

# **Technology & Science**Innovate for the future

South Korea is a global leader in scientific and technological innovation. The nation's position as one of the world's most innovative nations is second only to Germany in Bloomberg's 2020 Innovation Index. In the 2019 Global Innovation Index, (Cornell University, INSEAD and the World Intellectual Property Organization), South Korea is at number 11 and Germany is in 9th place among the 129 countries ranked. Both indices highlight South Korea's outstanding performance in R& investment by government and industry and the number of researchers working in and between both sectors.

**An acknowledged leader in information and communication technologies** it is unsurprising that the country is leading the world in roll-out of 5G expecting to have up to 75% of the population covered by 2022. 6G research has also intensified. Activity in the digital sector is dynamic and the country has its own "herd" of unicorns.

Although up to now the country has lagged in renewable energy development, the government has implemented the beginnings of a **Green New deal focused on decarbonizing industry, moving to clean energy, and leveraging Industry 4.0 technologies to support energy transition.** 

Local automakers are also playing catch-up with Asian counterparts in development of Hydrogen Vehicles supported by more general investments in developing hydrogen as an alternative power source.

#### **Regional Signals:**

The Hydrogen Economy Asian Smart Cities Asian Space Ambitions

#### **Local Signals:**

Green energy transformation 5G/6G innovation Unique innovation program Unicorn Boom Hydrogen cars Agri-tech

#### Relates also to:

Economics and Trade
Politics & Geopolitics
Consumer Behaviour
Industries & Supply Chain
Climate and Ecology

#### Points us in the direction of opportunities in:

Satellite and communication technologies
Smartphones and mobile applications in gaming,

education, finance
Electronic components

AI and machine learning

Clean Tech, Sustainable transport, Sustainable agriculture, Energy efficiency, Electrification, Recycling and waste management

Agri-tech

AR/VR/MR in industry, education, commerce and leisure

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### **Signals: Technology & Science**

#### **Prioritised** & Proposed

- ROK's unique innovation program
- ROK's green energy transformation
- 5G Rollout, 6G Innovation
- Hydrogen cars
- ROK's Agricultural technology

#### **Added Signals**

The Unicorn Boom

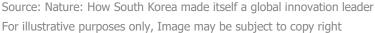
Sector tag: Technology & Science

# **ROK's Unique Innovation Programme**

### Megatrend driver: Economic Power Shift

- According to a league table covering everything from the concentration of tech companies to the number of science and engineering graduates, Sweden and South Korea rank as the most innovative countries in the world. The index on innovate countries highlights South Korea the most patents in 2017.
- To a large degree South Korea's Ranking can be credited to Samsung's constant innovation. The electronics giant is one of South Korea's most valuable assets and has received more US patents than any other company apart from IBM since the turn of the century. This innovation trickles down the supply chain and throughout the entire South Korean economy.
- Korea's innovation strength largely comes from its high performance in research and development intensity, government investment and and the number of talent working in both academia and industry.
- The High innovation intensity helped south Korea become a global leader in information and communication technologies and has the opportunity to help truly bring the 4<sup>th</sup> industrial revolution into full effect





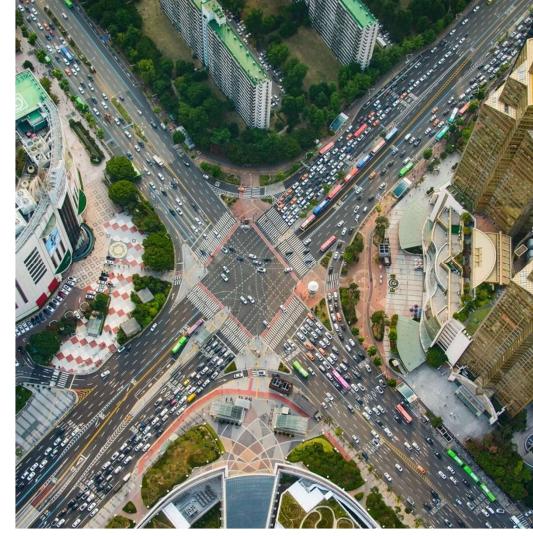
Sector tag: Technology and Science

#### **ROK's Green Energy Transformation**

#### Megatrend driver: Environment and Climate Change Acceleration

- South Korea was found to have fallen far short of the world average in renewable energy use, amid a global ramp-up in efforts to attain carbon neutrality by 2050. The world's economies average in the percentage of renewable energy of the total energy supply reached 13.51% whilst Korea has only reached 2.36%. This data puts Korea at the bottom among OECD members with the European countries averaging at 15.95%
- However, the South Korean Government has implemented the beginnings of a Green New Deal with the key focus being the decarbonisation of the industrial sector and the decoupling of the sectors energy consumption from its economic activity. The Korean government is committed to leverage the benefits of the Fourth Industrial Revolution not only for economic development, but also to support the energy transition by harnessing the opportunities offered by digitalisation to foster the energy transition.

https://www.iea.org/reports/korea-2020



Source: IEA: Korea 2020 - Energy Policy Review

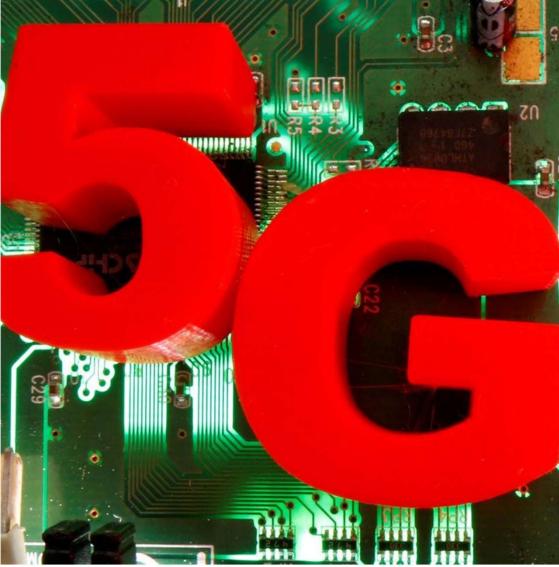
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### **5G Rollout, 6G Innovation**

#### Megatrend driver: X

- 5G networks were first rolled out in South Korea in April 2019, telecom operators claimed that their ultrafast mobile speeds and low latency would usher in a new era for smartphones users and power future technologies ranging from autonomous vehicles and the next generation of virtual reality. However, 2 years later, self-driving cars are still a far way off and most cloud games still work on pervious 4G LTE networks. Ultimately, the next generation networks have faced user disappointment following slower than expected speeds and patchy network collection thus underwhelming implementation.
- As of February, 19 percent of the country's 71 million mobile subscriptions were on the latest generation networks, compared with the 73 percent using 4G. South Korea is aiming for full 5G coverage by the end of 2022
- On the other hand, Korea is still aiming to remain at the forefront of telecommunications and the internet with intense 6G research and development. LG electronics announced that they successfully demonstrated the transmission and reception of wireless 6G data over 100 meters in an outdoor setting.







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Sources:

http://www.koreaittimes.com/news/articleView.html?idxno=107860 http://www.koreaherald.com/view.php?ud=20210403000080

Sector tag: Technology & Science

#### The Unicorn Boom

## Megatrend driver: Technology Connects and Converges

- Korea had six unicorns at the end of 2018. The number increased to 10 in 2019, 13 at the end of 2020 and stood at 15 end July 2021.
- A total of 23 start-ups have been recognized as unicorn companies, the number has dropped as some of them have gone public or have been acquired by other firms.
- Although a slight exaggeration to call it a boom, the development of unicorns is seen as a sign that the both the economic structure and paradigm centred around conglomerates are beginning to change and that the more agile start-up paradigm is gaining some ground.



Zigbang CEO Ahn Sung-woo celebrates the start-up's 10th anniversary in Seoul on June 15. The real estate app was one of the three companies to become unicorns, whose values exceed \$1 billion.[YONHAP]

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Source: https://koreajoongangdaily.joins.com/



Sector tag: Technology and Science

### **Hydrogen Cars**

## Megatrend driver: Technology Connects and Converges

- South Korea's grand ambitions to make hydrogen apart of its transport fuel mix is garnering widespread support from its automobile makers, especially Hyundai Motor, which is looking to make up lost ground in a space intensely pursued by other Asian competitors.
- Hyundai Motor, South Korea's leading auto maker, is looking to expand the fuel's scope by setting up infrastructure, a stepping stone in realizing the the government's hydrogen blueprint that was unveiled last year. The country aims to sharply increase production of hydrogen-powered vehicles and electricity generation by hydrogen, in an effort to use hydrogen as a major energy source for transportation and power generation
- "Current policy is geared towards building the necessary infrastructure for H2 production and distribution."Last week, Hyundai Motor opened a charging station for hydrogen-powered commercial vehicles at its auto plant in Jeoniu, south of Seoul.



Source: Hyundai Motor Co.

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Sources: https://www.spglobal.com/platts/en/market-insights/latest-news/electric-power/061020-south-koreas-hydrogen-ambitions-propel-hyundai-motor-into-

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Sector tag: Technology and Science

# **ROK's Agricultural Technology**

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# Megatrend driver: Technology Connects and Converges, Environment and Climate Change Acceleration

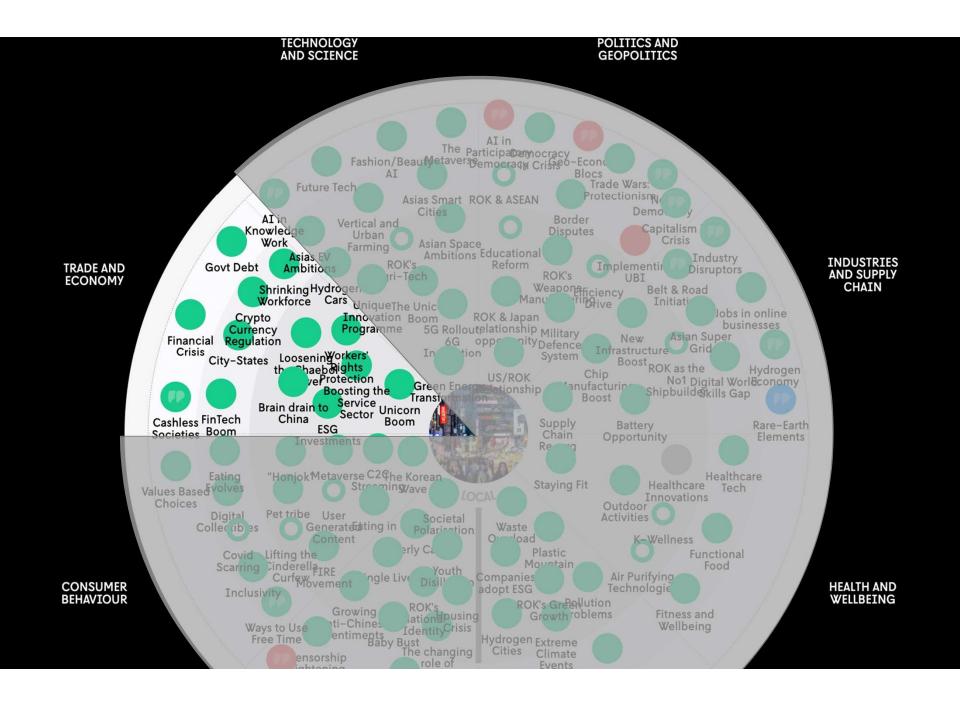
- Korea is facing a number of challenges in the efforts to develop hitech agriculture and smart farming. The small farmland sizes, lack of cooperation and lack of entrepreneurship between the stakeholders are amongst these challenges. Although the ambition of the government is to modernize the industry with new policies, the dynamic between the stakeholders could be a setback in the coming years.
- Korea still needs to acquire state of the art knowledge and experience for hi-tech agriculture and smart farming. Although Korean government and research institutes are endeavoring to develop their own technology, the level is still lagging behind those countries with advanced agriculture.
- For a better functioning agricultural system and improved food security, certain kinds of public investments in sectors linked to agriculture are needed, such as agricultural institutions, extension services, food storage and crop irrigation.
- The South Korean government has launched the Digital Green New Deal Plan (also known as the "Korean New Deal Plan") last September to boost the transition to the green and sustainable economy and scale-up data-driven smart agriculture.



