Shift of Korean Start-Up Ecosystem: Corporate Involvement in Entrepreneurship

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Dansk resume

De asiatiske storbyer som Shanghai, Singapore, Hongkong og Seoul med flere oplever alle et blomsterende start up miljø og fælles for de fleste af dem er en større eller mindre offentlig involvering, der har været med til at kickstarte start up scenen. Denne offentlige involvering i opbygning og udvikling af erhvervsfremmesystemet ses mange steder både i Asien og Europa.

Der er også stor offentlig involvering i det sydkoreanske erhvervsfremmesystem, men Sydkorea adskiller sig fra de andre asiatiske storbyer ved at have et stærkt fokus på de store sydkoreanske konglomeraters involvering i iværksætteri.

Denne ICDK Outlook rapport giver et overblik over de initiativer indenfor iværksætteri og entreprenørskab, som blev iværksat under den tidligere sydkoreanske regering og som fortsætter med fuld styrke under den nuværende regering. Som et eksempel på Sydkoreas store fokus på at skabe bedre vilkår kan nævnes, at den tidligere styrelse for små og mellemstore virksomheder (Small and Medium Business Administration)* er blevet opgraderet til et ministerium og ledes af "Minister of the SMEs and Startups", Jong-hak Hong, der som den sidste minister blev godkendt af det sydkoreanske parlament i slutningen af november sidste år.

Sydkoreas hurtige økonomiske vækst er blevet ledet af de store konglomerater i løbet af det sidste halve århundrede, men samtidigt med at Sydkorea nu oplever mere moderate vækstrater, stigende ungdomsarbejdsløshed, en aldrende befolkning og geopolitiske risici er erhvervspolitikken blevet omdirigeret til i højere grad at understøtte et spirende iværksættermiljø.

I 2013 blev denne ny orientering for alvor lanceret med en ny tilgang til økonomisk vækst i Sydkorea med fokus på iværksættere. I den nye plan blev der lagt større vægt på at øge iværksætteri for i sidste ende at skabe mere afbalanceret vækst mellem små og mellemstore virksomheder og store konglomerater.

Som en del af implementeringsplanen blev der etableret et net af innovationscentre med virksomhedsinkubatorer, der havde til formål at fremme kommercialisering af nye kreative ideer til kommercielle succeser med hjælp fra konglomerater. De såkaldte centre for kreativ økonomi og innovation (Center for Creative Economy and Innovation - CCEI'er) blev rullet ud i 18 byer og provinser i 2015. Hvert af disse centre har tilknyttet et konglomerat, der leverer finansiering, i nogle tilfælde startkapital og teknologiske og markedsmæssige mentorer.

Denne rapport vil give et generelt overblik over den koreanske økonomiske udvikling sammen med sydkoreanske konglomeraters vækst. Derefter vil bidraget fra de forskellige sydkoreanske ministerier blive beskrevet og hvordan de er involveret i udviklingen af iværksætteri i Sydkorea. Endelig vil der blive set på

hvordan den nye præsident Moon og hans regering forventes at videreføre og forstærke denne udvikling.

Til sidst i rapporten er der en komplet oversigt over de 18 koreanske innovationscentre inklusiv deres individuelle teknologi og industrifokus samt hvilke konglomerater, der er tilknyttet de enkelte centre.

* Note: SMBA og Uddannelses og forskningsministeriet indgik i september 2014 en aftale om erfaringsudveksling inden for entreprenørskab og teknologibaserede SMV'er.

Abstract

Seoul ICDK Outlook provides an overview of the latest changes in the industrial eco-system of Korea. After a rapid economic growth led by big conglomerates over the last half century, Korea is now facing new challenges such as slower growth rates, decreasing exports, increasing unemployment rates, aging population and geopolitical risks.

Historically, Korea's outward-looking policy, featuring overseas market development, was the engine that transformed Korea from a struggling post-civil war economy into a fast growing industrialised economy.

Given this background, from 2012 to 2013, the Korean government introduced a new approach for economic growth. On June 4th, 2013, the Ministry of Science, ICT and Future Planning (MSIP; now Ministry of Science, ICT and Technology, MSIT) announced a roadmap to build a new economic ecosystem with an Action Plan titled, "Realization of National Welfare and New Era of Hope through the Creative Economy."

With this new plan, more emphasis was put on boosting entrepreneurship and start-up to eventually create more balanced growth between SMEs and big conglomerates.

As part of the implementation plan, the Korean central government has put nationwide start-up hubs in place to build an accommodative ecosystem for Creative Economy. This aims to commercialize new creative ideas into commercial successes with the assistance of conglomerates. Centres for Creative Economy and Innovation (CCEIs) have been rolled out across 18 cities and provinces during 2015. The initial group of CCEIs built in 2015 and 2016 were all partnered with one Korean conglomerate and the local governments.

Globally, there are numerous attempts to put corporate venture together with entrepreneurs. This characteristic of initially partnering start-ups with a large conglomerate makes the Korean start-up ecosystem stand out.

This report will give a general historical overview of the Korean economic development together with Korean conglomerates' growth. Then, the evolvement of each of the Korean ministries involved in the development of entrepreneurship in Korea will be discussed. Lastly, an examination of the changes made in the Korean industrial ecosystem will be introduced.

1. Introduction

1.1 Historical Overview of Korean Economic Development and *Chaebols*

Large Korean conglomerates usually owned by a line of family, *chaebols*, have played a crucial role in Korea's economic development since the Korean War (1950 – 1953). It is important to understand *chaebols*' roles in the development of the Korean economy over the years.

Most of the current *chaebols* started from a small scale of start-up companies in the early 1930s and 40s during the Japanese colonial rule of Korea (1910-1945). Samsung, the global tech giant, producing 177.37 bn. USD in global revenue[1], was capitalised with 20 USD in 1938 and first started their business as a small store that sold apples and exported dried fish to the East-Asian market.

In 1934, Hyundai was a small rice store merged with Ado, a small automobile repair service company from Japan. Then in 1940, Hyundai established its construction corporation a few months prior to the outbreak of the Korean War, June 25, 1950.

While the soon-to-rise-to *chaebols* were starting their small businesses, the nation was fairly dependent on foreign aid grants from two specialised economic reconstruction programmes after the War: The United Nations Korean Reconstruction Agency (UNKRA) and the United States bilateral assistance program. Assistance from the UNKRA from 1953-60 amounted to 120 million USD while the US assistance program contributed with 1,745 million USD. These aids were mainly used for importing food, essential industrial raw materials and capital goods.[2]

On the other hand, the reliance on aid also brought some side effects due to the excessive focus of the aid on agricultural imports (especially on wheat, cotton and barley). The imports focusing on these products brought unexpected changes in the Korean economy from an agriculture-based economy to a manufacturing-based one. From the business of food processing such as sugar manufacturing companies to flour mill companies and cotton textile companies (which were given the nickname, 'three-white industries'), the basis of the current conglomerates in Korea was laid.

One example that stands out is Samsung. Samsung went into the sugar manufacturing business (Cheil Jedang) in 1953, then subsequently into the textile manufacturing business (Cheil Textile) in 1954. These businesses laid a corner stone of the giant Samsung Group, which expanded its business to trade, manufacturing, electronics, chemicals, insurance and construction starting from 1988.

In the 1960s, the Korean economy shifted to labour-intensive and light industries focusing on manufacturing, mostly clothes, shoes and wigs as primary production goods. This transformation fuelled during the Park Chung-hee administration (December 17, 1963 – October 26, 1979) and was introduced with the first "Five-Year Plan" in 1961. The first Plan included the following points in order:

1. An increase in energy supply, including electric power and coal

[1] (Statista 2015)
[2] (Frank 1975)

2. An increase in agricultural production and in farmers' income
3. Expansion of the key industries and social overhead capital
4. National land conservation and development through the utilisation of idle resources, particularly manpower
5. An improvement in the balance of payments through the expansion of exports
6. Promotion of technology

With this first Plan, South Korea's GNP continued to grow from 1964 to 1966 averaging up to around 9 percent annually.[3]

The "second Five-Year Plan" was a continuation of the first plan with an ambition for an annual target of 7 percent growth from 1967 to 1971 and focused on promoting the modernisation of the industrial structure and building the foundation for a self-sufficient economy supporting export development. The second Plan exhibited about 10 percent annual growth in the given years.

Entering into the 1970s, Korea started to experience some economic slowdown. The so-called "Heavy and Chemical Industries (HCI) Drive" strategy was introduced by the Park administration. During this period, government research institutions were established, R&D promotion was encouraged, and technical/vocational education training schools were introduced along with resources being concentrated into the technology-intensive sectors.[4]

During the HCI Drive, six strategic industries – steel (by POSCO), chemical (by Hanwha), non-ferrous metal (by Dongyang), machinery (by Hyundai), shipbuilding (by Daewoo) and electronics (by Samsung/LG) – were cultivated under the preferential treatment policy of the government. Access to financing, including preferentially low interest rates and allocation of credit, was determined by the government in favour of those conglomerates.

