Vision and Development Strategies for Korea's Main Industries

Chuel Cho et al.*

1. Background and Purpose

In 2011, the Korean economy entered a low growth era. Such slow growth was a direct result of the recession in main industries. Thus, for another economic leap, it is necessary to diagnose the competitiveness of Korea's key industries and establish a future vision and development strategies, offering alternative growth solutions. Instead of drawing up a strategy encompassing all industries, issues of each industry should be identified. Based on the diagnoses, the future should be projected, and detailed development strategies should be built.

* Chuel Cho, Donghyuk Suh, Sukin Jang, Mantae Jeong, Eunmi Jung, Kyungyou Kim, Jongki Kim, Sangsoo Park, Kyoungsook Lee, Imja Rhee, Jun Lee, Wonjoon Jang, Sungin Hong, Jangkeun Nam, Daeyoung Joo, Yangpaeng Kim

2. Theoretical Framework and Research Design

For the purpose of this study, a theoretical framework was set by reconstructing the evolutionary process of industries and development strategies for the mature phase discussed in Michael Porter's classics on industry analysis, Competitive Strategy and Competitive Advantage. The theory of industrial development based on the product life cycle may not be applicable to all main industries of Korea. However, most of them have recently moved from the growth phase to the mature phase or will likely do so within the next five years. As an industry matures, strategies from the previous stage will no longer be valid, or those that once guaranteed success will begin to show weaknesses. Thus, among a number of strategies for growth and competitiveness, ones that should be selected at this point are those for survival of companies in or beyond the mature stage and those for survival through new competition. Since competition over cost and market share becomes fiercer in the mature stage, decisions should be made based on a reasonable mixture of products and services, and careful cost analysis. Banking on the data, companies can start to look at overseas production and corporate activities by value chain.

Along with that, fair innovation becomes relatively more important in the mature phase and so does the design of products and delivery systems to lower manufacturing and maintenance costs. For companies in mature industries, the biggest decision they must make is whether they will continue with their existing clientele and markets or seek new clientele and markets. They must also determine which emerging industry they will enter at what point

and which competitive edge they should secure to sustain growth in future.

3. Status and Characteristics of Main Industries by Industry

(1) Changes to Positions of Main Industries

Although most industries experienced a temporary recession during the global financial crisis, main industries posted relatively fast growth until 2011, except mature industries like textiles and consumer electronics. However, main industries have recorded markedly slow growth or even negative growth since 2011. Between 2011 and 2015, both production and exports dwindled in a number of industries, including automobile, shipbuilding, petrochemicals, textiles, communication devices, and displays. While increased domestic demands for premium consumer electronics led to an increase in manufacturing, the exports continued to diminish. General machinery, steel, food, and semiconductor sectors also recorded below 2% growth, which is very low by itself and far lower compared to the period between 2006 and 2011.

While multifaceted factors affect the change in Korea's share of global manufacturing and exports, the main cause seemingly results from the weakened competitiveness of domestic production. Competitiveness is steadily improving in the industries that are still developing and are below global standards, such as general machinery and defense. The competitive power of the petrochemical industry is also on the rise, where China relies on imports due to supply shortage. The semiconductor industry is steadily expanding

its global market share with world-class market dominance in the memory sector. Korean industries' sluggish production and exports have resulted not simply from a weaker competitive advantage but from the slowdown or reduction of production and trade ensuing from the global recession.

Even though Korea's domestic production and exports slowed down, Korean companies' sales were not too poor thanks to their expansion of overseas production. Of course, the figures declined in the period between 2011 and 2015 in the shipbuilding, general machinery, petrochemical, and textile industries. However, the sales dip in shipbuilding originated from sales contraction triggered by the global recession, and the slip in petrochemicals largely stemed from price cuts. The figure for general machinery plunged due to the poor performance in China, and textile companies fell behind in the competition against China.

(2) Role of Domestic Divisions in the Value Chain

Generally, a global value chain does not necessarily mean complete specialization in a certain segment, and its strategy for placement may differ depending on the characteristics of each segment. Information technology (IT) firms produce the most advanced-products in Korea wherease they manufacture the rest of their general products overseas. Food and shipbuilding industries also make considerably high-end products in Korea. However, automobile, general machinery, defense, textiles, and petrochemicals mostly focus on mid-tech products with some high-end items being produced in Korea.