Source: The Korea Times

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### Trade & Economy

### Changing the paradigm

The mega-conglomerates known as Chaebol have been instrumental in lifting Korea out of poverty and creating the face of modern Korea as it is know internationally today. The top five of these conglomerates represent more than 50% of the country's stock market activity. However, they have come under increasing pressure in recent years amid a slowing economy and a string of corruption scandals. Experts suggest that the time has come to loosen their power on the economy and to allow the nation to embrace a new period of entrepreneurial growth. Two changes are already operating in the economy;

The first is the adoption of ESG principles by Korean companies and the top 10 conglomerates are rushing to foster eco-friendly businesses models and have already invested in excess of 115 trillion won (\$98.5 billion) in ESG assets. The strong push to increase ESG investment is driven by the fact that that their existing businesses are carbon emission heavy which will become problematic in the era of transition to net-zero emissions.

The second is the development of a vibrant start-up ecosystem, the Mayor of Seoul has stated that he wants the city to be one of the top 5 cities in the world along side of San Francisco, New York, Beijing, and Los Angeles, a high ambition as the city ranks 23 today.\*Both the government and the city are putting their money where their mouth is. According to Forbes, South Korea has the highest government backing per capita of start-ups in the world. Meanwhile, the city of Seoul is planning to spend 12 trillion KRW (\$9.9bn) of venture capital to boost its start-up economy

Additionally the country aims to become the world's No. 10 exporter of services by 2025, up six notches from 2019, by nurturing service companies while lifting unnecessary business regulations. South Korea will focus on six key areas with high growth potential, namely cultural content, health care, education technology, digital service, fintech and engineering. However to achieve this the country needs to find solutions to make labour law more flexible (while still protecting workers rights) to deal with its shrinking workforce.

#### **Regional Signals:**

Fin-Tech Boom

City States

Crypto-currency regulation

#### **Local Signals:**

Loosening the Chaebol Power

ESG investments

Start-up culture

Service Sector Boost

Labour Reforms/Educational

Reforms

Shrinking workforce

Brain drain

#### Relates also to:

Politics & Geopolitics

Science and Technology

**Industries & Supply Chain** 

Society & Culture

#### Points us in the direction of:

ESG investment opportunities

Partnerships and alliances with Korean start-up's

Opportunities in the service sectors including digital services, health care and healthcare tech, education technology, FinTech.

Opportunities in internet and IOT support technologies

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### **Signals: Economics & Trade**

#### **Prioritised** & Proposed

- Service Sector Boost
- Worker's Rights Protection
- Shrinking workforce
- Start-up culture

#### **Added Signals**

- Brain drain to China
- Loosening the Chaebol Power
- ESG Investments

Sector tag: Trade and Economy

#### **Service Sector Boost**

#### Megatrend driver: Economic Power Shifts

- Korea develops a focus on boosting its service sector as the manufacturing sector risks losing ground in an environment of increased protectionism.
- Manufacturing and Industry output in Korea has shown signs of stagnating for some time. The prospects for exports of Korea's key manufactured goods in the near future are being darkened by increasing protectionism and experts suggest that Korea should strengthen efforts to enhance domestic service markets and increase service exports to offset the possible decline in the outbound shipment of the major manufactured goods.
- According to the Korean Herald In an effort to nurture the service sector, the country plans to increase its investment in government service-related research and development (R&D) to 7 trillion won (\$6.2 billion) over the next five years, up from 4 trillion won spent in 2016-2020.
- The country aims to become the world's No. 10 exporter of services by 2025, up six notches from 2019, by fostering related firms while lifting unnecessary business regulations. South Korea will efocus on six key areas with high growth potential, namely cultural content, health care, education technology, digital service, fintech and engineering.



Source: Food tank: Revitalizing Rural Economies in South Korea, For illustrative purposes only, Image may be subject to copy right



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Sector tag: Trade and Economy

### **Workers' Rights Protection**

#### Megatrend driver: Economic Power Shift

- The South Korean labour marker features a highly segmented labour profile. Almost 20% of the labour force is self-employed, and another 21% consists of temporary workers. This means that the labour laws in South Korea are quite complex and include several variables.
- The Korean governments have introduced several new revisions to the labour laws which include expanding the duration of collective agreement to three years and banning certain types of labour strikes.
- As a response tens of thousands of people have gathered across South Korea to protest labour reforms and to call for enhanced labour rights protections. The protestors stated "With the protests, we want to draw attention to the realities and experiences of workers in vulnerable sectors."

http://www.koreaherald.com/view.php?ud=20201113000718





Source: YONHAP News

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Sector tag: Trade & Economy

#### **Brain drain to China**

## Megatrend driver: Economic Power Shift

- Although the brain drain is not a new phenomena, China's drive towards self sufficiency and the Made in China 2025 plan is causing a new surge of brain drain as talented Koreans head to work in China. This is impacting sectors such as batteries, display and semiconductors.
- Korean engineers facing early retirement age and limited possibilities for job advancement are easy targets for the exceptional benefit packages offered by China.
- ROK companies are under pressure to improve their HR practices as well as strengthen their cyber security to combat the threat of losing major IP to China.







Sector tag: Trade & Economy

# Loosening the Chaebol power

Megatrend driver: Economic Power Shift

- The government has generously supported the chaebol since the early 1960s, nurturing brands such as Samsung and Hyundai. The mega conglomerates have helped lift the country out of poverty, but their influence could endanger the long term prospects of the Korean economy.
- In recent years chaebol have come under fire amid a slowing economy and due to corruption scandals.
- Chaebol nonetheless remain dominant and economists have suggested policy changes, including tougher antitrust laws, a ban on all crossshareholding among subsidiaries, and greater voice to minority shareholders, to finally break the dominance of the chaebol. Experts caution nonetheless, that changing the chaebol system's deeply entrenched culture will not happen overnight.



Moon, who was elected three years ago on a progressive platform that included overhaul of chaebol business practices, asked lawmakers to approve the bills during an Oct. 28 speech. *Photographer: Jeon Heon-Kyun/Pool/Getty Images* 

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Source: Bloomberg.com



Sector tag: Trade & Economy

#### **ESG Investments**

## Megatrend driver: Environment & Climate Change

- South Korea's top 10 conglomerates are rushing to foster eco-friendly businesses models and have already invested in excess of 115 trillion won (\$98.5 billion) in ESG assets according to The Federation of Korean Industries (FKI) on Aug. 23 2021.
- ESG investing is an investment method that not only considers financial data – the data displayed in financial statements – but also uses non-financial data such as environmental, social, and governance criteria.
- The strong push to increase ESG investment is driven by the fact that that their existing businesses are carbon emission heavy which will become problematic in the era of transition to net-zero emissions.
- They are investing in low carbon-related businesses including the hydrogen economy, renewable energy, and eco-friendly materials as they aim to achieve tangible results ahead of 2030, the interim target year for reaching the UN target of net-zero carbon emissions globally by 2050.





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Sector tag: Trade and Economy

### **Shrinking Workforce**

#### Megatrend driver: Population **Transition**

- Research shows that the number of residents registered in South Korea is falling. Between 2011 and 2020, the number of people younger then 25 years old dropped from 15 million to 12 million. While the number of Koreans 55 and older had increased from 11 to 16,7 million.
- The high cost of raising a family independently in the country is deterring many young adults. Better medical means that seniors are living longer lives, making the demographic change more drastic. Furthermore, young Koreans have also left the country in search for better work opportunities, while immigration to the country is not yet developed enough to make up for the low birth rates.
- The government is laying out a blueprint for population related policies, as the government aims to create polices that would help increase the number of people that would actively engaged in the economy. The Korean government needs to act in order to prevent the rapidly shrinking workforce from shrinking economic activity. Currently, foreigners are required to give up their original nationality within a year of being granted Korean citizenship with expectations for foreigners who can be characterised as "talent" but the Korean is planning to expand the eligible categories with the hope of counter acting the shrinking workforce.



Source: Korea JoongAng Daily: Govt unveils strategies to combat shrinking, aging workforce

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Sources: https://koreajoongangdaily.joins.com/2020/08/27/business/economy/elderlies-foreign-workers-INVEST IN demographic-changes/20200827182700374.html http://www.koreaherald.com/view.php?ud=20191209000762

https://www.bangkokpost.com/opinion/opinion/1797994/how-s-korea-can-survive-with-shrinking-workforce https://www.koreatimes.co.kr/www/culture/2021/04/703 301906.html

https://www.weforum.org/agenda/2021/03/research-shows-increase-korea-ageing-population/

Sector tag: Trade and Economy

#### **Start-Up Culture**

## Megatrend driver: Economic Power Shifts

- Seoul's startup ecosystem is set to take on the tech world. The city is already home to 8,708 startups, 85 accelerators, and the country has a total of 10 unicorns - a term coined for startups worth over \$1 billion (with the majority based in Seoul).
- As part of a global trend, the coronavirus has had a major impact, accelerating the digitalization of businesses. And with more reasons to go contactless and digital, companies with such solutions rose in value, not just major tech companies but also startups that are pioneering in future-oriented sectors. In terms of IPOs, while most markets across the world have taken a hit during the pandemic, Seoul's burgeoning biotech scene has helped position the city as a leader.
- Seoul's Mayor Park Won Soon has high ambitions for the city's startup ecosystem. Last year he announced his goal to make Seoul one of the top 5 cities for startups in the world. Both the government and the city are putting their money where their mouth is. According to Forbes, South Korea has the highest government backing per capita of startups in the world. Meanwhile, the city of Seoul is planning to spend 12 trillion KRW (\$9.9bn) of venture capital to boost its startup economy.

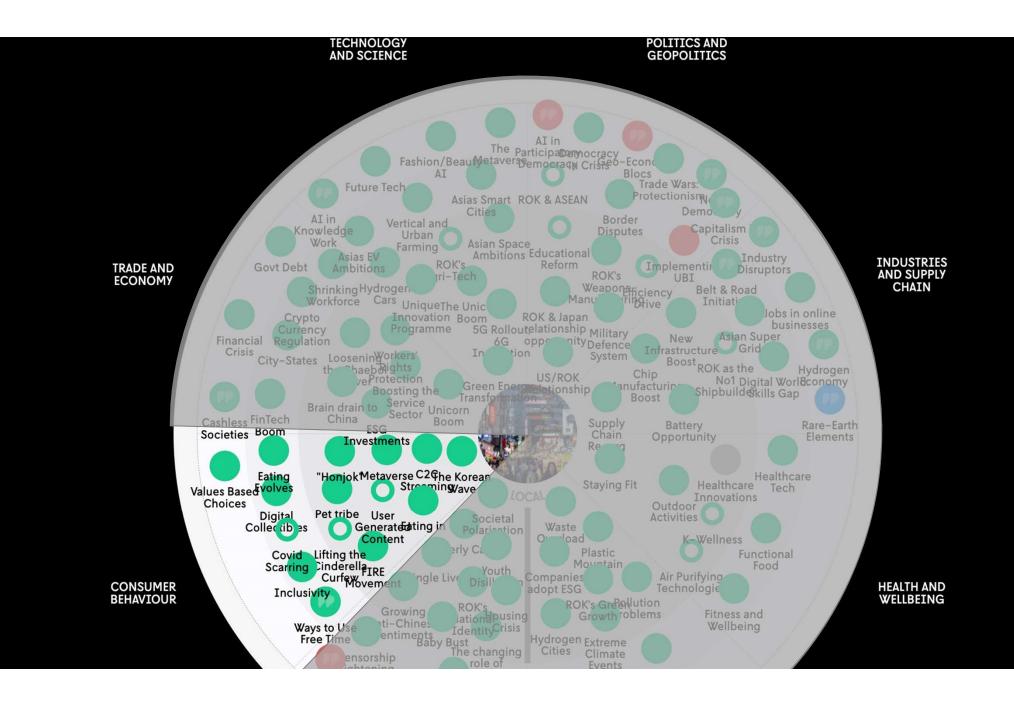


Source: Monster Jobs

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# **Consumer Behaviour**Lifting the weight of tradition

As young people turn their backs on the ambitions and relentless drive for success embodied by their elders, they also **leave behind traditional paradigms and embrace news ways of living and new consumption behaviours.** The growing loner subculture "Honjok", incarnates a generation of youth seeking independence from family and social dictates, wile embracing autonomy and solitude. The FIRE (Financial Independence Retire Early) movement emphasizes the lack of confidence in opportunities to achieve stable employment in order to provide a "good life". Both tend towards a reinforcement of single living, rejection of marriage and accentuating the Baby Bust. Diversity and inclusivity subjects are also beginning to surface.