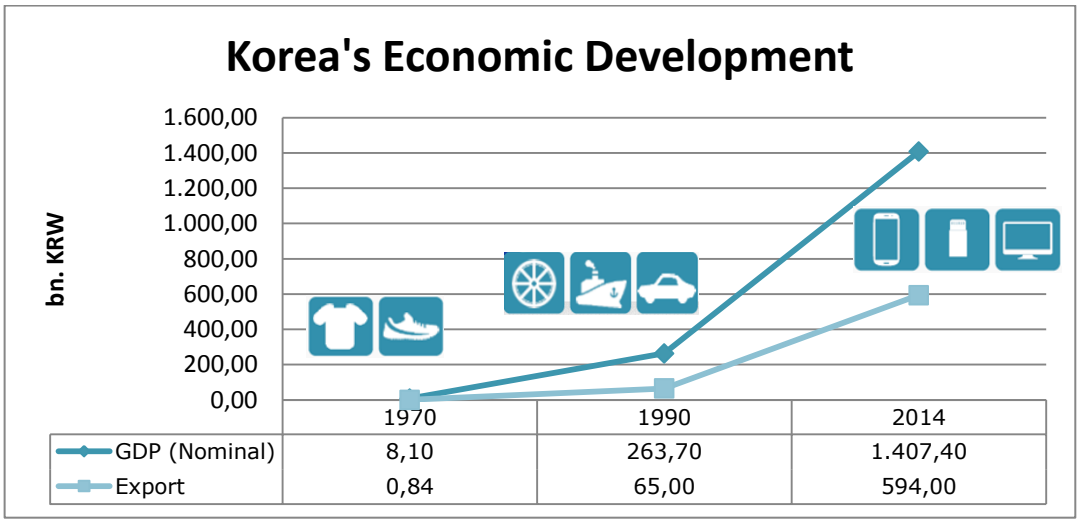

Figure 1
Source: Ministry of Science, ICT and Future Planning (May 2016)

In the 1980s, Korea extended its industries to include electronic goods and home appliances, marked by its "catch-up strategy." Korea acquired necessary knowledge by assembling the imported parts from advanced countries such as Japan and the United States. National R&D plans and private sector initiatives in R&D were also an investment-drive during this time. Textiles were still the highest exporting product, but electronics, iron & steel products including ships and

[3] (Frank 1975)
[4] (Lim 2012)

electrical goods quickly caught up as the top 10 exports.[5]

From the 1990s, Korea began to shift from an investment-driven economy to an innovation-driven one. The concept of "learning by doing" became wide spread to the economy and producers set out to innovate rather than to invest in the existing products. By conducting independent research and development, Korea embarked on expanding into the IT field, which laid the basis for the highly developed IT industry that Korea is well known for today. Electronics became the top exporting good making textiles the second most exported product for the first time since the late 1960s. Into the early 2000s, semiconductors, computers, automobiles, petrochemical products and ships stood on the list of the top five exports of Korea.[6]

In 1997, the Asian Financial Crisis hit South Korea severely. Most of the Korean *chaebols* went through serious restructuring while many unemployed people started their own business in two popular areas: Fried-chicken delivery service and IT[7] venture business, which was supported by President Kim Dee Jung's IT Venture Company Promotion Policy. However, many small-sized venture companies eventually went bankrupt due to the IT bubble which burst in 2000. For risk-averseness, working for a *chaebol* was naturally considered as a more preferred career. In turn, start-up businesses were discouraged due to the risks that came along.

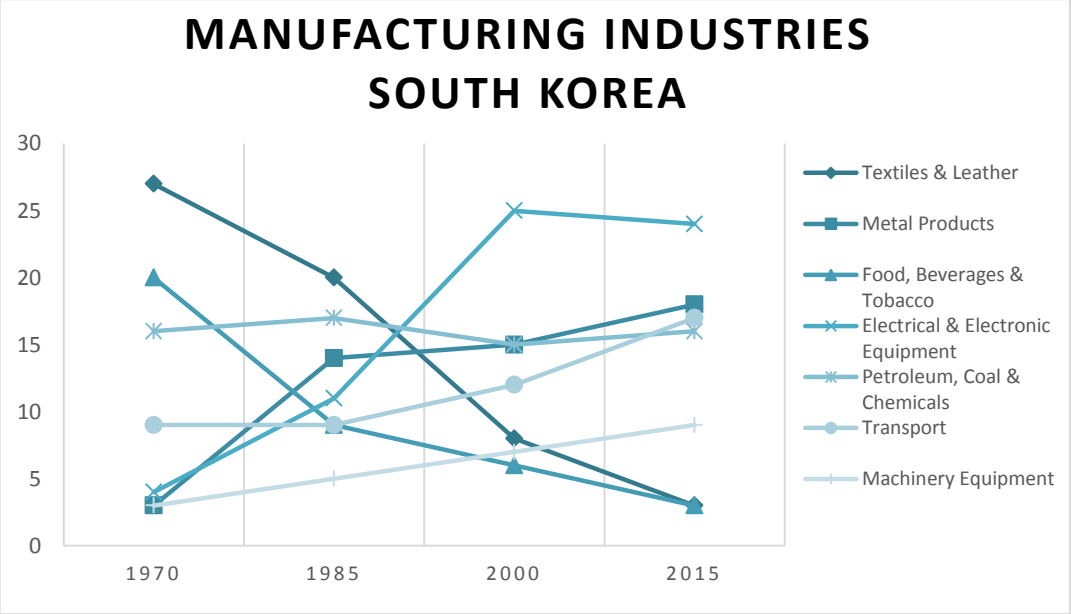

Figure 2
Source: Korea's Manufacturing Sector (Cusbert, Jaaskela and Stenner)

Although South Korea was not a direct victim of the Global Financial Crisis in 2008, the *chaebols* were indirectly affected by the sales slump in the manufacturing sector. And following the economic recession, both the Korean government and *chaebols* had to develop new engines for economic drive in order to fill in the gap from the slump.

As shown in Figure 2, the economy reliant on a large share of textiles and leather industry as a dominating industry in the 1970s, South Korea has transformed itself into a strong economy producing advanced electronic equipment, metal products,

[5] (Lim 2012)
[6] (Rhyu 2015)
[7] 93% of these companies' products were relevant to telecommunication, media, internet, semi-conductor and electronic components.

chemicals, transport equipment and machinery. With the rise of an export-oriented economy, the ratio of exports to GDP rose from 13% in 1970 to nearly 60% by 2012.

2. Transformation of the Key Players

2.1 Changes in the Korean Government's Approach to the Industries and Entrepreneurs in the Past (1948 – 2008) and Transformation of the Relevant Ministries

2.1.1 Trade

Since the establishment of the Republic of Korea in 1948, the Ministry of Commerce and Industry has been the leading ministry for the nation's economic development and growth until 1977. The ministry's name was changed to the Ministry of Energy and Resources. After 1977, the name of the ministry changed a few more times - in 1994: Ministry of Commerce, Industry and Energy and in 1998: The Ministry of Foreign Affairs and Trade (MOFAT).

Following President Lee Myung-bak's government (February 25th, 2008 to February 13th, 2013) restructuring plan which was to adopt a pragmatic line, the Ministry of Knowledge and Economy was created on February 29th, 2008. The ministry merged 1) the trade/investment/industrial function of the Ministry of Commerce, Industry and Energy, 2) IT industrial policy and postal service of the Ministry Information and Communication, and 3) Industrial Technology R&D policy of the Ministry of Science and Technology in 2008. In 2013 the Ministry of Knowledge and Economy was renamed to the current **Ministry of Trade, Industry and Energy** (MOTIE).

2.1.2 IT/ Communications

The Ministry of Postal Service established in 1948 was changed to the Ministry of Information and Communication when President Kim Young Sam (February 25th, 1993 to February 25th, 1998) selected the information and communication sector as a strategic industry for national development. Thus, the IT/communication-related functions from the Commission of Science and Technology, the Bureau of Public Information and the Ministry of Commerce and Industry and Energy were merged into the ministry. Following President Lee's government restructuring plan, the rest of the functions from the Ministry of Information and Communication were merged into a new ministry titled the **Ministry of Culture, Sports and Tourism** (MCST) in 2008.

2.1.3 Science and Technology

In 1961, the Korean government established the Technology Administration Division in the Economic Planning Board (EPB) for planning of science and technology promotion, training of scientists and engineers and for international cooperation in science and technology with foreign countries. Later on it became the Commission of Science and Technology in 1967. As it became more important to promote science and technology in the 21st century, the Korean government upgraded the commission to the Ministry of Science and Technology, directly responsible to the President in 1998.

