Getting smart: Korea's creative economy

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Since the 1970s, economic growth in Korea has largely been driven by big companies such as Samsung, Hyundai and LG. These so-called chaebol have been remarkably successful, but have dominated the economy, with little room for small and medium-sized businesses (SME) to gain traction and grow.

This dominance is most striking in the data on Korea's spending on research and development (R&D). Indeed, Korea devoted a little over 4% of its GDP to R&D, more than any other OECD country. However, three-quarters of its private R&D investments went to the conglomerates and, in 2013, just over a fifth went to SMEs.

Korean President Park Geun-hye wants SMEs to play a bigger role. By nurturing start-ups and small businesses, particularly in the digital sphere, the president underlined the importance in her 2013 inaugural speech of aiming at "the

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convergence of science and technology with industry, the fusion of culture with industry and the blossoming of creativity in the very border areas that were once permeated by barriers."

Korea's policy makers are now tackling these barriers by loosening regulation, allocating a greater percentage of R&D funding to SMEs (to some 53% of government-funded business investment in R&D in 2013), easing SME access to non-debt financing, creating innovation hubs, and providing tax incentives to companies who provide financing to start-ups.

The government has opened 17 innovation centres throughout Korea. These start-up hubs support R&D in the areas of Internet of Things (IoT), biotech, 5G, cloud and fog computing, big data and artificial intelligence (AI). The government has funnelled billions of dollars into start-ups and a global venture capital fund, the Angel Investment Matching Fund. It has built infrastructure designed to help SMEs obtain financing more easily, launching the Korea New Exchange (KONEX), for example, a securities exchange that lists only SMEs. It also legalised and simplified crowdfunding in 2015, paving the way for yet another source of start-up financing.

Korean financial institutions and corporations have followed suit by joining together to form start-up funds and incubators. In 2012, its top 20 banks founded the Banks Foundation for Young Entrepreneurs and launched D. Camp (http://dcamp.kr/), a co-working and mentoring hub for fledgling tech entrepreneurs.

Maru 180 is a Hyundai-sponsored incubator that also connects start-ups with venture capital (VCs) and mentors. To date, writes Elaine Ramirez, Maru 180's biggest success story is Memebox, a cosmetics mobile and e-commerce platform that raised nearly US$30 million from international investors in March 2015. Memebox and other Korean blue-chip start-ups like online retailer Coupang and Whatsapp challenger Kakao signal Korea's start-up wave, and should help the country close the gap, if not surpass, other advanced economies.

In March 2016, President Park announced that the government would invest ₩1 trillion ($860 million) in AI research over the next five years (see Mark Zastro). This is a positive step, though is put in perspective when compared with multinational giants like Google, which has invested about $30 billion in AI since the 2000s.

Where the country may have a "virtual" jump on everyone else is in places like Songdo, a 100% "smart city" in Incheon, south of Seoul. According to a report by Stephanie Chan, Cisco Systems and real-estate developer Gale International have equipped the 600-hectare city with an entirely connected infrastructure of high-speed fibre optics, sensors and intelligent utilities grids.

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Cities like Copenhagen, Addis Ababa and Singapore also have smart aspirations, but they are upgrading, laying IoT technology over existing infrastructure. Korean cities like Songdo and Daegu are starting from scratch, which can be advantageous. They are like IoT living labs that collect and use abundant user data to improve waste management, street lighting, public transport, buildings, healthcare, security, schooling and every other urban service.

By 2050, more than 60% of the world's population will be living in cities, according to UN predictions. And according to a recent MarketsandMarkets research report, the market size of IoT applications for smart cities will grow from $52 billion in 2015 to $148 billion by 2020.

President Park is eager to vault Korea to the fore of the fourth industrial revolution–the seamless merging of the physical world with computer cyberspace, with its immense promise and transformational potential. The country's smart laboratory cities may well help achieve that aim.

The president's full inaugural speech of 25 February 2013 can be found at www.korea.net/index.jsp.

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