On the other hand, technology in ROK seems to act as a connector, and **time spent on social media has increased, user generated content creation has grown massively** and C2C market and live streaming are expanding fast. Unsurprisingly, with the strong gaming and digital culture youth is already moving **towards adopting the metaverse as the next emerging interactive space** and connection platform.

As results of the pandemic, **people have been spending a lot more time at home, driving lifestyle changes**. Eating-in is a noticeable change in people's relationship to food. This has generated new forms of services around online food delivery. Covid also had an impact on consumers confidence as the population has faced great disconnection and financial anxiety. An increase in pet ownership could be seen as symptomatic of this.

We must also keep in mind the changing **needs of a rapidly ageing population**, with in a lot of cases limited financial means and a need to stay autonomous at home for as long as possible.

#### **Regional Signals:**

Eating evolves

Digital collectibles

Ways to use free time

#### Local Signals:

Surfing The K- Wave
C2C Streaming
Metaverse
User Generated Content
Lifting the Cinderella Curfew
Eating-in
Honjok
Youth on FIRE
Pet Tribe

#### Relates also to:

Society & Culture

Economy & Trade

Climate & Ecology

Technology & Science

#### Points us in the direction of opportunities in:

Solutions for single living and small spaces

Autonomy at home solutions for ageing populations

Home decoration, accessories and furnishing

Food and beverage, pre-prepared,

#### single portion, new influences

Pet health, care and accessories

Personal technology & electronics

Gaming & leisure tech

AR/VR/MR/XR solutions

AR/VR/IVIR/AR SUIULIUIIS



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### **Signals: Consumer Behaviour**

#### **Prioritised** & Proposed

- Loner Subculture "Honjok"
- Ubiquitous internet and User Generated Content
- Surfing the K-Wave
- The accelerated metaverse uptake
- Lifting the Cinderella curfew
- Covid Scarring

#### **Added Signals**

- FIRE movement
- Live Streaming and C2C
- Pet economy / pet farm tribe
- Eating In

### Loner subculture "Honjok"

#### Megatrend driver: Population **Transition**

- The term that came into its own in 2017 "honjok," a combination of "hon" (alone) and "jok" (tribe). describes a generation that embraces solitude and independence,
- It is a mirror of the growing number of single-person households and the changing attitudes towards relationships, marriage and family.
- The photographer Nina Ahn who has published a collection of striking images of solitary young people has commented in an interview with CNN. "We live in a generation where simply working hard for a bright future doesn't guarantee happiness, so why not invest in 'me' time?"
- "Nae mam daero" (my way) has become the moto and it is pushing Korea's creative cultures to new inspirational highs.



Image for illustration purposes source: edition.cnn.com photographer Nina Ahn image may be subject to copyright



# **Ubiquitous internet and User Generated Content**

## Megatrend driver: Technology Connects and Converges

- As of January 2021 had almost 50 million internet users (97%) and almost 46 million active social media users (89%) putting the country 2<sup>nd</sup> in the world behind China for social media usage penetration (%).
- With average daily time spent on different kinds of media by 16-64's of 5h37 minutes, it is fair to say that the role of internet in Korean everyday life is essential and the influence reach of internet media is high.
- Not surprisingly South Korea has a flourishing KOL scene, in fact it is even more important in Korea, because the Naver (most popular search engine) algorithm strongly favors User Generated Content (UGC)



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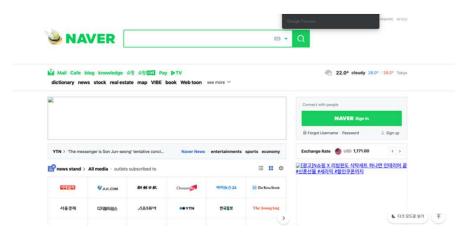


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Sources: https://datareportal.com/reports/digital-2021-south-korea https://www.makeuseaof.com/what-is-naver/https://www.mobileworldlive.com/blog/intelligence-brief-how-is-5g-faring-in-south-korea

### **Surfing the K-Wave**

## Megatrend driver: Economic Power Shifts Technology Connects and Converges

- South Korea is a powerhouse of creative and cultural production. Although policymakers take credit for the wide ranging popularity of South Korean cultural content, claiming that the 'Korean wave' is driven by the quality of its artists and products and government investment, it may also be considered a result of a convergence of multiple factors. Government investments, yes, a major economic crisis accelerating attention on the creative and cultural sector, cultural and geographical proximity to two major powers, and being a leader in consumer technology production.
- Today the production of new stars and local and global influencers follows it's path, optimised for the digital era in which we live and extending it's reach as more people across the globe gain access to higher bandwidth and subcultures flourish.
- The particular sound of K-pop mixing traditional and western influences continues to be a platform for identity experimentation for Korean youth at home and the Korean diaspora.
- We can expect that Korean music and creative culture will be an important part of youth experimentation and identity development but that it may fragment to include more diverse elements of the international (global) cultural scene.



Image of Boys Band BTS for illustration purposes source: <a href="https://fr.fashionnetwork.com/">https://fr.fashionnetwork.com/</a> may be subject to copyright

# The accelerated Metaverse uptake

## Megatrend driver: Technology Connects and Converges

- Building on the already strong digital and gaming culture it is unsurprising to find that Korean youth are flowing to the Metaverse.
- "SK Telecom expects the metaverse platform 'ifland' to become the next big thing after smartphone, as metaverse, which refers to a virtual interactive space, is emerging as the next-generation platform where future generations will mainly communicate with one another."
- Still in early stages there are more than 10 types of space available on Ifland, which is just one such platform devoted to conferencing, playing games, and shopping.
- Accelerated by the pandemic, soaring home prices and income inequality have enticed Gen(M)Z, into alternative online worlds.
- Other drivers such a new sustainability related constraints on travel and price increases linked to resource scarcity are also set to increase interest in virtual environments where people can replace real work objects, experiences and identity experiments with virtual substitutes.



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#### FIRE MOVEMENT

## Megatrend driver: Urbanisation and Population Transition

- The FIRE movement is a lifestyle movement with the goal of gaining 'Financial Independence and Retiring Early', achieved through aggressive saving and wise investment. The movement is gaining momentum as many young workers in Korea suffer from unemployment, high costs of living and unstable job positions, all of which have been aggravated by the Covid-19 pandemic.
- This trend could reinforce single living, plummeting fertility and may also have an impact on consumption (decreases) and accelerate economic slowdown.



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### **Eating-in**

#### Megatrend driver: Urbanisation

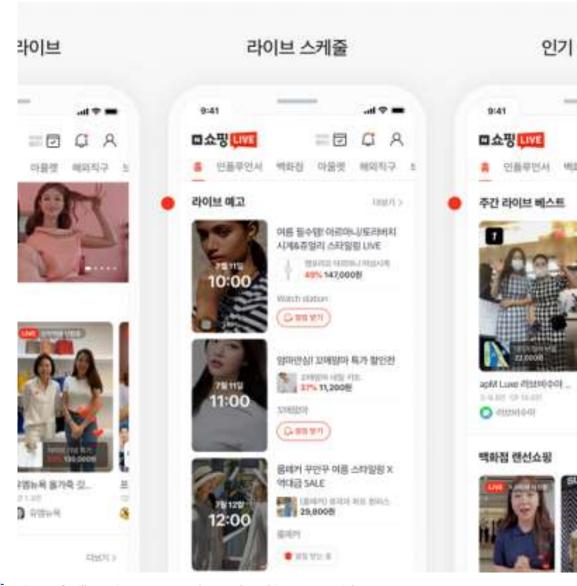
- Since COVID and the advent of self isolating, people have been spending a lot more time at home. Many have had to face the crisis and tackle related problems on their own.
- In addition the increase of time spent at home has driven some lifestyle changes including around relationship to eating and food preparation
- This phenomenon has given birth to new types of services that have been very popular among the population. Such as Merly Kulry, an app to order prepared meal kits on a weekly basis. The online food delivery market grew by nearly 80% during the pandemic.
- Although it is unlikely that growth will continue at this rate post pandemic, new habits have been formed and are likely to continue albeit with a lower frequency.



### **Live Streaming and C2C**

## Megatrend driver: Technology connects and converges

- The C2C (peer to peer commerce) market and live streaming have been growing fast in ROK, illustrating a shift in media consumption and in the consumer retail behaviour. Naver Corp., the operator of South Korea's dominant internet portal, registered 45 million accumulated views and 400 000 purchases on its live-streaming shopping platform in the four months after launch (July 2020)
- Naver announced it will invest 180 billion won (US\$166 million) over 2021 and 2022 in supporting small business owners and creators.
- In 2021, the online market restructured around NAVER and Coupang (key competitor). The combined M/S of the two e-commerce players in the domestic market has increased from 7% in 2015 to 25% in 2020 and a likely 29% in 2021.





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Sources: http://koreabizwire.com/navers-live-streaming-shopping-platform-logs-45-million-views-in-4-months/176212 https://pickool.net/naver-vs-coupang/http://www.businesskorea.co.kr/news/articleView.html?idxno=54440

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Source: Koreabizwore.com

02.11.2021

#### **Pet Tribe**

Megatrend driver: Population Transition

Rapid urbanization and changing lifestyles have brought about a renewed interest in pets, especially cats and dogs, in the country. People are increasingly paying attention to pet food and pet care, which led to the increasing pet food spending and product differentiation in the market. According to the Korea Pet Food Association, in 2016, the dog and cat populations were 4.2 million and 1.6 million, respectively, which increased to 5.9 million and 2.4 million by 2019.

**The pet** food **market** is projected to register a **CAGR** of 8.9% between 2021 and 2026. The pet-economy market is expected to reach 6 trillion KRW by 2027.

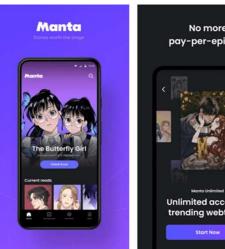




### Lifting the Cinderella curfew

#### Megatrend Driver: Technology Connects and Converges

- Although not know under the ACG acronym in South Korea there is a very strong culture of, Anime, Cartoons and Gaming. "Korean webtoon companies are becoming mainstream global content providers and disrupting the wide market of comics. Korean webtoon apps have seen tremendous growth in their audience in ASEAN countries and even the US and European markets. In fact, in Japan, famous for its manga (graphic novels), two South Korean webtoon Manhwas (virtual scrolling comics) are conquering the market share."
- The home market counts a large fanbase for this type of content. 84% of the population age 16-64 say that they are gamers (all devices) and gaming has been so popular that in 2011 the government introduced a curfew from midnight to 6 am preventing access to certain games. The Cinderella law as it came to be know was repealed in August of this year, to respect the youth's right to self-determination and the right to education at home



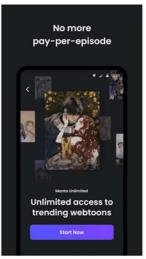




Image of Manta Comics for illustration purposes source: https://www.koreatechdesk.com/may be subject to copyright

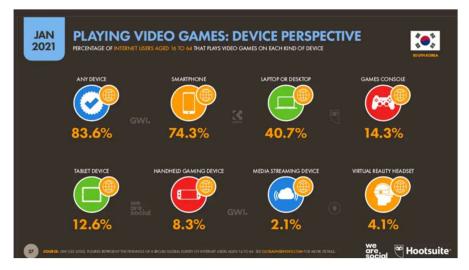


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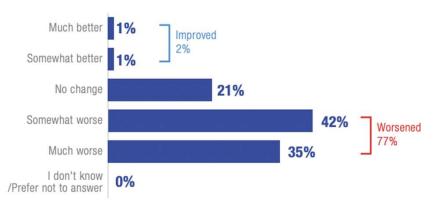
### **Covid Scarring**

## Megatrends Driver: Convergence of multiple drivers

- Korean consumers have not escaped the impact of COVID-19 restrictions and 77% of those interrogated in October 2020 consider that their quality of life had worsened.
- For nearly a third of these, economic anxiety was cited as the main reason and the same research revealed that 60% of respondents said that they became more socially-isolated, which shows that the majority of respondents faced greater disconnection due to the pandemic.
- Although we can hope that vaccinal coverage and decreasing infections will improve the overall consumer sentiment, it will be important to monitor the long term impact on the already socially isolated senior population, and youth especially the fragile youth segments that are suffering from chronic unemployment.