Following President Lee's government restructuring plan, the Ministry of Science and Technology was merged with the Ministry of Education and Human Resources Development and became the Ministry of Education, Science and Technology in

2008.

During the presidential election in 2012, Korea was experiencing lower growth rates. Naturally, President Park Geun-hye's core presidential election pledge was to generate new sources of economic growth in the areas of science and information technology. As a consequence, the ministries of the Korean government went through numerous reorganisations.

In February 2013, the Park administration initiated a new reorganisation plan of the Ministry of Education, Science and Technology. As a result of this reorganisation, two ministries were created: The Ministry of Education (MOE) and the **Ministry of Science, ICT and Future Planning** (MSIP). The creation of the Ministry of Science, ICT and Future Planning (MSIP), the so-called "Super Ministry," was a noteworthy change to the previous organisation of ministries in Korea. MSIP was created with the hope that the ministry would foster a climate for entrepreneurship/start-ups and a suitable atmosphere for taking South Korea's scientific research to a world-class level as it became the ministry mainly responsible for the enforcement of the "Creative Economy" strategy.

2.1.4 SMEs/Entrepreneurship

President Kim Dae-Jung established the Presidential Special Committee for SMEs in relations to one of his presidential pledges during the election campaign, which was to promote small and medium-sized enterprises. The chairman of the committee was appointed as a minister-level official. The Small and Medium Business Administration (SMBA) became the implementing body under this committee and the structure continued to exist until President Roh Moo-hyun's administration (2003-2008).

However, President Lee Myung-bak abolished the Presidential Special Committee for SMEs upon taking office as he pointed out the problems of "double-layered roof governance." In other words, the governance of the committee had complicated duplication of roles and responsibilities. The Lee administration unified all the relevant works into the **Small and Medium Business Administration (SMBA)**. In addition, Lee created a new position, "Secretary to the President for SMEs," under the Office of Chief Economic Advisor to the President as a communication channel.

2.2 New Action Plan and Ministry of Science, ICT and Future Planning

Under the new Action Plan, "Realization of National Welfare and New Era of Hope through a Creative Economy," the Korean government acknowledged the necessity to remove the obstacles, which hindered start-ups – one of these "hindrances" being listed as Korean economy's heavy reliance on *chaebols*. The government also decided to refurbish the intellectual property right (IPR) system of Korea. This was to ensure safe distribution of ideas and knowledge, which usually had been monopolised and absorbed by *chaebols*.

To boost the economy, MSIP was given the core mission to create new products and services based on the convergence of knowledge and technology in areas of culture, health, and agriculture and maritime.[8] In this spirit, MSIP has been identifying future growth engines and increased investment to expand ICT, science and technology. Simultaneously, Korea has been investing in building world class connectivity with extremely stable and speedy internet.

With the Action Plan, MSIP also placed more emphasis on boosting entrepreneurship and supporting start-ups with the eventual goal in mind of bringing a more balanced growth between conglomerates and SMEs while creating

[8] Some of these areas were traditionally driven by the Ministry of Trade, Industry and Energy (MOTIE).

more jobs.

2.3 Creation of Centers for Creative Economy and Innovation (CCEIs)

As a part of the implementation process for the Action Plan, the central government established multiple nationwide start-up hubs called the Center for Creative Economy and Innovation (CCEI) to build an accommodative ecosystem to encourage entrepreneurial ideas to be constantly generated into commercial success.

The Centers for Creative Economy and Innovation (CCEIs) have been rolled out across 19 cities and provinces[9] in 2015 by MSIP. There are a total of 17 public CCEIs, two private CCEIs (one in Pohang and another in Gwangyang by the steal company, POSCO) and one private Culture Creative Convergence Center (CCCC)[10] in Seoul by CJ, the food & entertainment company.

The CCEIs were built to become engines for innovative growth propelled by the local economies. Each CCEI has ambitious goals to provide entrepreneurs with one stop service from initial ideation to commercialization stages in various stages of supporting start-ups in R&D, marketing and global expansion. These platforms also provide facilities for various stakeholders in the new entrepreneurial ecosystem to meet the communication needs, exchange ideas and find partners and accelerators while getting advice from experienced mentors and also attracting more domestic and international investors each with a specific innovation and technology focus.

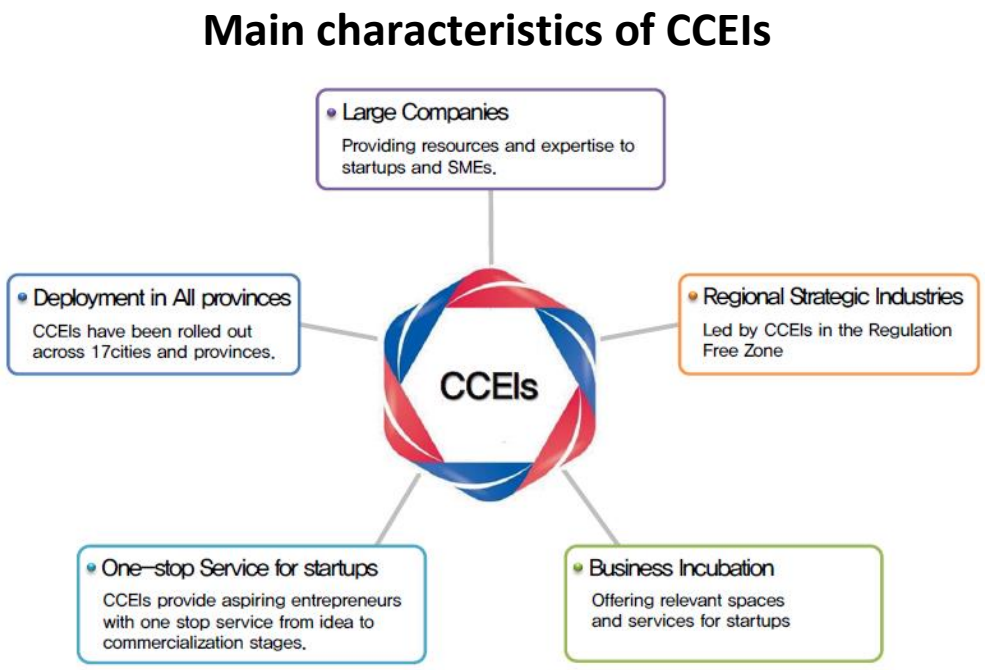

Figure 3
Source: Ministry of Science, ICT and Future Planning (May 2016)

The central government (MSIP) and local municipality financially support around 25% each and a conglomerate that is paired up with one CCEI covers the remaining 50% to fully operate the CCEI. While the funding from the government covers the logistics such as office rental, administrative management cost and more, the aid from conglomerates are often used for business development, investment, mentoring and incubation.

[9] Seoul, Incheon, Chungbuk, Chungnam, Sejong, Daejeon, Jeonbuk, Jenonam, Gwangju, Gwangyang, Gangwon, Gyeonggi, Gyeongbuk, Pohang, Daegu, Ulsan, Busan, Gyeongnam and Jeju
[10] Though Culture Creative Convergence Center (CCCC) is a separate private entity, different from Seoul CCEI, it has a direct reporting line to Blue House and the Ministry of Science, ICT and Future Planning (MSIP) focused on culture/art combining into ICT.

2.4 What Makes the Korean Start-Up Incubation Model Unique?

Government-driven start-up institutions such as CCEIs are a widely implemented concept in the global arena. Nevertheless, the CCEIs are distinguishable from the other similar start-up supporting facilities in other OECD countries because CCEIs are partnered up with a Korean conglomerate in each region as assigned by the Korean government in a trilateral[11] business model.

MSIP, in consultation with the Federation of Korean Industries (FKI)[12], has selected leading companies (mostly composed of conglomerates) of a certain industry and matched each company with a CCEI in a certain region/city in Korea to be able to provide easy access to entrepreneurs. Through the CCEIs, the Korean government wanted to see more entrepreneurs become engaged in the Korean private sector.

2.4.1 CCEIs and the affiliated Chaebols

The location and focus for each CCEI was chosen based on the conglomerates' core competences, pre-existing factories, headquarters/subsidiaries or planning to build their new facilities.

A prime example of a CCEI in Korea is the formation of GCCEI in Pangyo Techno Valley. The project of Pangyo Techno Valley was initiated by the Gyeonggi Province in 2004 as a national strategic business to promote the Pangyo area as the hub of new ICT convergence and knowledge-based industry. This was a development based on the technology-driven growth along with the pre-existing IT clusters in Gyeonggi Province such as Gwangyo Techno Valley, Boondang IT Valley and Paju LCD Complex. And as the Korea Telecom (KT) headquarters was located in Gyeonggi Province, KT became the partner conglomerate for Gyeonggi CCEI located in the Pangyo Techno Valley area.