Since Korea's main industries have secured a global production system, the local parts supply ratio is not very high. The figure is about 80% for automobile, general machinery, steel, and consumer electronics and 60% for displays, communication devices, textiles, petrochemicals, defense, and shipbuilding. The rate is low (around 30%) for food that heavily relies on imported raw materials and for semiconductors, which are processed overseas.

The percentage of overseas production varies significantly depending on the sector's characteristics. The figure reaches 80–90% for IT consumables such as consumer electronics and communication devices, and that of automobiles, a typical durable consumer good, reaches nearly 50%. On the other hand, large-scale process/component and materials industries including steel, petrochemicals and displays report a very low rate, lower than 10%. Also, due to the characteristics of the large-scale construction industry, as a large-scale construction industry, overseas shipbuilding production was limited at merely 7%. Although semiconductors are a major IT component sector, some players are investing overseas to advance into the Chinese market.

In terms of the domestic R&D capability, the IT industry such as consumer electronics, communication devices, displays, and memory semiconductors has reached the world's highest level, and communication devices and shipbuilding are making similar strides towards the top. Meanwhile, general machinery, petrochemicals and textiles still fall far below these top levels. While automotive, shipbuilding, defense, steel, and food industries are approaching the world's leading level in part, the petrochemicals industry is rather weak. Meanwhile, food, textiles, steel, defense, general machinery,

and automobile have obtained a certain level of R&D capability, but they are still not as advanced as their counterparts in the most developed countries.

In consumer electronics and displays, Korean players are leading the cutting-edge new industry segments of next-generation technology such as Internet of things (IoT), consumer electronics, and organic light-emitting diode (OLED) technology. Korea's shipbuilding and communication device industries are leading the global market in the next-generation technology sectors, even though there is slight lagging behind developed countries. Meanwhile, steel, automobile, defense, and food industries are keeping up with, rather than leading the changes in the emerging industrial sectors, while general machinery, petrochemicals, and textiles are inept in responding to such change. The evaluation on Korean petrochemical and textile companies shows that their ability to respond is quite vulnerable in the area of new materials. .

4. Analysis of Status Change by Industry

(1) Characteristics of Global Market Changes

Most industries including automobiles, shipbuilding, general machinery, defense, steel, petrochemicals, textiles, consumer electronics, communication devices, displays, and semiconductors are all influenced by the economy. Sales will likely increase for automobiles, general machinery, defense, textiles, and semiconductors, once the economy picks up. However, it appears difficult to expect fast growth in shipbuilding considering that it has been kept in

a downturn by the industry's economic cycle. It is unlikely that consumer electronics, communication devices, and displays will see the market expand even though there will be demand for new products as supply and distribution rates have reached a certain level. Due to slow growth in the demand industry (e.g., consumer electronics, communication devices), the growth trend of the display market is not considerable. Food is a steadily growing market, and the defense industry will also grow in the long term with steady spending by countries throughout the world.

Globally, some markets are growing while others are shrinking. India is seen as a growing market in most industries. Views on China vary depending on the sector. For example, Chinese markets that are still growing include automobiles, ethylene-based petrochemical (e.g., polyethylene, ethylene glycol) makers, textiles, food, consumer electronics, displays, and semiconductors. On the contrary, growth will likely slow or even decline in general machinery (e.g., construction machinery) steel, and non-ethylene-based petrochemical makers.

Green industry and smart IT products and components are growing fast. Growth is also expected in not only eco-friendly automobiles, shipbuilding, and machinery, but eco-friendly, lightweight materials. Consumer electronics and communication devices are increasingly integrating smart technology, and automobile, shipbuilding, machinery, and defense industries are going smart, as well. Fast growing businesses are producers of the next-generation products such as OLED in the display industry and system semiconductors for various smart products in the semiconductor industry.

(2) Changes to Conditions of Domestic Production

Korea's production is further dampened by the steady exacerbation of domestic production conditions. In particular, relatively high wages in most industries account for high domestic production costs. Wages are not a significant factor in the materials industry (e.g., steel and petrochemicals) or the parts industry (e. g., displays and semiconductors) due to the nature of these industries. The most critical issue associated with conditions of domestic production that most flagship industries are facing is the limited domestic market.Most industries are struggling with manpower supply. The situation is tougher for small and mid-sized businesses (SMEs) as they have a hard time hiring both production workers and technical workers. In addition, factors that hinder domestic production include the regulatory environment and the government's inadequate supporting policies. On the other hand, conditions for raw material supply appear relatively favorable thanks to parts and materials manufacturers that produce high-quality and cost-efficient products. Productivity is also high across the board except for autotomobiles and textiles, where productivity is somewhat low.

