clair

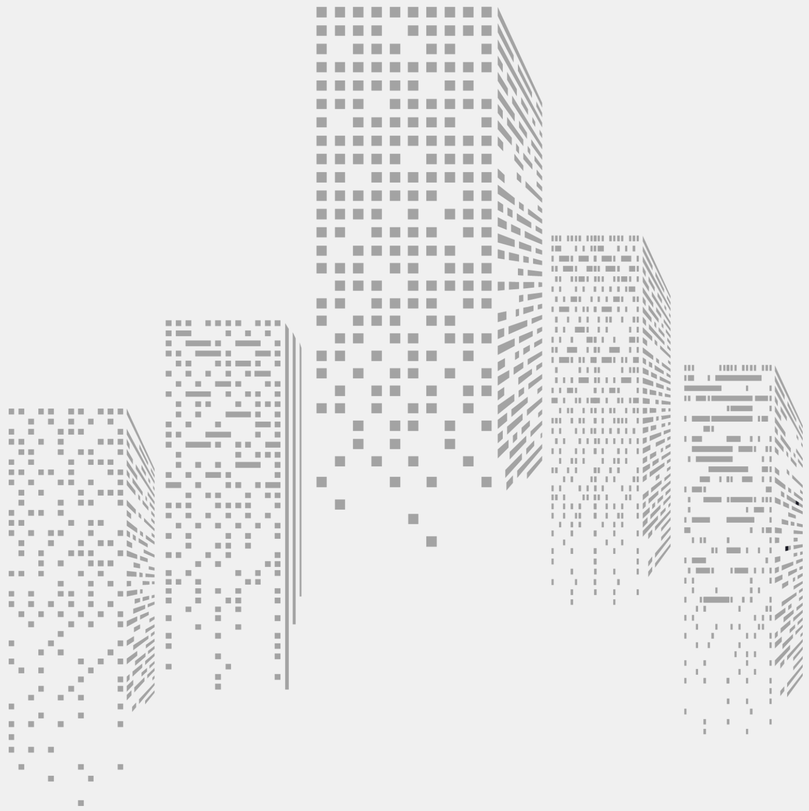
Clair, Inc.
Company Profile

2019

I. Company Status
II. Business Overview
III. Market Analysis & Strategy
IV. New Product Development Plans

I. Company Status

1. Company Outline / 2. History / 3. Business Area / 4. Organization Chart / 5. Intellectual Property Rights



Company Name		Clair, Inc.	CEO	LEE WOO HUN
Business License		264-81-35970	Corporate Registration Number	110111-5429744
Establishment		2014.06.02	Business Type	Manufacturing, Whole Sales & Retail, Service
Address	Head Office	2F Sangrok B/D, 148, Gangnamdae-ro, Seocho-gu, Seoul, Korea		
	Assembly Factory	31-18, Bonggol-gil, Opo-eup, Gwangju, Gyeonggi-do, Korea		
	Filter Factory	311-312, D block, 357, Guseong-ro, Giheung-gu, Yongin-si, Gyeonggi-do, Korea		
Production List		Air Purifier Filter, Air Purifier, Air Quality Monitor, Fridge Freshener		
Awards		2016 Global Premium Living Goods (Ministry of Trade, Industry and Energy) 2017 Export Innovative Entrepreneurship Award (KOTRA) 2017 Grand prize winner with the best child care & education company (Ministry of SMEs and Startups) 2018 Good Design Gold Award/Human Engineering Design(KATS) 2019 Global Small Giant Company (Ministry of SMEs and Startups)		
Major Certification		- KC / CE / CB / UL / PSE / CQC / BSMI etc. - AHAM (US, Association of Home Appliance Manufactures Certificate) - E-CARF (German Allergy Certification)		

Where is the air purifier, in your home?

Capture all dusts with Clair //

Air purifier have become a must-have home appliance as fine dust problems get worse and worse day by day. Meanwhile, can just one air purifier clean the air in every corner of the house? Don't you feel it's too much to get a large air purifier for your private room?

Next to the bed, in child's room, in the car, or on the desk in your office.
Low noise but no worry about the electric cost even with around the clock use.

Clair finds out that you need a compact and smart air purifier which just fits in your space.



Start

2014.06

- Established 'H and Company, Inc.'

2015.12

- Kick Starter Crowdfunding Campaign

2016.07

- Global Premium Living Goods (Ministry of Trade, Industry and Energy)
- IF Design Exhibition Invitation Exhibits (Hamburg, Germany)

2017.12

- Export Innovative Entrepreneurship Award by KOTRA
- Grand prize winner with the best child care & education company by Ministry of SMEs and Startups
- Attracted investment from KAKAO MAKERS
- Attracted investment from Korea Credit Guarantee Fund
- Company name changed to 'Clair, Inc.'

2018.03

- Clair Place opens in Yangjae.

2018.11

- Good Design Gold Award (Korean Agency for Technology and Standards)

2018.12

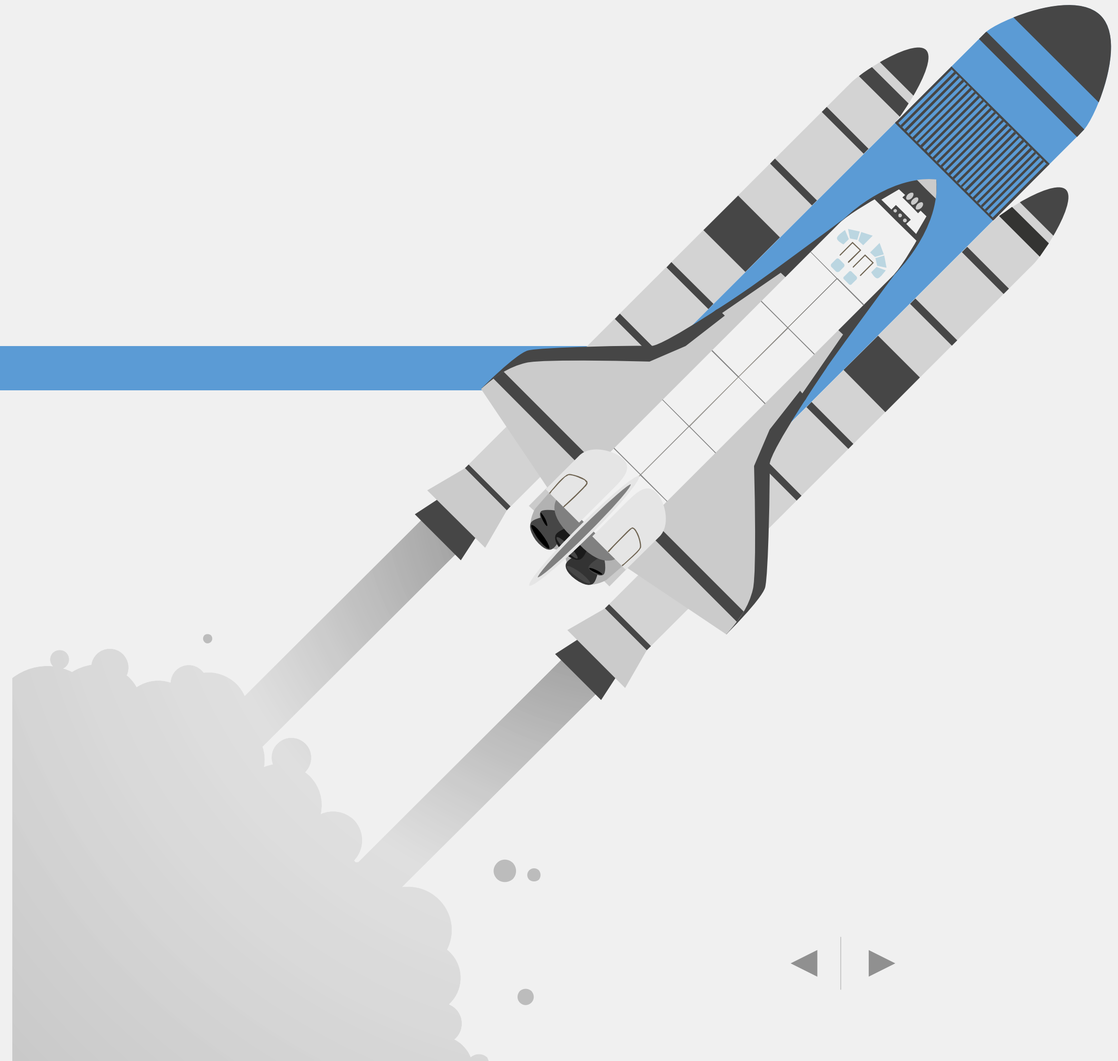
- Attracted investment from 'Core Asset Management'
- Licensing contract with LINE FRIENDS

2019.03

- Launch a collaboration between LINE FRIENDS and Clair
- Launch QNET ODM Product

2019.05

- Selected as the Excellent Company Brand of Seoul
- Selected 2019 Global Small Giant Company



Professional Air Purification Technology Company Clair, Inc.