Q. After the outbreak of COVID-19, how has your life changed compared to pre-COVID-19 times? (Based on respondents who said quality of life severely worsened or somewhat worsened)



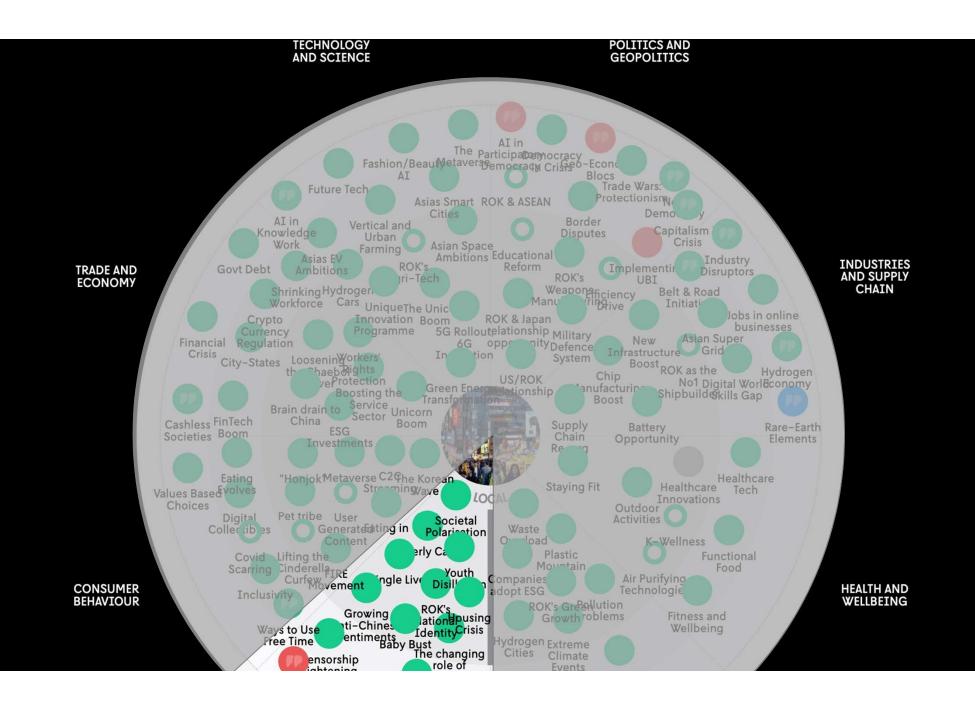
Ipsos-SBS Public Opinion Poll, Polling Period: October 5~7, 2020

Image for illustration purposes source:

https://www.ipsos.com/sites/default/files/ct/publication/documents/2021-04/ipsosflair-SouthKorea-eng.pdf

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# **Society and Culture**Shrinking, ageing and polarised

Korean society and culture is experiencing a moment of paradoxical tensions and contradictions.

An ageing and shrinking population, in addition to driving labour shortages and economic stagnation also results in increasing conservatism and nationalism. While the **immigration** which becomes a more necessary solution to the country's demographic crisis, brings new influences but **challenges the nations ethnically homogenous self-conception**, which has been a foundational element in the sense civic duty Korean's feel toward fellow citizens and the state. The increasing conservative nationalism makes integration of immigrant populations complex, and this is not facilitated by tensions with China which are fueling an increasing anti-Chinese sentiment.

The country's young population, essential to future economic health, are increasingly disillusioned. Faced with relentless competition in education and for employment opportunities, increasing unemployment and rising house prices, phenomena such as Sampo (give up three - dating, marriage and children) or that of "lying flat youth" emerge as young people turn their backs on the ambitions and relentless drive for success embodied by their elders as **the promised "good life" seems less and less attainable**. This translates as falling marriage rates and plummeting fertility and nearly one in three households in ROK today are single person households. This rejection of traditional expectations among youth however, leaves the space for young women to evolve more freely in society but is in turn generating intense anti-feminist reactions.

Regional Signals:

Mid sized cities prosper

Censorship tightens

**Economic Inequalities** 

Local Signals:

Societal Polarisation
Elderly Care
Youth Disillusion
Single Lives
Changing role of women
Baby Bust
Housing Crisis
Emerging Identity Crisis
Anti Chinese sentiment grows

Relates also to:

Consumer Behaviour

**Economics & Trade** 

Politics & Geopolitics

coints us in the direction of:

Solutions for single living and small spaces

Autonomy at home solutions for ageing populations

New education and childcare needs

New lifestyle needs for independent women

Challenges around protectionism, populism and nationalism

### **Signals: Society & Culture**

#### **Prioritised** & Proposed

- An Emerging Identity Crisis
- Youth disillusion
- Societal polarisation
- Growing Anti-Chinese sentiment
- Middle class and housing price boom
- Baby Bust
- Single living and Marriage rates

#### **Added Signals**

- Taking care of the elderly
- The changing role of women

### **An Emerging Identity Crisis**

### Megatrend driver: Population **Transition**

- "South Korea, a country that is virtually homogenous ethnically, faces a demographic challenge: how to incorporate the 1.57 million foreign-born residents... into its social, economic, and political landscape. The number of foreign-born residents in 2013 amounted to 1.76 million, a 8.4 percent increase from the year prior, after adding undocumented foreigners."
- The debate over national identity has largely revolved around two strands of nationalism: ethnic nationalism, where one is defined as Korean by "blood;" and civic nationalism, where one is defined as Korean by "acting Korean" (i.e., speaking Korean, following Korean laws, respecting Korean traditions, etc.)
- Researchers suggest that if Korea is to mature and prosper socially, it must embrace civic nationalism and be open to outside assistance from organizations like the U.N. and other multi-ethnic countries "to develop institutions and themes to better shape a more accepting form of what it means to be Korean, however complicated that may be.



Source: History: South Korea

Sources: https://thediplomat.com/2014/10/nature-or-nurture-what-makes-a-person-korean/For illustrative purposes only, Image may be subject to copy right



### **Youth Disillusion**

### Megatrend driver: Economic Power Shifts, Population Transition

- Across all of Korea, young people are getting tired of the fierce competition for college and jobs and the relentless rat race once the manage to find a secure job. To counter societal pressures, the youth across Asia, including Korean youth, have embraced laying flat, which suggests that instead of working one's entire life chasing after an apartment and traditional family values, people should just pursue a simple life.
- The major motivating factor to pursuing a lying flat lifestyle is the economic instability following rapidly rising house prices and increasing unemployment rates. Koreans have coined a new term known as Sampo, which means "give up three: describing a generation who have given up their hope of dating, marriage and having children, with homeownership starting to be added to the list.
- Disillusioned youths are taking the next step by leaving relatively secure white-collar jobs shunning their society's traditional measures of success. All this despite, near uncontrollable unemployment spikes as millions of other fight to get into the powerful, family-controlled conglomerates known as Chaebol.



Source: The Korea Herald: High youth unemployment continues during Moon's term

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## **Societal Polarisation**

## Megatrend driver: Political Polarisation

- South Korea is facing increasing societal polarization along three main themes: demonization of feminism, the distinct Christian identity and issues surrounding cultural acceptances following the Confucian past.
- The demonization of feminist discourse and ideology is an impetus for Young Korean men's The demonization of reminist discourse and ideology is an impetus for Young Korean men's embrace of misogynist attitudes and conservative politics. As the younger generation of men have been removed from the struggles of pervious generations, they enjoy a distorted moral sensibility mostly tied to the individualist pursuit and capitalist stresses of a rigorous and competitive educational and employment landscape. Systemic Gender inequality is not moving in the right direction as indicated by statistics such as the increasing gender pay gap. Furthermore, Korean men overwhelmingly endorse the statement "women earn less because they give less effort into their careers." Ultimately "feminists are being presented as misandrists to be silenced and to have their efforts for gender equality stigmatized."
- Confucianism has long been the official philosophy of the Korean royal Court. However, the present society is increasingly divided on the potential benefits or pitfalls of the Confucian past. Some observers are inclined to attribute all the success of contemporary Korea to the lingering influence of Confucianism. Others go to the opposite extreme by blaming Confucianism for a variety of issues Korean face in the present day including, authoritarianism, sexism, stifling workplace hierarchies and entrenched corruption. Connecting to the increasing feminist discourse, contemporary feminists often invoke the term to grumble about women's outsize of domestic duties thus adding more layers to a complex topic. Despite, Confucianism being abandoned as the official philosophy over 100 years ago, the values are a living influence and increasingly contradict newer ideas about individual freedom personal autonomy sevual equality. increasingly contradict newer ideas about individual freedom, personal autonomy, sexual equality and other similar topics.
- Additionally, Confucianism conflicts with Korea's distinct Christian identity which was smuggled into the country by curious intellectuals in the 18 the century. The Christian seeds sown where incubates during Japan's during the first half of 20<sup>th</sup> century have sprouted widely since. Furthermore, the conquest eroded faith in Confucian traditions for a large parts of the population. Korean Christians still work hard to spread their faith, with only America Sending more missionaries constantly battling against the Confucian past. Korean's have been seized in Afghanistan, beheaded in Iraq and barred from their own embassy in Yemen. Other work undercover in China or help North Koreans flee.
- Korean Society is entangled in a nest of contradicting values which push sections of societies further and further apart from each other.



Source: Korea Bizwire: Political Polarization identified as main social conflict For illustrative purposes only, Image may be subject to copy right





### **Growing Anti-Chinese Sentiments**

### Megatrend driver: Population Transition, Economic Power Shifts

- There are growing anti-china sentiments In South Korea, especially among the vounger generation of voters. For the first time polls register that South Koreans now dislike China more than they dislike China more than they dislike Japan. The dispute between Japan has lingered for over 100 years, arising. From the Japanese occupation of Korea starting in 1910, with south Korea still demanding the Japan pay reparations for the atrocities committed, particularly the use of forced labor. Thus, this shift is of great significance.
- The past couple years have seen a number of Korean rows directed at the Chinese, including taking to Social media to rail against the excessive presence of Chinese brands on domestic television or the outrage when Chinese state media that important parts of Korean Culture are in fact Chinese. In April nearly 700,000 Korean's signed a petition asking the government not to 'giver out land to china' by permitting a china-themes cultural park and hotel. The negative sentiments towards China has jumped from 31 percent in 2002 to 75 percent in 2020.
- The social media spats reflect a deepening dislike of china. Two separate opinion polls conducted this spring Koreans were about as favorably inclined towards China as to North Korea, which they are still at war with. The pandemic seem to have highlighted these growing anti-Chinese sentiments. IT is likely that the main turning point was an economic boycott launched by China in 2017 in response to South Korea's development of an American missile defense system known as THAAD.









## Middle Class and the **Housing Price Boom**

### Megatrend driver: Economic Power Shift & Urbanisation

- In late 2020 and early 2021, the price of an average family flat in districts like Korea's Nowon rose by around 30% sending them beyond the reach of many aspiring first time buyers. Apartment prices in Seoul rose by 58 percent meaning that the price of the average flat in the city is about 16 times the median household income. All occurring under President Moon's time in office.
- Several factors have fueled the boom, which as spread beyond Seoul to satellite towns in the surrounding province of Gyeonggi. Ultra low interest rates intended to cushion the economic impact of Covid-19 have spurred demand and the supply of flats in the capital region has failed to keep up. Government attempts to remedy the issue has made things worse as the first instinct was to declare war on speculators restrict mortgage lending, raise taxes on homeowners and penalizing rapid 'flipping' of recently purchased properties.
- The political discourse around the housing markets skirts around a key underlying issue: Economic insecurity. Korean's pour a greater share of their Household assets into real estate (75%) than their international peers because they see it as a safe investment vehicle for retirement. A behavior largely driven by by the fact that around 40% of citizens over the age of 65 live in relative poverty, earning less than half of the median household income. Meanwhile, Families with children compete to live in Seoul because parents believe that their children's placement in better known school districts will serve as a hedge against the ongoing of erosion of secure jobs.
- Overall public anger and disappointment with the current governments actions is growing as finding both stable living situations and secure jobs becomes increasingly difficult.



