재고 상품을 보 관하는 창고처럼 보일 뿐 유사시 비상통 로로 향하는 복도라는 사실을 알리기 어 려워 보였다.

지난 5일 오후 서울 지하철 2호선과 신 분당선 환승역인 강남역 지하쇼핑센터. 하루 유동인구 20만명인 이곳에서 여성 용 스타킹·레깅스 등을 판매하는 한 점 포는 방화셔터 연동제어기가 설치된 장 소 앞에 판매대를 설치하고 옷가지를 잔 뜩 쌓아놓고 있었다. '소방시설 앞 상품 적치금지'라는 경고 문구에도 아랑곳하 지 않고 그 주변으로 의류를 빼곡히 진열 해 유사시 참사를 막을 제어기 진입을 원 천적으로 가로막고 있었다. 인근 휴대폰 매장에 근무하는 직원에게 방화셔터 제 어기 위치를 묻자 당황한 기색이 역력했 다. 29명의 목숨을 앗아간 지난달 21일 충북 제천 스포츠센터 화재 참사 19일째 인 8일, 2층 여자 목욕탕에서 가장 많은 희생자가 나온 원인으로 비상문 주변의 봄법 적재가 지적된 지 오래지만 대한민

8일 오후 서울 동대문구 한 백화점 지하 1 총에서 비상계단으로 이어지는 복도 쪽에 있는 방재문 앞을 입고된 상품 박스가 가로 막고 있다. (한주형 기자)

국은 막대한 희생을 치르고 얻어낸 교훈 을 학습하지 못하고 있었다.

매일경제가 지난 5~8일 강남역, 명 동. 영등포로터리 등 서울 소재 25개 지 하도상가와 대형 백화점 등을 점검한 결 과다. 소화전 등 비상소화장치 앞에 판 매대가 무분별하게 진열돼 있거나 비상 통로 안전을 확보하는 방재문 앞에 물건 이 쌓여 있는 등 화재 발생 시 대형 인명 피해름 초래할 수 있는 안전불감증이 심 각한 수준인 것으로 확인됐다.

이날 오전 서울 영등포로터리 지하쇼 핑센터, 제각기 장사 준비로 분주한 삼 인들에게서 역시 안전의식은 찾아볼 수 없었다. A29면에 계속 양연호-류영용-감인선 기자

Emergency Exit Obstruction (Problem)

Disaster

Obstruction

Emergency Exit Obstruction (Efforts)

Emergency Exit Obstruction (Reality)

Real-time Monitoring Needs

Emergency Exit Obstruction (Challenge) Current Status and Problem

- Regular vigilance on boundary lines (delineating where goods may be placed)
- Safe design utilization, managing obstructed emergency fire facilities
- However, the current system lacks real-time visibility

Continuously occur around emergency exits and fire facilities

Challenge

- Real-time visibility to check hazardous obstruction (Real-time Monitoring)

- Boundary line compliance (Hazardous obstruction alert and warning system)

Thank you

The Current State of Middle-Aged Population in Seoul • Related Issues and Startup Cases

T A B L E O F C O N T E N T S

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- I. Current state of Aging in Korea and the Job market
 - Issues surrounding the middle-age group in Korea
 - **III.** Cases of middle-age startups

Current state of Ageing in Korea The fastest ageing country

Aging Society \rightarrow Super Aged Society

USA 94Years JAPAN 36Years Germany 77years France 154Years

ROK 26Years

50+ Generation*

The first generation to live up to 100

HOMO-HUNDRED A New Life Cycle (50+,The Third age, active senior)

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* 2009 <UN report - World Population Ageing>

** 50+ generation is also called as the baby-boomers, the active-senior, the third-age, etc.

(This term is used by the 50+Foundation to refer to their target client group: middle-aged people between 50-64 years old.)

50+ Generation: between 50 and 64 years old One-fifth of Seoul population is in the 50+ generation? The biggest percentage of Seoul population.

Children(below 14)

Elderly(Above 65)

Middle-Age(50 to 64)

SO,

Expected rise of Retirement of Baby-Boomers within 30Years

Who are the 50+Generation in ROK?