Not only air purifier products, but also the main parts of air purifiers such as filter and fan can Clair develop and produce with our own technology and facilities.

Head Office

2F, Sangrok B/D, 148, Gangnamdae-ro, Seocho-gu, Seoul, Korea

Clair Technology Lab

43, Daehwa B/D, Yangjaecheon-ro 21-gil, Seocho-gu, Seoul, Korea

Clair Customer Experience Center

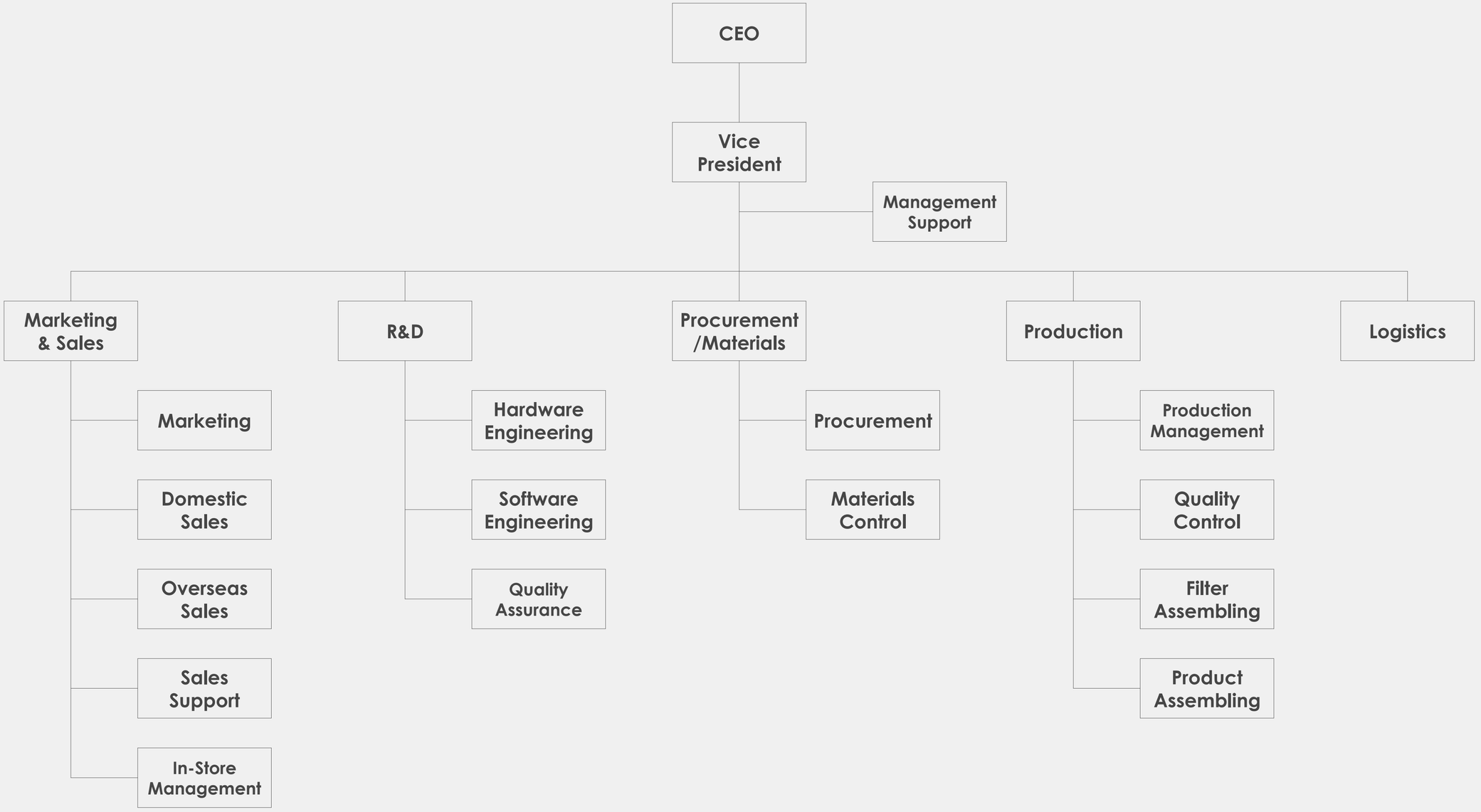
1F, Sangrok B/D, 148, Gangnamdae-ro, Seocho-gu, Seoul, Korea

Yongin Factory (Filter)

311-312, D block, 357, Guseong-ro, Giheung-gu, Yongin-si, Gyeonggi-do, Korea

Gwangju Factory (Assembly)

31-18, Bonggol-gil, Opo-eup, Gwangju, Gyeonggi-do, Korea


CEO
Vice President
Management Support
Marketing & Sales
Marketing
Domestic Sales
Overseas Sales
Sales Support
In-Store Management
R&D
Hardware Engineering
Software Engineering
Quality Assurance
Procurement /Materials
Procurement
Materials Control
Production
Production Management
Quality Control
Filter Assembling
Product Assembling
Logistics

IP Category	Classification	Countries	Registration
Patent	Air Purifying Filter	Korea, PCT	1
	Air Purifier	Korea	3
	Filtration and Dust Collection Method	Korea	1
Brand (Korean/ English & Chinese)	클레어, CLAIR	Korea, China, Japan, USA, Europe, Malaysia, Indonesia, Thailand, Hongkong	Category 7, 11, 44, 9
	마이클레어, myClair		
	푸름, PURUM	Korea, USA	
	可莱尔, kelaier	China	
Design		Korea, China, USA	26

















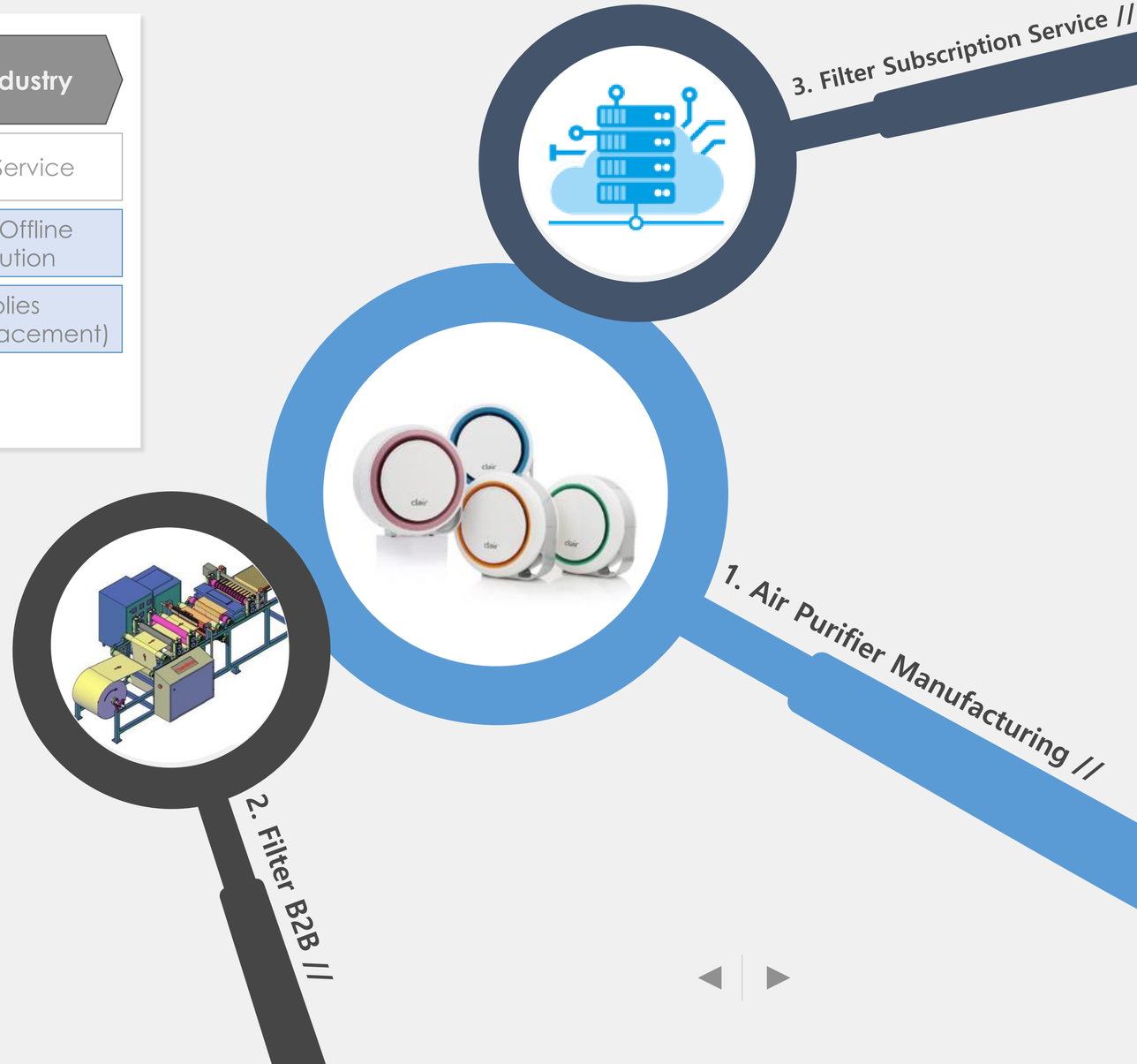


II. Business Overview

1. Business Field & Competence / 2. Technology / 3. Products / 4. Production Facilities

Rear Industry	Air Purifier Manufacturing	Convergence Industry	Front Industry
Mold / Injection Molding	Products Design	Air conditioning / Heating / Humidifying / Dehumidifying	Rental Service
Sensor / Motor / PCBA	Circuit Design / Device Design	IoT	Online/Offline Distribution
Fan	Mass Production Assembly	ML / AI	Supplies (Filter Replacement)
Filter	Tests/Certificates		