2.4.2 Pangyo Techno Valley Project (2004 – 2013)

The new initiative to establish Pangyo Techno Valley is often considered as a progressive step to revitalise the economy. However, the decision regarding the location of each CCEI was put into question since it seemed to have prioritised each conglomerate's pre-existing facilities. The seeming convenience of each CCEI's location on the "turf" of partnered conglomerates was challenged by the media and public..[13]

[11] The trilateral business model is among a local government, the central government entity (in this case, MSIP) and a conglomerate.
[12] FKI was founded in 1961. It is a multifunctional association for domestic industries in Korea consisting of Korea's major conglomerates and associated members. (FKI n.d.)
[13] (Hankook Ilbo 2015)

2.4.3 Each CCEI's Location, Designated Companies and Pre-existing Facilities

No.	CCEI	Company	Pre-existing Facilities	Focus Areas
1	Seoul	CJ	KT building near Seoul city hall	Culture & Lifestyle
2	Gyeonggi	KT	Pangyo Techno Valley	IoT, 5G, Fintech, Gaming
3	Incheon	Hanjin	Korean Air – Incheon Airport Hanjin Shipping –Container Terminal	Aviation & Logistics
4	Chungbuk	LG	LG Chemical factories	Biotech & Electronics
5	Chungnam	Hanwha	Hanwha Solar Power factories Daedoek Science Complex	Solar Energy, Agriculture & Fisheries
6	Sejong	SK	SK Biotech manufacturing factories	Smart Farm/Agriculture
7	Daejeon	SK	SK Innovation Global Tech Center[14]	Technology & ICT
8	Jeonbuk	Hyosung	Hyosung Carbon fiber factories	Carbon Materials, Agriculture & Fisheries
9	Jeonnam	GS	GS Yeosu[15] Industrial Complex	Biochemical Agriculture & Fisheries
10	Gwangju	Hyundai Motor	Hyundai-Kia Technical Center KIA Motors factories Hyundai Mobis factories	Automobile
11	Gwangyang	POSCO	POSCO steel factories, cold rolling factories	Advanced Material
12	Gyeongbuk	Samsung	Samsung Electronics Gumi Plant	Smart Factory & IT Based Industries
13	Daegu	Samsung	Renault-Samsung manufacturing factories	Textiles & Electronics
14	Ulsan	Hyundai Heavy	Hyundai Heavy/Motors factory	Shipbuilding & Machinery
15	Pohang	POSCO	POSCO Headquarters	Energy, Clean Tech & Material
16	Gyeongnam	Doosan Heavy	Doosan Heavy Industries Headquarters	Machinery & Electronics
17	Busan	Lotte	Lotte Hotel, Department store, Duty free	Retail, Tourism & Film
18	Gangwon	Naver	Naver subsidiary, In-Comms[16] in Chuncheon[17]	Big Data, Tourism & Healthcare
19	Jeju	Daum Kakao	Daum Kakao Headquarters	Culture & Tourism

Table 1

[14] SK Group's largest R&D center located in Daedeok Science Complex (Daejeon).
[15] Yeosu is a capital city of Jeonnam Province.
[16] In-Comms currently covers Naver's customer services.
[17] Chuncheon is a capital city of Gangwon Province.

3. Outlook for the Korean Entrepreneurial Ecosystem

Each CCEI location has 5 to 10 staff members who have expertise in business development. These staff members are given the task to discover new, disruptive and innovative ideas and turn them into new tangible businesses. This way, the CCEIs can connect entrepreneurs in Korea and become the gateway to provide access and resources.

Each CCEI is providing a various spectrum of services including start-up/entrepreneurship education, facilities/office rental, mentoring, business consulting, commercialisation, match-making with domestic/international investors, networking/event and overseas market expansion. Simply stated, the CCEIs are incubators with funding and expertise from large Korean companies or conglomerates. Depending on the strengths and focus-areas, the CCEI would provide the necessary expertise for entrepreneurs with varied implementation process.

3.1 From Voracious Taker to Cooperative Partner

During the process of cooperating with the CCEIs, conglomerates also experienced a learning process on working with SMEs and start-ups as win-win partners.

With a new focus on start-ups, the conglomerates of Korea are now cooperatively partnering with entrepreneurs to develop new business and eventually creating more jobs for economic growth.

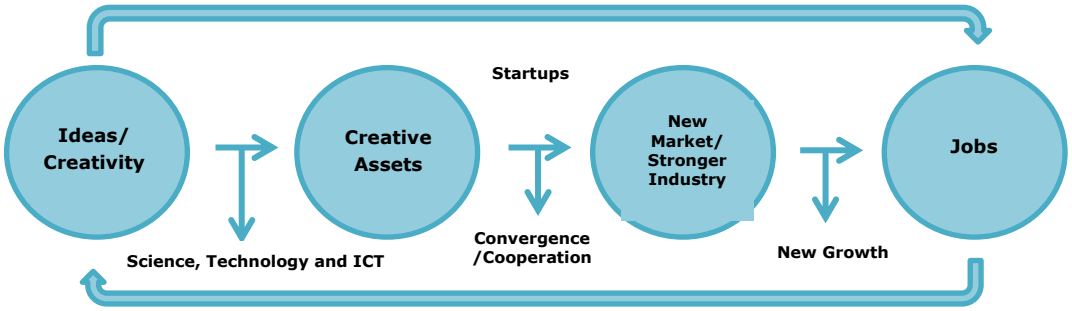

Figure 4

As the aftermath of the Asian Financial Crisis of 1997, followed by strong imprint of risk-taking nature of starting a new business, the start-up community was highly discouraged and was considered as less favorable career path. The recent phenomenon of *chaebols* looking towards new opportunities in start-ups and entrepreneurs as a new business strategy in an open, larger scale mind-set is

unprecedented. Prior to this change, *chaebols* were often reluctant in considering working or being associated with entrepreneurs.

3.2 International Attention to Korea

Since 2013, leading US companies known to have been supporting the growth of entrepreneurial ecosystems have visited South Korea. Microsoft founders Bill Gates, Google co-founder Larry Page and the CEO of Facebook Mark Zuckerberg all visited Seoul to discuss and share their experience in implementing the tech-driven, job-oriented entrepreneurial environment's growth.

Daegu CCEI signed a Memorandum of Understanding (MOU) with Microsoft and hosted a 4-day workshop, which was created by Microsoft Innovation Center (MIC), which has been widely used in Silicon Valley.

Following London and Tel Aviv, Google opened its third Google Campus in 2014 in Seoul. This is a private start-up platform which provides access to the global start-up communities and support programmes. Google campus is planning to develop more start-up programmes reflecting the lessons learned, aiming to promote Korea as a global hub for start-up companies.

Facebook CEO, Mark Zuckerberg also acknowledged Korea as a key market for their business and committed that Facebook would continue to invest in Korea when he met with President Park.

Korea also received some attention in the 7th Asian Leadership Conference. Chris Yeh, co-founder and General Partner of Wasabi Ventures, who has been working with high-tech start-ups since 1995 in the U.S., pointed out during the conference that Seoul has key strengths in technology infrastructure, dense and urban market and aggressive government support.

3.3 Why is the Korean Market Attractive to Foreign Investors?

Korea is geographically located between China and Japan and has a highly educated and skilled labour capital base. These traits combined with the government support for economic growth and the Korean culture of "pali pali" (roughly translated into "faster faster)," have all created a momentum for Korea to a quick transition into an emerging start-up nation. Furthermore, with the strongest mobile and wireless infrastructure in the world, South Korea is a promising playground for start-up companies in the area of IoT, 5G, gaming and other ICT related areas.

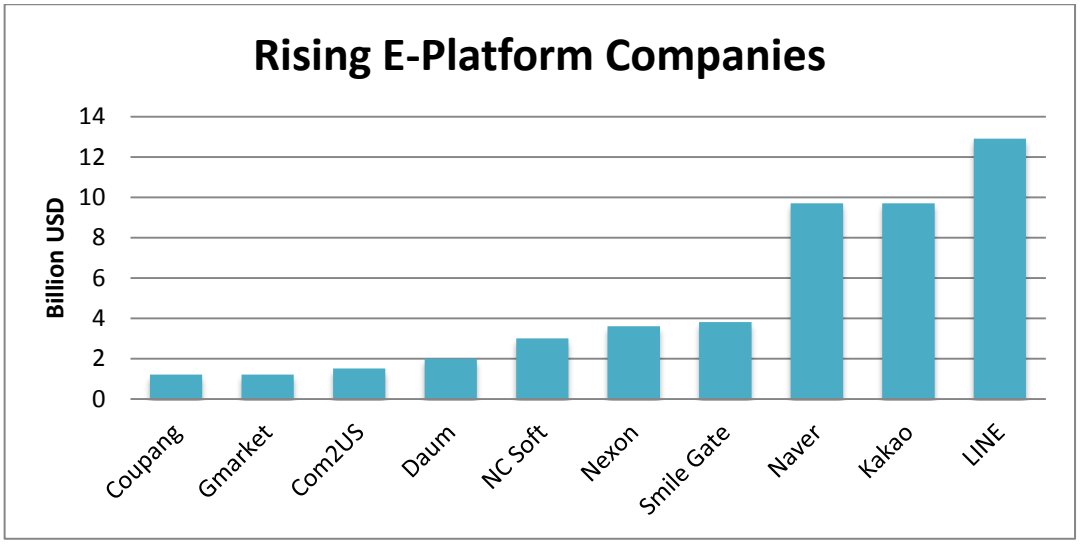

Figure 5

"Korean Unicorn Club" – Korean software companies valued at over 1 billion USD of market value.
Source: Strong Ventures (November 2014)

As Korea became more attractive to global investors, CCEIs and private accelerators such as Google Campus and Y-Combinator have been hosting numerous matching-making events for Korean start-ups. As a result, a fund called "500 Korean Start-Ups" was founded in February 2015 along with an MOU signed with SMBA and Korea Venture Investment Corporation (KVIC). The MOU specifies raising venture funds amounting to about 8.5 million USD.