Source: Condé Nast Traveler

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Sources: https://www.economist.com/asia/2021/02/25/south-koreas-government-has-failed-to-make-housing-INVEST IN cheaper https://www.reuters.com/article/us-southkorea-economy-middleclass-insigh-idUSKCN2520K8 http://www.koreaherald.com/view.php?ud=20210825000860 https://www.bloomberg.com/news/articles/2021-07-28/home-prices-soar-in-south-korea-endangering-moon-jae-in-s-

## The changing role of women

Megatrend driver: Population Transition

- According to the Organization for Economic Cooperation and Development, Korea posted a 56.7 percent employment rate for women in the working age population of 15-64 in 2020, placing Korea No. 30 among the 36 OECD members for the female employment rate. Korea has far lagged behind its Asia-Pacific neighbors: 72.2 percent was reported in New Zealand, 70.7 percent in Japan and 68.6 percent in Australia.
   Despite this gender roles and identities in Korea have been evolving and in recent times the increasing visibility of women in sports has a
- Despite this gender roles and identities in Korea have been evolving and in recent times the increasing visibility of women in sports has a source of alternative role models for young women, and also a cause for anti-feminist backlash from others as seen in the An San short hair polemic.



Image for illustration purposes only, may be subject to copy right:

Source: <a href="https://www.bbc.com/news/world-asia-58082355">https://www.bbc.com/news/world-asia-58082355</a>

South Korea archer An San won three Olympic gold medals in Tokyo



### **Baby Bust**

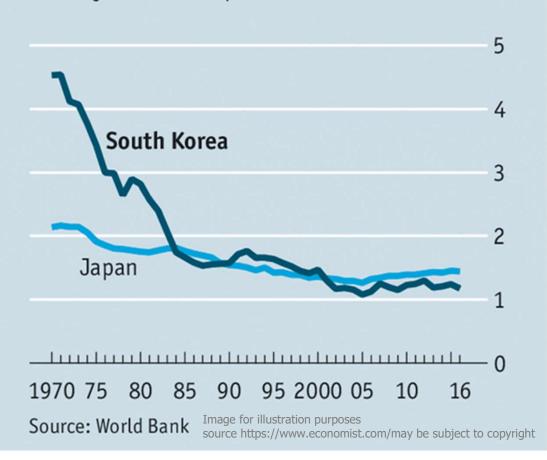
### Megatrend driver: Population **Transition**

- For much of History, South Korea worried about having too many babies. In the 1970s the government set targets for family size as Koreans were told that even two children were a lot. However, now the country has the opposite problem, with the government setting the goal of boosting total fertility in 2006 by boosting childcare subsidies and cutting taxes for families. Yet, instead of rising, the figure fell even lower reaching a record low of 0.84 births per woman. The impact is that Korea's population is now ageing even faster than that of Japan.
- Features of Korean society may be dragging birth rates down. Such as, working hours are among the longest in the rich world, on average 16% above the OECD mean. Furthermore, work at home, meanwhile is not shared equally as married women do 4 times as much housework and three times as much childcare as their husbands.
- This falling fertility and an ageing population has been driving up the dependency ratio in South Korea. From among the lowest in the OECD in 2017 the country is predicted to bear the highest cost to support an aged population from 2065.
- This demographic indicator comparing the number of non-working age to working age, is important in understanding the relative economic burden on the workforce and impacts social security and other tax rates.
- It also point to future slowdown in GDP growth if decreasing workforces are not supplemented by automation and the service sector development accelerated.

https://pulsenews.co.kr/view.php?year=2019&no=188673 http://www.koreaherald.com/view.php?ud=20170525000181

## Bye-bye babies

Fertility rate, births per woman



Economist.com



# **Single Living and Falling Marriage Rates**

### Megatrend driver: Population Transition, Economic Power Shifts

- Single living is increasing across the globe and South Korea is no exception. The number of single households reached 6.64 million in 2020, that is nearly one third (32%) of all households according to a Statistics Korea report. The growth is higher than expected in previous estimates. There are more single-person households than households with couples or families.
- People 70 or older accounted for 18.1 percent or 1.2 milion.
- However, people in their 20s accounted for 19.1 percent of single-person households, or 1.27 million people and those in their 30s were 16.8 percent of the total, at 1.1 million.
- These younger age groups are showing the highest rate of change, reflecting a changing attitude to marriage and couple formation. The marriage rates have hit all-time lows. Furthermore, marriage rates have been falling. The use of the Korean term Bihon, referring to people who choose to remain unmarried, has increased sevenfold on social media over the past five years, reflecting the people's changing attitudes toward marriage

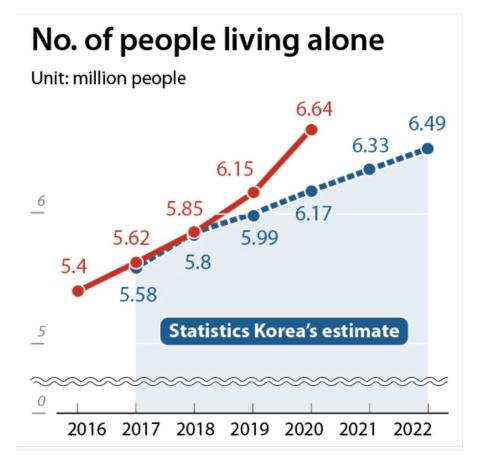
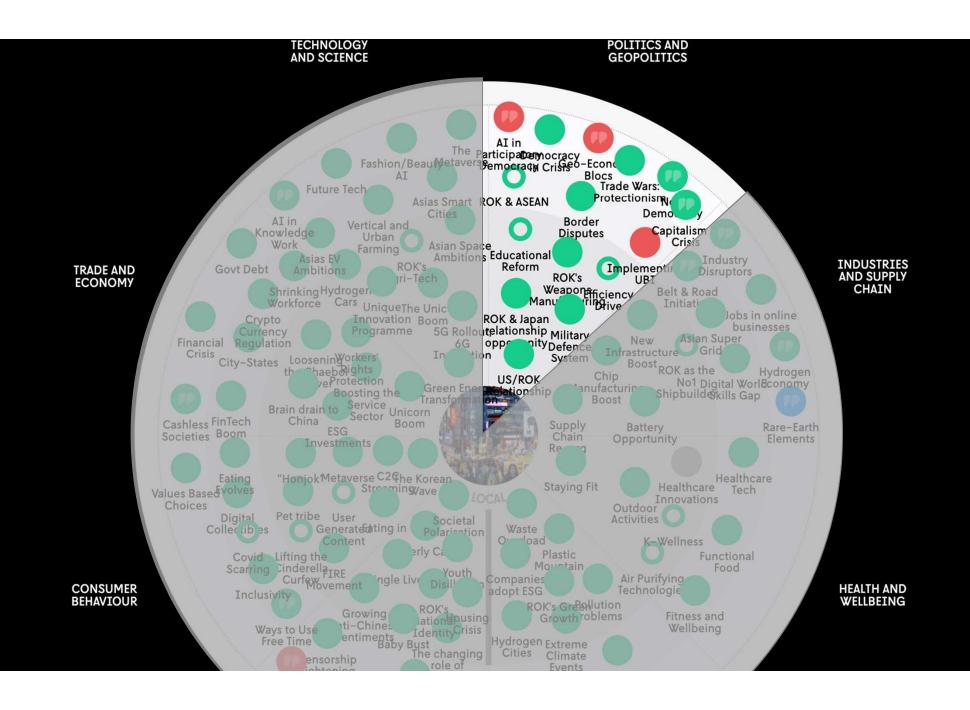


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source: <a href="https://koreajoongangdaily.joins.com/">https://koreajoongangdaily.joins.com/</a> may be subject to copyright





### **Politics & Geopolitics**

## Changing relationships and new tensions

Despite the successes of South Korea's economy, technology sector, soft power prowess, and military, its **foreign policy has been disproportionately focused on the four powers, United States, China, Japan, and Russia and the relationship with North Korea**. Under the Moon administration, Seoul has undertaken an initiative known as the **New Southern Policy (NSP) aimed at advancing ties with India and the Association of Southeast Asian Nations (ASEAN)** 

Looking beyond the border relationships and the four powers, the NSP is a clear expression of South Korea's **need to diversify its economic and strategic relationships** amid the uncertainty posed by competition between the United States and China and the risk of continued tensions in the relationship with Japan. By increasing ties with India and the ASEAN, Seoul hopes to mitigate these risks. Though India and ASEAN countries have strong ties to South Korea, sharing both values and interests, they have not been as important in Seoul's diplomacy in the past.

Meanwhile, the administration continues to reinforce military spending for among other things the development of \$2.6-Billion artillery interception system, further strengthening the country's defence industry.

On the domestic politics front, public frustration with the Moon administration and the Democratic Party driven by the failure to address skyrocketing housing prices has intensified after a land speculation scandal emerged earlier in the year and has cost the government public support. And although the current administration's initial response to the COVID-19 pandemic had strong public support, struggles in responding with variants sees public approval once again declining. An efficiency drive engaged to overcome lackluster growth in industry and manufacturing has yet to show results. This adds up to a combination of factors which could impact prospects for the 2022 election.

A newly branded People Power Party (PPP) – who have somewhat neutralized their far-right image, seems to be picking up the support lost by the Democrats, a conservative swing already seen in many countries around the globe.

### **Regional Signals:**

**ROK & ASEAN** 

**Border Disputes** 

Geo-Economics Bloc

Race to the No1 Economy

### **Local Signals:**

US/ROK relationship evolves

ROK/Japan relationship opportunity

Military Defence Systems

Weapons Manufacturing

Efficiency Drive

**Educational Reform** 

#### Relates also to:

**Industries and Supply Chain** 

Science and Technology

**Economics and Trade** 

#### Points us in the direction of:

Focus on relationship building with new international trade partners

Continued growth defence and weapons development and related technologies such as simulator technologies, AI and Cybersecurity

Potential for more nationalism and protectionism in the case of a change in political parties in 2022



INVEST IN FINLAND

## **Signals: Politics and Geopolitics**

### **Prioritised** & Proposed

- US and ROK relationship
- Domestic Arms Manufacturing
- Military defense system
- Educational Reforms
- Efficiency Drive

### **Added Signals**

ROK's relationship with Japan

### **US and ROK Relationship**

# Megatrend driver: Political Polarisation, Economic Power Shifts

- The recent summit between South Korean President Moon Jae-in and U.S. President Joe Biden represents a significant step forward in both strengthening the countries bilateral alliance but also in pulling South Korea further in alignment with the Western hemisphere and the U.S. strategy for the Indo-Pacific region. This comes as Seoul is often caught in the middle when of Washington's and Beijing's power struggle. But recent developments demonstrate the President Biden has been increasingly successful in tempting South Korea to break its non-alignment stance.
- Specifically, the two leaders agreed "to align the ROK's New Southern Policy and the United States vision for a free and open Indo-Pacific to create a safe, prosperous and dynamic region." The new alignment even stretches to include maritime security in the region, particularly in the South China Sea, clearly marking the shaking of the nonalignment stance.





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# **ROK & Japan relationship** opportunity

## Megatrend driver: Economic power Shift

- ROK's relationship with Japan has been strained by historical disputes related to WW2 as well as ownership of the Dokdo-island in the East Sea. It has been in crisis in the last two years with 2019 widely considered as the lowest ebb in the Japan-South Korea relationship since the mid 60's. Security policy wise Japan would be a natural partner for ROK that could moderate China's position in the region.
- The foundation exists for a relationship to evolve based on a 21st century logic for cooperation, and not the 1965 Cold War regional order. Both governments are pursuing a range of common objectives with bilateral and trilateral potential (with Australia) They are both developing hydrogen energy links and pursuing security cooperation with Australia and seeking to maintain regional stability amid intensifying China–US rivalry.



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Source: Associated Press

South Korean President Moon Jae-in walks by Japan's Prime Minister Shinzo Abe during a photo session at the G20 summit in June 2019



# **ROK's Weapons Manufacturing**

### Megatrend driver: Political Polarisation

- The South Korean military now possess a formidable collection of 2,400 tanks, including domestically produced K-1 and K-2 models, 2300 self propelled artillery pieces like the K-9 and K-55 and around 3200 armoured vehicles of various kinds. Thus making it one of the most heavily armed militaries in the world, with a large portion of domestically manufactured arms.
- South Korea's military spending is significant by world standards, and has grown rapidly under the moon Jae-In administration. The success of the South Korean defence industry has been its technical ability to manufacture sophisticated military hardware. Remarkably, it has been able to do so across all three domains: land, sea and air.
- Furthermore, South Korea has made remarkable achievements in telecommunications products and has excellent software development capabilities. From its frequent cyberattacks from North Korea and neighbouring countries, South Korea already has a strong environment from which it can further upgrade its technology. The domestic arms development is becoming increasingly important as Korea has to fight to keep its non aligned position on the global stage. Thus, the strategic reasons prevent close transactions and military partnerships with countries from the former Communist bloc like China and Russia and even those from the western sphere like the US and EU.