(3) Corporate Competitiveness

The competitiveness gap was comprehensively examined among Korean companies, global leaders and those in the late-mover countries. The results showed that Korea's communication devices and displays had almost no disparity or were more advanced when compared to global leaders. However, the lead

over late movers such as China was also negligible. These markets are very competitive globally. Korea's steel, consumer electronics, and semiconductors also were nearly as advanced as or more advanced than global leaders. But the difference was quite considerable when compared with late movers. Shipbuilding will still be very competitive once the global market picks up. Petrochemicals should catch up with global leaders but must also be on the watch for pursuit by followers from the developing countries. While automobiles and food clearly have a competitive advantage over late movers, the discrepancy between Korean companies and global leaders is quite significant. While general machinery and textiles are more competitive than developing-country peers, the gap with global leaders is huge. Thus, they should implement a strategy for the steady pursuit of the global leaders. Competitiveness of the defense industry is very vulnerable, with a minimal advantage over late movers and a sizable difference from global leaders. However, consideration needs to be made for the fact that the comparison was made with the most advanced late movers due to the characteristics of the industry. Thus, defense appears to have a considerable room for improvement with a catch-up strategy.

5. Outlook for Key Environmental Changes and Impact on Korea's Main Industries

(1) Megatrends and Impact

Since the global financial crisis in 2008, a gradual recovery of the global economy has been forecast. However, now it is difficult

to paint a rosy picture for the coming five to ten years considering the fact that the International Monetary Fund continues to lower its forecasts of global growth rates. There have been a number of debates among economists on the global low growth trend and the possibility of recovery, and the secular stagnation has become a general tide. As the weighting of GDP-relative trade (products, service, finance) has sharply dwindled since the financial crisis in 2008, growth by global trade volume has substantially slowed. The portion of the global population with per capita spending of US$ 3,650–6,500 (as of 2005 current price) is forecast to expand from 2 billion in 2012 to 5 billion by 2030. Among them, Asia's share will likely go up from 30% to 64% over the same period. While populations are clearly getting older in major markets, Asia has the most aged country (Japan) and the country with largest aging population (China). Such demographic changes will likely trigger shifts in the overall spending structures and social needs.

The fourth industrial revolution (4IR) is becoming visible with the spread and convergence of new information and communication technology (e.g., artificial intelligence [AI], IoT, cloud computing, big data, and mobile technology) and cutting edge nanotech and biotech technology. Accordingly, both existing and future industries and business models are expected to innovate, create new values, and bring unprecedented changes to corporate activities and individual lives.

With the post-2020 environmental regulations strengthened, there is growing demand for eco-friendly, high-performance, and specialty products. Recently, China has become less appealing as a production base, but it has become more important as a market

where local competition is getting increasingly fiercer than before. Consequently, Korean players should find a new production base and market to replace China. First, Vietnam and other Southeast Asian countries are emerging as production bases. And India could become a new market, given its population and economic growth.

(2) Outlook for Changes to Global Main Industries

For the period between 2015 and 2025, a global outlook for major industries was projected to grow fast (approximately 5% per annum in textiles and defense and more than 2% growth in automobiles, general machinery, petrochemicals, food, and semiconductors. While consumer electronics will grow by nearly 2%, less than 1% growth is forecast in displays, steel, communication devices, and shipbuilding.

Over the next 10 years, big market trends for the main industries will be eco-friendly and smart products in line with the global megatrend, thanks to the tighter regulations for the global issue of the environment and application of smart technology in every industry along with the 4IR tide. In addition, demographic changes (aging populations, more single-person households, etc.) will also trigger changes to the market structure of the main industries. Consumption of future main industries will prompt a search for various changes within the industries and convergence among them, leading to emergence of new services and segments. Also a major shift in production methods will be explored. Smart factories will be adopted by all industries and fields, and 3D printers will be more widely used. A range of robots will be developed and dis-

patched to production sites, and big data analysis will be applied to production.