[Air Purifier Industry Structure & Clair's Competence]



// From Product To Service

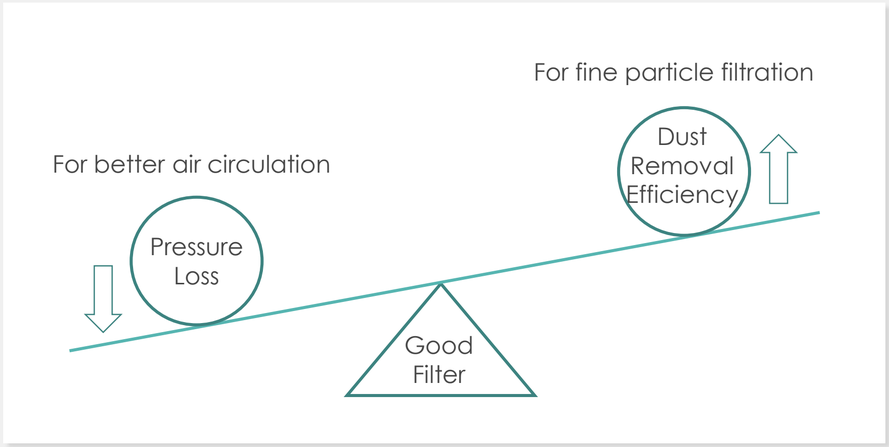
On the basis of R&D and manufacturing from main filters to air purifier products, and IT service development, Clair diversifies business to 1. Air purifier manufacturing // 2. Filter B2B field // 3. Filter Subscription Service and realizes higher value-added business.

What is a good filter?

Filter Quality Factor

$$QF = \frac{-\ln(\%\text{Particle Penetration} / 100)}{\triangle P}$$

Filter Quality Factor, which is used for filter performance test in academic world, shows what the good filter is.
In other words, for good filter, **the denominator(△P: Pressure loss) should be lower and the numerator(Dust removal efficiency) should be higher.**



We need a different technology in our private space.

Distinction of Clair Air Purification Technology//

There are a lot of noise of TV, air conditioner and fridge in the living room. What about our private room when we take a rest and fell into a sleep?
The air purifier near beds or on desks must be quiet, cost-effective and high performance.
Clair researches and develops the special filter technology for your private space.



Electret Charging Technology

The core technology that makes electret filter with permanent static, by adding polarities on the filter surface through high voltage current. It can collect ultrafine particles sized less than 0.1㎛.



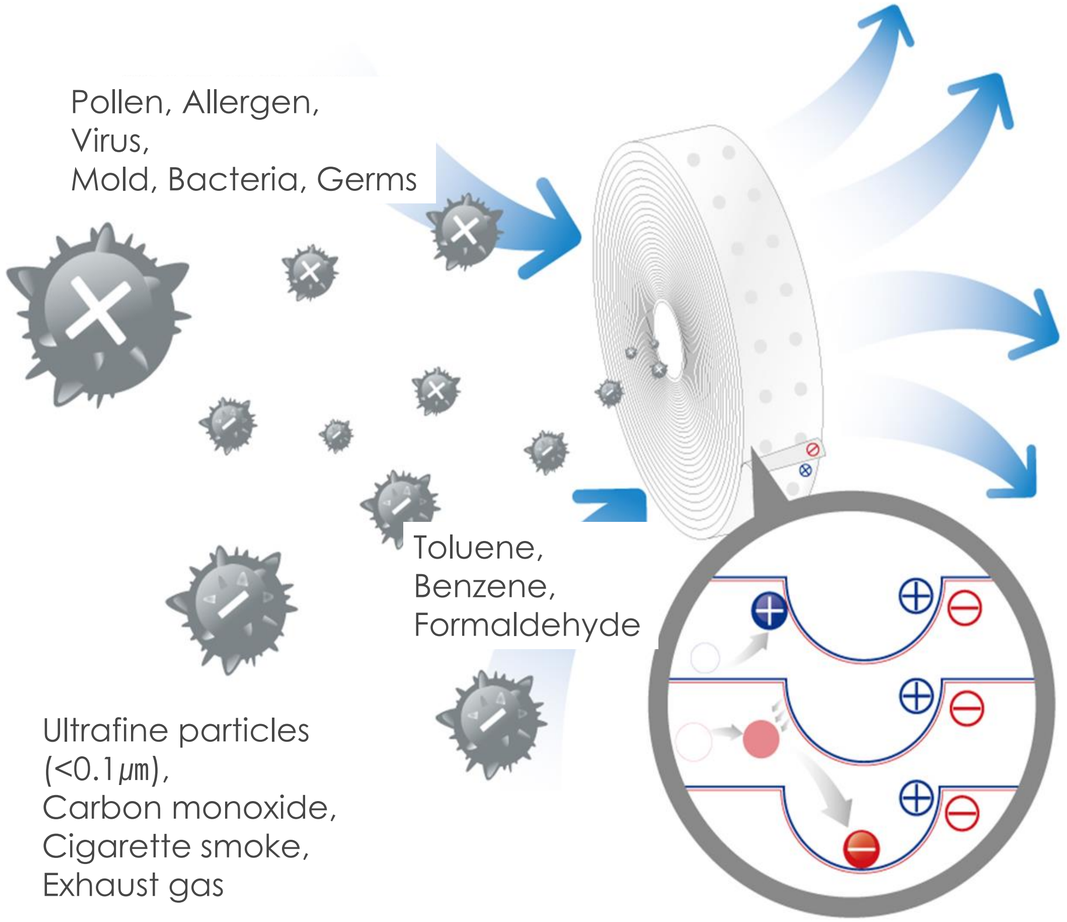
Embossed Surface Manufacturing Technology

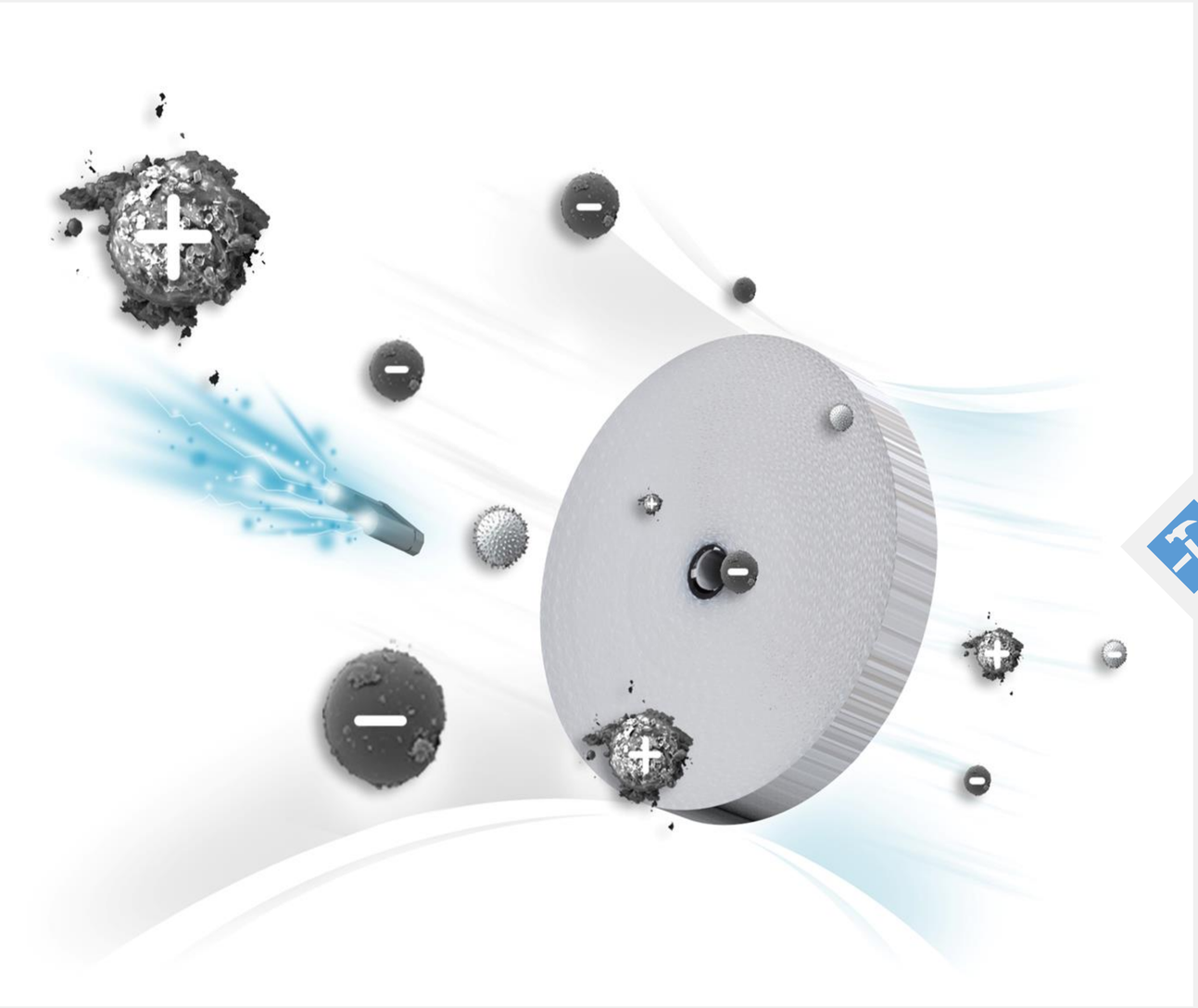
Owned process technology that patternize the embossed structure on the filter surface, which is a finding of geometry research to minimize the pressure loss by the filter.