Source: Aljazeera: South Korea muscles in on global arms trade For illustrative purposes only, Image may be subject to copy right



 $Sources: \ https://koreajoongangdaily.joins.com/2019/08/08/politics/Korea-climbs-ranks-of-global-arms-exporters/3066510.html$ 

https://www.aljazeera.com/news/2021/4/20/south-korea-3

http://www.koreaittimes.com/news/articleView.html?idxno=96176

https://www.eastasiaforum.org/2021/01/20/south-koreas-ongoing-quest-for-security-independence/

# **ROK's Military Defence System**

Megatrend driver: Political Polarisation

- A large part of the area surrounding South Korea's Capital city, Seoul, which is home to half the population of 52 million people, and lies within range of North Korea's longrange guns and multiple rocket launchers.
- As response to mounting security threats, South Korea approved plans to pursue a \$2.6-Billion artillery interception system, similar to Israel's 'Iron Dome', designed to protect against North Korea's arsenal of guns and rockets. The ministry of National Defence has said while existing weapons such as the patriot and THAAD missile defence systems are designed to target North Korea's increasingly capable short-range ballistic missiles, the new system aims to protect against the increasingly precises arms.
- With the increasingly tense geopolitical situation in the East Asian region, and the difficultly of keeping its Nonaligned position, the South Korea government is likely to increasingly prioritize a strong military defence system.



Source: The Diplomat: China and South Korea: Examining the Resolution of the  $\mathsf{THAAF}$  impasse

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Sources: https://thediplomat.com/2017/11/china-and-south-korea-examining-the-resolution-of-the-thaad-impasse/

https://thediplomat.com/2021/03/south-korea-us-prepare-to-conduct-joint-military-exercise/https://www.reuters.com/world/asia-pacific/skorea-develop-iron-dome-style-defence-system-counter-norths-artillery-2021-06-28/

### **Educational Reform**

### Megatrend driver: Population **Transition**

- The official launch of a new educational governance body is in sight as demand increases for comprehensive reform of South Korea's educational system. The national assembly's education committee has approved the creation of a new body called the national education commission that would be tasked with taking the lead in establishing long term educational policy while the ministry of education continues to make short-term adjustments.
- The desire for a new command center in the education sector has intensified over the years, as long-term college admissions policies, evaluation methods and teaching materials are heavily swayed by which party is in control at the moment. Experts also call for a shift in educational system at all levels, both for public and private schools, in light of the 4<sup>th</sup> industrial revolution and demographic changes.
- In addition, there are growing critique's that the Korean education system is too rigorous and is not able to cater to all types of students with different educational levels and needs.
- Furthermore, Private high schools in Korea face a phased abolition with the aim of widening equal opportunity in education. The move to abolish private schools is met by strong protests with some arguing that abolishing private schools undermines the diversity and autonomy of education.



Source: UNESCO: New Education Policies and Practices in South Korea For illustrative purposes only, Image may be subject to copy right



### **Efficiency Drive**

## Megatrend driver: Economic Power Shifts

- South Korea's successful social and economic transformation has been attributed to several factors including; a population boom, sustained capital accumulation and a sharp rise in factor productivity, all spearheaded by a strong manufacturing. However recently, Korea's economic growth has drastically slowed down.
- The slowdown in productivity and economic growth is an indicators that R&D investments in South Korea are not generating the expected returns despite the significant amounts of money involved. Thus the government is aiming towards boosting efficiency and productivity in several sectors through public policy aimed at the efficiency and process of R&D investments and a prioritization placed on investment in higher-value-added industries and technologies.
- Furthermore, the efficiency drive extends to the military as the government wants to make the army smaller, more efficient and better able to deal with the changing threats the country faces.
- All these reforms are partly driven by rapidly changing demography, as the country ages faster than any other country in the world.



Source: Integrify

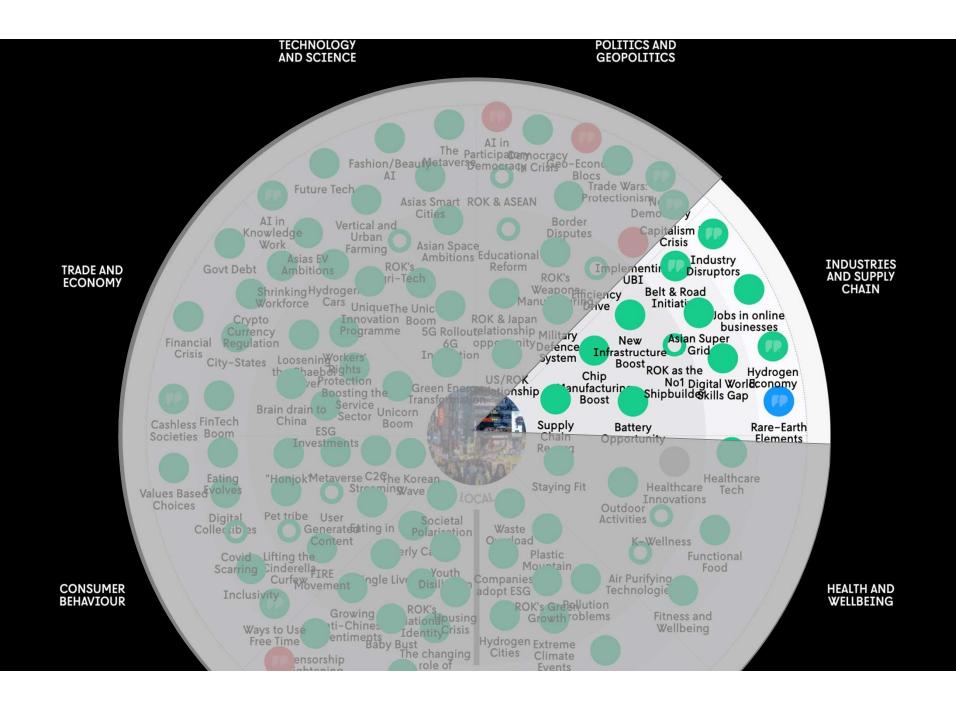
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Sources: https://www.economist.com/asia/2021/02/04/south-korea-is-preparing-for-a-lonelier-scarier-future

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# **Industries and Supply Chain**Bolstering and boosting Industry

With global shortages of raw materials and freight capacity impacting industrial and manufacturing growth, companies in Korea (as elsewhere) try to cut their exposure to rising geopolitical tensions, as governments try to boost domestic industries by onshoring manufacturing. The Korean governments worries over supply chain bottlenecks serves as an indicator of the complexities ahead as the US and China lock horns over technology, trade and security. Climate change, and the higher frequency of extreme weather that disrupts shipments, further complicates this picture.

In this context **the country is going all out to bolster its critical semiconductor industry,** with the government announcing a plan by companies to invest \$451 billion to boost chipmakers' competitiveness and build the world's biggest chipmaking base over the next decade.

Similarly, the government has engaged to use all available policy measures to ensure that South Korea becomes a global secondary battery-manufacturing powerhouse by 2030 and plans to introduce large-scale tax incentives for investments in research and development has determined that batteries are a core technology alongside semiconductors and vaccines.

**Infrastructure investment** will be critical for spurring future innovation and growth – and the government has announced measures for maintaining safe sustainable infrastructure, pledging significant sums to both public and public/private investment projects including investment in the technology and network infrastructures necessary to support the move to Industry 4.0.

### **Regional Signals:**

**Belt & Road Initiative** 

Digital World: Skills gap

Asian Super Grid

Industry 4.0

### **Local Signals:**

New Infrastructure Boost

Chip Manufacturing Boost

**Battery Opportunity** 

Supply Chain Re-org

ROK as No1 Shipbuilder

#### Relates also to:

**Economics and Trade** 

Politics & Geopolitics

Science and Technology

#### Points us in the direction of:

New focus on public private R&D initiatives across multiple sectors

Continued growth in tech integration sector

Opportunities in specific Industry 4.0 technologies, data, AI, IOT, cloud, Augmented Reality, Cybersecurity, Robotics

New opportunities for public private partnerships in infrastructure development



## **Signals: Industry and Supply Chain**

### **Prioritised** & Proposed

- ROK as the number one shipbuilder
- Reorganizing Supply Chains
- Chip manufacturing Boost
- New Infrastructure Boost
- Battery Manufacturing Opportunity

### **Added Signals**

None



## **ROK** as the **No1** Shipbuilder

## Megatrend driver: Economic Power Shift

- Industry data showed that South Korean shipbuilders outpaced their Chinese rivals to regain the top spot in global new orders of ships. South Korea lost their No. 1 ranking to China in April, nine months after grabbing the top ranking in July 2020. South Korean shipbuilders led by Hyundai Heavy Industries Co. obtained new orders of 40 ships, or 1.42 million compensated gross tons (CGTs).
- The Korean Ulsan Shipyard, owned by Hyundai Heavy Industries, is outfitted with cutting-edge facilities and the latest equipment, ranging from fully machine-driven steelcutting lines to an eco-friendly painting shop. Other advanced facilities include a metal works factory, a forge, machine shops, a crankshaft shop and offline welding robots.
- The increase in new orders also supports South Korean steelmakers such as POSCO, whose largest customers for steel plates include shipbuilders. Ultimately, the health of the Korean shipbuilding industry has several trickle-down benefits for smaller manufacturing sectors within the economy.





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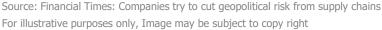


### **Reorganising Supply Chains**

# Megatrend driver: Political Polarisation, Economic Power Shifts

- Global shortages of raw materials and freight capacity have also led to weaker industrial activity in South Korea and some of its trading partners. South Korea's factory activity growth slowed in August for the first time in a year as demand for important exports such as semiconductors started to decrease. Companies everywhere try to cut their exposure to rising geopolitical tensions, just as governments try to boost domestic industries by onshoring manufacturing
- South Korea's Illjin Materials have recently celebrated a new development: copper foils that are about 50 times thinner than a strand of hair and critical to the production of computer chips, to be sent to Samsung. The new development has become a source of national pride as it it reduces South Korea's dependence on components and materials from Japan
- Furthermore, the Korean governments worries over supply chain bottlenecks serves as an indicator of the complexities ahead as the US and China lock horns over technology, trade and security. Climate change, and the higher frequency of extreme weather that disrupts shipments, further complicates this picture. Samsung is aiming to demonstrate careful supply chain management as they fear the dangers of being caught between competing superpowers.
- The rise of protectionism and nationalism, coupled with the widening divide between China and the west, is shaking the foundations of globalisation leading to companies and nations increasingly worrying about the securities of their supply chain.







## **Chip Manufacturing Boost**

# Megatrend driver: Technology Connects and Converges

- South Korea is going all out to bolster its critical semiconductor industry, with the government on Thursday announcing a plan by companies to invest 510 trillion won (\$451 billion) and beefed-up tax benefits to boost chipmakers' competitiveness amid a critical global shortage of the key components. President Moon aims for Korea to build the world's biggest chipmaking base over the next decade, joining China and the U.S. in a global race to dominate the key technology.
- As a part of this ambitious plan, Samsung is boosting its spending by 30% to \$151 billion through 2030 while Hynix is committing \$97 billion to expansion at existing facilities in addition to its \$106 billion plan for four new plants in Yongin
- President Moon is anxious to not fall behind as he stated: "Major global competitors are pressing ahead with massive investment to be the first to take the future market. Our companies have been taking risks and innovating as well and have completed preparations for tumultuous times."
- There is a lot at stake as a direct follow on from the chip manufacturing industry including technology fundamental to ground breaking advances from artificial intelligence to autonomous vehicles and connected homes.