Dave McClur, angel investor based in San Francisco who founded this fund commented, "We are interested in the Korean market with the global top-notch mobile technology and that is why we chose Korea as our second global hub in addition to Mexico City."

Through this MOU, a total of 40 local Korean start-up companies will be selected for global market expansion. 500 Korean Start-Ups are also planning to host workshops together with the Korea Creative Content Agency to encourage Korean start-up companies' entry into the overseas market.

3.4 Increasing Start-Ups in Korea

This new start-up boom in Korea can be evaluated differently from the IT bubble that burst soon after the Asian Financial Crisis of 1997. The current start-up boom is closer to a fundamental change in the Korean industrial eco-system. The previously monopolised areas of technology are becoming more distributed to the SMEs and the number of early entrepreneurs are increasing.

However, there is still standing government regulations in a number of areas that hinder the development and globalisation progress as well as market competition in Korea, especially in areas such as Fintech. Many of these regulations are related to market protection and localisation.

Number	Name
1	Maru 180
2	Future Play
3	Spark Labs
4	K-Startup
5	Fast Track Asia
6	The Ventures
7	Boostrap Labs
8	FT Accelerator
9	Venture Square
10	Venture Port
11	Digital Entertainment Ventures
12	D. Camp
13	Google Campus Seoul
14	Strong Ventures
15	Primer
16	Ignite Spark
17	TJ Heaven
18	Founders Camp
19	Blue Point Partners
20	Seoul Space
21	Startup Next
22	B3Jubilee
23	DotNameKorea
24	Dev Korea

Table 2
List of Private Korean Start-Up Incubators and Accelerators
Source: Gyeonggi CCEI (May 2016)

Following the increasing number of start-ups and venture boom, the number of

domestic Korean start-up incubators and accelerators are increasing as well. Though most of them are in the early stages, compared to the global start-up accelerators, this is still remarkable considering that there was only one start-up accelerator in 2012.

However, there is still some room for growth for the Korean start-up incubators and accelerators. Most of these centers are very young and some only provide basic services such as networking or a co-working space. These incubators and accelerators could more aggressively bring in investors from the domestic arena however and target some global audience. Nevertheless, the ecosystem is currently booming and it has been fuelled by a strong interest and funding from the Korean market in general.

The location of the Korean venture capital is also an interesting element of the increasing start-ups in Korea. The majority of VCs are located in Seoul (89%) and of the 89%, 77% of the VCs are located in Gangnam area of Seoul, which is the area South to the Han River. This concentration of the VCs in a single area should be improved in the future to see a more balanced entrepreneurial growth in Korea as a whole.

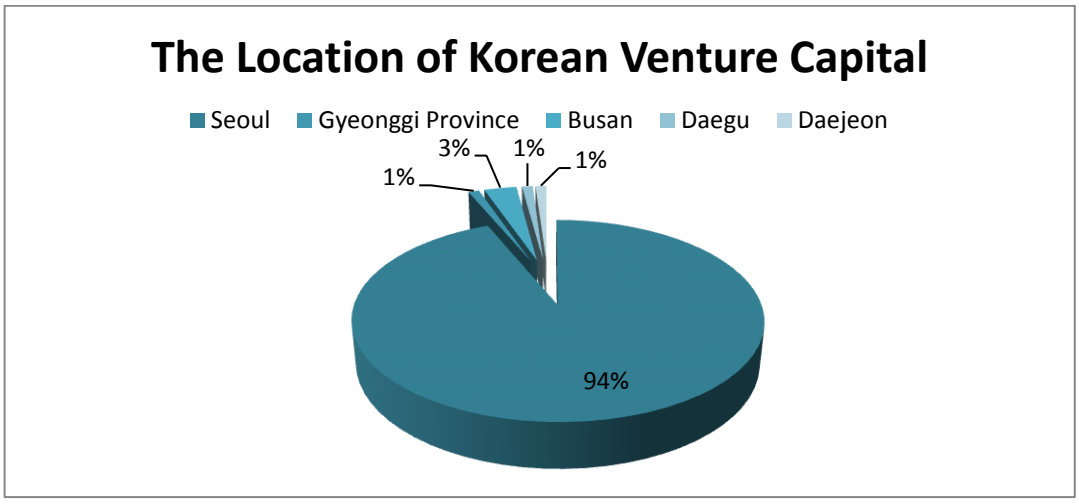

Figure 6
Source: Startup Alliance by Naver, Jungwook Lim

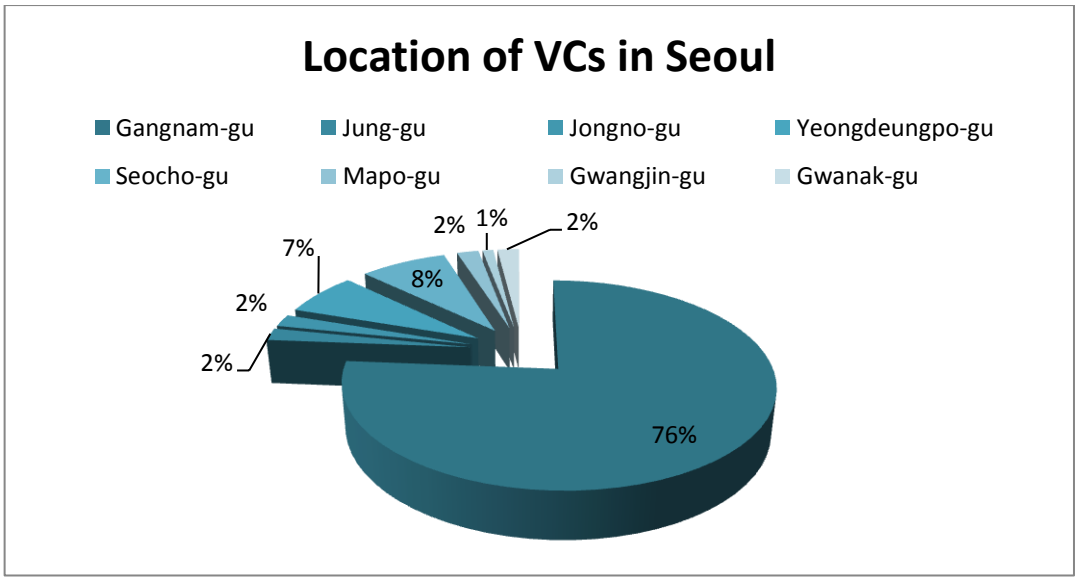

Figure 7
Source: Startup Alliance by Naver, Jungwook Lim

Nevertheless, it is the existence of these centers that are shifting the mind-set of young students and entrepreneurs in Korea. More people are becoming interested in establishing their own company rather than solely looking to apply for a position at a *chaebol* company.

Although a large number of Korean parents are still reluctant to see their children become involved in setting up their own start-up companies as their future career, this attitude is slowly changing. As mentioned before, the aftermath of the Asian Financial Crisis of 1997 and the burst of the IT bubble impacted entrepreneurs at the time negatively. The negative impact during the financial crisis made recovery harshly difficult for entrepreneurs and this impact affected potential entrepreneurs to become less risk-taking and more prone to risk-averseness.

Nevertheless, along with the initiative of start-up support from the Korean government and encouragement from larger-sized companies, Korean universities and academic settings also created room for entrepreneurial atmosphere and started to push for entrepreneurial thinking from their students.