e2f :
Electret Film Filter

The Key Factor of Clair Filter Technology//

The geometric structure of the filter minimizes the loss of pressure,
and coulomb forces of eternal electrostatic make it collect
ultrafine particles sized less than 0.1㎛.





MAF :
Magnetic Air Filtration

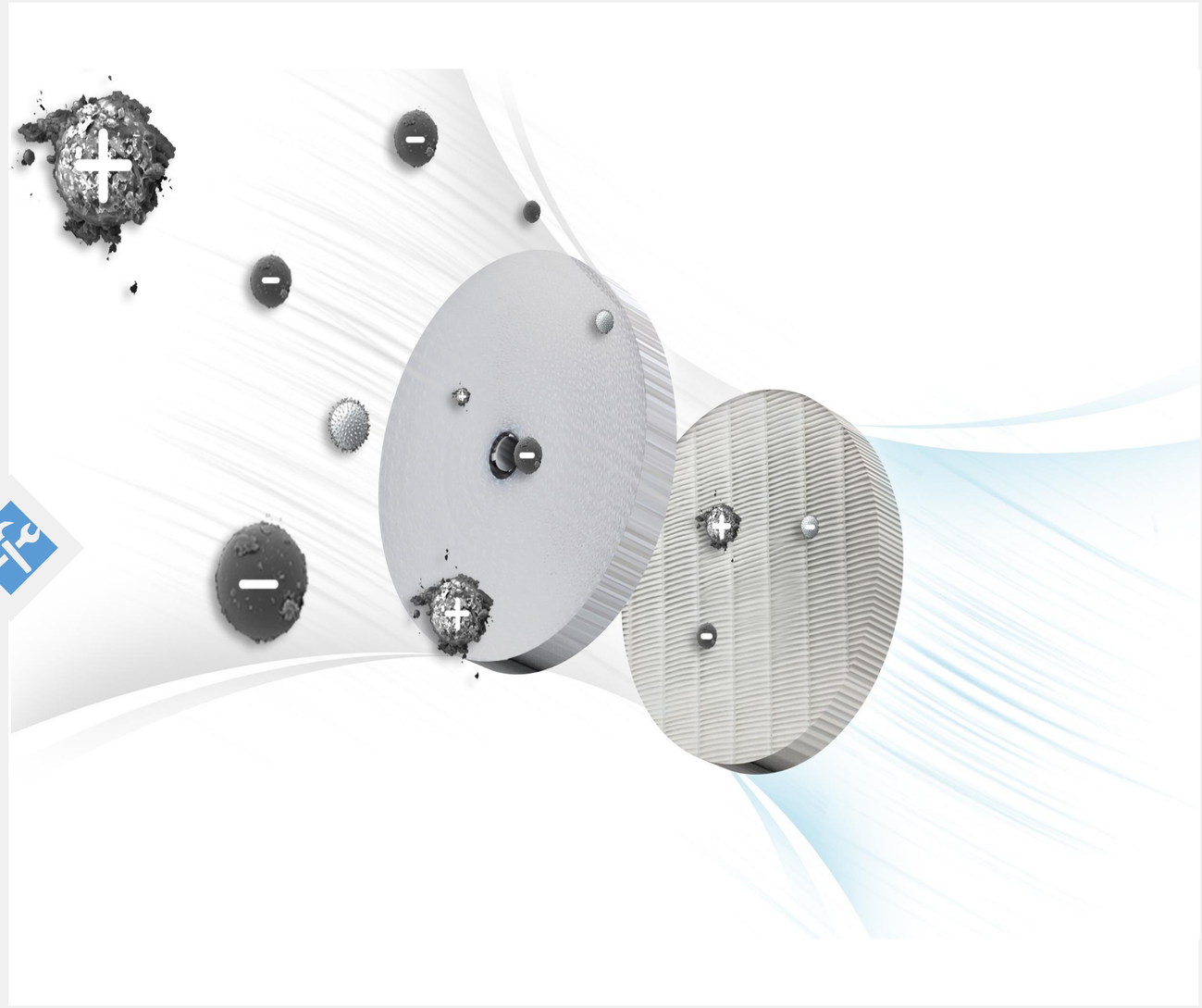
// ionizer + e2f = 120%

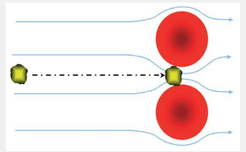
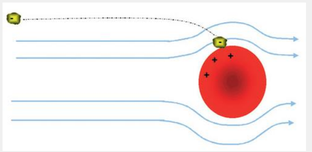
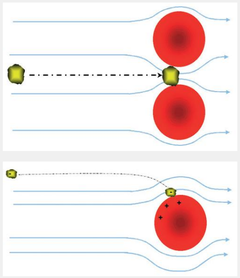
MAF is a technology to maximize the dust collection efficiency of non-polar particles and improve the performance by 120%.
MAF step 1: Charge polarities on the particles with ionizer
MAF step 2: Collects up the charged particles by coulomb forces of e2f.

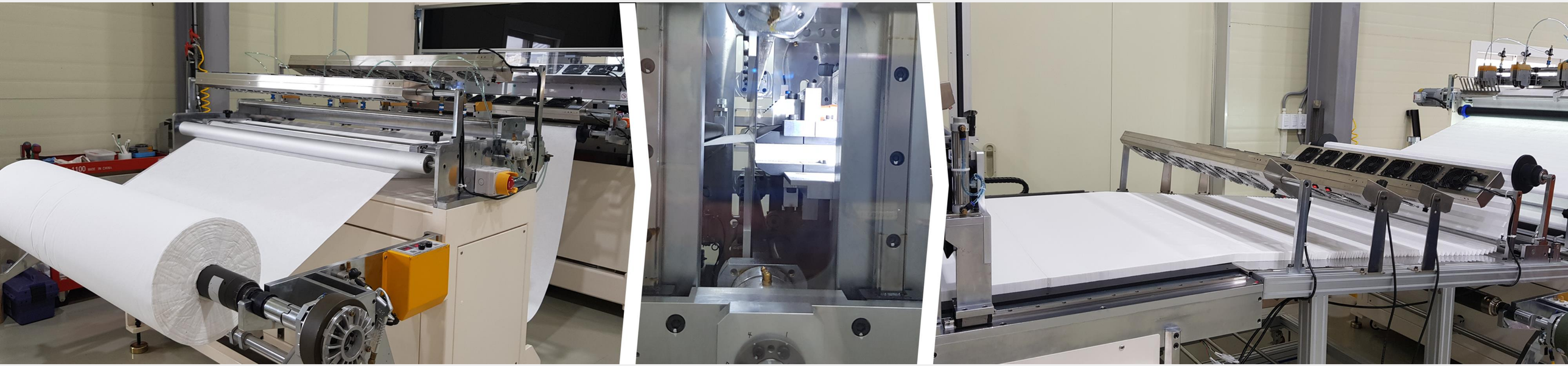
HSF :
Hybrid Synergy Filter

A Synergy of e2f and HEPA filter//

HSF, a combination of e2f and HEPA filter ,
which maximizes their strength and has synergy,
makes higher performance than H13.
HSF(99,8%) > H13(99.75%) > E11(95%)



Type of Filters	HEPA (H13)	CLAIR		
		e2f	MAF	HSF
Material	Fiber	Film	Film	Film + Fiber
Particle Size	> 0.3um	< 0.1um	< 0.1um	< 0.1um
Efficiency	99.75%	87.7~99%	99%	99.8%
Pressure Drop	High	Low	Low	Medium
Air purifier	Medium to Large	Small	Small to Medium	Medium to Large
Mechanism	Straining	Electrostatic attraction		Hybrid
				



CEPA :
Clair Embossed HEPA

Ultimate Innovative filtration technology of Clair //

Improvement of air purification performance by 10% through applying Clair's electret charge technology and embossed surface process technology to fabric type of HEPA filter. (Korea Institute of Industrial technology test 10%, KCL test 8%) Clair anticipates this innovative filtration technology could be consolidated into HVAC system and all existing commercial air purification systems in the nearest future.