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Sources: https://fortune.com/2021/05/13/south-korea-chip-semiconductor-samsung-hynix/https://asia.nikkei.com/Business/Tech/Semiconductors/South-Korea-plans-to-invest-450bn-to-become-chip-powerhouse

https://techmonitor.ai/technology/south-korea-chip-investment-samsung-sk-hynix-chip-shortage

Date 5

### **New Infrastructure Boost**

## Megatrend driver: Urbanisation and Future Cities

- The infrastructure investments made early in modern South Korea's development were critical for its subsequent social and economic transformation. From the 1950s to 2019, the country's total length of paved roads increased from about 580 kilometres to more than 96,400 kilometres, for example.
- South Korea ranked sixth out of 141 countries in the infrastructure category of the 2019 edition of the World Economic Forum's Global Competitiveness Index with it highest related ranking (2nd) coming in electricity access for its population, and lowest (28th) coming in reliability of its water supply.
- Much in the same way that it was crucial for South Korea decades ago, infrastructure investment will be critical for spurring future innovation and growth - by expanding the country's essential physical and digital skeleton in a way that can support emergingtechnologies ranging from autonomous vehicles to 5Gtelecommunications networks.



Source: The Korea Economic Daily

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# **Battery Manufacturing Opportunity**

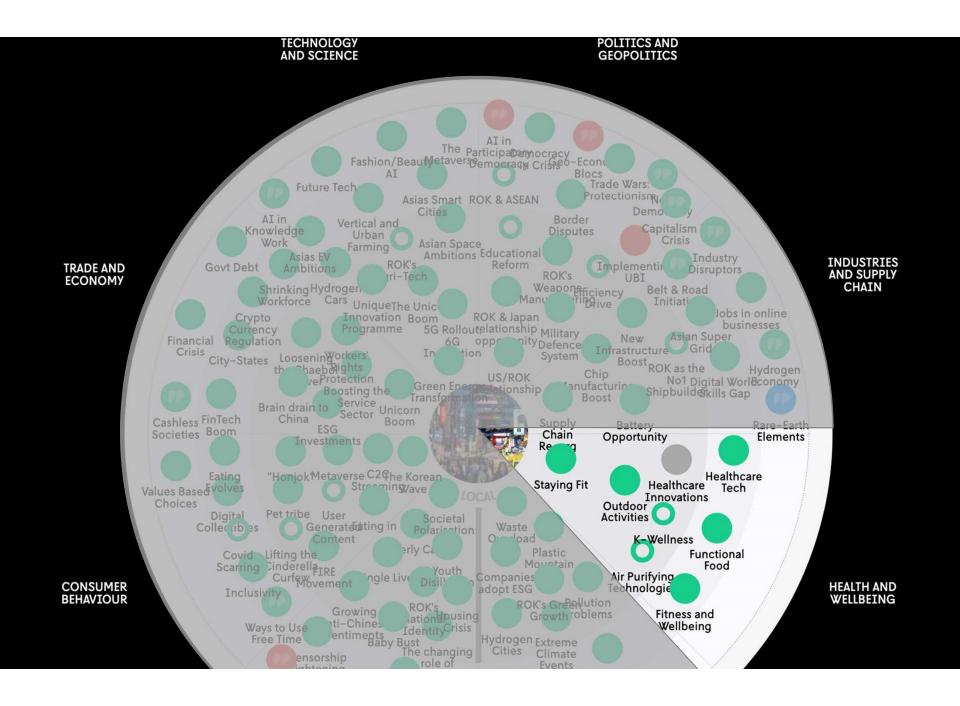
# Megatrend driver: Technology Connects and Converges

- President Moon Jae-in has promised that his government would use all available policy measures to ensure that South Korea becomes a global secondary battery-manufacturing powerhouse by 2030. Moon also vowed to introduce large-scale tax incentives for investments in research and development at a time securing high-tech parts is considered on a par with national security amid ongoing geopolitical tension. He added the government has determined that batteries are a core technology alongside semiconductors and vaccines, and so will offer a maximum tax credit of 20 percent for investments into equipment, and tax credits of up to 50 percent for R&D spending.
- South Korean companies have also seen the upcoming high demand for batteries as South Korean energy company SK Innovation have started a new spin off its mainstay battery business in October to better focus on the fast-growing electric vehicle market.
- SK Innovation's board approved the plan on Tuesday, stressing that batteries have growth potential and that the business is globally competitive. The new entity, provisionally named SK Battery, will be launched on Oct. 1 after a general shareholders' meeting on Sep. 16 signs off on the plan
- The intensified focus on batteries comes with the administration of U.S.
   President Joe Biden being keen to secure a stable battery supply chain for American automakers as the industry is fast switching to electric vehicles.



Source: Korea Times: Moon vows Korea will become battery powerhouse For illustrative purposes only, Image may be subject to copy right





### **Health & Wellbeing**

### New solutions for changing needs

Ageing populations and changing lifestyles are driving new health and wellbeing needs across the globe and ROK is no exception to this. Lifespans have increase and according to World Bank Data life expectancy in Korea has risen from approx. 55 years in 1960 to approx. 83 in 2019. In addition, lifestyles and eating patterns have changed. This has given rise to a **significant increase in lifestyle diseases** (Non communicable diseases) and NCDs account for approximately 80% of all deaths and 41% of national health insurance expenditures in the country.

In 2008, long-term care insurance (LTCI) was introduced to provide security to older people who cannot take care of themselves but the rapidly increasing elder population is putting pressure on the system and only 1.3% of the population receive LTC benefits today while 15% of the population are age 65 or older. The country's health care system has attracted international attention because of its cost-effectiveness, but today it is facing challenges from this rapidly ageing population and related increases in expenditure. The sector is **exploring innovations in converging ICT and health care, attracting foreign patients, public-private partnerships and a focus on service design and patient experience**. Although we can expect significant innovation the healthcare market it is **still lagging behind in terms of digital healthcare implementation**.

At an individual level **Koreans are becoming more aware of the desirability of maintaining good health into later life and this is among the drivers of an interest in fitness** for men and more recently for women and the development of the K-wellness sector. This also includes an increased enthusiasm for outdoor activities such as Hiking which has almost been elevated to the level of a "national sport". Meanwhile, continued concerns about air pollution, poor air quality and respiratory diseases (not to mention COVID-19) drives interest in air purifying technologies

### **Regional Signals:**

Healthcare Tech
Functional Food
Fitness and Wellbeing

### **Local Signals:**

Staying Fit
Outdoor Activities
Healthcare Innovation lag
K-Wellness
Air Purifying Technologies
Elderly Care

### Relates also to:

Society & Culture
Consumer Behaviour
Politics & Geopolitics
Technology & Science

#### Points us in the direction of:

New focus on public private R&D initiatives in healthcare Continued growth in health tech and tech integration

Opportunities in specific health related technologies: data management, AI, IOT, cloud, Augmented Reality, Cybersecurity, Robotics

New opportunities in consumer health, fitness and wellness



## **Signals: Health and Wellbeing**

### **Prioritised** & Proposed

- Staying fit
- Outdoor activities
- Healthcare innovations
- Air purifying technologies
- K-wellness

### **Added Signals**

Elderly Care



### **Staying Fit**

## Megatrend driver: Population Transition

- In South Korea, more and more people (especially those in their 20s and 30s) are incorporating fitness regimes into their daily routines. This relatively new interest in fitness correlates with the rise in consumer spending on health.
- The fitness community in South Korea is thriving and has a representation among the biggest female fitness influencers.
- Women in South Korea have historically tended to avoid the gym, yet are now embracing exercise and joining the gym for high intensity training, as well as lighter exercises such as yoga.
- Working out at home, often referred to as "home training" in Korea, was already a rising trend pre-COVID-19 and has been accelerated by the restrictions and unwillingness of some consumers to return to the gym.

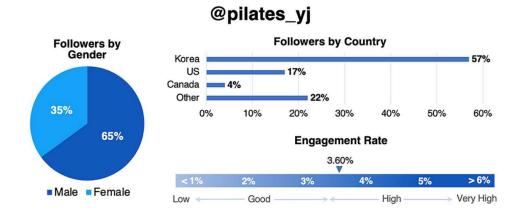


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1 Instagram

### **Outdoor Activities**

## Megatrend driver: Population Transition

- Many Koreans enjoy hiking or mountain climbing. For them, it is pursuit related to culture. The reasons behind their love for mountains are partly due to the effect on mental discipline and physical training. It is also because of the introduction of the five-day work system and a growing interest in health.
- Camping is also a popular pastime and the number of campers in Korea hit 5 million in 2016, Statistics Korea estimated, suggesting a strong growth in the popularity of outdoor activities
- But since the outbreak of the pandemic many previous activities have been difficult and new activities emerge such as car camping "cha-bak", bringing autonomy and independence to the individual or couple and still permitting a short escape from the home environment.



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### **Elderly Care**

### Megatrend driver: Population **Transition**

In 2021, the elderly population accounted for **approximately 16.5 percent of the total population** in South Korea. While this is about 0.8 percent higher than in the previous year, this share has been increasing continuously since 2010. The number of Koreans 55 and older has increased from 11 million in 2011 to 16.7 million in 2020. In addition to demographic changes, family structures and attitudes towards care for older people have changed during the last decades. As female labour participation increased, families became smaller, and informal caregivers became less available. available.

In July 2008, Korea introduced a long-term care insurance (LTCI) system to provide security to older people who cannot take care of themselves but the rapidly increasing elder population is putting pressure on the system and only 1.3% of the population receive LTC benefits (15% of the population are age 65 or older)



### **Healthcare Innovations**

### Megatrend driver: Technology **Connects and Converges**

- The Korean health care systems, has attracted international attention because of its cost effectiveness. Today it is facing challenges from a rapidly ageing population and related increases increases in expenditure. The sector is exploring innovations in converging ICT and health care, attracting foreign patients, public-private partnerships and a focus on service design and patient experience.
- For example LG Electronics Inc. recently introduced a cloud-powered remote healthcare solution for hospitals indicating that its remote healthcare solution with medical-use displays is based on virtual conference platforms and can be used for online diagnoses of patients.
- Although we can expect significant innovation the market is still lagging behind in terms of digital healthcare implementation. This is perhaps an area to watch for future innovations and public private ecosystem development.





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## **Air Purifying Technologies**

# Megatrend driver: Climate and Technology Connects and Converges

- Although air quality has significantly improved in South Korea in recent years and the country now ranks 28<sup>th</sup> out of 180 (up from 170/180 in 2016), according to a survey conducted by the state-run Korea Environment Institute 46.5 percent of respondents said "improving air quality" against such pollutants as fine dust and ozone was the most urgent environmental problem that needs to be solved.
- The country has been deploying various technological solutions form drone monitoring of factory emissions to the Korea Telecoms Air Map Korea Project. A nationwide network of 1,500 data-collection platforms, completed in 2018, the project leverages KT's vast information and communications technology infrastructure of telephone poles, mobile bases and public phone booths to monitor pollution trends and "accumulate know-how,"
- Recently a South Korean research team has developed a new air purification technology using water drops. The Korea Institute of Energy Research (KIER) announced that it had developed and successfully demonstrated a new electrostatic spray-based air purification technology.
- The newly developed technology does not use any filter. Unlike existing filtertype air purifiers, it can reduce the burden of replacing filters on a regular basis, as well as preventing the increase in the fan's consumption power.
- Although new technological approaches can help to purify air for consumers (inside) it will still be necessary for South Korea to make progress on industrial and vehicle emissions, and the new pressure to transition to net zero should generate a new wave of R&D.