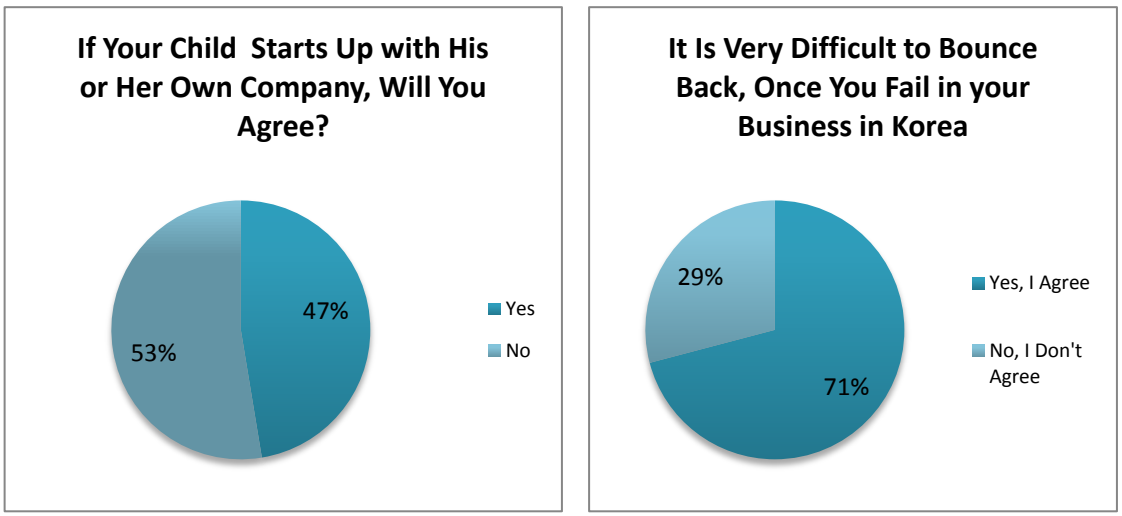

Figure 8
Source: "Analysis on the changes in the public sentiment on the start-up in Korea" by Hyundai Research Institute (2015)

3.5 New Venture Boom in the Korean Academia

One of the key elements of Silicon Valley was its prime location near top universities including Stanford and Berkeley. These universities have nurtured many young future entrepreneurs. In addition, the universities helped researchers and PhD students to find jobs in the relevant industries through academia-industry cooperation.

In the same spirit, other players in the Korean government, besides MSIP and the CCEIs, have played important roles in academia-industry cooperation. The Small and Medium Business Administration (SMBA) and the Korea Institute of Start-up & Entrepreneurship Development (KISED) have been focusing on establishing universities as the main hubs for student entrepreneurship since 2011 through the 'Leading start-up universities programme.' The programme selects competitive universities across the region to foster entrepreneurship. A total of 15 universities were selected and the pools have been expanded to a total of 34 universities to be selected in 2016.

SMBA also adopted the Tech Incubator Program for Start-up (TIPS) in 2013. In July 2015, SMBA opened 'TIPS Town' in Seoul, a facility for young entrepreneurs to easily access global start-up companies, private accelerators and venture capitals. With regards to university collaboration, SMBA signed a MOU with the University

Industrial Technology Force (UNITEF) and the Seoul National University (SNU) Engineering Consulting Center in April 2016. The Science & Technology Policy Institute (STEPI) and SMBA also signed a MOU on 'strengthening the global technology competitiveness and promoting entrepreneurship for SMEs' in May 2016. This MOU signing was a follow-up to the SMBA's new strategy called "R&D Policy Improvement Plan for SMEs" which was announced in March 2016.

Universities on the Strategy of "R&D Policy Improvement Plan"						
Seoul	Gyeonggi /Incheon	Gangwon	Chung	Youngnam	Honam	Jeju
Yonsei	Gyeonggi	Catholic Kwandong	Soon Chun Hyang	Kyung Sung	Wonkwang	Jeju
Soongsil	Dankook	Gangwon	Chungbuk	Kyung Il	Soonchun	
Indeok	Sungkyun kwan		Korea National Univ of Transportation	Kye Myung	Jeonbuk	
Dongguk	Korea Politechnic		Hanbat National	Daegu		
Kookmin	Incheon		HanNam	Dong-A	Jeonju	
				Dong Seo		
Kunkook			Hoseo	Yeungnam	Chosun	
				Changwon		
				Bukyung		

Table 3
The list of universities initial selected to foster entrepreneurship.
Source: SMBA (2016)

With regards to Danish collaboration with the Korean ecosystem, SMBA selected Denmark as one of the global partners for their "Born Global Start-Up Program in 2014." As a result of this agreement, Korean start-ups have had the possibility to apply for entrepreneurship training in Denmark. Five start-ups in 2014 and three in 2015 have been selected for this programme.

Furthermore, two student innovation camps have also been cooperatively established by Denmark and Korea – one in 2015 and another in 2016. The first student innovation camp was established by the Korea Advanced Institution of Science and Technology (KAIST), Seoul National University, Danish Technical University, Aalborg University and Aarhus University. Based on the success of the first student entrepreneurship camp, the second student innovation camp was coordinated during the visit of the Danish Prime Minister, Lars Løkke Rasmussen. It was collaboratively carried out by Copenhagen University, Copenhagen Business School and Yonsei University in October 2016.

4.Shift to Industry 4.0

According to MSIP, more than 1,000 start-up companies were incubated at the 18 CCEIs within 20 months and attracted a total investment of 170 million USD.

In March 2016, Minister of MSIP, Choi Yang Hee, stressed the importance of creating 'virtuous circulation' in the Korean industrial ecosystem where both conglomerates and small start-up companies could develop together through win-win strategy just as big IT giants of the United States – Google and Facebook – do by working closely with local start-ups to discover and work with new content developed by entrepreneurs. This jump-start of the Korea start-up ecosystem and the growing interest of corporations to work with start-ups have already shown an

impact on the Korean industrial ecosystem. Although such impact is largely concentrated in the Seoul region, this sort of movement has established a clear direction and focus.

Recently, South Korean authorities have been looking into the "4th Industrial Revolution Age" and have been moving into the direction of promoting businesses of relevance to industry 4.0.

On December 27th, 2016 the Ministry of Strategy and Finance has announced that they will promote Industry 4.0 and establish a strategy committee to focus on development and promotion of industry 4.0. The yet-to-be-established strategy committee will examine relevant core technology development in industry 4.0, review the market foundation and composition to prepare for some expected changes and emphasise the need for restructuring human capital, employment structure and research allocation. Along with these various steps to prepare for the 4th Industrial Revolution, the Korea Industry 4.0 Innovation Association (also known as "Intree 4.0 Forum") was also recently founded with numerous membership companies and research institutions. Intree 4.0 Forum has a focus and membership structure, which is similar to the Danish Manufacture Academy (MADE).

Part of the start-up environment is expected to accommodate the 4th Industrial Revolution. The previously mentioned Pangyo Techno Valley, a hub that currently nurtures ICT related start-ups and encourages cross-collaboration between start-ups and corporations, will be taking an additional task to nurture start-ups and entrepreneurs focusing on Industry 4.0 relevant technologies. The Korean government will also focus on gathering and establishing support centers for ICT & culture convergence, information protection and drone related entrepreneurial businesses in line with Industry 4.0 promotion in Pangyo Techno Valley.

Continuous growth of the Korean entrepreneurial ecosystem is positively expected. Similar to many OECD countries, part of the start-up ecosystem in Korea has been fuelled by government support. Although there is much discussion about the first batch of the CCEIs due to a change in political leadership, the start-up community in Korea will continue to project itself. With the introduction of a new committee on Industry 4.0, some indicates that Korea will give more attention to the Industry 4.0 ecosystem. South Korea is in a special position to benefit from such a shift of focus. Although the Korean economy has been changing over the years, much manufacturing capacity still exists in Korea. Along with the capacities, South Korea has well-established ICT/digitalised infrastructure in place, being one of the most wired countries in the world with high-speed internet and highest data connectivity throughout the country. Lastly, there is a sense of urgency and awakening in South Korea, which previously has proven to be a driving factor for South Korea to language be very goal-driven and to succeed in new endeavours. All these conditions seem to fit in perfectly with the shift of focus on Industry 4.0.

4. Conclusion

The previous Korean government has put a national strategic focus on start-ups and this spirit is expected to be maintained.

The Action Plan, "Realization of National Welfare and New Era of Hope through the Creative Economy," and the establishment of the CCEIs have brought tremendous public attention to the growth and transformation of the Korean entrepreneurial ecosystem.

Korea has already experienced a shift of perspective on entrepreneurship and start-up initiatives domestically, however, Korea is still in the gradual transitional period where a highly risk-averse business atmosphere emerged by the financial crisis in the late 90s into a more open, risk-taking and challenge accepting entrepreneurship-oriented spirit community.

Chris Yeh, co-founder and General Partner of Wasabi Ventures in Silicon Valley, commented, "when people talk about start-up ecosystem, they list the stakeholders such as government, big companies, academia, etc. However, what is the most important factor is entrepreneurs themselves because it is all about people in the end."[18]

This recent wave of the Korean industrial ecosystem is expected to continue to be further developed in the future in a more sustainable manner. Domestically and internationally, many will be vigilant of the growth and gradual development of this initiative implementation.