Smart air purifier ‘Clair CUBE (BU1933)’

For bedrooms and office rooms within 16m² //

- e2f filter
- ionizer
- Deodorizing filter
- LED Sterilizer
- Dust Sensor
- Auto mode
- Low-noise
- Power saving



The most basic and essential, ‘Clair RING (BF2025)’

For private rooms and office rooms within 13m² //

e2f filter | Low-noise | Power saving | Easy control



Long-lasting air purification with double filters ‘Clair WIND (TD1866)’

For bedrooms and office rooms within 13m² //

e2f filter
Power saving
Auto Press Mode
Easy control



Bluetooth speaker Air purifier ‘Clair S (SBF2025)’

For private rooms and office rooms within 13m² //

e2f filter
Low-noise
Power saving
Easy control
Bluetooth speaker
App



A Heritage of Korea
‘Clair H’

For studios, living rooms, and meeting rooms within 37m² //

- Hybrid Filter
- Deodorizing filter
- LED Sterilizer
- Mood Light
- Dust Sensor
- Auto mode
- Night Mode
- Child Lock Feature
- Time Setting Feature



Portable air purifier
Clair B

For vehicles, strollers, and portability //





Semi-permanent Anti-bacterial Deodorizer Clair V (V1FD)

In the fridges, toilets, and shoe shelf //

Anti-bacterial deodorizer
ionizer
Easy control
Semi Permanent use



Swiss Design
X Clair Technology
AirPure Zayn

ODM targeting Southeast Asia, India and Middle East market //

- Hybrid Filter
- Deodorizing filter
- LED Sterilizer
- ionizer
- Dust Sensor
- Auto mode
- Night Mode
- Child Lock Feature
- Time Setting Feature



LINE FRIENDS x Clair
Air Purifier
Air Quality Monitor

LINE FRIEND Collaboration targeting Japan and East Asia market //

BROWN/SALLY portable air purifiers,
air quality monitors, and home air purifiers.
Launching these 5 models
through licensing contract with LINE FRIENDS,
which is most popular in Asia countries
(Japan, Taiwan, Hongkong and Thailand),
to improve sales and brand awareness in Southeast Asia.





Assembly Factory

Gyeonggi-do Gwangju Plant

Has 3 Blocks at present. A Block for assembly line, B Block for product aging and packing line, C Block for raw and subsidiary materials warehouse. Additional 3 building are for QC and a staff lounge.



Filter Factory

Yong-in Plant

2 apartment-type factories in Yong-in Techno Valley(265m2 of floor space in total). Room 311 for filter manufacturing facility. Room 312 for raw and subsidiary materials warehouse, office room and meeting room.



Assembly Facilities

1 x Sub Assembly line + 2 x Main Assembly lines

At one sub-assembly line and two main assembly lines, 250k products are being produced every year(based on the Clair Ring). Except for derived models, 10 models are in production at present.



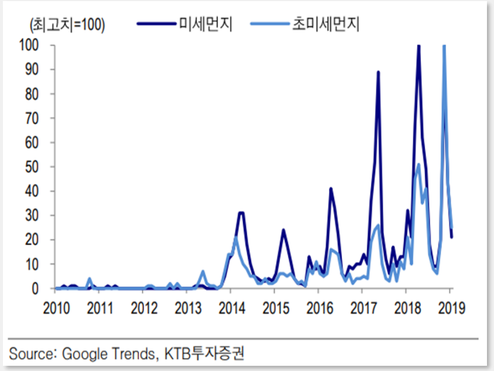
Filter Facilities

Optimized filter-manufacturing Infrastructure

Cliar currenty manufactures CEPA, HSF, MAF and the e2f based filters through the exclusive production facilities of Clair filters. Especially, the Polyuretahne discharing equipment is one of our core assets to produce next generation of our fiilters.

III. Market Analysis & Strategy

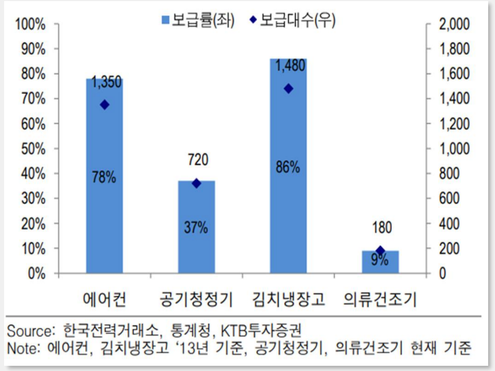
1. Domestic Market / 2. Overseas Market / 3. Filter Market
/ 4. Consumer Investigation / 5. SWOT Analysis / 6. Market Strategy



National interest

Extreme rise in last 4 years

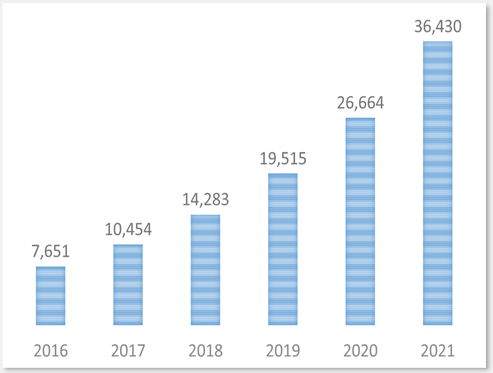
Even weather forecast informs of air contaminant concentration as public interest in fine dust and ultrafine dust has risen extremely high since 2014.



Must-have home appliance

37% of Distribution rate

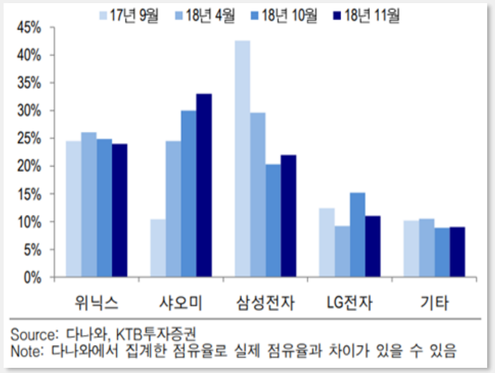
Becoming a must-have home appliance with over 2 millions of annual unit sales in Korea. Potential growth rate are expectedly more than 2x compared to the distribution rate of air conditioners and kimchi fridges.



Rapid Growth rate

CAGR 36.63%

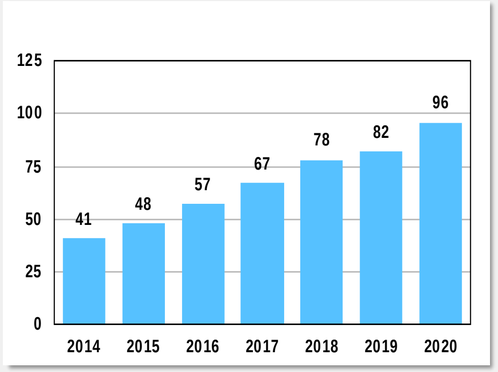
The market scale is expected to grow up to 300 million dollars by 2021 with 36.63% of CAGR, according to a KIST report.



Growth of B2C market

Rapid progress of Xiaomi

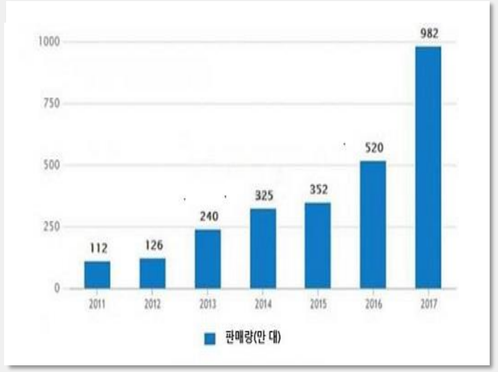
Customers are moving from the rental-oriented market in the past to B2C market where customer purchase products directly online and offline. Thus, Xiaomi and Winix showed remarkable progress recently.