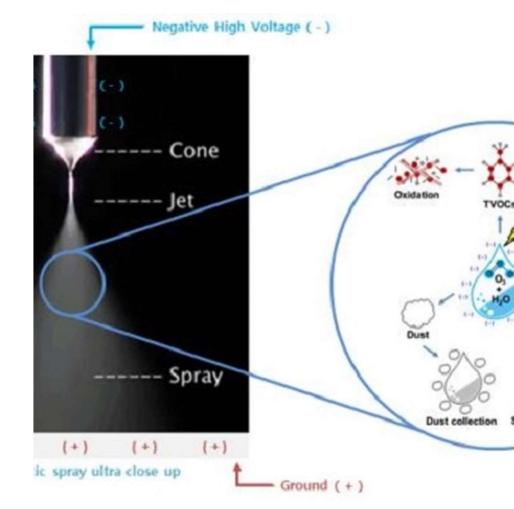


Image for illustration purposes: Source http://koreabizwire.com/researchers-develop-electrostatic-water-drop-airpurification-technology/189082 may be subject to copyright



Sources

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https://www.usnews.com/news/world/articles/2018-08-08/seoul-turns-to-technology-to-battle-air-pollution https://www.koreatimes.co.kr/www/nation/2020/07/371 292668.html

koreabizwire.com/researchers-develop-electrostatic-water-drop-air-purification-technology/189082

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### **K-Wellness**

### Megatrend driver: Economic Power **Shift Population Transition**

K-Wellness is the combination of four themes:

- Beauty & Spa
- Korean Traditional Medicine
- Nature
- Healing & Meditation

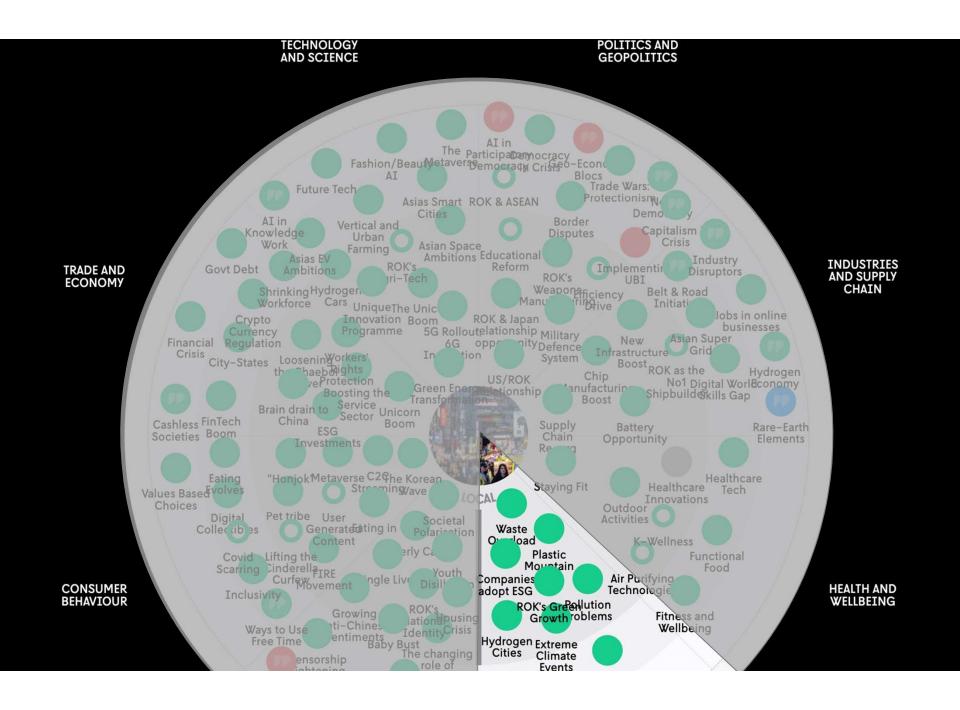
The holistic and self-indulgent approach to wellness fits well with several consumer trends such as the loner subculture, or post COIVD rejuvenation needs. Building on existing strengths (trust in traditional medicine (local) and K-beauty, renewal with nature and renewed focus on meditation and mindfulness (global)) it has interesting potential both inside and outside of South Korea.

Sources: https://www.trendhunter.com/trends/jinjoo-labs

https://www.trendhunter.com/trends/hyaluronic-cream



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## Climate & Ecology ESG engagement and green growth

The impact of climate change in Korea is growing rapidly, mainly due to typhoons, heavy rains, droughts, and abnormal temperatures. According to the 2020 Abnormal Climate Report published by the Korea Meteorological Administration the amount of damage caused due to typhoons and heavy rains in 2020 was about 1.153billion USD, more than tripling the average annual damage over the decade.

Faced with the increase in extreme climate events, a waste crisis and an ongoing air pollution problem, the country shows increasing awareness of and engagement in environmental and climate questions and seeks to embark on post COVID economic recovery and long-term economic growth through the help of a green transformation in several key sectors, including energy, manufacturing and a wide variety of services, leveraging the 4th industrial revolution to find efficiencies and new cleaner solutions.

**Major South Korean companies** across manufacturing industries are accelerating their transition to a greener, more sustainable business as investors are increasingly **taking account of environmental**, **social**, **and governance (ESG) factors**.

In a key step toward powering 10% of the country's cities, counties, and towns with hydrogen by 2030, the Korean government identified three cities as **"hydrogen pilot cities"** Ulsan, Ansan, and Wanju. These pilot cities will begin testing the application of hydrogen in transportation, industry, and space heating next year. Whereas the automobile industry will be transitioning to electric vehicle manufacturing (the country aims to have 1 in 3 cars on the roads electric by 2030) and accelerated R&D in Hydrogen powered vehicles.

### **Regional Signals:**

Asia's Green Finance

Vertical & Urban Farming

Asia's EV Ambitions

#### **Local Signals:**

Green Growth/Companies adopt

Waste Overload

Plastic Mountain

**Pollution Problems** 

Hydrogen cities

**Extreme Climate Events** 

#### Relates also to:

**Economics and Trade** 

Politics & Geopolitics

Society & Culture

Consumer Behaviour

Technology & Science

### Points us in the direction of opportunities in:

opportunities in.

Electric vehicles and batteries

Hydrogen vehicles and hydrogen power

.

Environmental tech, IOT, big data and clean tech

Energy sector, waste management, plastic recycling, air quality

Renewables, circularity

Consumer opportunities: air filtration, water purification, water use reduction in household appliances, energy efficient appliances...



## Signals: Environment, Climate & Ecology

### **Prioritised** & Proposed

- Hydrogen Cities
- ROK's pollution problems air
- ROK's Green Growth Goals
- ROK's Climate concerns extreme precipitation and flooding

### **Added Signals**

- Waste overload
- Plastic Mountain
- Companies adopt ESG



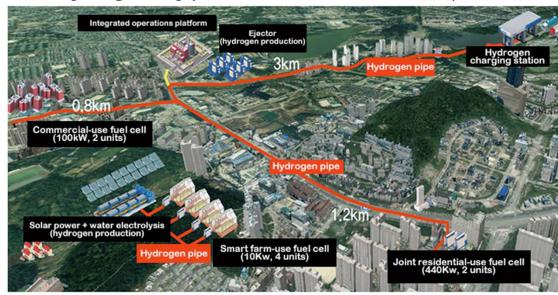
### **Hydrogen Cities**

## Megatrend driver: Environment and Climate Change Acceleration

- South Korea is vying to win the race to create the first hydrogen-powered society. It wants to build three hydrogen-powered cities by 2022 as it positions itself as a leader in the green technology
- In a key step toward powering 10% of the country's cities, counties, and towns with hydrogen by 2030, the Korean government identified three cities as "hydrogen pilot cities" Ulsan, Ansan, and Wanju. These pilot cities will begin testing the application of hydrogen in transportation, industry, and space heating in 2022.
- South Korea is reportedly exploring various projects with potential hydrogen resource suppliers, such as Australia and Saudi Arabia. For example, Hyundai OilBank Co. plans to take liquefied petroleum gas (LPG) cargoes from Saudi Aramco, convert the LPG into hydrogen, and ship back the carbon dioxide that was emitted in the process back to Saudi Arabia. Additionally, South Korea and Norway announced in 2019 their cooperation on shipbuilding for liquefied hydrogen transportation.

### Hydrogen city plan

\*Based on 6 square kilometer area



Source: World Economic Forum

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# **ROK's Pollution Problems – Air**

# Megatrend driver: Environment and Climate Change Acceleration

- Asia and the Pacific is at the center of a public health crisis, with about 4 billion people Jexposed to unhealthy levels of air pollution. It is a problem felt acutely in the Republic of Korea, where the mean exposure of the population to a toxic particle known as PM2.5 is the highest of any state in the Organization of Economic Cooperation and Development. PM2.5 levels in Seoul, the capital, are about twice those of other major cities in developed countries, though some particulate levels have been dropping in recent years.
- South Korea has turned to some high-tech devices in its ongoing fight against air pollution, including 5G-enabled autonomous robots monitor air quality and the use of a Korean satellite to provide real-time air quality data to the public. The machines are the latest additions to a state-of-the-art arsenal the country has deployed to fight its notorious air pollution.



Source: The Guardian

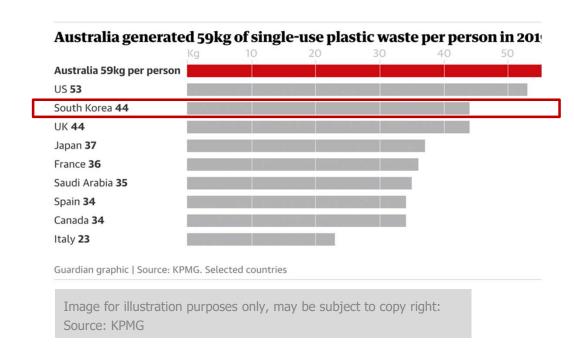
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### **Plastic Mountain**

### Megatrend driver: Increasing Urbanisation & Economic Power Shift

- While a trash problem causes headaches in Seoul, at the same time South Korea is also struggling with how to manage recyclable materials.
- Since 2017, China no longer imports certain types of waste for processing, and South Korea has been forced to re-evaluate its consumption of plastics and other recyclable materials that were being sent to China.
- And although policies aimed at reducing the use of single-use items like plastic takeout containers and bags are in place COVID-19 has caused a new surge in use of plastics leaving the country with a huge recycling headache.





### **Waste Overload**

Megatrend driver: Increasing Urbanisation & Economic Power Shift

- The South Korean capital is running out of space for its waste.
- Seoul will soon face a problem not knowing where to send the piles of trash that the city's 10 million residents generate every day. The megacity produces more than 9,400 tons of household waste daily.
- Even though the vast majority of that is compostable food waste, recyclables, or destroyed in incinerators, 9 percent of the total (about 846 tons) gets buried. Unfortunately, though, Seoul is running out of options for disposing of such waste.





https://en.yna.co.kr/view/AEN20210310001800320

## **Companies adopt ESG**

Megatrend driver: Environment & Climate Change

- Major South Korean companies across manufacturing industries are accelerating their transition to a greener, more sustainable business as investors are increasingly taking account of environmental, social and governance (ESG) factors.
- ESG investing focuses on companies that support environmental protection, social justice and ethical management practices.
- Among the criteria, climate change has become a defining factor in companies' long-term prospects with a significant reallocation of capital happening a lot sooner than expected.





### **ROK's Green Growth Goals**

# Megatrend driver: Environment and Climate Change Acceleration

- In May 2021, South Korean President Moon Jae-in wrapped up two days of high-level discussions as part of the 2021 Partnering for Green Growth and the Global Goals 2030 (P4G) Seoul Summit. The virtual gathering centred on advancing public-private partnerships, particularly for developing countries, to help meet development and greenhouse gas reduction goals.
- The two-day event culminated in the Seoul Declaration, outlining a wide range of areas where participants agreed to promote inclusive, global public-private partnerships to tackle the climate crisis. Many of the key points emphasized that economic and climate considerations were not mutually exclusive and that a "green recovery should steer our efforts to rebuild the economy from the COVID-19 pandemic."
- Ultimately, Korea seeks to embark on economic recovery and long term economic growth through the help of a green transformation in several key sectors, including energy, manufacturing and a wide variety of services, perhaps even ushering in the 4th industrial revolution.





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# **ROK's Climate Concerns – Extreme Precipitation and Flooding**

# Megatrend driver: Environment and Climate Change Acceleration

- The monsoon in Korea during 2020 recorded a total of 42 human casualties—dead or missing—and over 8,000 flood victims. The heavy rain also brought deadly landslides. Agricultural land was inundated, and tens of thousands of livestock died, swept away in the rapids.
- According to the Greenpeace analysis of the data compiled by Climate Central, the floods in 2030 will be nothing like what we have witnessed this year. It will be much worse—with the projected number of flood victims at around 3.3 million.
- If floods hit Korea in 2030, Gyeonggi Province will experience the most human casualty, followed by Incheon and Seoul. Geographically, Cholla-Namdo and Chungcheongnam-Do will take the biggest hit. Because of the extreme weather conditions, there are more tsunamis in the western region, and both provinces have low altitude.





Source: Greenpeace