(3) Outlook for Changes to Conditions of Domestic Production

By 2025, changes to domestic production conditions will be differentiated by industry types. For general machinery, a large part will be improved without any deterioration. For automobiles, a long-standing issue of productivity and labor-management relations will likely improve mildly. Improved productivity is expected in most industries, and no industry will have lower productivity. Amid the rising tension between the two Koreas, the defense industry will enjoy favorable conditions in the domestic market and support policies. While no major change is expected for shipbuilding, the domestic market base is likely to weaken due to the court receivership for Hanjin Shipping, and labor relation and regulatory conditions may moderately suffer given issues such as restructuring. The regulatory environment will likely be even more unfavorable for materials sectors like steel and petrochemicals, and tighter manpower supply is anticipated. Although regulations on food safety will likely help development of the food industry, labor shortage may be further exacerbated. For consumer electronics, overall domestic production conditions are expected to worsen. Except for small improvements in productivity, all other factors will worsen, including salary, raw materials supply, regulatory environment, and domestic market conditions. Meanwhile, domestic demand for communication devices should pick up, thanks to the emergence of new wearable devices. More support is expected for

the introduction of new devices. The domestic production environment should worsen most significantly for the semiconductor industry, with a serious impact on regulations, support policies, and the domestic market, as well as salaries.

(4) Changes to the Landscape of Global Rivalry

Since China is trying to upgrade the quality of all industry structures, it will likely become a more formidable rival, or the competition with the country will become more heated. With newly acquired competitiveness, many Japanese industries will vie with Korean peers. Examples of this can be found in the shipbuilding, defense, food, and communication device sectors. While India is a huge market for the materials industry (e.g., steel and petrochemicals), rivalry there should further intensify as the nation expands its own production capacity. Other industries will soon encounter new competitors. For autos, Mexico is rising as a North American production base, while Turkey will likely be a new rival for defense, based on the markets in the Muslim region. Vietnam will likely compete in textiles, backed by competitive production in non-premium apparel and materials.

Changes to competitiveness of major players in Korea's main industries have been compared with their counterparts in developed and developing countries. The competitiveness gap with both peer groups will likely narrow. The gaps with both global leaders and late movers were one year for most industries: steel, petrochemicals, consumer electronics, and communication devices. Defense and textiles showed almost no distance from late movers, while

they were two years behind global leaders. Shipbuilding will likely take the most advantageous position in the competition structure in 2025. While this industry was on par with advanced players, it is on pace to be more advanced than followers by two years or more. While little difference is expected between Korean display makers and global leaders, the lead over followers will likely be more than one year, thereby projecting an advantageous landscape. For autos, general machinery, and food, the gap with both leaders and followers are expected to be one or two years.

6. Future Vision of Korea's Main Industries

(1) Outlook for Changes to the Status of Korean Industries

For the next 10 years, a considerable slowdown or negative growth was projected for Korea's main industries. Based on the presumption that status quo is maintained, automobiles, shipbuilding, textiles, and communication devices will likely produce less in 2025 than in 2015. Production growth will remain slow for steel, petrochemical, consumer electronics and display. Relatively stable growth is anticipated for general machinery and food, recording roughly 2% growth or more. Defense will likely grow quickly thanks to fixed military spending and expanding exports. Equipped with global competitiveness, semiconductors should post about 4% growth backed by steady expansion of the memory chip market and growth of the system semiconductor market.

Therefore, positions of Korea's main industries in global production will likely shrink over the next 10 years. At the current

rate, the industries' global market share will decline, except for semiconductors, general machinery, and defense. In particular, the target global market share in 2025 will be smaller than their 2015 weighting in automobiles, shipbuilding, petrochemicals, textiles, consumer electronics, and communication devices, even if they make various efforts for industrial development.

An outlook for exports was brighter than that for production. Due to the limitation posed by the domestic market, production growth has to rely on exports, and the exports value could rise on higher unit prices through product sophistication rather than a product volume increase. According to a base scenario, exports in shipbuilding is set to decline during the period between 2015 through 2025, but the decrease will not be as drastic as in production. And three industries, namely general machinery, defense and petrochemicals, should post over 4% export growth per annum. Textile exports should add 2.3% in the base forecast and 3.2% in target projection. In a base scenario of consumer electronics, exports are likely to dwindle or stop at small growth, despite efforts for greater growth. Semiconductors will also exhibit fast growth in exports but production growth should be even faster. Automobiles will likely achieve faster growth in exports than production, thanks to the increased exports of luxury vehicles. With a full-swing emphasis placed on exports, defense should post more than 10% export growth. Food is also projected to achieve faster growth in exports (more than 3%) than production.