Steady growth

CAGR 12.4%

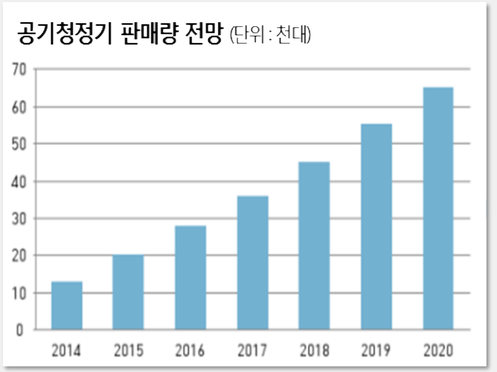
7.8 billion dollars in 2018, and 17 million of unit sales. China that has low distribution rate of air purifiers and US which has been leading constant demands so far, are going to lead the end market.



China

Low distribution rate under 1%

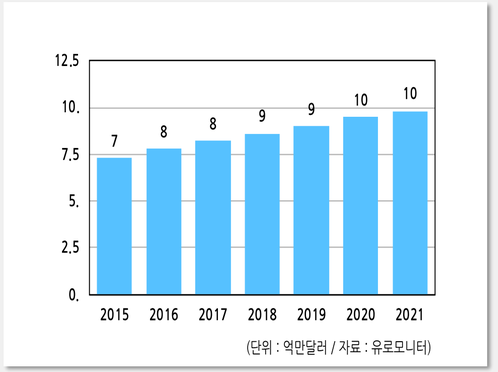
In China, air purifier sales growth rate is 214.2% in last 5 years, increasing over 40% every year since 2011. Distribution rate is under 1% in 2017 and when it reaches 10%, market scale seems to be 13 billion dollars.



India

New product market

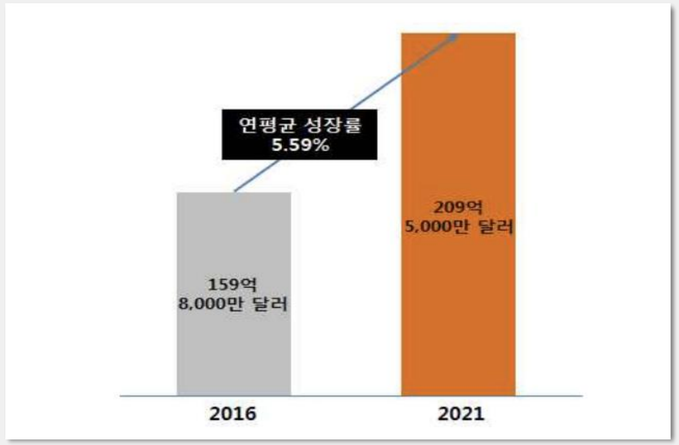
A long-term bright prospect due to air pollution seriousness recognition and campaign promotion. It is highly likely to choose domestic manufacture(CKD, SKD) for domestic industry protection according to customs policy.



US

Asthma, Allergy > Fine dust

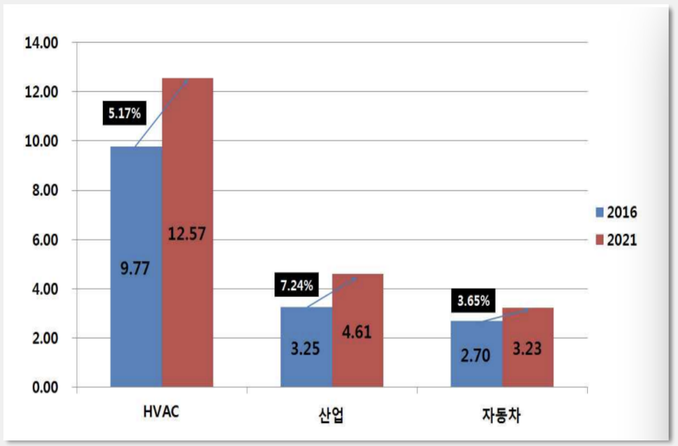
Home air purifier market is growing at a CAGR of 3.06% from 2013 to 2018, However, the demand for air purifiers is steady due to the increase in asthma and allergic diseases caused by carpet and pets.



Global Market Scale

Double of the air purifier market

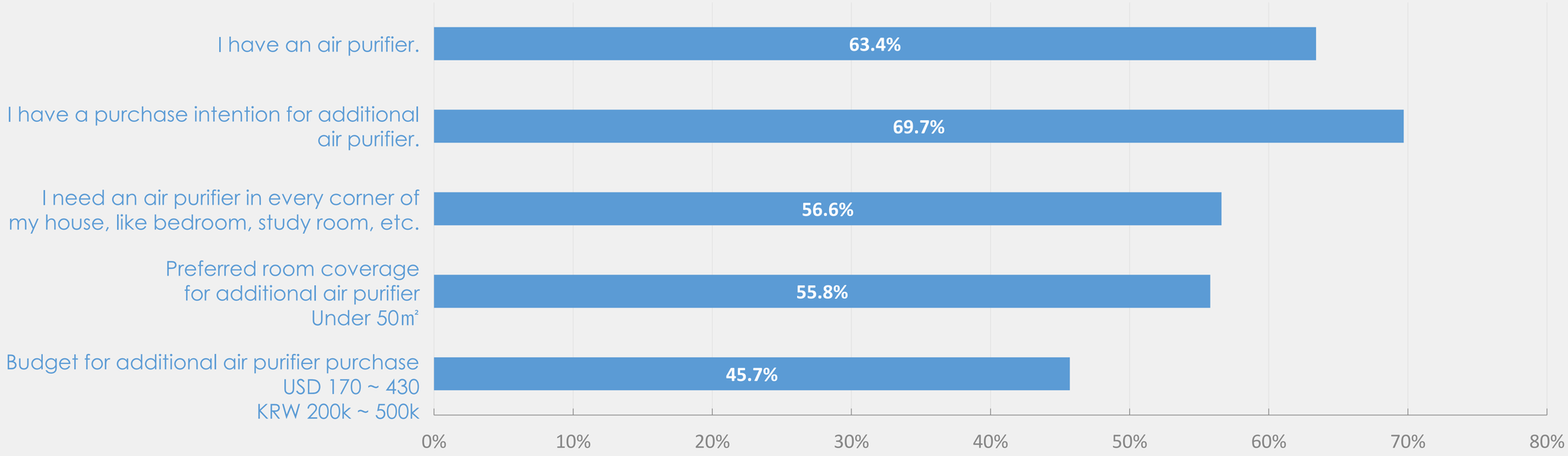
The global air purifier filter market is expected to grow at a CAGR of 5.59% from USD 16 billion in 2016 to USD 21 billion in 2021. Of these, 59.98% for HVAC, 22% for industrial use, and 15.4% for vehicles.



Market Scale for each use

HVAC > Industrial > Vehicles

Filters for HVAC (Heating, Ventilation & Air Conditioning) use is expected to increase at a CAGR of 5.17% and reach USD 12.57 billion in 2021(about KRW 15 trillion). For vehicles, increase from USD 2.7 billion in 2016 to USD 32.3 billion in 2021.



[14th~16th of Mar 2019, LOTTE Himart : 500 national customers, men and women]

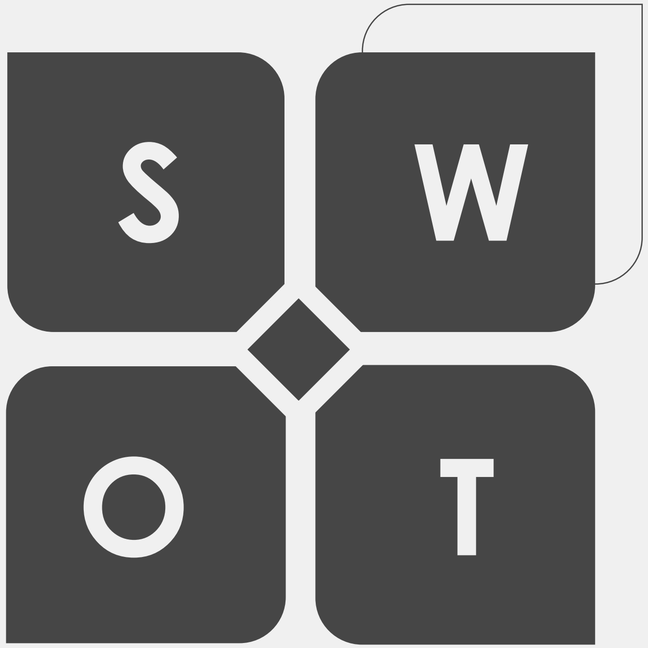
Joint research and technology transfer with national research institutes

STRENGHS //

- An active market of Korean small and medium sized companies.
- High maturity of technology for core parts like fan and filter.

OPPORTUNITIES //

- Customers interest soaring as air pollution problem gets severe.
- Increase export opportunities utilizing Korean wave.
- Joint research with national research institute and technology transfer.