According to one of the directors of the CCEIs, it is assumed that the start-up boom in Korea will not be negatively impacted with the current administration's changes. First, similar organisations or agencies that will newly emerge are expected to replace or merge with the current CCEIs since the current centers have strong bases in supporting entrepreneurial environment in each of their locations.

Secondly, the decision-makers are also aware that South Korea must prepare and engage in the "4th Industrial Revolution Age" because of the the start-ups, among others. Although the new generation of start-ups may not be categorized into "creative economy" anymore, the entrepreneurship growth will continue to thrive in new themes and not limited to Industry 4.0.

Lastly, the legacy of CCEIs is the teamwork among local and central governments along with the conglomerates. Incubation or acceleration of start-ups exponentially took off with the contribution of this teamwork. Although this structure may change in the future, such legacy of positive outcome on the entrepreneurial environment in South Korea will later influence the various form and shapes, which the next generation of entrepreneurship environment will formulate.

4.1 The Moon Administration

The new president Moon administration took office on May 10th, 2017 and it will be

[18] Chris Yeh in a panel discussion at the 7th Asian Leadership Conference hosted by Chosun-Ilbo, on May 18, 2016 in Seoul.

interesting to keep an eye on the continuation and future look of the currently heightened entrepreneurship and start-up atmosphere of Korea.

Regardless of the change of government in South Korea, the growth of the start-up and entrepreneurship community and the focus on start-ups will continually be supported. Perhaps in different shape or form and perhaps in different slogan and policy nickname, Korea will continue to develop its entrepreneurial environment along with the rest of the world.

The government will focus its effort towards start-ups around entrepreneurs working with industry 4.0 technologies such as electric vehicles, self-driving cars, renewable energy, 3-D printing, big data, robotics, biotechnology, smart manufacturing and artificial intelligence.

The reason behind this assumption is three folded. Firstly, the new government has formed a ministerial industry 4,0 committee with direct reporting to the Blue House (the presidential residence) and secondly, South Korea is still a country with a massive manufacturing capacity, so being on the forefront of new manufacturing methods will be crucial for Korea. Lastly, the government's SMBA, which previously was an agency under the Ministry of Trade, Industry and Energy (MOTIE), has now been changed into a ministry. This all underline the Moon administration's emphasis on narrowing the gap between large conglomerates and small and medium sized enterprises in South Korea, although it is expected that this narrowing of the gap will take much effort and time.

Appendix

The appendix is a list of the initial "batch" of the Centers for Creative Economy and Innovation (CCEI) in Korea. The list shows each CCEI's, their industry focus, affiliation with Korean company and the supporting local government.

1. Seoul CCEI

Seoul CCEI	- Focus areas/sectors: Culture&Lifestyle - Establishment: July 2015 - Director: Yong Ho Park - Number of employees: Approx. 40 - Incubated Start-ups: 136 / mentoring: 516 - Homepage: https://ccei.creativekorea.or.kr/seoul
Affiliated conglomerate: CJ Group	- Core business areas: Food and Media - Establishment: August 1953 - CEO: Byeong chul Lee - Number of employees: N/A - Revenue: 124.2 bn DKK - Homepage: http://english.cj.net
Supporting local government: Seoul Metropolitan City	- Mayor: Won-soon Park - Homepage: http://english.seoul.go.kr - Population: Approx. 10 million

2. Gyeonggi CCEI

Gyeonggi CCEI	- Focus areas/sectors: IoT, 5G, Fintech, Gaming - Establishment: March 2015 - Director: Deok Rae Im - Number of employees: Approx. 40 - Incubated Start-ups: 71 / mentoring: 912 - Homepage: https://ccei.creativekorea.or.kr/gyeonggi
Affiliated conglomerate:	- Core business areas: Tele Communication - Establishment: December 1981 - CEO: Chang kyu Hwang

KT Corporation	- Number of employees: N/A - Revenue: 129.8 bn DKK - Homepage: http://www.kt.com/eng/main.jsp
Supporting local government: Global Inspiration 세계속의 경기도 Gyeonggi Province	- Mayor: Kyung-pil Nam - Homepage: http://english.gg.go.kr - Population: Approx. 13 million

3. Incheon CCEI

Incheon CCEI	- Focus areas/sectors: Aviation & Logistics - Establishment: July, 2015 - Director: In su Park - Number of employees: Approx. 40 - Incubated Start-ups: 40 / mentoring: 647 - Homepage: https://ccei.creativekorea.or.kr/incheon
Affiliated conglomerate: HANJIN Hanjin Transportation Co.	- Core business areas: Logistics, Shipping and Aviation - Establishment: November 1945 - CEO: Yang ho Cho / Yong Won Suh - Number of employees: 2,251 - Revenue: 22.6 bn DKK - Homepage: http://www.hanjin.co.kr/Global_html
Supporting local government: 인천광역시 Incheon Metropolitan City	- Mayor: Jeong bok Yoo - Homepage: http://incheon.go.kr - Population: Approx. 2.8 million

4. ChungBuk CCEI

ChungBuk CCEI	- Focus areas/sectors: Biotech & Electronics - Establishment: February 2015 - Director:Jun won Yoon - Number of employees: Approx. 40 - Incubated Start-ups: 104 / mentoring: 458 - Homepage: https://ccei.creativekorea.or.kr/chungbuk

Affiliated conglomerate: LG Group	- Core business areas: Electronics and Cosmetics - Establishment: January 1947 - CEO: In hwe Gu - Number of employees: 220,000 - Revenue: 331.1 bn DKK - Homepage: http://www.lgcorp.com/main
Supporting local government: Chungbuk Province	- Mayor: Si jong Lee - Homepage: eng.ch21.net/home/main.do - Population: Approx. 1.6 million

5. Chungnam CCEI

Chungnam CCEI	- Focus areas/sectors:Solar Energy, Agriculture &Fisheries - Establishment: April 2015 - Director: Lee, Byung woo - Number of employees: Approx. 40 - Incubated Start-ups: 90 / mentoring: 1,095 - Homepage: https://ccei.creativekorea.or.kr/chungnam
Affiliated conglomerate: Hanjin Transportation Co.	- Core business areas: Energy, Chemical, Finances and Leisure - Establishment: October 1952 - CEO: Jong hee Kim - Number of employees: 2,251 - Revenue: 375.5 bn DKK - Homepage: http://hanwhacorp.co.kr//eng/index.jsp
Supporting local government: Chungnam Province	- Mayor: Hee jeong Ann - Homepage: http://www.chungnam.net/englishMain.do - Population: about 2.1 million

6. Sejong CCEI

	- Focus areas/sectors: Smart Farm/Agriculture - Establishment: September 2014 - Director: Gil sung Choi - Number of employees: Approx. 40

Sejong CCEI	- Incubated Start-ups: 19 / mentoring: 263 - Homepage: https://ccei.creativekorea.or.kr/sejong
Affiliated conglomerate: SK Group	- Core business areas: Telecom & Energy - Establishment: August 1948 - CEO: Jong gun Choi - Number of employees: N/A - Revenue: 661 bn DKK - Homepage: http://sk.com/?site=eng
Supporting local government:	- Mayor: Chun hee Lee - Homepage: http://sejong.go.kr/eng.do - Population: Approx. 0.2 million

7. Daejeon CCEI

Daejeon CCEI	- Focus areas/sectors: Researching, Technology & ICT - Establishment: March 2014 - Director: Jong tae Im - Number of employees: Approx. 40 - Incubated Start-ups: 30 / mentoring: 440 - Homepage: https://ccei.creativekorea.or.kr/daejeon
Affiliated conglomerate: SK Group	- Core business areas: Telecom, and Energy - Establishment: August 1948 - CEO: Jong gun Choi - Number of employees: N/A - Revenue: 661 bn DKK - Homepage: http://sk.com/?site=eng
Supporting local government:	- Mayor: Sun taek Kwon - Homepage: http://daejeon.go.kr/eng.do - Population: Approx. 1.5 million

8. Jeonbuk CCEI

Jeonbuk CCEI	- Focus areas/sectors: Carbon Materials, Agriculture &Fisheries - Establishment: November 2014 - Director: Jin su Kim - Number of employees: Approx. 40 - Incubated Start-ups: 80 / mentoring: 1,121 - Homepage: https://ccei.creativekorea.or.kr/jeonbuk
Affiliated conglomerate: HYOSUNG Hyosung Group.	- Core business areas: Fabric, Materials, Trade, Construction, Chemical and ICT - Establishment: November 1945 - CEO: Seok rae Cho - Number of employees: 7,859 - Revenue: 100 bn DKK - Homepage: http://hyosung.com/en/index.do
Supporting local government: 천·년·의·비·상 전라북도 Jeonbuk Province	- Mayor: Ha jin Song - Homepage: http://en.jeonbuk.go.kr - Population: Approx. 1.9 million