Slow growth by most main industries is attributed to weak domestic production conditions and a delay in transition to new segments. Moreover, emergence of major rivals such as China should

hit Korean industries hard. Industries with a bright growth prospect owe this to steady investments backed by new demand.

Development targets were set on the assumption that the industries will actively respond to the eco-friendly and smart trends and that domestic production conditions will improve. Materials producers in petrochemical, steel and textile industries should augment the weighting of new materials by upgrading their production structures. Automobile, consumer electronics, and communication device industries should increase production of premium products and enhance domestic production efficiency to achieve their goals. For the display and semiconductor industries, it has been emphasized that they should work to maintain the technology gap with China and make large-scale investments.

(2) Changes to Value Chains of Korean Industries and Role of Domestic Divisions

In most main industries, overseas production should steadily expand amid withering domestic production. Industries where overseas production will likely increase the most are displays and semiconductors, increasing from the current 10% of production to over 30%. For the petrochemical industry where overseas raw material supply is important, overseas production is forecast to jump from 5% to 20%. For textiles, the figure is expected to surge from 30% to 50%. Although the ratio of overseas production is quite sizable for consumer electronics and mobile phones, a 4–5% additional increase is anticipated. Due to the industry characteristics, it is difficult for shipbuilding and steel to considerably augment overseas

production. Thus, although the figure should rise, it likely to be less than 10% by 2025. Since overseas production should begin after 2020 for the defense industry, the weighting should stand at 3–5% by 2025. The automobile industry will not see a sharp increase in overseas production since companies have already built production systems abroad in most regions. Increase in overseas production of general machinery should also stay at a negligible level.

By 2025, production of high-end items should increase from the current level. The local supply ratio should go up in most industries because they will likely be able to produce key components for which they had previously relied on imported products. Overall, main industries' R&D capacity should also improve. By 2025, the most remarkable improvement is expected in their capacity to respond to new segments.

(3) Main Target Fields of Domestic Production and New Segments in Main Industries

For 2025, main industries introduced eco-friendly and smart technology-related businesses as well as high-tech equipment and core parts as the focus areas of domestic production. Although Korea has laid some level of foundation for new segments, issues identified include weakness in basic key components and materials, insufficient industrial convergence, and lack of cooperation with demand companies and source technology. In particular, the growth has been concentrated on the hardware sector rather than the software sector, which led to a lag in the growth of software and operating systems. It is foreseeable that new businesses in the

main industries will generate diverse services and spin-off industries. Thus, with the main industries nearing their production peak, it is critical for them to expand into these new industry fields.

7. Korea's Strategy for Development of Main Industries

(1) Principles and Objectives of Korea's Main Industries

Prospects of production and exports in the main industries suggest that those industries either have already matured or will pass into the mature phase within the next decade. The industries in the mature stage face slow growth and fierce competition. Korea's main industries are competing not only with fast followers

Table 1. Main Industry Development Goals by 2025

	Development Goals
Automobiles	- Create premium brands
	- Manufacture 1.5 million eco-friendly vehicles and export 1.05 million of them
	- Develop and manufacture level 3+ autonomous vehicles
	- Locally produce core components for eco-friendly/smart vehicles
	- Create an environment for conversion to bring forth new segments offering related services
Shipbuilding	- For merchant ships, look to creating a hub for building high value–added ships with leading eco-friendly and smart shipbuilding
	- For offshore plants, enhance engineering capability to generate higher profits
General machinery	- Strengthen core components/materials development to vie with developed countries
	- Join the world's top-five by 2025 by expanding production of machine tools for new processes, unmanned construction machines and high-tech manufacturing equipment

(Continue)