WEAKNESS //

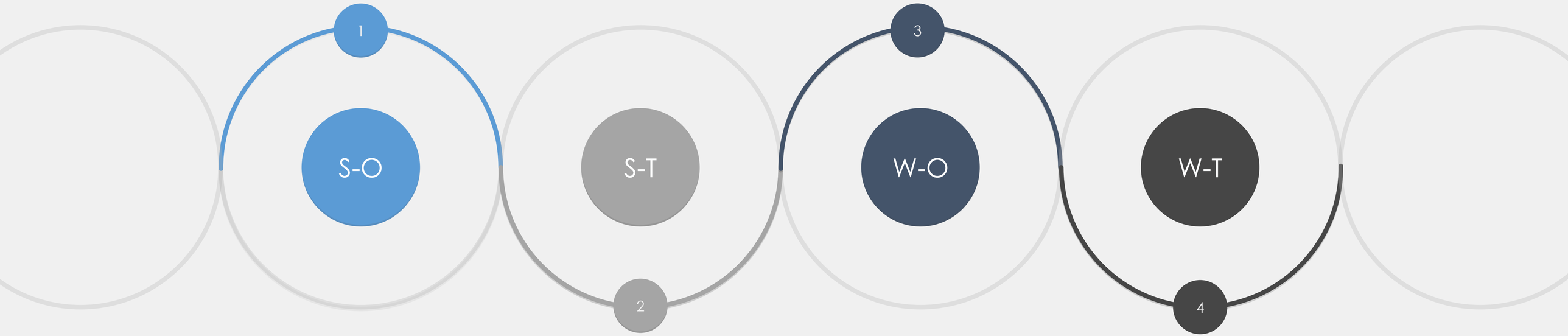
- Official certification status of core filters is weak.
- Slightly inferior to professional technology of companies in Northern Europe developed countries.

THREATS //

- Overseas professional companies leap due to increased demand for high performance products.
- Chinese product distribution flooded with price competitiveness.
- It is possible that major companies make inroad into market, developing air conditioners into a multifunctional air purification machine.

Based on core component filter manufacture capacity, break into niche market with IoT-based Filter Subscription Service.

Obtained domestic and overseas performance certifications, based on joint R&D opportunities with national research institutes.



- Focus on developing small and middle sized products under 25m^2
- Dominates air purifier market for private rooms and one person households, which is in new growth.

- Filter B2B field advance

Southeast Asia market domination, for example, Hongkong, Taiwan, Indonesia, Malaysia, Thailand, Vietnam

IV. New Product Development Plans

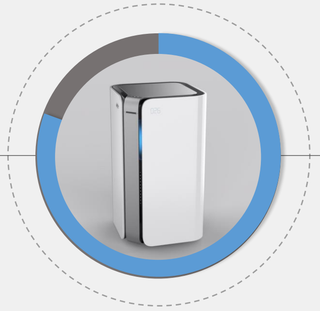
1. New Product Launching Project / 2. R&D Performance and Project

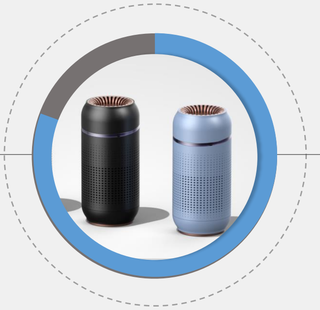
01 **Portable**

02 **Premium**

03 **Amazon**







2019 Q3

2019-2020
New Product

01 Automotive/Portable air purifier launch (Successor to B1). **02** Premium air purifier launch for the US Retail channels. **03** Exclusive air purifier launch for Amazon Online

H, Cube Tower wi-fi model

Data collection, analysis and verification

2019.Q4

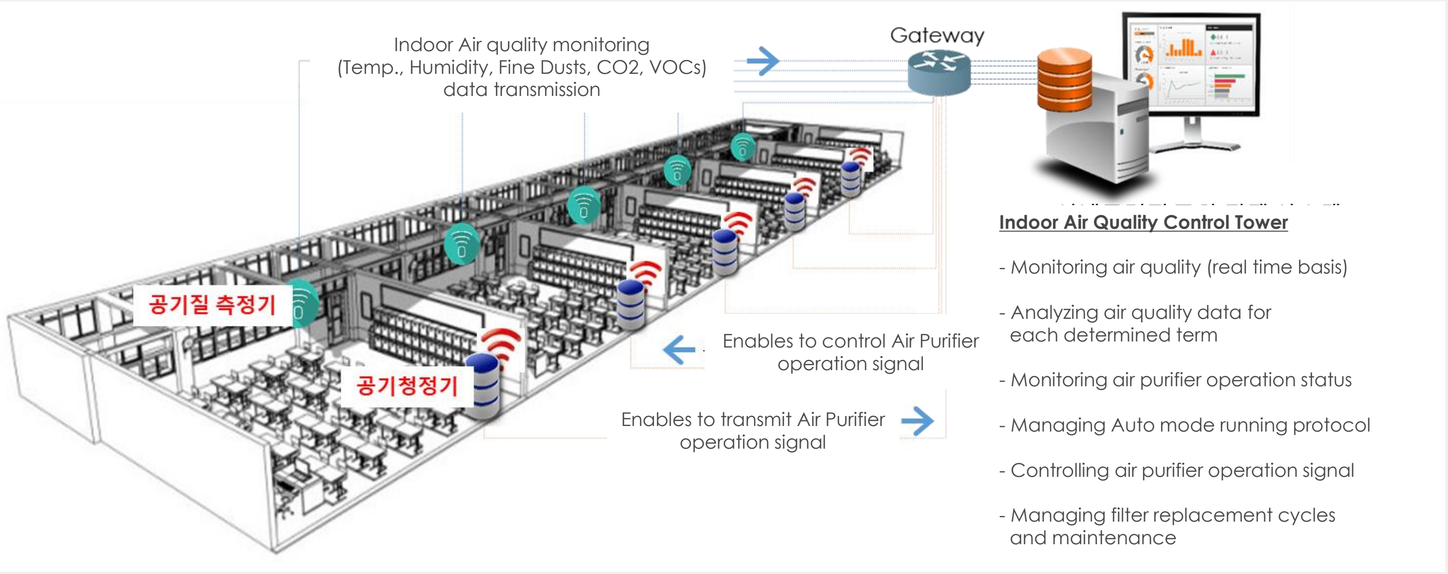
New product exclusively for home shopping channels

01 Clair H spin-off version launch with DC24v which has affordable price for home-shopping sales

2020.Q1

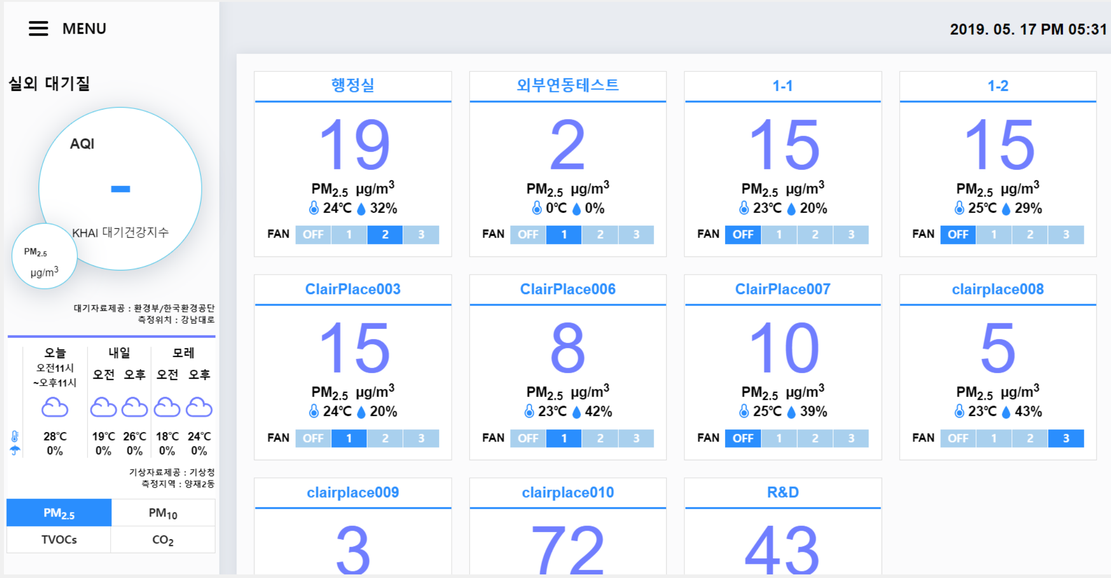
Filter Subscription Service

01 Clair provides customers with firmly predictable ‘filter life span’ notification by collecting and analyzing data source from IoT features. This will also bring convenience to customers with ‘auto replenishment service’ of replacement filters.