Highly Educated & Experienced Workers 70% have received more than a secondary education

The Biggest contributors of Industrialization & Democratization

Supporting the whole family tree Crutch Generation (Financially supporting both younger and older generations)

Average Retirement Age 52.6

Transition of Retirement Model in ROK

Early-retiring trend+ Baby boomer retirement=

Problems in the Ageing Society are rising

| т Б | Life Expectancy | Happylife ¹ | GAP |
|-------|-----------------|------------------------|---------------------------|
| Korea | 83.1 | 74.6 | 8.5 |
| C UK | 82.3 | 76.6 | _上 5.7 <i>に</i> |
| GER | 81.8 | 77.6 | 4.2 |

Happylife Index ?

Korean term defined by Seoul National University and Life Insurance Social Contribution Committee Korea. Measured by four indicators: Health, Economic, Personal Relationship, Engaging in social and leisure activities. (Happylife Index - 2017.10)

During this period of ones life, they are expected to be more socially engaged & have less economic problems.

Normal Pathways For the Second Career

or day laborers

Clash between Generations in the Job market

in the effectiveness in lengthening the retirement age

Extension of Retirement Age

Looking For Second Career

Venture Startup Very low success rate. Less than 1% are listed on the stock market, Only 2.5% get private investment

65% of the 60's) Within Three years, Half of the Businesses shut down.

Only 7.6% retire at the appointed retirement age \rightarrow Raises Question

Low re-employment rate, job quality is lowered : 60% are part-timers

Many start their own business after retirement , but self-employed

seniors earn less than 1.5mil won/mo. on average. (54% of the 50s,

Wage is lowered to 1/3: 5.93mil won/mo. \rightarrow 1.84mil won/mo.

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Taking up farming, Exiting Cities 30% of the population exiting urban cities were the 50+age group in 2016 Decrease in Income, Job Crunch, Trouble Harmonizing with the locals

Need for Introduction of Effective Policies and Projects **Alternatives** for the 50+ Generation

Three-Stages of Life for the 50+Generation

New approaches to tackle social issues of the Ageing Society The New Middle-Age: ¹/₄ of the whole population, 1/3 of the working age population. (50 to 69)

50+Generation: Problem or Opportunity?

Different from the traditional Senior group

- Highly educated
- Higher income
- Lifeline of

the household

Facing Life Transition

- Family structure + change
- of life patterns
 - s Gap
- Another phase of life
- High spenders

Blind spot

for social

security

- Gap between retirement
- and receiving pension

Subjects of the Social Support System, yet still Contribute to the Economy

Need for Building On/Offline Career Infrastructure for 50+Generation

(Respondents n=555)

▲ What are the characteristics of the 50+Generation?

Issues surrounding 50+ Generation and their Needs 50+ (Re-employment, startup)

Innovative models for 50+ work is needed

- Providing Low entry-barrier work opportunities
- 50+Talent discovering
- Providing digital education sessions (computer, Social Media, Application)
- Developing new careers which inoculate work and leisure (laughing therapies, physical activities, meditation)
- Intern programs for seniors to enter a new career sector

An effective supportive system to help 50+ make a social impact is needed.

- Support programs for seniors who look after their grand children.
- Building labor database for those who want to contribute to philanthropic activities (field of interest, area)
- Running an Incentive system for social contribution.
- Providing socially contributing jobs at the community service center and public institutions within their neighborhood.

Issues and Needs surrounding 50+Generation

Providing leisure activities for 50+

- 50+ Governmental support for leisure activities
- 50+ Setting role models for 50+ and giving them rewards.

Community spaces for 50+

• Opening up public spaces for 50+ community

Fostering 50+ education programs and instructors

- Establishing Database for 50+ instructors
- Expanding 50+ institutions nationwide
- Running various educative programs of cultural sciences and democratic system
- Running Academies for caregivers for 50+

Developing Programs for knowledge & wisdom transfer from seniors to younger generations

• Innovative activities for information exchange among different age groups

Issues and Needs surrounding 50+Generation 50+(finance, health, social relationship etc.)