	Development Goals
Defense	- Join the top seven list of defense powerhouses
	- Secure development capability for cutting-edge weapons systems (fighter jets [KF-X], submarines [3,000+ tons], etc.)
	- Foster global defense companies to join the world's top 10 list
Steel	- Emerge as a metallic materials powerhouse via convergence with non-ferrous/non-metal materials
	- Secure source technology - Expand the stable and high-quality demand base via extending connection/cooperation and global network with the demand sector
Petrochemicals	- Relocate production bases for non-premium goods and considerably increase overseas weighting - Put greater weight on the high value-added speciality products in the domestic market to created an advanced structure - Reinforce the functions of Korean firms as the global headquarters through the planning, establishment of strategies and marketing, and the mother plant function
Textiles	- Foster global brands and steadily augment the production placing emphasis on the high added–value specialty products
	- Strengthen R&D and design capabilities, and develop high performance/ eco-friendly new textile materials
	- Steadily develop industrial textile and strengthen convergence of ICT throughout the planning/production/distribution of fashion products
Food	- Distribute production networks for key raw materials with a heavy import dependency
	- Expand the scope and improve competitiveness of the value chain by attracting foreign investment and partnerships - Turn non-premium products into those with high performance and high added value
	- Expand the demand base by increasing overseas production
Consumer Electronics	- Expand domestic production by applying smart technology to plants
	- Lead the global next-generation new product market (UHD TV, IoT, smart appliances, etc.)
	- Dominate the global smart home service market
Communication Devices	- Secure a platform and software capability in new segments - Lead the smart device market of 5G telecommunication and IoT by creating a proper environment for the industry
Displays	- Maintain adominant position in the OLED and flexible display markets - Accumulate development capability for next-generation products by leading post-OLED technology development - Secure converged display technology and production capability to respond to new demand
Semiconductors	- Respond swiftly to 4IR by producing AI chips, low-battery chips, etc.
	- Secure technological advantage by expanding R&D investments
	- Sharpen the competitive edge for system semiconductors

such as China, but with advanced competitors such as the US or Japan attempting to regain competitiveness. Thus, as Porter argued, a new development strategy should be tailored to the growth stage for sustainable development of the main industries. To sum up, Korea's mature main industries can use the following four strategies: 1) expanding domestic production by improving conditions of production such as productivity, production methods, and regulatory environments, 2) searching for a new role in the global value chain, 3) implementing changes across the main industries with new products and new industires at the forefront, and 4) expanding the business scope to related industries and services. Each industry requires its own specific measures on the strategies, and the importance of each strategy will also vary.

(2) Development Strategies for Korean Industries and Companies

To reinforce the domestic production base, it has been proposed that the automobile industry improve its irrational labor-management relationship and revamp the pay structure to increase productivity. For shipbuilding industry, it is important to anticipate the recovery timing for the industry that is being restructured and maintain its core capacity. General machinery, steel, textiles, and consumer electronics should focus on introducingnew IT-based production methods. They should also seek to strengthen the domestic production basis via efforts to expand the demand base and boost the production of new products. The main industries emphasize stronger R&D most to upgrade the domestic value chain. Strategies suggested also include manufacturing premium product

lines in Korea; developing local suppliers of key parts, materials, and equipment; and securing capabilities to respond to new segments.

The need to create an innovation ecosystem has been stressed in order to allow new segments to be derived from the main industries. Prerequisites for new segments include an open innovation structure, cooperation with demand companies, and creation of an environment for convergence. To allow main industries to bring forth various segments and services, relevant business models should be designed in various aspects to pursue this strategy. These will require the industry's own capabilities and partnerships with associated industries. Moreover, studies on the feasibility of the market and business should be conducted using tools such as big data.

(3) Government Policy Directions

To reinforce the domestic production base, regulations on various fields (e.g., environment, labor, safety) should be reasonably adjusted, and policy support for restructuring is needed to maintain the domestic production base. Projects for smart plant support and workforce training are also targets for the government support. Moreover, the government is required to take measures to expand the domestic demand. It should support marketing to stimulate exports and make efforts to avoid unnecessary trade conflicts.

To upgrade the domestic value chain, the government should strengthen its support for core parts development. More specifically, support should be provided to SMEs equipped with capability

to innovate and facilitate stronger cooperation among universities, global leaders, and affiliated companies. In particular, it is necessary to reinforce capacity to develop new products through cooperation with demand companies. System semiconductors were noted as a critical core component to most of industries as well as a very important part for R&D. Thus, policy support to enable R&D cooperation with semiconductor manufacturers is required.

Various policy support and deregulation measures are needed to create and foster new segments stemmed from Korea's main industries. Instead of the government's arbitrary decisions, these should be executed in multilateral cooperation with government agencies. To generate demand for new segments, the government should employ a range of policies for expansion of supply and demand. To create new segments, support in various aspects such asR&D and cooperation with relevant companies needs to be provided. Support is also required for a merger and acquisition of global leaders to excelerate entry into new segments.

New segments derived from the main industries often require a new form of standards. Hence, relevant laws and regulations should be established or amended. There should be support measures to address and remove the lack of capital or information that SMEs face when they attempt to join new segments. The proliferation of a new business requires development of a platform, software, and content, where the government's support is necessary.