Indoor Air Quality Control Tower

- Monitoring air quality (real time basis)
- Analyzing air quality data for each determined term
- Monitoring air purifier operation status
- Managing Auto mode running protocol
- Controlling air purifier operation signal
- Managing filter replacement cycles and maintenance



IoT School Air quality Management Integrated System

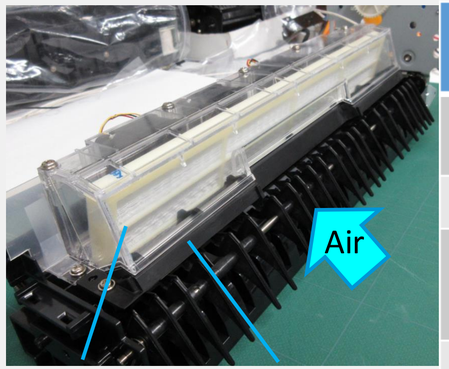
Air Quality Monitor + Extra-large Air purifier + Control System //

Accomplished the R&D project assigned from '2018 startup & growth technology development'.
This integrated system will be equipped with 'Clair Predictive Customer Service ; PdCS) after setting up big data collection and machine running process.
* This service will be available in 2020.

Built-in Filter cartridge solution for printer
-certified by ‘Blue Angel’ of the German Ecolabel

Certification of ‘Eco-Friendly’ products & Service//

For the purpose of ‘Blue Angel’ certification, Clair invented a Built-in filter cartridge solution for HP corporate printers which can eliminate ‘nanoparticles’ emitted while running printing devices.
The removal efficiency was approved by HP R&D center in Japan. Clair contacted with HP Korea HQ to supply this commercialized filter cartridge from 1Q of 2020.

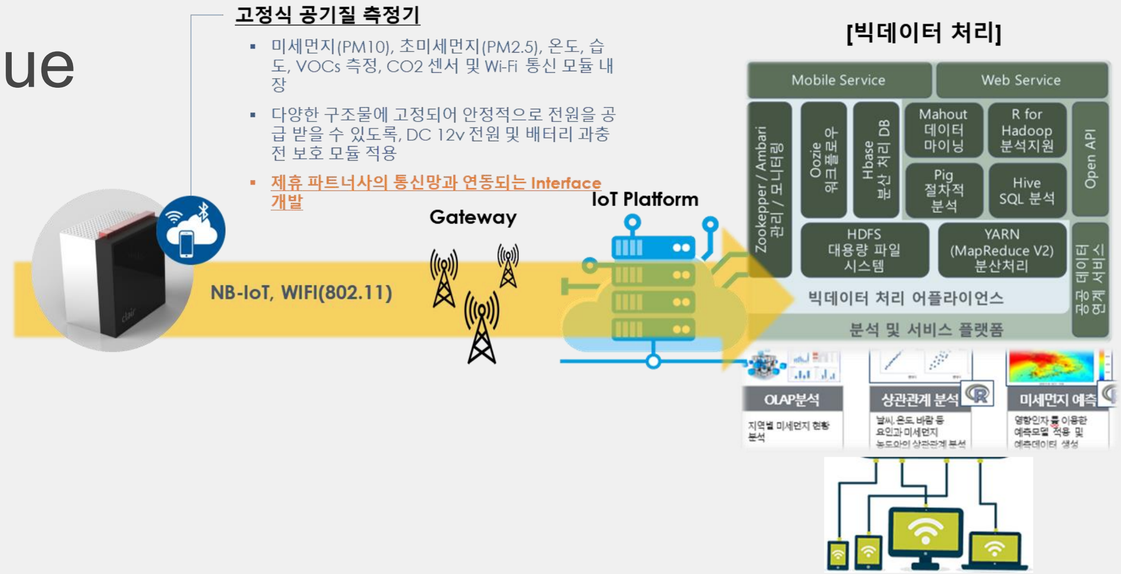


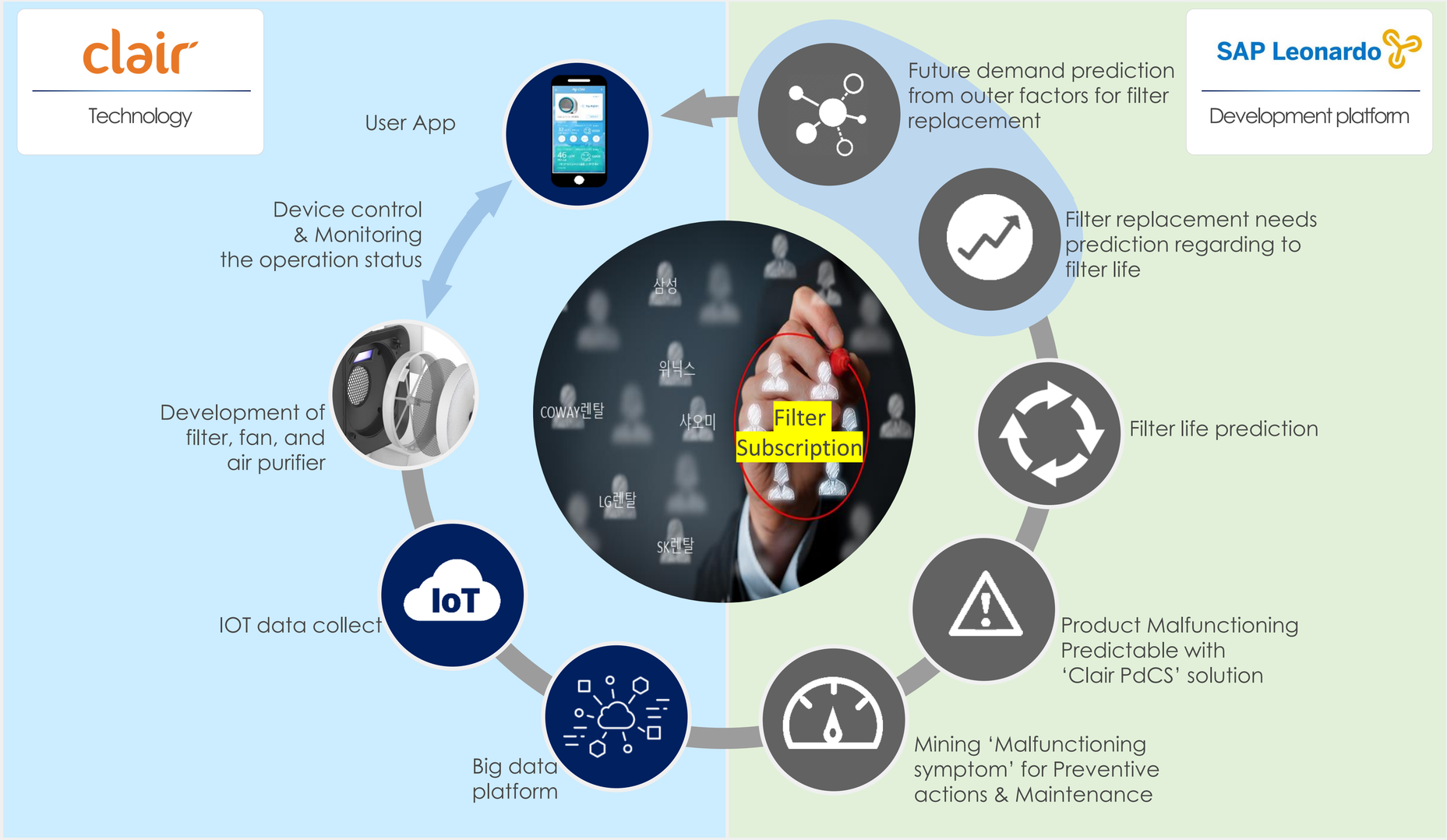
Filter	통과풍속 [m/s]	대전량 [kv]	포집률 η%
Ref No Filter	0.55		-
HAF (3M)	0.44	0.04	79
E2F C07 신품 #180412	**0.31**	**0.62**	**83**
E2F C07 2010년품	0.14	0.12	71

Interrelation Analysis between Air Quality and Supplier's sales revenue

Data serviceable based on IoT Platform //

Clair will analyze the data collected from SAP Leonardo IoT Platform and draw the most optimized solution to plan up all related marketing promotion for customers who use Clair air purifiers and its solution. This analyzed data will also be utilized for 'firm prediction' on the filter replacement cycles.




clair
Technology
SAP Leonardo
Development platform
User App
Future demand prediction from outer factors for filter replacement
Device control & Monitoring the operation status
Filter replacement needs prediction regarding to filter life
삼성
위닉스
COWAY렌탈
샤오미
LG렌탈
SK렌탈
Filter Subscription
Development of filter, fan, and air purifier
Filter life prediction
IoT
IOT data collect
Product Malfunctioning Predictable with 'Clair PdCS' solution
Big data platform
Mining 'Malfunctioning symptom' for Preventive actions & Maintenance



Thank You