Supporting Positive Family Culture

- Providing spaces for Family reunions in public places
- Merging Senior house with Daycare centers, Co-raising
- Transferring new parenting trends to 50+

Service Center for improving 50+ living spaces

Finance education for 50+

- Educating for finance risks for 50+ and nurturing finance consulting experts
- Utilizing 50+ retired professionals to provide financial consulting services to local businesses.
- 50+ community for managing finance

50+ House sharing

Job-pool system within the village

• Recording the expertise of each villager in the system so they can collaborate when needed.

50+Generation Startup Competition Cases

| Team | Startup item | Company Status |
|--|--|---------------------|
| Life telling | - Creating Lifebooks and running a podcast, "Life is Book" (Lifebooks are in magazine format celebrating seniors' lifetime achievements) | sole proprietorship |
| Legal Document (구,로킥) | - Building a web platform to help seniors prepare legal documents (supplication, petition, statement etc.) | Founded |
| Housing Management Forum | - Integrated management system service for small apartments (call center→management, cleaning, security) | Founded |
| Sangam-dong Apartment Assoc. | - 50+Generation Landscaping and Gardening of Small Apartments | Founded |
| Prune Economy Community Health Center | - Economic education and financial consultations for socially disadvantaged - Promoting senior life consultants (economics, credit, etc.) | Founded |
| Our Neighborhood Veterans Association | - Home care service for veterans | Founded |
| 10000makers | - Manufacturing and selling interior lighting with 3D printers | In preparation |
| Lucky Encounter | - Storytelling Tourism in Seoul (walking tour) | In preparation |
| Casa&Hisup | - Senior professionals search engine service | In preparation |
| GoRi | - Combining Travel with Hospital Visits Tour Clinic | In preparation |
| Cracker | - Art Collaboration Site | In preparation |
| Code Green | - Preventing Information Leaks through Screen Security | In preparation |
| Senior Board Cooperative Union | - Coding Board Game | In preparation |
| Golden Needle | - Launching Korean Traditional Hanbok Brand | In preparation |
| Life starts from 60 | - Youth concept café geared towards 60+ Generation customers | In preparation |

50+Generation Talent Supporters ; Mixed Generation Startup Campus

Developing a platform to match a middle-age talent with a youth startup. The goal is to provide continuous support for team building to help the middle-aged talent accommodate himself with the startup company, while helping the company to stabilize their business.

Liberabit Ltd.

Liberabit Ltd. participated in the <2017 Middle-age Talent Supporters>. They provide services to change manual wheelchairs into automatic wheelchairs.

50+Generation Talent Supporters; Guidance to Youth Startups

The Ministry of SMEs and Startups runs 'Mixed Generation Startup Campus' project, 50+ generation's activities to support youth. (Monetary incentives are given during the projects.)

The major organizer for 'Mixed Generation Startup Campus' project in Seoul and surrounding area 'Rehoboth Business Incubator Center ' and Seoul 50+ Foundation Signed MOU in April, to cooperate in educating and supporting the matched startups.

7 Matched teams of <2017 Middle-age Talent Supporters>

| Teams | 50+ talent (Age/Capacity, Career) | Young startups (the Age of the Founder, Startup Business Item) |
|-------|---|--|
| А | 61/Marketing, Investment, Finance/Korea Development Bank, Board director of aerospace | 28/Housekeeping Community Service |
| В | 74/Veterinarian, Lecturer | 31/Pet food based on big data |
| С | 51/Engineer, Developer, Information Technology/Ssangyong Computer, KOICA, etc. | 27/Content platform for Overseas Studying |
| D | 54/Marketing, Investment/KOR-ASEAN Center, LG Electronics, etc. | 27/Online platform for Korean cosmetics targeting overseas customers |
| Е | 49/Marketing Promotion/Cheil Marketing, KCDF, Banks, Hotels 등 | 28/ Visual Content development based on traditional Korean art |
| F | 55/Engineer, Developer/Samsung Advanced Institute of Technology, Samsung Electronics Lab | 38/prevention, reaction service for Medical accidents |
| G | 56/Marketing, CS, Marketing, Management/Shipping Industry | 29/Eyewear from natural materials |