9. Jeonnam CCEI

Jeonnam CCEI	- Focus areas/sectors: Biochemical Agriculture & Fisheries - Establishment: April 2015 - Director: Young jun Jung - Number of employees: Approx. 40 - Incubated Start-ups: 43 / mentoring: 761 - Homepage: https://ccei.creativekorea.or.kr/jeonnam
Affiliated conglomerate: GS GS Holdings Corp.	- Core business areas: Energy, Retail and Construction - Establishment: January 2004 - CEO: Chang su Heo - Number of employees: N/A - Revenue: 75 bn DKK - Homepage: http://gs.co.kr/eng/default.asp
Supporting local government: 전라남도 JeollaNamdo Jeonnam Province	- Mayor: Nak yeon Lee - Homepage: http://english.jeonnam.go.kr - Population: Approx. 1.9 million

10. Gwangju CCEI

Gwangju CCEI	- Focus areas/sectors: Automobile - Establishment: October 2014 - Director: Gi ho Yoo - Number of employees: Approx. 40 - Incubated Start-ups: 52 / mentoring: 872 - Homepage: https://ccei.creativekorea.or.kr/gwangju
Affiliated conglomerate: HYUNDAI MOTOR GROUP Hyundai Motor Group	- Core business areas: Automobile - Establishment: December 1967 - CEO: Mong gu Jung - Number of employees: 65,673 - Revenue: 509 bn DKK - Homepage: http://www.hyundai.com/en/index_real.do
Supporting local government: 광주광역시 Gwangju Metropolitan City	- Mayor: Jang hyeon Yoon - Homepage: http://eng.gwangju.go.kr - Population: Approx. 1.5 million

11. Gwangyang CCEI

Gwangyang CCEI	- Focus areas/sectors: Advanced Material Cluster & Energy-saving ECO industries - Employees Included in Pohang CCEI - Homepage: Not provided
Affiliated conglomerate: posco Posco Group.	- Core business areas: Steel, Energy, Construction and Trade - Establishment: March 1968 - CEO: Oh joon Kwon - Number of employees: 29,648 - Revenue: 402 bn DKK - Homepage: http://www.posco.com
Supporting local government: 광양시 GWANGYANG-SI Gwangyang City	- Mayor: Hyeon bok Jung - Homepage: http://gwangyang.go.kr - Population: Approx. 0.15 million

12. Gyeongbuk CCEI

Gyeongbuk CCEI	- Focus areas/sectors: Smart Factory & IT based Industries - Establishment: December 2014 - Director: Jin han Kim - Number of employees: Approx. 40 - Incubated Start-ups: 64 / mentoring: 1,536 - Homepage: https://ccei.creativekorea.or.kr/gyeongbuk
Affiliated conglomerate: Samsung Group.	- Core business areas: Electronics, Domestic Appliances, Technology, Construction, Engineering, Machinery, and Biotech - Establishment: March 1938 - CEO/Vice-Chairman: Jae-yong Lee - Number of employees: N/A - Revenue: 2,430 bn DKK - Homepage: http://www.samsung.com/
Supporting local government: Gyeongbuk Province	- Mayor: Gwan yong Kim - Homepage: http://gyeongbuk.go.kr - Population: Approx. 2.7 million

13. Daegu CCEI

Daegu CCEI	- Focus areas/sectors: Textiles & Electronics - Establishment: September 2015 - Director: Sun il Kim - Number of employees: Approx. 40 - Incubated Start-ups: 79 / mentoring: 3,637 - Homepage: https://ccei.creativekorea.or.kr/daegu
Affiliated conglomerate: Samsung Group.	- Core business areas: Electronics, Domestic Appliances, Technology, Construction, Engineering, Machinery, and Biotech - Establishment: March 1938 - CEO/Vice-Chairman: Jae-yong Lee - Number of employees: N/A - Revenue: 2,430 bn DKK - Homepage: http://www.samsung.com/
Supporting local government: Daegu Metropolitan City	- Mayor: Young jin Gwon - Homepage: http://daegu.go.kr/ - Population: Approx. 2.5 million

14. Ulsan CCEI

Ulsan CCEI	- Focus areas/sector: Shipbuilding & Machinery - Establishment: Febuary, 2015 - Director:Young hae Gwon - Number of employees: Approx. 40 - Incubated Start-ups: 26 / mentoring: 375 - Homepage: https://ccei.creativekorea.or.kr/ulsan
Affiliated conglomerate: 현대중공업 Hyundai Heavy Industries Group.	- Core business areas: Shipbuilding - Establishment: March 1972 - CEO: Ju young Jung - Number of employees: 28,291 - Revenue: 263 bn DKK - Homepage: http://english.hhi.co.kr/main
Supporting local government: 울산광역시 ULSAN METROPOLITAN CITY	- Mayor: Gi hyun Kim - Homepage: http://ulsan.go.kr/ - Population: Approx. 1.1 million

15. Pohang CCEI

pohang CCEI	- Focus areas/sectors: Energy, Clean Tech & Material - Establishment: January, 2015 - Director: Sung ho Park - Number of employees: 17 - Incubated Start-ups: 69 / mentoring: 776 - Homepage: https://ccei.creativekorea.or.kr/pohang/
Affiliated conglomerate: posco Posco Group.	- Core business areas: Steel, E&C, and Trade - Establishment: March, 1968 - CEO: Oh joon Kwon - Number of employees: 17460 - Revenue: 402 bn DKK - Homepage: http://www.posco.com
Supporting local government: pohang 포항시 Pohang City	- Mayor: Gang duk Lee - Homepage: http://pohang.go.kr/ - Population: Approx. 0.5 million

16. Gyeongnam CCEI

Gyeongnam CCEI	- Focus areas/sectors: Machinary & Electronics - Establishment: September, 2014 - Director: Sang gi Choi - Number of employees: 40 - Incubated Start-ups: 70 / mentoring: 789 - Homepage: https://ccei.creativekorea.or.kr/gyungnam
Affiliated conglomerate: Doosan Group.	- Core business areas: Energy,Machinery and Construction - Establishment: August 1896 - CEO: Seung jik Park - Number of employees: 41,400 - Revenue: 118 bn DKK - Homepage: http://www.doosan.com/en
Supporting local government: Gyeongnam Province	- Mayor: Jun pyo Hong - Homepage: http://www.gsnd.net/ - Population: Approx. 3.3 million

17. Busan CCEI

Busan CCEI	- Focus areas/sectors: Retail, Tourism & Film - Establishment: November 2014 - Director: Hong geun Cho - Number of employees: 45 - Incubated Start-ups: 26 / mentoring: 799 - Homepage: https://ccei.creativekorea.or.kr/busan/
Affiliated conglomerate: Lotte Group.	- Core business areas: Food Processing, Retail, Hotel and Shopping - Establishment: June 1948 - CEO: Kyun ho Shin - Number of employees: 180,000 - Revenue: 2,140 bn DKK - Homepage: http://www.lotte.com/en
Supporting local government: Busan Metropolitan City	- Mayor: Byung su Seo - Homepage: http://busan.go.kr/ - Population: Approx. 3.4 million

18. Gangwon CCEI

Gangwon CCEI	- Focus areas/sectors: Big data, Tourism & Healthcare - Establishment: March 2015 - Director: Jong ho Han - Number of employees: 30 - Incubated Start-ups: 25 / mentoring: 138 - Homepage: https://ccei.creativekorea.or.kr/gangwon/
Affiliated conglomerate: NAVER Naver Corp.	- Core business areas: Internet content service - Establishment: June 1999 - CEO: Sung Sook Han - Number of employees: 2,501 - Revenue: 13 bn DKK - Homepage: http://www.navercorp.com/en/index.nhn/
Supporting local government: 강원도 GANGWON PROVINCE Gangwon City	- Mayor: Mun sun Choi - Homepage: http://eng.gwd.go.kr/gw/eng - Population: Approx. 1.5 million

19. Jeju CCEI

Jeju CCEI	- Focus areas/sectors: Culture & Tourism - Establishment: June 2015 - Director: Jung hwan Jeon - Number of employees: 32 - Incubated Start-ups: 26 / mentoring: 140 - Homepage: https://ccei.creativekorea.or.kr/jeju/
Affiliated conglomerate: KAKAO Kakao Corp.	- Core business areas: Internet content service - Establishment: October 2014 - CEO: Ji hoon Rim - Number of employees: 350 - Revenue: 1.4 bn DKK - Homepage: http://www.kakaocorp.com/en/main/
Supporting local government: Jeju 제주특별자치도 Jeju Special Self-Governing Province 제 주 시 Jeju City	- Mayor: Hee ryong Won - Homepage: www.jeju.go.kr/ - Population: Approx. 0.6 million

About ICDK Outlook

ICDK Outlook is written by the Danish Ministry of Higher Education and Science's Innovation Attachés.

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